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Water for human consumption

“We feel it our duty to say that high-priced water is not in the interest of public health. Pure water in abundance, at a price within the reach of all, is one of the most powerful agencies for promoting the health of any community”

North Carolina Board of Health, 1898

The debate over the relative merits of public and private sector performance has been a distraction from the inadequate performance of both public and private water providers in overcoming the global water deficit

“The human right to water”, declares the United Nations Committee on Economic, Social and Cultural Rights, “entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic use.”¹ These five core attributes represent the foundations for water security. They also represent the benchmarks for a human right that is widely and systematically violated for a large section of humanity. For some 1.1 billion people, sufficient, safe, acceptable, accessible and affordable water for life is a hope for the future, not a reality for the present.

Providing universal access to water is one of the greatest development challenges facing the international community in the early 21st century. Restricted access is a brake on economic growth, a source of deep inequalities based on wealth and gender and one of the main barriers to accelerated progress towards the Millennium Development Goals (see special contribution by United Nations Secretary-General Kofi Annan). Whole countries are being held back by the lethal interaction between water insecurity and poverty. The moral, ethical and normative case for changing this picture is rooted in the recognition that clean water is a human right—and an enabling condition for attaining other rights enshrined in the Universal Declaration of Human Rights and wider international provisions. Why has progress towards water for all been so uneven and so slow?

For years the debate on that question has been dominated by exchanges about the relative merits of public and private provision. During the 1990s privatization was widely advocated as a solution to the failures of public provision. Private utilities, so the argument ran, would create efficiency gains, generate new flows of finance and provide greater accountability. While experience has been

mixed, private provision did not turn out to be the magic bullet solution. In many cases the efficiency, finance and governance advantages expected of the private sector failed to materialize. At the same time, the problems in public provision are undeniable in many countries. All too often public providers combine inefficiency with unaccountability and inequity, delivering low-cost water to high-income groups and low quality service—or no service—to the poor. From the perspective of poor households, the debate over the relative merits of public and private sector performance has been a distraction from a more fundamental concern: the inadequate performance of both public and private water providers in overcoming the global water deficit.

Ultimately, it is the responsibility of national governments to secure the progressive realization of the right to water through a legislative and regulatory framework that applies to all service providers, public and private. That framework has to address two obstacles, identified in chapter 1, that have been obscured by the public-private debate.

The first obstacle is inequality. Poor households are invariably less likely to be connected to a safe water source, either because they cannot afford it or because they live beyond the

Special contribution

Access to safe water is a fundamental human need and a basic human right

Many people take water for granted: they turn on the tap and the water flows. Or they go to the supermarket, where they can pick from among dozens of brands of bottled water. But for more than a billion people on our planet, clean water is out of reach. And some 2.6 billion people have no access to proper sanitation. The consequences are devastating. Nearly 2 million children die every year of illnesses related to unclean water and poor sanitation—far more than the number killed as a result of violent conflict. Meanwhile, all over the world pollution, overconsumption and poor water management are decreasing the quality and quantity of water.

It was with this in mind that on World Water Day in 2004, I established an Advisory Board on Water and Sanitation. The 20-member board is composed of technical experts, eminent individuals and others with proven track records in moving the machinery of government. It was led with great skill by the late Prime Minister of Japan, Ryotaro Hashimoto, until his untimely death in July 2006. Despite that tragic loss, the board continues its efforts, working closely with the UN system, international and regional institutions, national governments, the media, the private sector and civil society at large to raise awareness, mobilize resources and promote capacity-building. The water crisis—like many issues confronting

our world—can be addressed fully only through partnerships that combine national commitment with international action.

The enormous numbers we use to discuss today's water and sanitation challenges must not be allowed to obscure the individual plight faced by ordinary people. This year's *Human Development Report* provides a powerful and timely reminder that the global water crisis has a human face: a child threatened with deadly bouts of diarrhoea, a girl kept out of school to collect water or a mother denied opportunities to develop her potential by the demands of caring for relatives made sick by polluted water. The United Nations is deeply committed to this struggle. Access to safe water is a fundamental human need and a basic human right. And water and sanitation are at the heart of our quest to enable all the world's people, not just a fortunate few, to live in dignity, prosperity and peace.



Kofi A. Annan
Secretary-General
United Nations

reach of the utility network. There is also an inverse relationship between price and ability to pay: millions of the world's poorest people pay some of the world's highest prices for water, to the detriment of their productive potential and well-being. If water is a human right, it has to be a right of citizenship that is protected for all, regardless of wealth, ability to pay, gender or location.

The second obstacle is empowerment. Human rights can be a powerful vehicle for change. However, they have to be enshrined not just in normative statements, but in legislation, regulatory systems and governance systems that make governments and water providers accountable to all citizens, including the poor. Too often, the language of human rights serves as a smokescreen behind which the rights of poor people are violated by institutions that have little or no accountability.

Accelerated progress towards universal water provision is possible. Many countries have made rapid strides towards water for all, in both urban and rural areas. Innovative public-private-community partnerships have extended access to water in some of the world's most deprived

areas. But advances have been piecemeal. There is an urgent need for more governments to acknowledge the water security *crisis*—and a parallel need to develop national strategies to end that crisis.

Extending water infrastructure to people without “sufficient, safe, acceptable, physically accessible and affordable” water raises difficult financing questions. Water may be a human right, but someone has to pay the capital investments and cover the operating costs—either users or taxpayers and government. Moreover, the investment needed is “lumpy”, requiring upfront financing with payback periods of 20 years or more. In countries where a large part of the unserved population lives below the poverty line and where government finances are constrained, this raises issues beyond public or private provision. So, too, does the development of accountable and transparent regulatory systems that empower the poor and hold service providers to account.

With less than 10 years to go to the 2015 deadline for the Millennium Development Goals, the challenge of accelerating progress takes on a new urgency. One decade is a long

time in politics. But it is a short time to develop and implement strategies to halve the number of people in the world lacking access to water. The danger is that delay will put the Millennium Development Goal target out of reach, derailing progress in other areas and perpetuating a form of deprivation that is retarding human progress in fighting extreme poverty, inequality and threats to public health (see the special contribution by Brazilian President Luiz Inácio Lula da Silva).

This chapter looks at some of the governance and financing issues that have to be addressed if the human right to water is to be extended to all. It first asks a question that goes to the heart of the violation of the human right to

water: why do the poor pay more? Understanding where poor people get their water from and what market structures they operate in holds the key to answering that question—and to developing public policies that tackle the underlying inequity. The chapter turns next to the wider water governance debate and to service providers. We argue that both the private and the public sector have roles to play in delivering on the right to water, though ultimate responsibility rests with government. The final section shows that experience does not have to be a guide to future outcomes. Good policies work, and rapid progress is possible not just in urban areas but also in the rural regions that are being left behind.

Special contribution

Clean, accessible and affordable water is a human right and a foundation for economic and social development

The adoption of the Millennium Development Goals represented a victory for international cooperation and the triumph of the values of human solidarity over the doctrine of moral indifference. However, we shall be judged on the outcomes that we deliver, not on the promises that we made. And with less than a decade to go to 2015, we have to face up to an uncomfortable truth: the global community is still far from achieving the Millennium Development Goals.

Nowhere do we see this more powerfully demonstrated than in access to clean water and sanitation. None of us should be willing to tolerate a world in which 1.8 million children die each year of diarrhoea, many for want of clean water and a toilet; a world in which children are denied basic education and in which millions of people are victims of poverty and ill health.

In Brazil we have been attempting to address the water and sanitation problem as part of our broader drive to create a more just, less divided and more humane society. We have been making progress. Coverage rates for clean water have been improving in the country—and new legislation will make the utilities that provide water service more accountable to the people they serve. In sanitation the system developed in Brazil is being taken up more widely, and investments in the sector have been growing significantly.

I make these points not to hold up Brazil as a model for others to follow, or with any pretence that our problems are fully resolved. We are well aware that we need to do more to expand access to both water and sanitation among the very poor, particularly in rural areas. But the point that I want to make is that, as President, I see the Millennium Development Goal for water and sanitation as an integral part of strategies for reducing inequality, tackling poverty and ensuring wider distribution of the benefits of growth. That is why we have adopted the Millennium Development Goals as mandatory

benchmarks for all government policies—including those in water and sanitation.

Human Development Report 2006 powerfully captures the costs of the global water and sanitation deficit. That deficit has to be closed more rapidly if we are to deliver on our Millennium Development Goal commitment for 2015. National governments have to do more. And the international community also has to do much more, through aid, technology transfer, capacity building and partnerships. I endorse the call to place water and sanitation at the centre of the global development agenda, within a global plan of action to meet the Millennium Development Goals. Such a measure would help to mobilize resources and focus minds on the challenge that we all have to face.

Clean, accessible and affordable water is a human right. It is also one of the foundations for economic and social development. Strengthening these foundations is not always easy: it takes political leadership and it costs money. But failing to invest political and financial capital today will carry the high price of lost opportunities for social progress and economic growth tomorrow.

Luiz Inácio Lula da Silva
President of the Federative Republic of Brazil

Across the developing world the daily struggle to access water is a constant drain on the human, financial and physical assets of poor households

Why the poor pay more—and get less water

Why are some 1.1 billion people denied access to sufficient clean water to meet their basic needs? And why are so many people forced to turn to water sources that jeopardize their health and sometimes their lives?

National water scarcity metrics are an unhelpful starting point for addressing these questions. For households national per capita availability indicators are largely meaningless. Across the developing world the daily struggle to access water is a constant drain on the human, financial and physical assets of poor households, regardless of whether the country—or locality—in which they live is water scarce. As chapter 1 showed, people in the slums of Jakarta, Mumbai and Nairobi face shortages of clean water, while their neighbours in high-income suburbs have enough water not only to meet household needs but to keep their lawns green and their swimming pools topped up.

There are some obvious parallels between water insecurity and food insecurity for households. Hunger continues to afflict a large share of the world's population. Yet it is seldom an absence of food in local markets that causes famine or the more widespread problem of malnutrition. Some of the worst famines in human history have taken place without any marked change in food supply. And some of the world's highest levels of malnutrition occur today in countries that are well endowed with food: one in five people in food “self-sufficient” India is undernourished, for example (see indicator table 7). People go malnourished amidst abundant food for the same reasons that they go without access to clean water when there is more than enough to go round: unequal distribution and poverty.²

The concept of entitlements can help unlock the apparent paradox of scarcity amid abundance. Developed by Amartya Sen to explain the apparent paradox of hunger in the midst of plenty, entitlements can be thought of as “the set of alternative commodity bundles that can be acquired through the use of various legal channels”.³ They refer not to rights or moral

claims in a normative sense but to the ability of people to secure a good or service through purchase (an exchange entitlement) or through a legally recognized and enforceable claim on a provider (a service entitlement).

The entitlements approach offers useful insights on water insecurity because it draws attention to the market structures, institutional rules and patterns of service provision that exclude the poor. It also highlights the underlying market structures that result in poor people paying far more for their water than the wealthy. People get access to water through exchange in the form of payments (to utilities, informal providers or water associations), legal claims on providers and their own labour (collecting and carrying water from streams and rivers or digging wells, for example). Whether households can meet their basic need for clean water depends partly on their own resources and partly on how public policy shapes access to infrastructure and water through investment decisions, pricing policies and legislation governing providers.

“Improved” and “unimproved” water—an illusory border between clean and dirty

In most rich countries the phrase “access to water” has a simple and widely understood meaning. Almost everybody has access to a tap in their house that is connected to a network maintained by a utility. Utilities are charged with maintaining the network and meeting water quality standards—and they are authorized to charge a stipulated price for the service that they provide. In the world's poorest countries “access to water” means something very different.

The language of international data gathering can sometimes obscure the way poor households access water. International statistics draw a distinction between “improved” and “unimproved” access. Improved encompasses three dimensions of water security: quality, proximity and quantity. For international reporting purposes people are

classified as enjoying access to water if they have available at least 20 litres a day of clean water from a source less than 1 kilometre from their home. Technology broadly defines whether the source meets the criteria of being improved. In-house connections, standpipes, pumps and protected wells are all defined as improved. Water acquired from vendors and water trucks, along with water drawn from streams or unprotected wells, is not.

The distinction between improved and unimproved is clear-cut and convenient for international reporting purposes. It is also a deeply misleading guide to reality on the ground. In the real world of water-insecure households the simple border between improved and unimproved water is illusory. For millions of poor households, daily water use patterns combine recourse to improved and unimproved water. Women living in slums in the Indian city of Pune report using water from public taps (an improved source) for drinking but going to a canal for washing. Research in Cebu, Philippines, found five patterns of water use among households not connected to the main water network (table 2.1). In urban slums and rural villages poor households might draw water from a protected well or standpipe for part of the year but then be forced to draw water from rivers or streams during the dry season. The configuration of water used in any one day will depend on factors ranging from price to availability to perceptions of quality.

While the global reporting system may provide useful insights, it is something of a statistical artefact. Consider Jakarta. Global reporting systems indicate that almost 90% of urban residents in Indonesia have access to improved water. However, household surveys show that almost two in every three people in Jakarta use multiple sources of water, including shallow and deep wells (both protected and unprotected), standpipes (improved) and water vendors (unimproved). The three most frequently cited combinations were groundwater and vendors, utility and groundwater, and utility and vendors (figure 2.1).

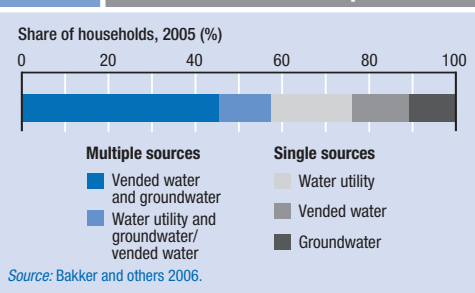
Why this diversity of demand? Use of water sources varies temporally and seasonally, due to changes in water quality and pressure. Low pressure and irregularity of supply in the piped

Table 2.1 Cebu, Philippines: patterns of water use among households not connected to the main water network

Main source of water	Share of population (%)	Main use	Comments
Type 1 Vendors	4	All purposes (drinking, cooking, washing)	Most of these users live in isolated areas and have no other choice available
Type 2 Public well	34	All purposes	—
Type 3 Well	15	About half use it for all purposes	About half use it for nonpotable purposes only and get drinking water from a neighbour connected to the water system
Type 4 Public standpipe	8	Two-thirds use it for all purposes	One-third reserve it for drinking, using water from a public well for washing and laundry. A few occasionally buy water from a neighbour connected to the water system.
Type 5 Neighbour connected to water system	38	About half use it for all purposes	About half use it only for drinking and cooking, relying on a public well for other purposes.

Source: Verdeil 2003a.

Figure 2.1 Most households in Jakarta get their water from multiple sources



network mean that households in Jakarta seek a backup source—usually a shallow well. But in many urban areas groundwater cannot be used for drinking because of salination or pollution. Groundwater is used only for cleaning or washing or to reduce water costs to more affordable levels.

What emerges from research across a large group of countries is that patterns of water use are far more complex and dynamic than the static picture presented in global reporting systems. Real-life patterns constantly adjust to take into account concerns of water quality, proximity, price and reliability. In Bangalore, India, close to a

Inequalities based on wealth and location play a central role in structuring water markets

third of households within the area served by the Bangalore Water Supply and Sewerage Board use public taps. Within this group 7% have no other source of water. The remainder use water from public taps and groundwater along with the water piped into the household. More than half of these households report having access to network water only three days a week on average. Daily supply is about seven hours during the rainy season and four hours during the dry season.⁴

Beneath the complex patterns of water use in most cities in the developing world, inequalities based on wealth and location play a central role in structuring water markets. As chapter 1 showed, there are deep divisions within countries in access to water sources categorized as improved. Being poor dramatically increases the likelihood of dependence on an unimproved water source—and the associated health risks attached to that dependence. More than 70% of people lacking access to improved water survive on less than \$2 a day, and about half of this group survive on less than \$1 a day. In many countries income is a strong predictor both of access to improved water and of the type of technology used to collect water.

Getting water from multiple providers

In the developed world people usually get their water from a single provider. In most of the developing world people get water from a bewildering array of service providers. The primary network, usually operated by a single citywide utility, functions alongside a wide variety of providers, many of them intermediaries between the utility and the household. Any consideration of water access has to start by looking at the patchwork quilt of provision.

Water utilities are authorized by governments to deliver water through the network of pumps and pipes that constitute the city's formal water system. The main market for these utilities is usually household users with pipes in their homes, and businesses. But connection rates vary widely—and are heavily skewed towards high-income neighbourhoods. In cities such as Dar es Salam, Tanzania, and Ougadougou, Burkina Faso, fewer than 30% of households are connected.

For many poor households the point of contact with the utility network is not a private household tap but a standpipe. Since most standpipe users are from low-income households, this source is a water lifeline for poor urban households across the cities of the developing world. Some 30% of households report collecting water from standpipes in Nouakchott, Mauritania, and 49% in Bamako, Mali. In Dakar, Senegal, standpipes serve half the population without private piped water.⁵ Similarly, in Ougadougou utility provision covers an estimated 80% of households, with standpipes accounting for two-thirds of the total.

Similar patterns emerge in other regions. When poor people in South Asia have access to piped water, it is far more likely to mean access to a public tap or standpipe than to water piped into the home. For instance, in the Indian city of Bangalore the Water Supply and Sewerage Board reaches about 80% of the population, about 73% of which have private taps. However, the poorest households use public taps on a regular basis. For the richest households that share falls to 3%.⁶ In Kathmandu, Nepal, the municipal water utility reaches about three-quarters of the population, but half of the poor depend on public taps.⁷

Standpipes can be thought of as a resale outlet for utility water. These outlets can be managed by neighbourhood committees or other local organizations or by individuals under contract with a municipal provider. But in almost all cases standpipes are just the tip of a resale iceberg. In many cities they do not reach all areas, with peri-urban locations, slums and more remote districts often underserved. Even in areas that are reached, supplies are sometimes insufficient and erratic, with rationing applied during dry seasons. Water vendors are an important link between poor households and the network. Some vendors operate from kiosks, reselling water acquired from truckers, who have access to piped water or utility standpipes. In the Ghanaian capital, Accra, and in Guayaquil, Ecuador, large water tanker fleets set off every morning for low-income settlements, where they sell to households and intermediaries. Other vendors deliver water from bicycles or donkey-drawn carts to areas that have no connection to the utility network. Precise figures

are hard to come by, but for Sub-Saharan African cities an estimated 10%–30% of low-income households purchase water from neighbours and water kiosks.⁸

In sum, poor urban households with limited or no access to the formal network get their water from several sources. Apart from rivers and streams, these sources include a variety of vendors such as water truckers, private standpipe operators, water kiosk operators and agents delivering water. While the debate continues over public or private water provision, in the real world poor households are already operating in highly commercialized private water markets—markets that deliver (often poor quality) water at exceptionally high prices.

Climbing the price ladder in urban slums

Water resellers extend the coverage of the piped network. By bringing water to people they provide a service that produces important benefits for households—but they do so at a price. That price rises with distance from the utility, as defined by the number of intermediaries between the network and the end consumer.

Having a regular supply of clean water piped into the household is the optimal type of provision for human development. Cross-country experience suggests that households with water delivered through one tap on a household plot (or within 100 metres) typically use about 50 litres of water a day, rising to 100 litres or more for households with multiple taps.⁹ Household-level research in urban areas of Kenya, Tanzania and Uganda found that families with piped water in the home used an average of three times as much water as families without piped water.¹⁰ Water in the home also eliminates the need for women and young girls to collect water.

Household connections to a utility also offer financial benefits. In unit price terms, utility water is by far the lowest cost option. Because of economies of scale once the network is in place, the marginal cost of delivering each additional unit of water falls sharply. Subsidies are another important price-reducing mechanism: utilities are usually the gatekeeper for a wide range of

direct and indirect subsidies that keep the price of water well below cost.

Every step removed from the household tap option adds a twist to the price spiral (figure 2.2). Water vendors often act as a link between unconnected households and the utility. In some cases water is purchased from the utility and sold on to households. Private standpipe operators are an example. In other cases water is purchased from the utility and sold to intermediaries, who in turn sell to households. In Accra, for example, private water tanker companies purchase utility water and sell it on to a wide range of intermediaries who deliver water to slum neighbourhoods.

As water passes through the marketing chain, prices ratchet up. Water delivered through vendors and carters is often 10–20 times more costly than water provided through a utility (table 2.2). In Barranquilla, Colombia, the average price of water is \$0.55 per cubic metre from the utility and \$5.50 from truckers. Similarly, in the slums of Accra and Nairobi people buying water from vendors typically spend 8 times as much per litre as households with piped water supplied by utilities.

Large price differences are sometimes interpreted as evidence of profiteering, but that interpretation is flawed. In some cases large-scale water trucking companies or kiosk operators might be in a position to generate excessive profits. But the underlying causes of water

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Figure 2.2 Public utilities provide the cheapest water

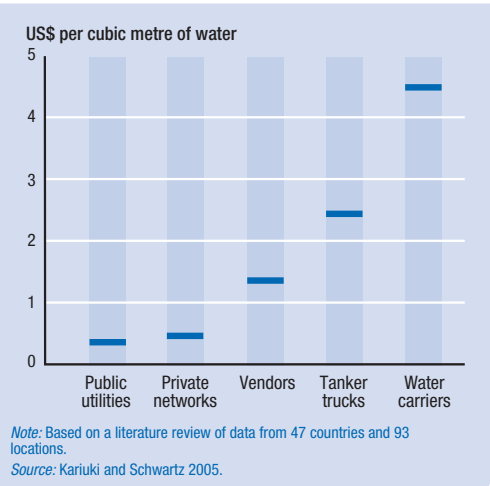


Table 2.2 Independent water providers: important but expensive actors in Latin American cities

City	Households served by independent providers (%)	Average price (US\$ per cubic metre)		
		Independent providers	Utility	Type of provider
Cordoba, Argentina	15–20	1.25–2.50	0.54	Network
Asuncion, Paraguay	30	0.30–0.40	0.40	Small network
Barranquilla, Colombia	20–25	5.50–6.40	0.55	Truckers
Guatemala City	>32	2.70–4.50	0.42	Truckers
Lima, Peru	26–30	2.4	0.28	Truckers

Source: Solo 2003.

price inflation between the utility and poor households can be traced to wider structural causes. Resale prices rise with distance, because transport costs are high for informal slums and peri-urban areas that are far from resale points or located in hard to reach places. They also rise with the number of transfers between intermediaries, as each agent adds its profit margin.

Standpipe users are not immune to the price spiral. While standpipes may be used overwhelmingly by poor households with the least ability to pay, prices are usually a multiple of those charged for water piped into households. In Dakar, one study found that users of a standpipe were paying 3.5 times the social tariff rate applied to low-income families connected to the network.¹¹ This is not uncommon. Evidence from other countries—including Benin, Kenya, Mali and Uganda—shows that people who buy water at standpipes typically face the same prices as those paid by high-volume consumers. These are twice those for basic domestic water use in Benin, three times in Mali and five times in Côte d’Ivoire and Mauritania.¹²

Concern over transforming water into a commodity has been a powerful reaction to privatization and, more broadly, to the commercialization of water utilities. At one level, that concern is justified. As a source of life, water should not be treated as a commodity. Nor should it be traded in markets governed by the same principles as, say, markets for luxury cars or toys. Yet the hard fact remains that millions of the world’s poorest and most vulnerable people are already operating in markets that treat water as a commodity and that skew prices against them.

Why tariffs matter

Water tariffs shape the access to water of poor households. Most governments regulate tariffs to achieve a range of equity and efficiency objectives. They are designed to provide water that is affordable to households and to generate enough revenues to cover part or all of the costs of delivery. The problem in many cases is that tariff structures intended to enhance equity have the opposite effect.

There are important variations across countries in tariff design (figure 2.3). In some cases—Dhaka, Bangladesh, is an example—a *flat rate* is applied to all users, whatever volume of water they use. Such structures, which provide no incentives for water conservation, are commonly applied where utilities have little capacity to monitor use through meters. More typical is the *block tariff* system, in which prices rise on a tiered basis along with the volume of water used. Both the number of tiers and the steepness of the price increases across tariff blocks can vary.

Rising block tariffs aim to achieve several public policy goals. A low or zero tariff applied to the first block can enhance affordability. For example, Durban, South Africa, provides 25 litres of water a day free of charge¹³—the lifeline or social tariff—with a steep increase above this level. This is an important part of the legislative framework for acting on the right to water discussed in chapter 1. Higher tiers aim at enabling utilities to increase efficiency, by creating disincentives for overuse, and at mobilizing revenues to cover costs. Block tariffs thus create the potential for aligning revenues with the costs of

service provision, facilitating a sustainable financing model, while at the same time providing water for basic needs at below the cost of operations and maintenance.

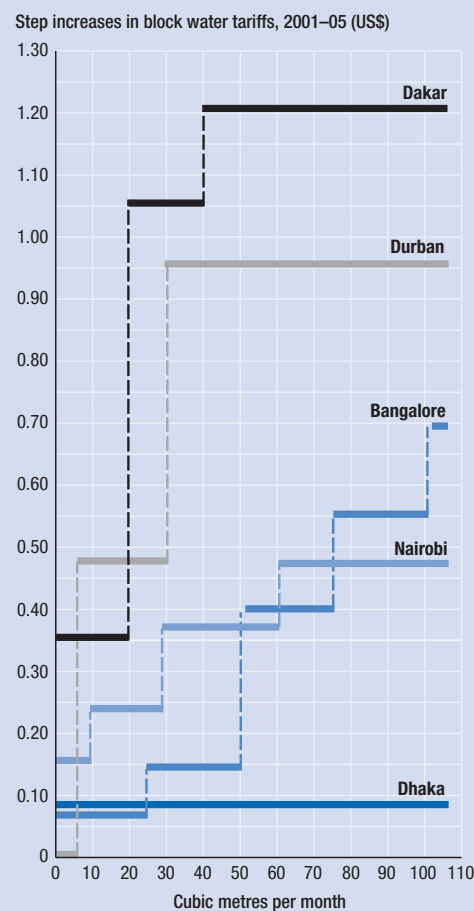
Many countries apply a low tariff for an initial volume of water, though few countries follow South Africa's policy of free water. The size of the baseline tariff and of the increments between blocks varies across countries. Increments are particularly high in countries such as Burkina Faso and Senegal, while Bangalore, India, has limited price increases up to a high level of use.

Under the right conditions rising block tariffs can enhance water access and equity. But outcomes depend on a range of factors. In many utilities tariffs are set far below the levels needed to meet the overall costs of operation and maintenance. In effect, this delivers a subsidy to all households with private tap connections. On the other side of the balance sheet, the shortfall between revenue and cost will be reflected in transfers from government, rising debt, reduced spending on maintenance or a combination of the three.

Whether utility subsidies are progressive depends on the profile of households connected to the utilities: the lower the proportion of poor households connected, the less progressive the subsidy. Providing a subsidized social tier is an effective strategy for reaching low-income households only if they are connected. And cross-subsidies from high-consumption (and high-income) to low-consumption (low-income) households are effective only if a sufficient number of customers use the higher blocks. An obvious danger is that excessively high prices will drive users to alternative sources of provision.

Block tariffs can create structural disadvantages for the poor. This is because the private operators and intermediaries that supply households without private connections typically purchase water in bulk at the top price tiers. Standpipe operators, water vendors and truckers are thus reselling the highest cost water sold by utilities. Similarly, when poor households group together to share a metered connection, a common arrangement in many countries, their aggregate consumption level pushes them into the higher price tiers.

Figure 2.3 Utility water prices usually rise with volume



Source: ADB 2004; Vircoulon 2003; WSP-AF 2005c.

If informal water markets are so unfavourable to the poor, why not switch demand from intermediaries to formal network providers? Connection fees provide one part of the explanation. These vary widely but average about \$41 in South Asia and \$128 in Latin America. In Sub-Saharan African countries such as Benin, Kenya and Uganda connection fees exceed \$100.¹⁴ And the fees generally rise with distance from the network. For poor households without access to credit markets, costs on this scale present an impenetrable barrier. The average cost of connection for households in the poorest 20% of the population ranges from about three months' income in Manila to six months in Kenya and more than a year in Uganda.

Legal barriers are often added to the financial ones. Many utilities, to secure returns on their

Water is a sector in which the poor and the nonpoor have a shared interest in investment to expand the network and improve efficiency to ensure regular supply

investments to expand the network, will provide water only to households with formal property titles. Yet more than a billion people live in formally unauthorized urban and peri-urban areas in developing countries. With 80%–90% of population growth expected in urban areas in developing countries, this is a service delivery constraint that will tighten over time. Abidjan, Côte d'Ivoire, the most prosperous city in West Africa, has more than 80 unauthorized residential areas. An estimated quarter of the population of Ouagadougou resides in unauthorized areas, making them ineligible to receive basic water services.¹⁵ As urbanization draws more people from the countryside into informal settlements, failure to recognize residency rights could become an increasingly important barrier to the realization of the Millennium Development Goal for water. Indeed, this problem is already implicated in the falling urban coverage rates for some cities (see chapter 1).

Beyond the immediate barriers stand more fundamental constraints. Compared with rich countries, in many developing countries the formal water network has limited reach. Water and sewerage networks were not created to reach

the poorest parts of cities or to provide universal access (box 2.1). Rather, they were designed to cater to the interests of elites.

Efforts to break out of the enclave model inherited from the colonial period have met with varying degrees of success. But there are some recurrent problems. Many utilities have been locked in a cycle of underfinancing, undermaintenance and underexpansion. With tariff revenues falling far short of the level needed to maintain the network, there is no money to finance expansion to unserved households on the scale required. Many developing countries also face an acute form of the dilemma faced by rich countries more than a century ago: how to extend access to poor households without raising tariffs to prohibitive levels. Unlike rich countries during the crucial phase of their development, most developing countries lack financial resources to resolve the dilemma through public finance, even if they have the political will to do it.

While this section has focused on the specific problems facing poor households, they are not the only constituency affected. In many developing countries households connected to utilities may have access to nominally cheap water, but they face acute problems in the regularity of supply. Shortages have pushed a growing number of middle-income households into informal water markets and self-provision. Perhaps more than in any other area, water is a sector in which the poor and the nonpoor have a shared interest in investment to expand the network and improve efficiency to ensure regular supply.

Rural poor—the last in line

As in urban areas, so in rural areas, safe, accessible and affordable water brings a wide range of benefits for health, education and livelihoods. Gains for gender equity tend to be even more pronounced in rural areas because women and young girls spend more time collecting water, especially during the dry season. For gains in human development, and improvements in the lives of the poor, investments in rural water have few rivals. Yet in most developing countries rural areas have far lower rates of coverage. Why

Box 2.1

The burden of history: many networks were not designed to reach the poor

Historical legacy does not determine the state of today's water and sanitation infrastructure in developing countries—but it weighs heavily. In Europe and North America the political goal was to achieve rapid progress towards universal access. That goal drove financing and technology. Not so in much of the developing world.

Consider Lagos, Nigeria. At the beginning of the 20th century the European business and political elite in the city invested in an urban water and sanitation infrastructure. But this was concentrated in wealthy enclaves. Early efforts to extend the infrastructure to poorer districts were swiftly abandoned in the face of rising costs and in favour of a strategy of segregation. Similar patterns of inclusion and exclusion characterized cities from Puebla to Jakarta and Algiers. This development model failed to achieve universal access for the public good and instead generated segregation and elite havens of water security.

Financing followed a similar model. In Latin America elites financed investments in water and sanitation through taxes, with tariffs set below operating costs. As one author describes it, it was a "system running structural deficits, operat[ing] on ad hoc, piecemeal and emergency interventions, loans and subsidies from the national, state or international lending bodies. From the very beginning, the high cost of urban engineering works required high levels of (usually external) financing, while the political and economic forces demanded low water prices" (Swyngedouw, p. 37).

Source: Gandy 2006; Bakker and others 2006; Swyngedouw 2006; Chikhr Saïdi 2001.

has the rural-urban divide outlined in chapter 1 been so difficult to bridge?

Financial cost is not the most obvious barrier. The per capita costs of providing clean water are highest in urban areas and in sparsely populated rural areas, but on average expanding coverage costs less in rural areas than in high-density urban areas. Three distinctive features of rural water provision help to explain the low coverage:

- *Local scarcity.* At a national level water scarcity is seldom a problem, but the rural poor often live in dry areas subject to seasonal shortages. In northern Kenya, the Sahel region and drought-prone areas of Gujarat in India wells run dry for long periods. In semi-arid areas of western Nigeria water collection times increase from four to seven hours in the dry season. Time-poverty is one consequence of seasonal scarcity (box 2.2).
- *Communities and providers.* In most rural areas communities provide, maintain and

expand water systems. Especially in arid or semi-arid areas, this requires high levels of community mobilization. Local government bodies, rather than large municipal providers, are often gatekeepers for boreholes and handpumps. The accountability of these bodies, and the strength of community water user associations, influence coverage.

- *Politics and poverty.* Beyond financing and technical questions, rural communities carry the twin burden of high poverty and low political influence. Highly dispersed rural populations, especially in marginal areas, have little influence over the institutional choices that shape decisions and set priorities for resource allocation.

Most poor rural households get their water from a variety of sources. Unimproved sources—lakes, streams, rivers—figure prominently. Protected village wells are the most common improved water sources. Efforts to expand coverage

Box 2.2

Water, gender and time-poverty

One of the greatest returns to improved access to water is in the time savings for women and girls and the expansion of their choices. Water collection is part of a gender division of labour that reinforces inequality within households, contributes to time-poverty and retards the human development prospects for a large section of the world's people.

Social and cultural norms influence the household division of labour. In developing countries looking after children, caring for the sick and elderly, preparing food and collecting water and firewood are tasks dominated by women. Norms in this case translate into unequal working hours between men and women: time surveys in Benin, Madagascar, Mauritius and South Africa point to weekly differences ranging from five to seven hours.

Fetching water is part of the gender inequality. In rural Benin girls ages 6–14 spend an average of one hour a day collecting water compared with 25 minutes for their brothers. In Malawi there are large variations in the amount of time allocated for water collection

based on seasonal factors, but women consistently spend four to five times longer than men on this task.

Why does this matter for human development? Time is an important asset for the development of capabilities. Excessive time demands for essential labour lead to exhaustion, reduce the time available for rest and child care and limit choice—they reduce the substantive freedoms that women enjoy. They also pose no-win choice dilemmas. Should a woman care for a sick child or spend two hours collecting water? Should girls be kept home from school to collect water, freeing time for mothers to grow food or generate income? Or should they be sent to school to gain the skills and assets to escape poverty?

Time-poverty also contributes to income poverty. It reduces the time available for participation in income generation, limits the scope for women to take advantage of market opportunities and impedes their ability to expand capabilities and skills, reducing future economic returns.

Women face a heavier time burden collecting water, particularly in rural areas (minutes per day)

	Benin, 1998		Ghana, 1998/99		Guinea, 2002/03		Madagascar, 2001	
	Women	Men	Women	Men	Women	Men	Women	Men
Urban	16	6	33	31	10	3	16	10
Rural	62	16	44	34	28	6	32	8
National	45	12	41	33	23	5	27	9

Source: Wodon and Blackden 2006.

Easier access to safe water reduces demands on women's time and opens up income-generating opportunities

have focussed on boreholes and pumps. More than in urban areas, success depends on the willingness and capacity of communities to contribute labour and finance for maintenance—and on the responsiveness of service providers to demands for appropriate technology.

As in urban areas, data on improved technologies can overstate real coverage by a considerable margin. Inadequate maintenance of infrastructure, insufficient training for repair works and inadequate financial resources for operation have eroded the rural water supply systems in many countries. A survey in Ethiopia, to take just one example, found that 29% of handpumps and 33% of mechanized boreholes in rural areas were not functioning because of maintenance problems.¹⁶ In Rwanda an estimated one-third of the rural water infrastructure requires urgent rehabilitation. Beyond mechanical factors the main source of breakdown in rural areas has been the failure to involve rural communities—especially women—in selecting, siting and managing improved technologies.

If safe water is often scarce in rural areas, free safe water is an even rarer commodity. The use of village water points and water committees requires contributions of labour (digging wells) and cash to cover the maintenance and capital costs of pumps and well materials. In a typical cycle a village water committee raises funds to

construct a borehole and purchase a handpump. Rights to draw water require payment of an initial membership fee and a monthly fee to cover the costs of operations and maintenance.

The human and economic costs of inadequate coverage in rural areas are high, reflecting the importance of water to human development. The health benefits from improving coverage include reductions in the incidence of diarrhoea and other diseases. In the Indian state of Kerala research following implementation of seven rural water projects found that the incidence of waterborne diseases fell by half in the five years after the construction of deep wells, with no change in nonproject areas.¹⁷ The same survey also reported a decrease in household expenditure on water purchased from vendors. About half the families covered by the programme were spending on average 12% of a poverty-threshold income to purchase water from vendors. Following implementation, the average fell to 4%, releasing resources for expenditure in other areas.

Apart from direct financial gains, easier access to safe water reduces demands on women's time and opens up income-generating opportunities. In Sri Lanka rural households in one donor-supported programme reported saving 30 hours a month—three days' work in a typical village.¹⁸

Managing the network for efficiency and equity

Water networks are among any country's most precious assets. How those assets are managed and operated is critical to human development, especially in countries facing grave water security challenges. In many of the world's poorest countries utility networks reach only a small fraction of the very poorest people. Chronic underfinancing, low efficiency and a limited capital base for expanding the network ensure that the system remains an enclave.

In recent years the balance of private and public sector involvement in water has been vigorously debated. Some argue that increased private sector involvement is an automatic route to more and better services per dollar, along with greater accountability and transparency. Others claim that water is an essential public good and that the human right to water is fundamentally at odds with market principles.

Evidence points to some more prosaic conclusions. Private involvement is not the bright line between success and failure in water provision. Nor is it a guarantor of market efficiency. Water provision through a network is a natural monopoly, reducing the scope for efficiency gains through competition and making effective regulation to secure consumer interests an imperative. The key role of regulation in this context is to create competitive pressures, set prices and quality standards, establish targets for investment and maintenance and ensure that the benefits of efficiency gains are passed on to consumers. Under the right institutional conditions the private sector can provide the technologies, skills and resources to enhance access to water. But creating these conditions through effective regulatory institutions is a complex affair that goes beyond passing laws and adopting models from other countries.

Decisions about the appropriate public-private mix have to be taken case by case on local values and conditions. The challenge for all providers, public and private, is to extend access and overcome the price disadvantage faced by poor households.

Public providers—key to provision and financing

Current debates on water provision have a long history. At the start of the 19th century in Europe and the United States, private companies were the major providers of water. The idea that the state should stay out of service provision in the interests of keeping taxes low was widely accepted. By the end of the century private operators had been displaced by municipal providers or were subject to stringent regulation.¹⁹ Water was seen as too important to public health, national prosperity and human progress to be left to companies whose objective was to maximize profit rather than to optimize social returns.

More recently, the roles of public and private providers have been a source of much heat in public debate, but considerably less light. In some respects the intensity of the debate has been curiously out of step with reality. While

the number of people served by private water companies has grown—from about 51 million in 1990 to nearly 300 million in 2002—public water companies account for more than 70% of total investment globally, and fewer than 3% of people in developing countries receive water or sanitation services that are fully or partially private.²⁰ In Brazil 25 of 27 state capitals are served by public companies, and only 2 by partially privatized companies.²¹

The weakness of public providers in many countries is clearly part of the problem in water provision. The source of that weakness varies, though poor governance and the infrastructure decay caused by underinvestment are recurrent themes. Governance structures have a central role. Many public utilities operate a top-down service provision model that is neither transparent nor responsive to the needs of users. To the extent that any accountability operates, it is towards political power brokers, not the communities being served (or bypassed) by the utility. Operations, in many cases, combine inequity with inefficiency. Much of the water that public utilities provide is unaccounted for, either because it leaks out of pipes that have not been maintained or because of defective billing systems.

Low revenue in turn fuels a vicious cycle of deteriorating assets, water losses, low revenue collection, low investment and further infrastructure deterioration. In cities such as Delhi, Dhaka²² and Mexico City²³ about 40% of the water pumped into the system leaks out of corroded pipes or is sold illegally. Lost water translates into lost revenues for maintaining or expanding the network. However, none of these problems are confined to the public sector. Private utilities in the United Kingdom, for example, have been repeatedly fined by regulators for failing to reduce leakage levels. Nor is underinvestment a source of inefficiency only in poor countries. The US Environmental Protection Agency estimates that \$68 billion will be needed over the next two decades just to restore and maintain existing water utility assets in major US cities.²⁴

Utility pricing is a central part of the financing problem in many developing countries. Tariffs are often set to cover only a small part of

The challenge for all providers, public and private, is to extend access and overcome the price disadvantage faced by poor households

operating costs. A study of Asian water utilities at the end of the 1990s found that operating income in 35 of 49 providers did not meet operations and maintenance requirements.²⁵ Without public investment to fill the gap, this is a prescription for decay. Increased cost-recovery from households with the capacity to pay would mobilize revenue for maintenance and associated efficiency gains, while generating funds to support demand among households that are unable to pay. But all too often public utilities are more concerned with providing cheap water to the wealthy than affordable water to the poor.

Water utilities cannot be considered in isolation. How well public providers meet standards for efficiency, equity and accountability is conditioned by the wider political culture of service provision—and by wider public investment policies. In most rich countries the capital investment for infrastructure in water comes from public investment or from private investment backed by government guarantees. In many developing countries inefficiencies in the water sectors can

be traced in part to chronic underfinancing of the network over a very long period.

Acknowledging the failures of some public utilities does not imply that success requires private sector provision. Some public utilities in developing countries meet or surpass the operating standards of the best performing private companies. Public utilities in Singapore lose less water than private utilities in the United Kingdom. In Porto Alegre, Brazil, utility reform produced gains in efficiency and democratic accountability (box 2.3). The city's municipally owned water department provides households with universal access to safe, affordable water—and dramatically improved revenue collection rates and reduced water losses. Political and financial autonomy and transparency have contributed critically to success.

As Porto Alegre demonstrates, utility reform can enhance performance without changes in ownership. This is not an isolated example. In Sri Lanka the National Water Supply and Drainage Board emerged as an efficient provider

Box 2.3 Public services can work—Porto Alegre's Department of Water and Sewerage shows how

With 1.4 million people Porto Alegre, the capital of the state of Rio Grande do Sul in Brazil, has one of the lowest infant mortality rates in the country (14 deaths per 1,000 live births in a country where the national average is 65) and a human development index comparable to that in rich countries. Effective municipal governance in water supply and sanitation has played a big part in this success story.

Municipal water providers have achieved universal access to water. Prices for water—\$0.30 a litre—are among the lowest in the country. Meanwhile, wastewater treatment has increased from 2% in 1990 to almost 30% today, with a target of 77% in five years. Efficiency indicators are similar to those in the world's best performing private companies. The ratio of employees to household connections, one widely used efficiency indicator, is 3:1,000. That ratio is 20 for Delhi and 5 for private companies in Manila.

The operating conditions of the Municipal Department of Water and Sewerage (DMAE), wholly owned by the municipality of Porto Alegre, help to explain the success:

- A separate legal entity, it enjoys operational and financial autonomy.
- Ring-fenced, it receives no subsidies and is financially self-reliant.
- Financially independent, it can borrow for investment without municipal support.

The operating mandate combines social and commercial objectives. The utility pursues a no-dividend policy: all profits are re-invested into the system. Its tax exemption allows it to keep water rates low. And it is required to invest at least a quarter of its annual revenue in water infrastructure.

Why has Porto Alegre achieved universal access despite a high concentration of poverty among its customers? Partly because prices are low on average and partly because low-income households, welfare institutions and residents of state and municipal housing projects for the disadvantaged are charged a social rate less than half the basic rate. The utility's governance structure combines regulatory oversight with a high level of public participation. The general director is appointed by the mayor, but a deliberative council—made up of engineers, medical staff, environmentalists and representatives of a wide range of civil society organizations—exercises management oversight and has the power to rule on all major decisions.

Porto Alegre's participatory budget process provides a form of direct democracy with 44 public meetings each year in 16 areas of the city. Participants vote on their priorities and hear submissions from managers in six core areas, one of them water. As a prelude billboards are placed in public places showing actual spending against planned spending, as well as the investment plan that follows the process. The public scrutiny of the municipal budget and the priority attached to water create strong incentives for high quality service delivery.

Source: Viero 2003; Maltz 2005.

following governance reforms that improved coordination among agencies and enhanced financial performance.²⁶ Water utilities in India are sometimes uniformly characterized as inefficient. But in Hyderabad the water utility has increased coverage and improved performance in revenue collection, repairs and service provision.²⁷ In many countries there are large variations in efficiency within the public sector. In Colombia, for example, the utilities serving Bogotá and Medellín meet high standards of efficiency, while public municipal companies serving towns on the Caribbean coast operate at the other end of the efficiency spectrum.

What then are the key requirements for utility reform? While circumstances vary, successful public utilities typically operate in a public policy environment that meets four key conditions:

- Ring-fencing and financial autonomy to guard against political interference in the allocation of resources.
- Participatory and transparent policymaking to support accountability.
- Separation of the regulator and the service provider, with the regulator overseeing and publishing well defined performance standards.

- Adequate public financing for the expansion of the network, along with a national strategy for progressing towards water for all.

These conditions are as relevant to the governance framework for private companies as they are for public utilities. As argued below, creating these conditions is difficult, though the empowerment of citizens through a legislative framework for reform can play a critical role.

Private providers—beyond concessions

Introducing competition for the right to operate the main water network has been central to reform in many developing countries. The creation of concessions has been at the core of the debate. However, private involvement stretches across a far broader spectrum.

The diversity in public-private partnerships cautions against lumping all private sector involvement under the general heading of “privatization”.

The terms on which the private sector enters water markets are important on several levels. A complex array of market arrangements are possible (table 2.3). These arrangements have implications for ownership only in the case of

The diversity in public-private partnerships cautions against lumping all private sector involvement under the general heading of “privatization”

Table 2.3 Private participation in water networks takes many forms...

Option	Ownership	Management	Investment	Risk	Duration (years)	Examples
Service contract	Public	Shared	Public	Public	1–2	Finland, Maharashtra (India)
Management contract	Public	Private	Public	Public	3–5	Johannesburg (South Africa), Monagas (Venezuela), Atlanta (United States)
Lease (affermage)	Public	Private	Public	Shared	8–15	Abidjan (Côte d'Ivoire), Dakar (Senegal)
Concession	Public	Private	Private	Private	20–30	Manila (Philippines), Buenos Aires (Argentina), Durban (South Africa), La Paz-El Alto (Bolivia), Jakarta (Indonesia)
Privatization (state divestiture)	Private	Private	Private	Private	Unlimited	Chile, United Kingdom

Source: Jaglin 2005.

In developing countries a narrow and often dilapidated infrastructure, low levels of connection and high levels of poverty heighten tensions between commercial viability and delivery of affordable water to all

full privatization. More broadly, the terms on which governments contract with the private sector influence management structures, investment patterns and the distribution of risk. Concessions transfer management, risk and responsibility for investment to the private sector, while other public-private arrangements involve contracting-out some aspects of management or operations of water networks.

Privatization (full state divestiture) is rare

Few countries—France is one—have a long history of private water management. Chile privatized in the 1980s, but only after access to water was almost universal. Since then, the country has been a strong performer in both efficiency and equity. The United Kingdom was a late privatizer, with public utilities sold off at the end of the 1980s—ushering in an interest in water privatization in many developing countries.

The record since then has been mixed. Over the decade following privatization water companies in the United Kingdom made profits well in excess of predictions, paying dividends to shareholders well above average stock market returns. This drained an undervalued asset of scarce capital resources needed for development. The absence of any explicit mechanism for sharing the benefits of performance gains between shareholders and consumers—and what were seen as excessive profit margins—brought criticism. It also led to the development of a strong, independent regulatory body to protect consumer interests, establish investment targets and monitor efficiency gains.²⁸ However, serious problems remain as a result of inadequate investment and high levels of water losses. The UK experience shows that the design and sequencing of regulatory reform are difficult, even in countries with a highly developed institutional capacity. In the rush to sell off public assets the public interest suffered as a result of privatization, though enhanced regulation has addressed some of the failures.

Concessions have been widely tried and tested, with mixed results

In the 1990s concessions were the main conduit for private investment in water, with foreign and domestic private companies assuming

responsibility for financing and running the systems. Some concessions improved efficiency, reduced water losses, increased supply, extended meters and revenue collection and enlarged coverage. In Morocco, which created four concessions between 1997 and 2002, coverage increased (the concessions now serve about half the population), as did consumer satisfaction scores.²⁹ The East Manila concession expanded the proportion of population receiving 24-hour supply from about 15%–20% in 1997 to more than 60% in 2000 and expanded overall coverage from 65% to 88%. As part of a national strategy of water for all South Africa transferred a water utility in Durban to a concession. Despite concerns about equity, there has been marked improvement in access among poor households.

Set against these cases are some spectacularly high profile failures.³⁰ In Cochabamba, Bolivia, a concession agreement failed in 2000 in the face of political protests. In Argentina a 30-year concession agreement collapsed with the country's economy in 2001. The same fate befell the concession granted for West Manila, which was terminated in 2003. In 2004 a concession in Jakarta ended in a court dispute between municipal authorities and the company. Enthusiasm for concessions has now cooled to the point of reluctance by the private sector to enter into any deals. Major international companies such as Suez, the world's biggest water company, Veolia Environnement and Thames Water are pulling back from concessions in developing countries, sometimes in the face of pressure from government and regulators. For example, Thames Water withdrew from the operation of a plant in China in 2004, two years after the Chinese government ruled that the rate of return was too high.³¹

So what went wrong? When private companies enter developed country markets as providers, they inherit a large infrastructure (paid for by past public investments) that provides universal access in a market defined by fairly high average incomes. In developing countries a narrow and often dilapidated infrastructure, low levels of connection and high levels of poverty heighten tensions between commercial viability and delivery of affordable water to all. Three common failures, linked to regulation, financial

sustainability and transparency in contracting, can be traced to these constraints (box 2.4):

- *Network expansion.* A primary objective for governments entering concessions has been to expand networks. In the Buenos Aires concession the number of connections increased but at rates lower than stipulated in the contract. Progress was slowest in the poorest areas of the city.³² In Jakarta three-quarters of new connections under the concession were for middle- and upper-income households and government and commercial enterprises.
- *Tariff renegotiation.* Water tariffs are intensely political. From a commercial perspective revenues from tariffs generate profits for shareholders and capital for future investment. But tariff policies designed to optimize profits can minimize social welfare and generate political unrest. In Cochabamba the concessionaire increased tariffs to transfer part of the cost of expanding the infrastructure to current water users, with explosive consequences. In Buenos Aires tariffs were first reduced and then increased six times between 1993 and 2002, almost doubling in real terms as the private operator sought to combine profitability and delivery of targets.
- *Financing.* The lumpiness of capital investments in water makes credit critical for network expansion. Large external debts were a feature of the concession operations in West Manila and Buenos Aires. In Buenos Aires investments were financed mainly through borrowing and accumulated earnings, with the equity stake accounting for less than 5%. With external borrowing in dollars and

Box 2.4

What went wrong with concessions? Three failures and three lessons

The domino effect of collapsing concessions has fuelled a heated debate about the past, present and future role of the private sector in water provision. While the factors behind the collapses have varied, there are instructive lessons to be derived from three key cases:

- *Cochabamba.* The 1999 agreement under which the Bolivian government awarded a 40-year concession to a consortium of foreign companies remains a point of reference. Under the 1999 Drinking Water and Sanitation Law the government authorized privatization of water provision and ended subsidies. Not only did customers have to pay more for their water, but peasants in surrounding areas had to start paying for water that had previously been available for free from public standpipes. The price increases were supposed to contribute to the capital costs of building a new dam and purification plant. Protests led to the repeal of the 1999 law, the collapse of the concession and a court case initiated by one of the companies against the Bolivian government.
- *Manila.* The 25-year concessions granted in 1997 for West Manila collapsed in 2003. Foreign debt was a key catalyst. During the first five years of the concession Maynilad, a joint venture between Ondeo, a transnational company, and a Philippine business group, had operating losses and ran up debt of \$800 million to finance expansion. Coverage increased from 58% to 84%, but the East Asian financial crisis boosted debt liabilities. When the Metropolitan Waterworks and Sewerage System refused to sanction a tariff rate adjustment to cover the company's losses, the concession was terminated.

- *Buenos Aires.* The 30-year concession granted in 1993 to a consortium of foreign companies and local business groups ended with the Argentine economic collapse. During the bidding the consortium had indicated an intention to cut tariffs by 29%, but operational losses led to price increases and contract renegotiations. No provisions were made to adjust for exchange rate collapses, exposing the consortium to the risks associated with heavy external borrowing.

At least three important lessons emerge. The first lesson, most powerfully demonstrated in Cochabamba, is that transparency matters. No credible attempt was made by the government, the companies or the donors and international financial institutions that supported the deals to gauge public opinion or consider the views of the poor. One consequence was that there were no provisions for protecting the customary rights of highly vulnerable indigenous people—a factor that became politically explosive.

The second lesson concerns the tension between commercial and social imperatives. Companies undertake concessions to generate profits for shareholders. But raising tariffs to finance profits and investments can damage water security for poor households. It also raises the probability of a political backlash that reflects the critical importance of water in the community. Efforts to protect profits by raising tariffs to cover the debt liabilities created by hard-currency borrowing and currency depreciation were socially and politically unsustainable.

The third lesson is arguably the most important. The complexity of increasing access by the poor was hugely underestimated. If the problem had been properly assessed, public finance and subsidized connections would have figured more prominently.

Source: Slattery 2003; Castro 2004.

Leasing has produced positive results for human development in environments where governments have established well defined goals backed by regulatory capacity

a revenue stream in local currency, the result was high exposure to foreign exchange fluctuations. The East Asian and Argentine financial crises created unsustainable debt burdens for the West Manila and Buenos Aires concessions. The net loss of \$1.6 billion recorded by the concessionaire in Buenos Aires in 2002 was almost entirely the product of a devaluation that tripled the company's foreign debt liability.

Other forms of private sector involvement

While private companies are pulling back from concessions, they remain heavily involved in a wide range of service delivery operations in water. Public-private management remains a central theme in debates on water governance.

Leasing (or affermage) is one common form of public-private partnership. Under this model, the government delegates management of a public service to a company in return for a specified fee, commonly based on the volume of water sold, while ownership of assets remains with a holding company operating for the government. Burkina Faso's National Office for Water and Sanitation (ONEA) operates through leasing arrangements that cover 36 towns and cities

across the country. The *affermage* model is also used in Abidjan, Côte d'Ivoire, and in Senegal, where urban water is managed through the Senegalese National Water Company (SONES), an asset holding company, and Senegalese Water (SDE), a private contractor leased to operate the system.

Leasing has produced positive results for human development in environments where governments have established well defined goals backed by regulatory capacity. ONEA is one of the few utilities in Sub-Saharan Africa to develop a strategy for ensuring that standpipes become a source of affordable water for the poor. Rates at standpipes are well below the maximum tariff (although they are still above the minimum tariff). In Senegal the leasing contract sets incremental targets for the provision of standpipe water. The aim is to have standpipes account for 30% of connections in Dakar and 50% in other towns and to provide 20 litres per person. In Abidjan the leasing arrangement has increased coverage rates with a system administered through a clear regulatory framework (box 2.5). There have been serious problems in implementation in each of these cases. For example, social pricing and subsidies

Box 2.5 Pro-poor water pricing practices in Côte d'Ivoire

The pricing policies applied by utilities can have a marked effect on access to water. While performance has been mixed, the private utility serving Abidjan, the Water Society of Côte d'Ivoire (SODECI), has developed some innovative strategies for expanding access. Coverage has increased steadily for the last 10 years in Abidjan and in other parts of the country.

SODECI applies three mechanisms to expand access for the poor: subsidized household connections, a rising block tariff and licensed water resellers in informal settlements. The subsidy for household connections comes from a surtax on water bills administered by the Water Development Fund (FDE), a public body. SODECI charges poor households \$40 per connection instead of \$150. This subsidy, financed from internal resources, reduces the dependency on donor contributions and increases sustainability in the long run.

The rising block tariff subsidizes those with lower consumption (the poor) and discourages water waste. The unit price applied to large consumers is moderate, to encourage them to remain in the

system. To solve the problem of water provision in illegal settlements, where SODECI is not permitted to operate, the utility licenses water resellers. These resellers buy the water at normal tariffs and pay a deposit (\$300) to reduce the risk of nonpayment. Resellers are responsible for investments in extending the network within their area and are allowed to recover costs through water sales. Although this practice effectively increases coverage, the poor families who are the clients of water resellers have to pay twice for the investment costs of the network: once on the tariff charged to the reseller to obtain the water and again on the final price paid to the resellers, who also charge for their investment to supply the neighbourhood.

Four main lessons emerge from SODECI's experience:

- Pro-poor strategies need to be well coordinated.
- Cross-subsidies can serve the poor.
- The managerial and financial strength of the utility is more important than its public or private ownership.
- Good regulation makes the best use of the relative strengths of public and private actors.

Source: Collignon 2002.

in Côte d'Ivoire and Senegal have a mixed record in benefiting the poorest households. Even so, they demonstrate some of the strategies that governments can adopt in putting the right to water within a practical framework.

Management contracts represent another form of public-private partnerships. These are arrangements in which a municipality or local government purchases management services from a company. Ghana adopted a new water law in 2005 that commits the government to expand the role of private operators in delivering services through management contracts. As part of the policy reform, a private operator was selected in late 2005 for a five-year management contract covering Accra and other major towns. Because of a combination of underfinancing, inefficiency and inequitable pricing the publicly owned utility, the Ghana Water Company, had been failing to provide water to urban areas throughout the country, and management contracts are now seen as part of the solution.

Will the new arrangement deliver? Some of the targets set are encouraging. For Accra they include establishing 50,000 new household connections and restoring regular water supply to existing customers. The programme also envisages the creation of 350 public standpipes a year for unserved urban areas.³³ Outcomes will depend on the clarity of contracts and on regulation. One concern is the inadequacy of financing and delivery strategies for reaching the poorest households. Moreover, details about pricing for standpipes and the targeting of poor areas remain vague.

What is clear is that management contracts are not a simple solution for deep-rooted problems in water provision. For example, since 1998 Mauritania has introduced a wave of bold reforms. Four new institutions for water and sanitation management were created in 2001 alone. In rural areas and small towns the new strategy envisages a major increase in the role of the private sector. More than 350 contracts have been signed for networked service provision, with private operators involved in two-thirds of them. However, not until 2005 was a new national body created to oversee management and financing of facilities and to monitor

progress—the National Agency for Drinking Water and Sanitation. Even now, the targets and pricing strategies for leasing arrangements are not well defined, and sectoral plans are heavily underfinanced. Estimates for achieving the Millennium Development Goal indicate a financing requirement of \$65 million for public spending—current spending is about \$5 million. Management contracts cannot be effective without adequate financing and clearly defined targets.

Creating the institutional conditions for successful management contracts is inherently difficult. Research into management contract arrangements in Johannesburg, South Africa, and Monagas, Venezuela, has highlighted two difficulties. First, double delegation—the transfer of operating authority from local government to utility and from utility to third companies—can obscure accountability and delivery. This can disempower users by making it difficult to identify the institutional locus for holding providers to account. Second, local authorities are often both utility shareholder and regulator. Reconciling this dual identity is difficult, not least because it can enmesh the utility in local government politics. International evidence makes a strong case for an independent regulator.³⁴

Complexity is another problem in management contracts, especially in countries lacking strong administrative capacity. Negotiating contracts, responsibilities, delivery targets and penalties for nondelivery is an enormous challenge. That is true even in rich countries with highly developed administrative capacity. In 1999 the US city of Atlanta awarded a 20-year management contract for operations and maintenance to a business consortium—a move prompted partly by fines from the Environmental Protection Agency for violations of water quality standards because of deteriorating infrastructure. The contract was terminated after four years, with city authorities claiming that the company failed to meet performance standards. But the process of termination involved extensive litigation on both sides.

Another way municipal providers can try to tap the efficiency gains offered by the private sector is through service contracts. Under

Management contracts cannot be effective without adequate financing and clearly defined targets

Without a coherent national plan and financing strategy for achieving water for all, neither the public sector nor the private sector will break out of the current enclave model

this arrangement, providers buy a service from a company not substantively involved in the utility's management or financing. These are increasingly common in both developed and developing countries. Service contracts have proven very effective in some cases. Research in Maharashtra, India, shows that contracting out billing, repairs, water treatment and infrastructure upgrades can improve performance. Customer surveys show increased satisfaction.³⁵ However, success depends on strong regulatory capacity.

Finland has extensive outsourcing of non-core water services, accounting for as much as 60%–80% of the cash flow of municipal water companies.³⁶ The most commonly outsourced water services are detailed design, construction, wastewater sludge treatment, equipment and material supply, workshop repairs and laboratory services. A small group of private companies and a public utility, Helsinki Water, have recently started offering management services. The market is still limited, however, with

only three private operators providing services, mainly for wastewater treatment.

Public or private—some problems stay the same

Perhaps the most obvious lesson from any review of public and private provision is that there are no hard and fast cross-country blueprints for success. Some publicly owned providers (Porto Alegre) are world class performers, as are some privatized companies (Chile). Many publicly owned utilities are, by any reasonable criteria, failing the poor—and that failure is linked to underfinancing and poor governance. But the idea that public sector failures can be swiftly corrected through the presumed efficiency, accountability and financing advantages of the private concessions is flawed, as witnessed by developments in Cochabamba, Buenos Aires and West Manila. Without a coherent national plan and financing strategy for achieving water for all, neither the public sector nor the private sector will break out of the current enclave model.

Delivering the outcomes—the policies

Water is a human right. But human rights count for little if they are divorced from practical policies to protect and extend them—or from mechanisms for accountability that empower the poor to demand their rights. If access to clean and affordable water is a human right, who has the duty to deliver water services? And how should the infrastructure that water provision depends on be financed? Water has been described as a “gift from God”—but somebody has to pay to put the pipes in the ground, maintain the pumps and purify the water. Financing and delivering water services that are affordable to the poor through providers who are transparent and accountable continue to pose tough public policy challenges. The way those challenges are addressed in the years ahead will

have an enormous bearing on water security and human development.

The starting point for accelerated progress in water can be summarized in two words: national strategy. As chapter 1 suggested, each country should produce a national water and sanitation plan. National plans will vary, but there are four basic ingredients for success:

- Establishing clear goals and benchmarks for measuring progress through a national water policy.
- Ensuring that policies in the water sector are backed by secure financing provisions in annual budgets and a medium-term expenditure framework.
- Developing clear strategies for overcoming structural inequalities based on

wealth, location and other markers for disadvantage.

- Creating governance systems that make governments and water providers accountable for achieving the goals set under national policies.

Within this broad framework water policy reform should be seen as an integral part of national poverty reduction strategies. In chapter 1, we set out some of the institutional requirements for this framework. Here we turn to specific policies within the water sector.

Public financing and access for the urban poor

The financing of water services is key to expanding access. From a commercial perspective the aim is for water providers to generate enough revenue to cover their recurrent costs, with the capital costs of expanding infrastructure covered through a mix of public spending and investment from the service provider. From a human development perspective there is a limit to cost-recovery through tariffs. That limit is the point at which water becomes unaffordable to poor households.

Sustainable and equitable cost-recovery

Targeting full cost-recovery would put water security beyond the reach of millions of people now lacking access to water. Recall that more than 363 million people without clean water live on less than \$1 a day. And 729 million live on less than \$2 a day. Poverty sets natural limits to water charges. Research in Latin America indicates that full cost-recovery tariffs would present affordability problems for one in five households in the region. For some countries—including Bolivia, Honduras, Nicaragua and Paraguay—reaching cost-recovery would imply affordability problems for nearly half the population. Affordability is an equally serious problem in Sub-Saharan Africa, where about 70% of households could face problems paying bills if providers were to seek full cost-recovery.³⁷

Apart from the strain on households, full cost-recovery would set back poverty reduction efforts in a very immediate sense. With full

cost-recovery for water the incidence of poverty would increase by about 1% for middle-income countries in Latin America and by 2% for low-income countries in the region. The impact would be even more severe in Asia and in Africa, where tariffs would have to rise from a far lower base. For Mauritania and Mozambique poverty could increase by 7% if water tariffs were increased to full cost-recovery levels.³⁸

These figures point to a central role for public spending in financing the extension of water systems to poor households. They also highlight the potentially important role of cross-subsidies, or transfers from higher income to lower income users, in utility pricing. For financing expansion of the network, different countries face different constraints. In some countries, especially middle-income countries, the challenge is to mobilize additional revenue through taxation or the restructuring of current spending priorities. In others aid has a critical role. But the starting point has to be an assessment of what is affordable to the poor. While there is scope for debate, a ceiling of 3% of household income might be an approximate benchmark.

Enhanced equity through pricing and subsidies

Water is one of a bundle of goods that define social justice and citizenship. One way to express social solidarity and a commitment to shared citizenship is through pricing policies and financial transfers that make water available and affordable to all. A combination of pricing and access policies, including targeted subsidies, is needed to achieve equitable outcomes.

Connection subsidies. Subsidizing connections for poor households can remove an important barrier to the network. So can innovative payment strategies. Installment payments have been proposed by utilities in Jakarta. In Côte d'Ivoire a Water Development Fund surtax is included in bills, with about 40% of the proceeds used for connection subsidies. However, the subsidy does not specifically target the poor. Elsewhere, utilities have adopted tiered pricing systems. In El Alto, Bolivia, only 20% of

Water policy reform should be seen as an integral part of national poverty reduction strategies

One way of enhancing affordability for poor households is by providing an amount of water sufficient to cover basic needs at a low price or for free

households receiving connections in the first year of the city's concession programme paid full fees. One important innovation allowed households to provide their own labour to dig trenches for connections, with the utility treating this as a form of payment in kind.³⁹ Here too, though, the rules were not developed as part of an integrated strategy for reaching specified connection targets for the very poor.

Targeted subsidies. Some countries finance consumption for low-income groups through targeted subsidies. In Chile water prices have been raised to full cost-recovery levels without sacrificing distributional goals. Subsidies cover 25%–85% of household water costs, on a sliding scale for eligible low-income households (box 2.6). One of the conditions for the success of Chile's model is the capacity of state agencies to identify poor households and transfer subsidies without high levels of leakage to the nonpoor, a capacity developed over a long period of experience with a comprehensive social welfare system.

Lifeline tariffs. Another way of enhancing affordability for poor households is by providing an amount of water sufficient to cover basic needs at a low price or for free. Most countries now apply block tariffs, but progressivity varies. South Africa's lifeline tariff provides 25 litres free—a practice that could be applied far more widely. The lifeline tariff model comes with two caveats. First, in countries with low rates of connection lifeline tariffs cannot reach poor households that are not connected to the network. This is a concern even in South Africa, where coverage rates among the poor vary. Unconnected households often have to purchase water from bulk resellers, who purchase water from the utility at the highest block. Second, the lifeline or social tariff arrangement requires metering, which is not widespread in many poor settlements.

Targeting informal settlements. In many countries the majority of urban households without access to a household connection live in informal settlements. The millions of people living in these areas have shown extraordinary initiative to gain access to water services, laying kilometres of pipes, digging trenches and cooperating for mutual benefit. However, community effort alone cannot solve the problem. Utilities have been unwilling to extend networks to households lacking legal title, fearing that this could jeopardize revenue collection. New approaches are needed. Authorities can provide full or intermediate residency rights to established informal settlements. They can also require that utilities supply water to everyone regardless of location, if necessary by providing financial guarantees or investment incentive. Utilities can also make a difference. One company in Manila has extended underground water lines to the perimeter of slums and allowed households to make above ground connections through small plastic pipes linked to meters that are maintained by residents associations and nongovernment agencies. Such arrangements can be good for equity (in Manila it has reduced water costs by 25% in the slums areas now being served) and for efficiency (it reduces the revenue losses associated with illegal connections).

Box 2.6

Water consumption subsidies in Chile—greater efficiency and equity

Water provision in Chile is privatized under a strong regulatory regime that combines high levels of efficiency in provision with equally high levels of equity in access. Many factors have contributed. Initial advantages included near-universal coverage before privatization and a highly developed network. Strong economic growth has also been important. So too have targeted water subsidies.

Chile introduced means-tested water consumption subsidies in the early 1990s to guarantee affordability for low-income households. The subsidy covers 25%–85% of a household's monthly bill for up to 15 cubic metres of water a month. The government reimburses the company on the basis of the actual amount of water consumed. The subsidy is financed entirely from the central government budget. Households have to apply for the subsidy to the municipality, which determines eligibility. The subsidy can be thought of as an increasing block tariff, with subsidies inversely related to household income: support declines as incomes rise above the means-tested minimum threshold.

In 1998 about 13% of Chilean households—nearly 450,000 people—received subsidies at a cost of \$33.6 million. The scheme has made it possible to increase tariffs, mobilize resources for maintenance and network expansion and minimize adverse effects on poor people.

There are two basic ingredients for the success of this model in Chile. Neither of them is easy to replicate in other developing countries. First, the scheme requires a capacity to identify, target and deliver support to low-income households. Second, every household must have a meter for monitoring water use.

Source: Alegría Calvo and Celedón Cariola 2004; Gómez-Lobo and Contreras 2003; Paredes 2001; Serra 2000.

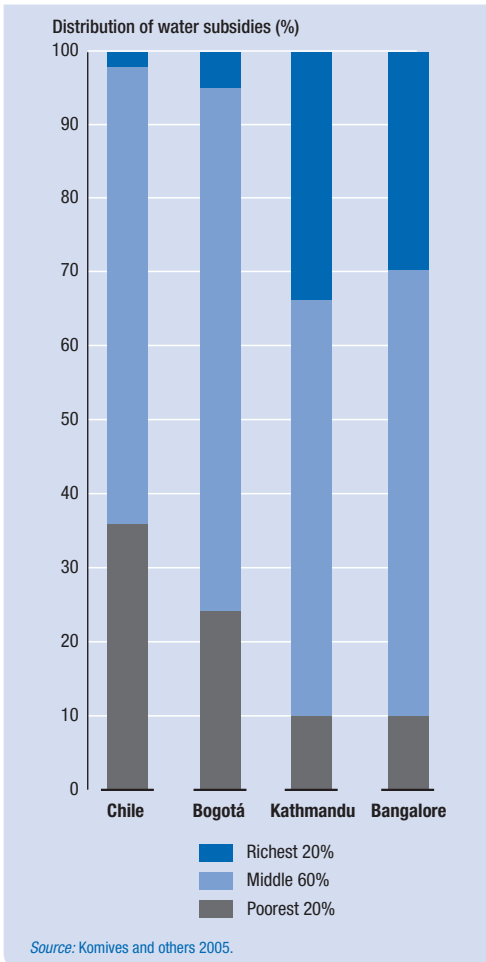
Cross-subsidies. Cross-subsidies from higher income water users is another way to make water more affordable for poor households. In Colombia cross-subsidies are written into the Public Residential Services Law of 1994 and targeted geographically.⁴⁰ The scheme has increased access to water for the poorest 20% of the population, enabling the country to surpass the Millennium Development Goal target.

Subsidies can generate large public as well as private benefits. Apart from creating opportunities for improved health and well-being, they can reduce the deep inequalities in access described in chapter 1. But not all subsidies are equivalent in their effects—and some are better at enhancing equity than others.

Subsidies for water are rooted in a simple idea. If a big share of the population cannot pay the cost of service provision, yet there is a human development imperative to provide service, cross-subsidies, progressive pricing and fiscal transfers offer the means to do so. In effect, these arrangements finance the demands of households that would otherwise be excluded from provision because of poverty. But not all subsidies produce pro-poor outcomes. Côte d'Ivoire's Water Development Fund was intended to finance connections for poor households, but it bypassed the poorest areas of the city because unauthorized settlements are not eligible. Moreover, because connection fees rise sharply with distance from the main network (reflecting the higher costs of connection), some poor households were unable to afford connections even with a subsidy.

Subsidies delivered through the water tariff can produce mixed results (figure 2.4). If connection rates are low and most of the households lacking a connection are poor, the social block tariff is unlikely to produce progressive outcomes. For example, Bangalore, India, and Kathmandu, Nepal, apply a rising block tariff structure, but the subsidies benefit the nonpoor more than the poor.⁴¹ In Bangalore the wealthiest 20% of households receives 30% of the water subsidy and the poorest 20% receives 10.5%.⁴² In Kathmandu the average nonpoor household receives 44% more subsidy than the average poor household.⁴³

Figure 2.4 Where do the water subsidies go?



Set against these examples, some subsidy schemes have been highly effective. Chile uses means testing to identify low-income residents to receive subsidies on water and compensates the utility through government payments. Colombia uses property values and residency to identify poor households. In both cases poor households capture a large share of the subsidies linked to water use. Similarly in Durban, South Africa, the lifeline tariff results in a progressive distribution of water subsidies because 98% of poor households are connected (figure 2.5). In other areas of Kwazulu-Natal Province the subsidy produces less progressive outcomes because connection rates among the poor are lower. The lesson is that delivering subsidies through water tariffs is pro-poor only to the extent that poor people are connected to the water network.

Subsidizing the facilities used by the poor offers potentially greater equity gains. Standpipes are an obvious place to start. While the ultimate goal is private connections for all households, this is not a feasible near-term objective in many countries. Standpipes are the main source of water for millions of poor households, making standpipe subsidies among the most progressive that can be provided through the water system (box 2.7). Yet in many countries standpipe users are purchasing water at the highest price band, cross-subsidizing the domestic consumption of high-income households with access to private taps. Some countries have found ways to avoid

this. In Bangalore only 14% of standpipe subsidies do not reach the poor—for private taps that figure rises to 73%.⁴⁴ In Burkina Faso low-income urban households are able to purchase standpipe water at some of the lowest prices in Sub-Saharan Africa.

Regulation is critical

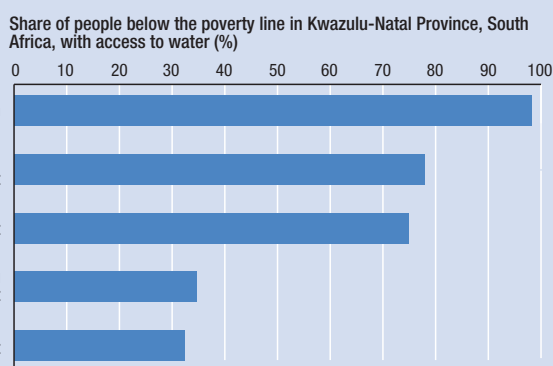
Regulation is critical to the progressive realization of the human right to water and protection of the public interest in water provision. In a market with limited competition, and for a product that is fundamental to human well-being, regulatory authorities need to ensure that providers are managed in a way that secures both equity and efficiency.

Many countries have suffered from the absence of effective regulatory institutions. In Buenos Aires a regulatory body was created to oversee the water concession. However, weaknesses were built into the system. The body was highly politicized, with membership including representatives of the presidency, the province and the municipality, bringing competing political parties into the framework. Consumer interests were not represented, however. Many aspects of the concession contract were negotiated in secret, so the regulator had limited access to information from the companies and government.

Some of the key features of the more successful regulatory bodies in Chile, the United Kingdom, the United States and elsewhere were absent in the Buenos Aires system:

- *Political independence*, with a strong culture of public interest promotion.
- *Investigative authority and penalty power*, with the regulatory body empowered to demand information from companies on a wide range of performance benchmarks, to levy penalties for nonperformance and to limit price increases. In a recent case the Chilean regulator demanded internal company tax returns to investigate transfer pricing and understatement of profit margins.
- *Information sharing* with the public on pricing, water quality and cost structures.

Figure 2.5 Lifeline tariffs work if connection rates are high



Source: South Africa 2006.

Box 2.7 Standpipes—reaching the poor, but often at too high a price

Standpipes can give poor households access to affordable water. They can also act as a conduit for targeted government support since they are used overwhelmingly by the poor, rather than the wealthy. However, experience has been mixed.

In Senegal a partnership between a private water provider, the National Water Authority and a national nongovernmental organization has extended water supply to 500,000 people in low-income areas through standpipes. Subsidies are provided for constructing public standpipes and for connecting them to the grid. This arrangement has expanded access, but because standpipe users are charged at higher rates, unit costs are still more than three times the lowest domestic tariff.

There have been similar problems in the Philippines. Private water companies in Manila have extended water connections to some 50,000 poor households in densely populated low-income areas through standpipes, with community organizations as intermediaries. Allowing households to draw water from a metered source, the contracts reduce the unit price by about a quarter. But the final price is still more than twice the lowest utility price for domestic water supply.

Shifting subsidies towards standpipes would help to improve access and enhance equity. It would also have a knock-on effect, forcing other private providers to lower their prices.

Source: WUP 2003; McIntosh 2003.

- *Public participation*, to ensure that consumer interests are represented. In the United States citizens utility boards provide a forum for customers to monitor service providers. The UK regulator, the Office of Water Services (Ofwat), provides structured access to consumer groups.

The problem in many developing countries is that there are marked limits on the capacity of regulators to regulate. The resources for effective regulation are often lacking. Legislation providing for the separation of powers between governments and regulators is often lacking. More broadly, where democratic accountability is weak, the lack of pressure on governments and companies to disclose information weakens the position of regulators.

In countries lacking the administrative capacity and institutions needed to regulate effectively, transparency and public action by citizens can create regulatory impetus from below. Social action by well organized community groups has played an important role in reducing environmental damage by companies in developing countries, forcing compliance with standards and information disclosure. Civil society has also been active, pressing for more information and publicizing underperformance by water utilities. The use of citizens report cards in Bangalore, India, gave residents associations and community groups a voice in reforming the water utility, improving accountability by evaluating and publicizing utility performance assessments (box 2.8). That model has been widely exported. Where utility managers and municipal leaders have responded with dialogue, there have been tangible improvements in service delivery.

These initiatives from below are important. But they have limits. Citizens groups, civil society and water user associations do not operate in a vacuum. Their activities and scope for achieving change are affected by government policies and institutions, especially the normative and legislative framework and the political space created by governments. In post-apartheid South Africa the adoption of a rights-based approach to water provision articulated a clear legislative

framework for utilities. As important, it created a sense of expectation and entitlement among citizens, empowering communities to hold local governments, private utilities and the national government to account. Inevitably, the human right to water remains a contested political domain in South Africa, as witnessed by high-profile disputes over supply, pricing and the appropriate threshold for free water provision. What is important though is the way in which human rights legislation has given citizens a real voice in water policy. In water, as in other areas, the effectiveness of pressure from below depends at least partly on laws that define and sustain the rights of people to hold companies and public utilities to account.⁴⁵ Activism by civil society is an important force for change in its own right—but it can be strengthened or weakened by government policy.

One problem with current approaches is that the regulatory remit extends only to formal network providers. However

Box 2.8

Citizens report cards—voice as agency for change

Water utilities, public and private, are often remote, unaccountable, lacking in transparency and unresponsive to public concerns. Bringing the voice of users into the governance structure can change this picture.

Ten years ago the Public Affairs Centre, an Indian nongovernmental organization (NGO) based in Bangalore, pioneered a new approach to regulatory oversight. Using public meetings and a questionnaire-based survey, it conducted a large social audit of perceptions about the public services provided by municipal authorities, including the Bangalore Water Supply and Sewerage Board. The audit, summarized in a citizens report card, highlighted weak customer orientation, high levels of corruption and perceived high-cost, poor-quality service provision.

Following a second audit in 1999, the state government and municipal agencies embarked on a process of structured consultation. The Bangalore Water Supply and Sewerage Board initiated joint programmes with local citizens groups and residents associations to improve services, extend connection to poor households and debate reform options. New grievance procedures were established to address corruption. By 2003 the social audit was registering real improvements, with poor households reporting a sharp reduction in bribes for connections and improvements in efficiency.

Since its inception the citizen's audit has been scaled up to cover rural and urban areas in 23 Indian states. It has also been exported to the Philippines, Tanzania, Ukraine and Viet Nam. In mid-2005 three Kenyan cities—Kisumu, Mombasa and Nairobi—launched a social audit on water and sanitation, bringing together residents associations, NGOs and service providers.

Source: Paul 2005; Adikeshavalu 2004.

Community power can be a catalyst for accelerated progress—but a responsive governance system is required to make anything happen

inadequately, most governments seek to regulate the price, monitor the quality and assess the predictability of water through the network. Far less attention has gone to regulating vendors, tanker truck operators and other water suppliers. This is a serious regulatory gap, especially from the perspective of poor households in slums and informal settlements. Closing that gap through public policy interventions that regulate the quantity, quality and price of water available beyond the formal utility network is a priority. One of the most effective instruments for addressing this regulatory challenge is the public provision of water through standpipes at prices that reflect the lower tiers of the block tariff structure applied by utilities. This would force private operators, vendors and other small-scale providers to adjust to a social market price stipulated by government policy.

Reaching the poor

Slow progress in rural areas remains a threat to achieving the Millennium Development Goal for water. In many countries coverage rates for clean water are increasing far too slowly to bring the target within reach—and already-large disparities are widening. Yet experience shows that rapid progress in overcoming rural disadvantage is possible.

Community participation requires the right governance framework

Rural populations have been the experimental subjects of too many development fads. Water has often been supplied by government agencies through a top-down service delivery model using inappropriate and unaffordable technologies that have failed to meet local needs. More recently, community participation and appropriate technology have emerged as the latest answer for rural water provision. However, in many cases community participation has been used as an instrument for implementing government policies, raising finance and overcoming technological obstacles rather than as a means of empowering people or enabling them to express demand. Today, the very large number of broken water points across

rural areas in many developing countries bears testimony to the model's failure.

The governance framework for water has started to shift in a more positive direction, with growing recognition that the special problems facing rural areas and the pivotal role of local communities in service provision raise distinctive institutional challenges. Communities will not cooperate in maintaining water technologies they consider inappropriate or irrelevant to local needs. Nor, as history shows, will they act as implementation agents for policies drawn up by remote, unaccountable and opaque planning bodies. Community power can be a catalyst for accelerated progress—but a responsive governance system is required to make anything happen.

Governments and donors now stress a demand-responsive approach. At a basic level this simply means that approaches to provision should focus on what users want, on the technologies that they are willing and able to pay for and on what they are able to sustain. The starting point is for communities to participate in the design process, drawing up their own plans and collectively deciding on the type and level of services they require. Of course, this process is not without problems. Rural communities are not homogeneous, and community participation can obscure the exclusion of women and the rural poor from decision-making. But engagement with communities does provide a basis for progress.

Creating the conditions for successful demand-responsive approaches is difficult. Decentralization and devolution of authority to local levels are important—but not always successful. In Ethiopia decentralization has transferred a high level of authority to district- and village-level bodies. But financial and human capacities remain weak, and in some areas the legal status of village water supply and sanitation committees is not recognized.⁴⁶ This weakens the capacity of rural communities to pursue demands through local government. In other cases water governance and progress in coverage have benefited from a combination of decentralization and increased political and financial prioritization. The decentralization of rural water supply in Ghana is a demand-responsive approach that is working (box 2.9).

In little more than a decade Ghana transformed the structure for rural water supply, expanding coverage through more participative—and more efficient—delivery systems.

The change has been dramatic. At the start of the 1990s rural water supply was managed through the Ghana Water and Sewerage Corporation, a public utility responsible for planning, building and maintaining rural water supplies. Boreholes drilled in Ghana were among the most costly in the world, and as few as 40% of handpumps were working at any one time because of poor maintenance.

Access to water is now being extended to about 200,000 more people each year. Coverage has increased from 55% in 1990 to 75% in 2004, with rural areas figuring prominently. Ghana achieved this progress through sweeping reform of a system that was top-down, unresponsive and not delivering.

Responsibility for rural water supplies was transferred to local governments and rural communities. Authority for coordinating and facilitating the national strategy for community-managed water and sanitation was transferred to the Community Water and Sanitation Agency—a highly decentralized body with multidisciplinary staff in 10 regions of the country. The regional teams provide direct support to district assemblies in planning and managing safe water and sanitation services.

Source: Lane 2004; WSP-AF 2002e; indicator table 7.

New political structures for water governance have been developed as part of a broader decentralization programme. District assemblies, an important tier of elected local government, are responsible for processing and prioritizing community applications for water supplies, awarding contracts for hand-dug wells and latrine construction and running a latrine subsidy programme. They also provide 5% of the capital costs of water facilities.

Village structures are part of the new system. To apply for capital grants, communities have to form village water committees and draw up plans detailing how they will manage their systems, contribute the cash equivalent of 5% of the capital costs and meet maintenance costs.

An assessment in 2000 identified major improvements:

- More than 90% of people were satisfied with the location, quantity and quality of the water.
- The overwhelming majority of people had contributed to the capital costs, with 85% also paying towards operation and maintenance costs. Most believed that the principle of payment was fair and intended to continue paying
- More than 90% of water and sanitation committees had received training, opened bank accounts and held regular meetings. Women played active and influential roles on these committees.

National planning and poverty reduction strategies for water have produced mixed results

Poverty Reduction Strategy Papers (PRSPs) are important statements of policy intent and frameworks for international cooperation. Countries with a clearly defined strategy for reaching water and sanitation targets demonstrate that national political commitment backed by aid can produce dramatic results.⁴⁷ The bad news is that most PRSPs suffer from a water and sanitation blind spot—an expression of the low priority accorded to the sector.

Some countries have used the Millennium Development Goal framework and the PRSP process to bring rural water provision to the heart of national planning for poverty reduction. In Benin the National Water Council, a high-level ministerial body, has made rural areas and small towns the focal point for a national strategy for achieving the Millennium Development Goal. The Water Budget Programme, which started in 2001, provides a stable financing framework and clearly sets

out the financing provisions for each district across the country. Senegal, too, has identified water and sanitation as a priority in its PRSP. It established a national programme in 2004 to coordinate the activities of different agencies under a high-level national body. Explicit targets include the extension of water supply to 3,300 settlements through a scaled-up national borehole programme. Detailed financial costing has made it possible to identify potentially large financing gaps: the projected spending requirement for rural areas is \$42 million, with a financing gap of \$22 million.⁴⁸ The success of Senegal's water strategy will depend critically on the response of aid donors, but the framework for success is in place.

Experience demonstrates that rapid progress is possible. The Ugandan government has a strong national strategy with clear targets backed by financial resources (box 2.10). Critically, financing for water targets has been integrated into the government's medium-term financing framework, ensuring that political commitments find budgetary expression.

Box 2.10 “Some for all, not all for some” in Uganda

Uganda has been a world leader in reforming the water sector. Coherent policy and financing frameworks have been developed since the mid 1990s, with water identified as a priority in the national poverty reduction strategy. The 1999 water policy sets out a strategy and investment plan aimed at 100% coverage by 2015. The organizing principle: “Some for all, not all for some.”

Political commitment has meant financing. Budget allocations to water have increased from 0.5% of public expenditure in 1997 to 2.8% in 2002. Aid support provided through the general budget has underpinned this increase. Management and resources have been devolved to district-level bodies. Coverage levels have increased from 39% in 1996 to 51% in 2003. This is equivalent to an additional 5.3 million people having access to safe water in 2003, most of them in rural areas.

Water and sanitation are established as priority areas under Uganda’s Poverty Eradication Action Plan. Interim targets have been set for increasing by 3.9 million the number of people with clean water and by 4.4 million those with sanitation by 2009. District plans include provisions to extend adequate sanitation and water to 75% of schools by the same date, with sharp improvements in the ratio of latrines to pupils in rural areas. Water user associations with women making up half the membership are being established as focal points for training and management.

Source: Slaymaker and Newborne 2004; Uganda 2004; AfDB 2005a,b.

Uganda is rightly considered a leader in water and sanitation. The country has developed a strong planning process, including well defined coordination mechanisms with a sectorwide approach, targets backed by medium-term financing provisions and annual review of progress. But past progress does not imply that Uganda has overcome the water and sanitation deficit, and policy implementation faces a number of challenges. In rural areas coverage has been strongly correlated with socioeconomic status. National water policy states that each water point should serve 300 people, implying 3.3 water points per 1,000 people. But in Tororo District in eastern Uganda the availability of water points ranges from less than 1 per 1,000 people in two subcounties, to more than 3 in the two best served subcounties. Coverage is closely correlated with the socioeconomic status of communities, with the poor being left behind.

This inequality helps explain why average water collection times for the rural poor have not fallen significantly despite the rise in coverage. Combined with the slow progress in sanitation, it also helps to explain one of the anomalies of Uganda’s human development record: the failure of child death rates to fall with declining income poverty and high economic growth. Weak coordination between local planning agencies in some of the poorest rural areas has been identified as a major bottleneck. Empowering local government and increasing the voice of poor areas are keys to removing that bottleneck.

Tanzania is in the early stages of reform, and developments are encouraging. An additional 2 million people have gained access since 1999, and the government has set a target of 85% rural water provision by 2010.⁴⁹ However, there are large inequalities in coverage: 76 of 113 rural districts have less than 50% coverage, with a heavy concentration in the centre and the southeast of the country. In Rufiji and Liwale Districts in the southeast, coverage rates are less than 10%.⁵⁰ Future progress will depend on creating strategies for overcoming these inequalities.

It will also require donors to review their aid strategies. Extending rural water coverage is a well defined poverty reduction priority for Tanzania. But in 2002/03 urban areas received more than 60% of the development financing budget. One reason is that aid accounts for more than half the water sector budget—and there is a marked donor preference for urban water rehabilitation programmes with a perceived higher potential for cost-recovery and self-financing.⁵¹ In addition, political decentralization has outstripped

financial decentralization, leaving local governments in rural areas with limited control over resources. While aid donors are often highly critical of what they perceive as an urban bias in policy, they often reflect and reinforce that same bias in their programmes.

Some countries have set impressive goals for expanding rural water provision but have failed to develop the policies for achieving them. Financing provisions have been out of step with targets. Not only is water consistently underfinanced, but in some countries the gap between budget allocations and real public investment is large. In Zambia less than 5% of the budget allocation for water was spent in 1999 and 2000, before surging to more than 30% in 2001, an election year. While budget performance has improved, allocations and aid levels are less than half the financing requirements for attaining the goals set out in Zambia’s national strategy.

Poor budget management can create a vicious cycle. In Malawi national policy lacks provision for coherent targets, strategies and

financing, the legacy of a long history of poor governance in the water sector linked to weak budget management. Distrust between government and donors has reached the point that donors have set up parallel systems, operating independently of government programmes. The Ministry of Water Development controls less than 12% of the development budget, while donors administer the balance through their own programmes. Off-budget spending is probably three times on-budget spending. Moreover, aid flows fell from \$14 million in 2003 to \$2 million in 2005, reflecting donor concerns over budget management and a failure to prioritize water in the PRSP. Malawi clearly demonstrates the consequences of weak government capacity for implementation, the absence of a coherent planning framework and donor concerns about corruption.⁵² There are no winners in this situation: governments face higher transaction costs (having to report to multiple donors), aid effectiveness is diminished, and the rural poor lose out from decreased water availability.

Innovative governments have combined a clear policy framework and public investment commitments with governance reforms aimed at generating demand from below. This is particularly necessary in rural areas where community management is important for maintaining water infrastructure (box 2.11).

Partnerships between governments and people can act as a powerful catalyst for change. These partnerships can build on local initiatives, rapidly scaling them up to extend coverage. In the 1980s Olavanna, a largely rural community in the Indian state of Kerala, pioneered a small village water supply system, inspiring reform of Kerala's rural water supply and sanitation programme.⁵³ Across four districts, state and local governments are now cooperating with villages to extend the approach. The Olavanna model provides clean drinking water for 93,000 households—60% of whom live below the poverty line. As in other successful demand-driven models the capital costs are covered by government, with maintenance and management devolved to local community organizations.

Box 2.11

Empowering rural people in Morocco—local demand leads to increased coverage

Delivering services is about more than finance, infrastructure and technology. It is also about empowerment—as the Water Supply Programme for Rural Population in Morocco (PAGER) demonstrates.

Ten years ago rural areas lagged well behind the urban areas in providing drinking water in Morocco. Fewer than 1 person in 5 had access to water in the countryside, compared with 9 in 10 living in towns. Women and children typically walked 10 kilometres or more to collect water in the dry season. Reliance on unprotected water sources such as rivers resulted in a high incidence of bilharzia, diarrhoea and cholera. National planning was fragmented, and there was no clear strategy for reaching the scattered rural settlements with the lowest coverage.

That changed with PAGER. In 1995 the new programme decentralized water provision within a strong national planning framework. Local authorities were required to carry out needs assessments, working through community organizations. Interventions are triggered by requests for infrastructure from rural populations. About 80% of the budget for provision comes from the central government, 15% from local community associations and 5% from beneficiaries. Management of infrastructure has been transferred to local communities, supported by engineers and technical experts.

In the past decade another 4 million rural people have gained access to clean water, boosting rural coverage to 50%. Apart from reducing the time burden on women, there have been strong multiplier effects. Rural primary school attendance among girls increased from 30% to 51% between 1999 and 2003. There have also been marked improvements in public health. And water has been a catalyst for wider social change. Decentralization and water user associations have transformed communities from passive recipients of government services into demanders for change, with the empowerment of women as agents for change a big part of the story.

Source: Dubreuil and Van Hofwegen 2006.

International support for local financing

Today's rich countries were able to finance the public investments to universalize access to water and sanitation through public spending and public debt. Low incomes and limited revenue restrict the scope for increased public spending in many countries—hence the case for increased aid set out in chapter 1. Access to credit is also limited in many countries because of the weakness of local capital markets and perceptions of high risk. International aid can help in mobilizing credit just as it helps in overcoming financing barriers.

As the experience of failed concessions powerfully demonstrates, it is important to mobilize credit on local capital markets, to avoid currency risk. A new revenue stream for upfront investments can provide utilities with the capital to

The Millennium Development Goals provide one set of targets for expanding coverage, but national water plans should also include explicit equity goals

install new infrastructure and improve old infrastructure against future revenue streams. International support can help to overcome constraints and improve access to capital markets for subsovereign entities—such as municipalities and publicly owned utilities—while reducing risk:⁵⁴

- *Partial guarantees.* In 2002 municipal authorities in the City of Johannesburg issued a \$153 million bond. The International Finance Corporation (IFC) and the Development Bank of South Africa provided a partial credit guarantee that raised the bond's credit rating and extended the maturity to 12 years. In Mexico in 2003 the municipality of Tlanepantla issued a 10-year bond backed by the municipality and its water company in Mexican capital markets. Partial credit guarantees from the IFC raised the bond rating to AAA. Credit enhancements improved confidence in bond issues and lowered the costs of water and sanitation financing.
- *Pooling resources.* Cooperation between municipalities and private providers can stimulate resource mobilization. The Tamil Nadu Urban Development Fund, established by state authorities in 1996, developed the Water and Sanitation Pooled Fund—a 300 million rupee facility generated through bond markets for 14 small municipalities—with a partial credit guarantee from the US Agency for International Development. Its success led the state of Karnataka to adopt it, with government of India support through a pooled finance development fund.
- *Decentralized cooperation.* Links between municipalities in rich countries and municipal providers in developing countries have generated new flows of finance. The provincial government of Drenthe, in the Netherlands, and 11 municipalities set up a nonprofit organization and entered into joint venture contracts with 12 local governments in Indonesia. The nonprofit organization operates by purchasing a majority stake in the Indonesian local water utility, improving operating efficiency and selling shares back to the local government.

Other national initiatives are emerging beyond the traditional aid framework. The decentralized international financing approach developed in France is an example. New legislation in 2005—the Oudin law—established a framework for decentralized cooperation in water and sanitation covering six French basin agencies. Local authorities can now dedicate up to 1% of their water and sanitation budgets to international development programmes. In 2005 around \$37 million was committed. If other high-income countries were to adopt this type of scheme, it could generate about \$3 billion a year by one estimate, an important new flow of financing for water and sanitation.⁵⁵

* * *

The obligation of governments to work towards the full realization of the right of access to clean, affordable water as a basic human right and to provide their citizens with adequate services involves wide-ranging financial, institutional and technical challenges.

As argued in chapter 1, most governments need to increase the budget resources allocated to water in the context of national planning strategies that address the interlocking problems of poverty and inequality. The Millennium Development Goals provide one set of targets for expanding coverage. But national water plans should also include explicit equity goals. Supplementing the Millennium Development Goal target of halving the proportion of people without access to clean water with an equity target of halving by 2010 the gap in service provision between the richest and poorest 20%, or between urban and rural areas, might be an appropriate starting point. Such an equity target could be adopted even for countries that are on track for the 2015 goals.

Specific policies for making the human right to water a reality will vary across countries. The level of coverage, specific structure of inequalities, state of institutions and income levels all interact to define the parameters for policy design. However, some broad approaches emerge from the analysis in this chapter:

- *Legislate for water as a human right.* Having a constitutional right to water is

important—but not as important as the legislative obligation of governments and water providers to give practical policy substance to that right. Setting out the investment, pricing and monitoring arrangements for progressively extending the right to a basic minimum of 20 litres of water for every citizen is the starting point.

- *Put water at the centre of poverty reduction strategies and budget planning.* Having a coherent water plan is a first step. Grounding that plan in strategies for reducing poverty and extreme inequality, and in medium-term financing provisions, is a second step—and a requirement for sustained progress. Too often, bold water plans suffer from the “targets without finance” syndrome.
- *Expand pro-poor investment.* Water is underfinanced. The biggest financing gaps are in rural areas and in informal urban settlements. Closing these gaps requires increased financing and a reorientation of public spending to rural communities, through the provision of wells and boreholes, and to urban slum areas, through the provision of standpipes.
- *Extend lifeline tariffs.* Provision of a basic needs minimum of water to all households, free of charge for the poorest, should be built into national strategies for achieving water for all.
- *Rethink and redesign cross-subsidies.* Cross-subsidies can play a critical role in delivering affordable water to the poor. Too often, they deliver large financial benefits to the nonpoor instead, while poor households using public taps face the highest tariff bands. Using cross-subsidies to support standpipe users where coverage rates are low would be a step in the right direction. Ensuring that standpipes are a source of affordable water should be the central feature of national strategies.
- *Set clear goals—and hold providers to account.* Contract arrangements under public-private management agreements should set clear goals for expanding access for

poor households living in slums, stipulating the numbers to be reached, investment levels and pricing arrangements. Nonperformance should result in financial penalties. The same rules should apply to public providers, with nonperformance penalized through incentive systems.

- *Develop and expand the regulatory framework.* Creating an independent regulator to oversee water providers is vital for ensuring that water provision reflects the public interest. At the same time, regulatory reach has to be extended beyond large-scale network providers to the intermediaries serving the poor.
- *Prioritize the rural sector.* Rural water supply poses special challenges. Building on successful demand-responsive approaches, governments need to make service providers more responsive and accountable to the communities that they serve. Decentralization of water governance can play an important role, provided that decentralized bodies have the technical and financial capacity to deliver services.

International aid is critical for closing the financing gaps that threaten the Millennium Development Goal for water, especially in low-income countries. But many countries also need to mobilize new resources through private capital markets. While the institutional challenge is local, there are global partnership solutions that can assist public utilities to tap into financial flows. Developing current credit guarantee arrangements could help municipalities and utilities mobilize the capital needed for network expansion. The European Union could do much, scaling up the innovative financing models of some member states. Extending the French Oudin law model to Europe, for example, could provide a framework for building capacity in poor countries. Doubtless there would be legal and financial obstacles. Yet such a move would mark a powerful European commitment to global social justice and give a strong impetus to the Millennium Development Goals.

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