

TAKING ACCOUNT OF THE POOR IN WATER SECTOR REGULATION

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1 INTRODUCTION

1.1 Objectives

Regulatory frameworks can have a decisive influence on making water and sanitation services more accessible to the poor and on giving service providers the right incentives to serve them. In some cases, however, existing regulatory frameworks may introduce obstacles to serving the poor rather than provide an environment conducive to extending service. This note seeks to provide practical guidance on how regulatory frameworks can be designed and implemented in a way that is more conducive to expanding access and improving service to poor customers.

Special focus is placed on circumstances where a regulatory framework is already in place, irrespective of whether there is private sector participation or not and of whether an independent regulatory body has been created or not. The underlying assumption is that, even if an independent regulatory body does not exist, one or several institutions would usually be in charge of carrying out regulatory functions. Throughout this note, the institutions in charge of carrying out such functions are broadly referred to as "regulators." Even though environmental or public health regulatory functions are referenced for sake of completeness, we use this term to refer to entities that are primarily in charge of economic regulation, which would typically include setting prices, setting and enforcing quality standards or competition rules, and protecting customers (see annex A for more details).

This note seeks to assist policy makers and regulators in identifying what they can do to modify the existing regulatory framework or to implement it in a way that is particularly favorable to poor customers. It addresses the following questions:

- How can the pro-poor merits of an existing regulatory framework be assessed? How can regulatory constraints to expanding services to poor customers be identified?
- What can be done to alleviate regulatory constraints to pro-poor service? Is there scope for "proactive" pro-poor regulation, and if so, what does this consist of?

Whereas policy makers play a decisive role in establishing regulatory frameworks in the first place, the institutions in charge of carrying out regulatory functions have an important role to play in recommending changes or in adapting the way in which the regulatory framework is implemented to improve services for poor households and communities. Policy makers would need to identify existing regulatory constraints to serve such communities and recommend or establish alternative rules and processes. Institutions tasked with regulatory oversight functions would not do this in isolation but rather would need to seek guidance from policy makers and cooperate with other government agencies, service providers, customer groups, or nongovernmental organizations (NGOs). The institutions could assume a leadership role to modify ways in which regulatory frameworks are implemented, especially if they are seen as honest brokers and repositories of sector knowledge by other sector stakeholders, and provided that the policy framework is conducive to their taking such initiatives.

The prime audience for this note are regulators and policy makers, as well as others with an interest in the role of regulation in poverty reduction, including service providers, donors, and NGOs. This note was commissioned by the World Bank to provide background to an action research program conducted with four East African regulators (Kenya, Mozambique, Rwanda, and Zambia). The program is supported by the Building Partnerships for Development (BPD), the German Agency for Technical Cooperation (GTZ), and the World Bank Institute. The program consisted of working with those regulators to analyze existing regulatory constraints to facilitating service to the poor and to prepare programs of action to lift such constraints. A report analyzing the results of this program was prepared separately and is available at info@bpdws.org (Trémolet, Sophie. 2006. "Adapting regulation to the needs of the poor: Experience in 4 East African countries". BPD Research Series).

1.2 Outline

The note is structured as follows:

- **Section 2** evaluates how regulatory frameworks can take account of the needs of the poor and discusses why regulatory rules, instruments, and processes may need to be adapted to that effect.

- **Section 3** discusses areas of regulatory practice that are most relevant to addressing the particular circumstances of the poor, based on the findings of the literature review and analysis of selected case studies.

In addition, a series of annexes explores those themes further:

- **Annex A** includes a short note setting out regulation tasks and functions for the water sector, with a specific focus on economic regulation.
- **Annex B** contains a checklist that can help assess the characteristics of an existing regulatory framework with regard to addressing the needs of poor households.
- **Annex C** presents the results of the literature review in a way that can be helpful for regulators and their consultants looking for useful references on the topic.
- **Annex D** develops examples of innovative regulatory approaches, focusing on actions taken by regulatory oversight bodies to adapt their practices to the needs of poor customers.

2 TAKING ACCOUNT OF THE POOR: RATIONALE AND PRINCIPLES

In this section, we define the concept of regulation and regulatory frameworks and set out why taking account of the needs of the poor is important, particularly in developing countries. Doing so requires adapting the regulatory framework to their particular needs. This is often difficult to do in practice because existing regulatory frameworks may contain constraints and obstacles to serving the poor rather than incentives to do so.

2.1 What Is a “Regulatory Framework”?

Regulation is defined as a set of functions that consist of (a) ensuring that water and sanitation service providers comply with existing rules (mainly on tariffs and quality standards) and (b) adapting those rules to cope with unforeseen events (see annex A for a more detailed description of regulatory functions and possible institutional models).

A regulatory framework consists of the set of rules and processes that bind the water and sanitation service providers, including formal rules (laws, contracts, bylaws, etc.) and informal rules (personal commitments, financial incentives, reputation, etc.). It also defines how the main regulatory functions are allocated to various institutions, which can include an autonomous regulatory agency, a ministry, an asset-holding company, a customer group, an independent expert, and so forth.

One can talk about regulation or a regulatory framework even when a regulatory body is not in place. Given that water services are essential for the community and are often affected by significant market failures, it appears that all water and sanitation service providers, be they public or private, need to be regulated in some way.

Various types of institutional models may be used, such as regulation “by agency” or “by contract.” Regulatory institutional models tend to vary depending on the market structure for water service provision and on the ownership of the service provider. In the context of the introduction of private sector participation, considerable emphasis has been placed on designing regulatory frameworks and, in particular, establishing regulatory agencies. In fact, in most countries, water services are provided at the local level by either the municipality itself or a corporatized (but publicly owned) municipal utility. In a few cases, the municipality has delegated the management of those services to a private operator, using a variety of private sector contracts. In some countries, water services are provided by regional or even national utilities, which provide services in a number of municipalities at once and which can be either publicly or privately owned.

Table 1 Examples of Regulatory Models, Market Structures, and Ownership Models

Regulatory model → ↓ Market structure	Self-regulation	Regulation by contract	Regulation by contract with regulator (“hybrid”)	Regulation by agency with licensing regime
Municipal	France (Pu), India (Pu), Cambodia (Pr), Durban (Pu)	France (Pr)	Colombia, Bolivia, Argentina (Pu + Pr)	Zambia (Pu)
Regional			Peru (Pu)	England and Wales (Pr), Chile (Pr)
National	Djibouti (Pu)	Gabon (Pr), Senegal (Pr), Uganda (Pu), Burkina Faso (Pu)	Niger (Pr), Mali (Pr)	

Note: Pu = public operator; Pr = private operator.

Examples of regulatory models and market structures for water services are presented in table 1. This typology is by no means exhaustive and does not capture the wide variety of regulatory models that can be encountered. For example, self-regulation can be carried out in various ways: in some cases, the utility is supervised by its own board of directors. This model would be most frequently encountered when services are provided by a public entity, such as a municipality, a ministerial department, or a state-owned company. In some cases, additional supervision may be done by a monitoring body, such as a city council (with or without a formal contract). In other cases, particularly with independent private entrepreneurs, competition may be the most powerful instrument of “peer-to-peer regulation” and may be a very effective means of keeping tariffs down.

In the case of regulation by contract, the contract would usually define the relationship between the asset owner and the service provider, be they public or private (for example, performance contracts have been established with public companies in Uganda and Burkina Faso). Column 3 shows a regulatory institutional model that has become increasingly prevalent in recent years, a hybrid in which regulation by contract is combined with regulatory supervision by an independent regulator. This may be found where service provision is largely public (such as in Peru) or private (such as in Niger). The last column shows a model in which a regulator has been established and issues licenses to service providers, setting out the terms under which they are to provide service. As with the others, this model may be in place with both public and private service providers. In Zambia, for example, a national regulatory agency has been established to regulate mostly public companies.

In some circumstances, there may be some advantage to the “autonomous agency” model, because regulatory functions may be assigned more clearly and regulatory competencies can be concentrated in one institution. This can be helpful when adapting rules to the needs of poor customers, as discussed later. However, this should by no means be considered the only institutional model available for regulating water services. Any regulatory institutional framework can be adapted to take account of the needs of the poor. The principles set out in this note would therefore be applicable to either public or private providers, taking into account the difficulty of relying on incentives or sanctions to motivate public providers to deliver, because of weak commercial orientation, internal rigidities, or political pressures.

2.2 Why Is It Important to Focus on the Poor?

Poor customers raise specific challenges for service provision and regulation:

- They are often served by a wide spectrum of operators, which are often informal.
- They are more likely not to be connected to the network, particularly if connection charges are high or there are other obstacles to obtaining access (e.g., no land tenure).

Box 1 Disconnection Policies in Developed Countries

In **England and Wales**, disconnection for nonpayment was recently banned by law. Water companies are under the obligation to offer terms to their customers to facilitate payment, but they cannot use disconnection as a way to exercise pressure on such customers. This measure is only applicable because the number of people who do not pay their water bills because of affordability issues is very limited in such a setting. This means that banning such an essential tool for companies to improve collections is unlikely to compromise their financial viability in the long run.

In the **United States**, disconnection of water services, in addition to other utility services, is dictated by each state and generally by the state's Public Service Commission. In most states, disconnection of water services is allowed provided that utility providers follow detailed steps to repeatedly notify consumers of potential disconnection and meet several other criteria set in law by the Public Service Commission. It should be noted that although disconnection is allowed by law, states such as New Hampshire require that gas and electric utilities inform (in writing) consumers who are delinquent in their payments about the public and private agencies that may be able to provide assistance in payment of bills. Such agencies are often able to assist consumers and prevent disconnection.

- When they are not connected, they often pay a lot more for access to water.
- They often have access only to poor-quality or intermittent services.
- Their preferences vary widely from one community to the next, but it is often hard for them to get their voices heard by the regulator.

In developed countries, where poor people represent a relatively small percentage of the population, emphasis has been placed on making the regulatory process accessible to those with special needs, for example, by publishing certain documents in Braille. In some cases, the regulatory framework itself has also been adapted to take into account the needs of the poorer segment of the population. For example, in England and Wales (see box 1), disconnections have been banned by law to protect those who are unable to make regular payments for their water bills and are most likely poor.

Concern about providing service to poor households is likely to be more central to policy makers and regulatory and oversight bodies in developing countries because the poor represent a higher percentage of the population, up to 80 percent in some countries, and therefore of the market for water services.

In developing countries, a ban on disconnection would not benefit poor customers as it does in developed countries because water service through a private connection is by no means universal. Typically, 25 to 60 percent of the urban households are not connected. Households connected to the water networks are likely to be in the three upper income quintiles and much better off than the unconnected households. The poorest strata are likely not to be connected, so banning disconnection would protect the comparatively rich and encourage illegal connections.

This example shows that great care needs to be taken to gather data and analyze specific circumstances in each country. A regulatory rule that may benefit poor customers in one country may have the exact opposite effect in another.

2.3 How Can Regulatory Frameworks Take Account of the Poor?

To benefit the poor, regulatory frameworks should increase access to water and sanitation services and improve the availability, affordability, and sustainability of these services. To do so, a regulatory framework would most likely have the following objectives:

- Provide a framework for competition so that a wide range of service solutions are possible and able to compete within a level playing field.
- Create incentives (or obligations) for the dominant operators to extend services.
- Allow a flexible approach to service quality in order to give incentives to service providers for experimentation while respecting basic quality requirements.
- Establish a tariff level and structure that encourage higher access to services without jeopardizing financial stability.
- Establish a framework to deal with the needs of all customers.

2.3.1 What Are Common Constraints Limiting Benefits to the Poor from Regulation?

The way most regulatory frameworks are defined in developing countries does not ensure the implementation of such principles for a number of reasons, as outlined below.

Regulatory framework that has been defined only for the main operator. In many cases, a regulatory framework has been defined in the context of the privatization of the main utility, either at the national level or in the capital city. This would generally entail the drafting of legislation, contracts, and licenses, including in some cases the creation of an independent regulatory agency. The regulatory agency would usually exercise economic regulation functions over the incumbent operator and would be less concerned with other smaller operators, even though those operators may supply a very important share of the market. This lack of oversight may be because it is not in the agency's remit to regulate small operators (particularly if exclusivity rights have been granted to the incumbent operator) or services in rural and periurban areas. Possibly the donor program funding the regulator is focused on improving the main utility or the regulator judges that regulating independent entrepreneurs would be too difficult and cumbersome. Therefore, regulators may effectively ignore a large segment of the customer base, that is, those who are not connected to the main operator or who fall outside its service area, as in Mali or Mozambique (see box 2).

Rigid and inappropriate quality standards. Levels of service are often based on standards established by and applicable to the developed countries. This means that services cost more to provide, poor customers are less attractive to serve, and they are more difficult to reach if they are located in informal and unplanned settlements.

Below-cost tariffs and ineffective targeting of subsidies. Volumetric tariffs may be very low, which means that the main utility is unable to finance expansion. If it receives funds from the government as subsidies, those subsidies would be concentrated on the "happy few" instead of the poor. In many cases, considerable expansion in coverage could be achieved by lowering connection charges as opposed to maintaining volumetric levels below cost-recovery levels. If coverage remains limited with low tariffs, this would work against the interests of customers who currently are off-network (and who are overwhelmingly poor) and pay much higher prices for water than those currently connected.

Annex B contains a guide on how existing regulatory frameworks and practices can be evaluated as to whether they consider the needs of the poor. This type of analysis would typically be carried out by an external evaluator, on behalf of the regulator or policy makers, depending on which institution was taking the lead. The regulator would have a strong incentive to take the lead if it were under pressure from the populations or their representatives (such as NGOs and customer groups) to provide a more conducive framework for services to poor customers or to act as an arbiter in the market. For example, the autonomous regulator in Mozambique, the CRA (see box 2), has started considering the independent entrepreneur market because those entrepreneurs are worried about their future in the context of heavy

Box 2 Examples of Regulators Focusing on the Main Operator, Mali and Mozambique

The regulator in Mali (CREE) was set up by law to regulate water and electricity services in urban areas of Mali, including in the 16 towns that are served by EDM, the national utility, and 22 towns with more than 10,000 inhabitants, which are served by local operators. So far, however, CREE has concentrated all its efforts on regulating EDM, thereby reaching a mere 10 percent of the total population of Mali (considering that EDM's service area includes 15 percent of the population and that its direct coverage rate is about 60 percent). That 10 percent are more likely to be the richest segment of the population, which means that CREE does not explicitly work for the benefit of the poor majority. Small-scale operators, such as vendors, operating in EDM's service area are not regulated. Operators outside of EDM's service area are regulated at the municipal level, with the support of an ad hoc structure, the CCAEP (see box 10).

In Mozambique, the regulator (CRA) readily acknowledges that the main operator (AdM) covers only 20 percent of the population through domestic connections in its service area in Maputo. An additional 21 percent obtain water from standpipes (also run by AdM) and 20 percent buy water from their neighbors (who themselves usually get water from the network, despite the fact that this activity is currently illegal). In Maputo, AdM's inability to cope with a growing population has led to the very rapid development of alternative service providers, which currently serve 30 percent of the capital's population, including 19 percent through in-house connections and 11 percent through privately operated standpipes. The remaining 10 percent use wells (public or private) or their own boreholes. Although the market share of alternative providers or of water reselling tends to grow, those means are still illegal. Even though its official remit is to regulate the main operator only, CRA is now considering how such operators could be regulated as well (potentially through the local municipalities) without hampering their energies.

capital investment that is to be carried out by the main utility to extend the network and which would displace existing entrepreneurs.

2.3.2 What Role Should Policy Makers and Regulators Play?

Once regulators or policy makers (or other interested groups) have identified what needs to be done, it is important to define who should do it. If changing the regulatory framework calls for a revised policy and new legislation, then policy makers would be responsible (following recommendations by the regulator in some cases). If the obstacles to serving the poor mostly involve minor changes to rules or practices (such as billing rules), then the regulator can and should take the lead. The boundary between what policy makers and regulators can and should do is difficult to define in general terms because it depends on the institutional framework in each constituency. Principles for defining who should do what are set out in general terms in this section and in section 3 for each area of regulatory practice.

Policy makers would typically need to set the overall agenda and define what percentage of fiscal resources should be allocated to extending services (particularly to the poor if they require subsidies). They would also need to define where services should be extended and at what service standard. The institution in charge of regulation (the “regulator”) would usually play a role in translating these overall policy goals into practical rules and verifying that those goals or measures are effectively implemented. Their responsibility for taking into account poor customers would often be expressed through wording in the regulatory framework, giving the regulator a general responsibility for considering equity when setting tariffs or fostering service expansion. However, unless those principles are translated into actual practice, there is a strong risk that they will remain just empty words with no effect in the communities.

Adapting regulation to the needs of poor customers would start with an assessment of the existing regulatory framework. The purpose of this assessment would be to evaluate whether regulatory constraints can be lifted at the level of the regulatory oversight body (for example, because they concern detailed rules such as billing methods) or whether policy decisions are required to modify the rules; for example, if access cannot be provided to those without land tenure, modifying such rule would usually require political intervention at the level of the municipality. The boundaries between policy and regulatory decisions are sometimes difficult to establish (see table 2, which gives examples of policies and regulations to illustrate such distinctions). Where exactly the line is drawn between a policy and a regulatory function may depend on the strength and reputation of the regulator and the degree to which it has the legitimacy and political backing to make or recommend decisions that have substantial policy implications. The issue of below-cost tariffs is particularly sensitive, for example. Although it may be in the regulator’s remit to set tariffs on a cost-covering basis, the regulator often would be unable to do so without the clear public backing of the political authorities. Ultimately, a political decision needs to be made to raise tariffs to cost-covering levels in order to meet expansion goals.

The regulator may often have an advisory rather than a decision-making role on issues with strong policy overtones and should use it to maximum effect. Because the regulator’s main role is to implement the rules, it can observe firsthand the impact that those rules have on the poor and would be able to see what changes in rules would improve their situation. With respect to tariffs, for example, the regulator may only be able to evaluate tariff proposals rather than to set tariffs directly. In its advisory role, it could set out in a transparent manner the main trade-offs that result from low tariffs and the way in which they limit potential service expansion.

Table 2 Defining the Boundaries between Policy and Regulation

<i>Examples of policy measures for the poor</i>	<i>Examples of regulatory measures for the poor</i>
<ul style="list-style-type: none"> Define goals for extending services to poor people: e.g., 8 million people in eight years (South Africa) Set out broad principles for tariffs and subsidies: e.g., Free Basic Water Policy (South Africa) Ban disconnection of service (U.K.) 	<ul style="list-style-type: none"> Specify coverage targets for providers Apply penalties if coverage targets not met Implement tariff principles and set tariffs Evaluate financial impact on service providers Evaluate financial impact on providers Specify measures that service providers can take to obtain phased payment

The exact allocation of tasks between policy makers and regulators for developing a regulatory framework benefiting the poor will vary depending on the area of regulatory practice. The next section provides additional guidance about how the responsibilities of policy makers and the regulator can be defined once regulatory constraints to serving the poor have been identified.

3 TAKING ACCOUNT OF THE POOR: PRACTICAL APPLICATIONS

This section examines how the principles highlighted in the previous section can be implemented in practice, so that regulation can effectively take account of the needs of poor customers. Regulators would start by examining the existing regulatory framework and answering the following questions:

- Is the regulatory framework conducive to expanding access?
- Are subsidies effectively targeted to the poor?
- What can be done to make quality requirements more suited to the needs of the poor?
- When should alternative service providers be regulated, and how?

Below, we examine each of these questions in turn, first by analyzing what regulatory constraints may need to be lifted and then examining which institution should take the lead on modifying the regulatory framework. In certain areas, however, actual experience may be limited, with more questions than answers at this stage. Simply laying down the questions may help readers derive the solutions that would be most appropriate to the context in their own country and identify where additional efforts should be placed.

3.1 Fostering Access Expansion

One of the best ways to improve poor people's water services is often to provide them with access to a reliable supply through a piped network, either through a domestic connection (in the house or in the yard) or through a public connection. This would be true especially when poor people do not have access to the network and, as a result, have to pay very high prices for obtaining water from off-network solutions, such as water vendors or neighbors. Encouraging coverage extension can therefore be the most efficient way to benefit the poor.

This is generally achieved through the definition of clear coverage targets for the operators, be they the dominant operator (public or private) or alternative providers, particularly if a bidding process is organized to allocate service areas to small operators (as was done with Aguateros operators in rural areas of Paraguay with OBA subsidies).

However, coverage targets are often left relatively vague, particularly when the source of financing for extensions is uncertain. The initial regulatory framework, such as the contract, may have defined coverage targets in a manner that is not conducive to expanding services for poor customers, because the coverage targets were insufficiently clear (problem of definition), imprecise (problem of lack of data) or at the wrong level (either not ambitious enough or too ambitious). In other cases, coverage targets may be clearly specified but have no matching financial resources, which means that they are clearly unenforceable. Lack of resources is the case for public service providers in particular, for which regulation of coverage tends to be more difficult to enforce, than for private providers, because financing of coverage extension depends on the allocation of public funds, and coverage targets are often set out in broad terms rather than in contracts. The institution in charge of monitoring the implementation of coverage for those targets would therefore have little leverage over the service provider.

3.1.1 Principles of Regulatory Design

In all such cases, coverage targets would need to be adapted in order to improve their enforceability after the initial design stage. The scope for such changes is obviously limited, especially to maintain contract stability. As much as possible, the following principles would therefore need to be reflected in the initial design of the regulatory framework in order to avoid problems later down the line.

Avoid setting too ambitious and unrealistic coverage targets. In some private sector contracts, coverage targets were set at such unrealistic levels that they were unenforceable down the line. This was the case in Casablanca, Morocco, for example (see box 3).

The benefits from extending access will need to be evaluated in comparison with those from improving the efficiency of the existing service (by reducing leaks to save water or by cutting down operating costs to generate funds for future investments). In some cases, extending access through a conventional network may be premature because it would simply amount to distributing scarcity. The regulator can help in analyzing those trade-offs and formulating recommendations to policy makers to determine the rate of network expansion and identify other transitional service solutions (such as relying on water resellers).

Allow differentiated service levels. One way of being more realistic in setting coverage targets is to allow for differentiated service levels, that is, to avoid requesting that all connections be in-house connections and to allow that some customers may be reached through standpipes or connections with varying standards, such as condominium (see the example of La Paz El Alto in Bolivia in box 6 and annex D). Such differentiated service levels should be allowed in the initial regulatory framework in order to encourage innovation for cost reduction by service providers and recognize the contribution by alternative providers. Some variations in service levels were allowed in the concession contract for

Box 3 Unenforceable Coverage Targets in Casablanca, Morocco

In April 1997, the municipality of the Great Casablanca signed a 30-year concession contract with Lydec, an electricity, water, and sanitation company in which Suez Environment is the main shareholder. The contract was awarded following three years of negotiations. It contained specific targets, including loss-reduction targets and coverage targets, requiring that the concessionaire carry out 45,000 social (i.e. subsidized) connections per five-year period. Water coverage in the areas previously served through standpipes was supposed to reach 85 percent in the fifth year, 95 percent in the 10th year, and 100 percent in the 25th year. Those targets were defined on an overall basis, without specifying priority areas and with an unreliable information base. Although the contract is called a "concession" and the operator is remunerated from revenues of sales to end consumers, funds for investing in social connections come from financial contributions from newly connected users and municipalities and are channeled through a "Special Works Fund" (*Fonds de Travaux*). The concessionaire has met most of its obligations, and customer satisfaction is deemed to be high. However, the company has not been able to meet its coverage obligations for a number of reasons: Targets were set at very ambitious and probably, unrealistic, levels compared to the previous rate of service extension. At the end of 2002, Lydec had made 4067 social connections to the water system and 169 to sanitation. This is much below what was anticipated.

Social connections can only be provided in social areas, if the area is close to the network and has permanent buildings that are purely for domestic use. Informal slum areas are therefore excluded, as well as informal constructions on terraces, where a lot of poor people live. Those criteria were defined by municipalities, which do not wish to legalize such areas and do not want to finance service extensions in those areas. The concessionaire has been trying to get the municipalities to modify those criteria, but with limited success until a recent initiative by the King which has turned a prohibition on serving those areas into an obligation to serve them with associated financing.

Service extensions in "illegal" areas were not taken into account in the design of the financing mechanisms for the contract. The Special Works Fund was set up to finance works in the core "legal" areas of the city. Even if criteria for making social connections were relaxed, this financing mechanism would not be sufficient to fund their expansion in illegal areas.

The tariff structure gives a disincentive to the concessionaire to serve those areas. Lydec is largely a water distributor; it must purchase water from ONEP, the publicly owned bulk water supplier operating throughout the country. The tariff at which it purchases water in bulk (set nationally) is actually higher than the social tariff (also set nationally). Given that 69 percent of clients who have received a social connection consume in the social tariff "band" (as opposed to 50 percent for all customers), Lydec has no incentive to serve those customers because it would be below cost. Regulatory intervention would be needed to modify such a tariff structure but has so far not been forthcoming. The concession contract contains a clause that in theory guarantees the level of the average tariff. If the structure of consumption varies in a way that is detrimental to the concessionaire (for example, if the share of consumption in the lower tariff block increases faster than the one in the higher tariff blocks), tariffs must be adjusted to compensate the concessionaire. However, this mechanism has never been applied and the tariffs have not been adjusted accordingly; the concessionaire is awaiting the tariff renegotiation (due soon).

water and electricity services in Gabon, for example, although in that case the contract was restrictive in terms of allowing service extensions through alternative service providers. If differentiated service levels are allowed, targets should be specified in terms of access to the service rather than in terms of coverage, as this term would usually refer to in-house connection only.

Give incentives to the main operator to subcontract with smaller operators. One way of allowing differentiated service levels is to allow the main service providers to extend coverage either directly (through domestic or public connections) or indirectly (through sales to independent entrepreneurs, who would then sell the water on through their own distribution networks or methods). This is allowed in some cases, such as in the concession contract in Manila in the Philippines, but not in others, such as in the concession contract in Gabon, which specifically excludes indirect sales from meeting coverage targets.

Define clear institutional mechanisms to verify enforcement of coverage targets. Coverage targets can only be enforced if adequate institutional mechanisms are in place to enforce them. Such a task may be very time-consuming or costly and need to be performed only from time to time. The appropriate monitoring mechanism may therefore not be a permanent institution but other ad hoc mechanisms, potentially contracted by the institution in charge of regulatory functions. For example in Gabon, the concession contract defined coverage as the percentage of the population receiving service, with five-year objectives in five different types of location (on or off the main network, and in the main population centers). This requires estimating the number of people being served by each connection, as well as the total population in the country. Gabon is a small country of less than 1 million people, but the census is very seldom updated. Therefore, the contract had to incorporate a mechanism whereby external consultants would be hired every five years to conduct a five-year coverage study, to be financed through a small levy on the concessionaire. Results of the study are passed on to the regulator (in that case, a ministerial department), which can then decide on that basis whether to apply penalties or not (if the coverage targets have not been met). Specifying this kind of independent performance monitoring mechanism in advance and allocating sufficient funding to it can enhance the transparency of the regulatory process.

Use incentives to serve the poor, as well as obligations. In many cases, coverage targets (with associated penalties if the targets are not met) may not be the most appropriate way to encourage coverage extensions, because financing cannot be guaranteed in advance or is likely to be extremely limited. In such cases, using incentives to foster coverage extension may be more appropriate than relying on coverage targets with associated penalties, simply because it is preferable to encourage whatever can be achieved rather than to penalize retrospectively for what could not have been achieved. The philosophy underlying output-based aid (OBA) programs is based on this idea, and most OBA schemes currently being developed in the water sector are focused on extending services to poor areas (see box 4). Such OBA schemes can potentially be grafted onto any type of existing service contracts and provided to large and small providers, public or private. It should be noted that social connection programs of this type have been conducted successfully for some time in African countries such as Senegal or Côte d'Ivoire, whereby free connections were provided by a private operator under a lease contract with public financing.

A key concern when designing such schemes is to ensure that the services provided to those new connections are financially viable. For example, if the social volumetric tariff is below cost, the incentive to serve those new connections on an ongoing basis would be substantially reduced. This concern can be alleviated if the operator's remuneration is subsidized so that it has no disincentive to

Box 4 Output-Based Aid (OBA) Financing for Water (and Sanitation) Coverage Extensions

Output-based aid is a concept and method promoted by the World Bank to change the way external financing is provided to service providers in the utility sectors, but also in health and education sectors. The idea consists of providing subsidies based on outputs effectively delivered by a service provider rather than up-front input subsidies. The advantages of such a methodology are stronger incentives given to the provider to actually deliver the service. It also allows the mobilizing of private sector financing up-front, which can be very useful when there are constraints on public financing. In the water sector, OBA methods can be applied in various ways, including to provide subsidies for new connections (coverage extension) or to provide consumption-based subsidies to cover the gap between cost-recovering and social tariffs. However, output-based subsidies for new water connections or sanitation facilities are the most commonly used; they have been used in Paraguay and Cambodia and are currently being tested in Morocco and other places. They usually consist of providing a fixed payment to an operator for providing connections to poor households for free. The payment would usually be the bidding criteria (or the subsidy amount as an alternative).

serve poor customers. This is what the affermage contract as designed in Senegal, allows, for example (see box 5).

3.1.2 Who Should Do What?

If an analysis of the regulatory framework shows that the initial regulatory design is not conducive to extending services to the poor in such a way, changes need to be introduced either by policy makers or by the regulator. Some modifications would require a policy decision, whereas others are more regulatory in nature, even though the regulator would often need political backing to implement the changes.

A typical example of a policy decision relates to the modification of rules for providing a connection. Frequently, municipalities and central governments do not want to improve service in slums or illegal areas and therefore deny access to the service to those without legal title to the land. This is basically a political issue, with implications for overall urban planning, and only strong political will can overcome such a constraint. In the case of Morocco (discussed in box 3), the Moroccan government changed its mind on this issue after the Casablanca terrorist actions in 2003. After the bombings, the Casablanca municipality allowed Lydec to develop a policy of social electricity connections in the slum areas, in order to counter the social activities of Islamic fundamentalist groups. Such extensions will also be possible for water services following the recent announcement by the King of Morocco of a national program for human development, which will entail providing services in slums. In some cases, however, the regulator can take the lead for modifying the existing regulatory framework with respect to access and coverage, in coordination with policy makers. In Buenos Aires (Argentina), for example, coverage targets had been set by five-year intervals and by area, but these areas were quite large and further priorities needed to be set. Whereas the concessionaire (Aguas Argentinas, a subsidiary of Suez Environment) made recommendations for assigning priorities, municipalities later got involved in defining priority areas in coordination with ETOSS, the tripartite regulator for the contract, with participation from the national, provincial, and municipal governments.

The modification of rules relating to access could be done in several ways, depending on regulatory constraints and on whether a policy or a regulatory decision is required. Examples of measures that could be taken are summarized in table 3.

If a policy decision is not forthcoming, to relax the rules on land tenure for example, the regulator may be able to address such regulatory constraints indirectly. In Manila, for example, the regulator allowed a moratorium on demolitions and the use of above-ground pipes by small operators, which allowed them to serve poor customers in areas the main concessionaires could not serve.

In cases where coverage targets are adjusted and relaxed compared with the original targets, the operator's remuneration would need to be adjusted to reflect those changes. If the coverage targets are embodied in a contract, the regulator would usually formulate recommendations on such adjustments, and the conceding authority would then make adjustments in the agreement with the concessionaire. If the regulator issued a license, some license changes can sometimes be introduced

Box 5 Affermage Contract in Senegal and Incentives to Serve Poor Customers

An affermage contract is similar to a lease contract in terms of sharing of responsibilities between the public and the private parties but there are key differences in terms of the flow of funds between those parties. Under an affermage contract, the operator receives an affermage fee based on the volume of water sold. The difference between total tariff revenues and the operator's remuneration returns back to the asset-holding company or to the State (depending on the institutional arrangements), to finance investments. The private operator is partly shielded from the revenue risk and earns the same remuneration per cubic meter sold, irrespective of whether water was sold at the social tariff or at the industrial tariff. By contrast, under a lease contract, the operator retains revenue from the customer tariff and pays the contracting authority a specified lease payment. The operator's remuneration is therefore directly linked to the amount of cash collected minus a fixed lease fee that it must pay to the asset-holding company or the State. The lease-holder would therefore bear the full commercial risk.

In the affermage contract in Senegal, the operator's remuneration per cubic meter of water sold is fixed, irrespective of whether the operator sells water at the social tariff or the commercial tariff (with some adjustments to reflect performance at reducing non-revenue water and improving tariff collection). If the total operator's remuneration were to be higher than tariff proceeds as a result, the asset-holding company would need to pay the difference (although this has not occurred in practice) or tariffs would need to be increased. The private operator therefore has an incentive to serve the poor, as it can earn the same remuneration per cubic meter from selling water to them and there is strong unmet demand in poor areas at present.

Table 3 Making the Regulatory Framework More Conducive to Expanding Access

<i>Typical regulatory constraint</i>	<i>Policy measure</i>	<i>Regulatory measure</i>
No connection can be made without land tenure	<ul style="list-style-type: none"> Relax this rule 	<ul style="list-style-type: none"> Allow arrangements where the main service provider can collaborate with alternative providers to serve customers Regulate bulk water tariffs as well as retail tariffs
Coverage targets are too vague or too ambitious	<ul style="list-style-type: none"> Give policy direction to the regulator to reach suitable arrangements with the utility 	<ul style="list-style-type: none"> Specify service areas and timing of coverage expansion Adjust coverage targets to available funds or conditions
Coverage targets are too restrictive, focusing on in-house connections only	<ul style="list-style-type: none"> Allow differentiated service levels or give policy direction to the regulator to do so 	<ul style="list-style-type: none"> Evaluate the scope for and potential impact of differentiated service levels
Coverage targets are not funded	<ul style="list-style-type: none"> Allocate funds to meet the costs of expansion, potentially on an OBA basis 	<ul style="list-style-type: none"> Recommend changes in tariffs to meet the costs of expansion Monitor outputs if subsidies provided are based on outputs

unilaterally by the regulator following a due process of consultation. If a contract is in place and coverage targets were inappropriately defined in the first place, the regulator may seek agreement among the parties to modify those targets to set them at more realistic (and therefore, enforceable) levels. This can be done either in the context of contract renegotiation or in the course of a periodic review, provided the remuneration of the operator is adjusted to reflect such modifications. This is particularly important because coverage targets would typically have a substantial financial impact on the provider, as they are linked to investment programs.

If incentive schemes such as output-based schemes, are introduced, the regulator may have a role to play in the monitoring of the outputs to ensure that the connections giving rise to a subsidy have effectively been carried out. This would largely depend on the institutional structure retained for the design of the subsidy scheme. In any event, the regulator should be associated with the design of such a scheme and closely follow its introduction, because it would be linked to issues such as specification and monitoring of performance as well as tariff setting. Note that the setting of more specific and enforceable coverage targets often requires additional information. Mechanisms for gauging demand and obtaining information are highlighted later in this chapter, in the section "Improving the Focus on Poor Customers".

3.2 Targeting Subsidies

Subsidies are directly linked to tariffs, given that in most cases subsidies are passed on through consumption or connection tariffs rather than in the form of direct transfers. The authority in charge of setting tariffs (both tariff levels and structure) therefore implicitly determines the amount of subsidies to poor customers, except in the rare cases of direct transfers. But subsidies are only one instrument that can be used to benefit the poor; therefore, decisions on subsidies must be coordinated with decisions on other aspects such as the service level and the extent of coverage.

3.2.1 Low Tariffs Not Necessarily of Benefit to the Poor

There is often a tendency to think that water tariffs that are most advantageous for poor customers are the "lowest possible price" and that increasing tariffs would therefore harm the poor rather than benefit them. While lower tariffs may be a valid long-term objective, especially when the service provider becomes more efficient, it is usually the case that *higher* tariffs in the first instance would be more beneficial to poor customers. This is because utilities need cost-covering tariffs in order to be able to invest and expand into previously unserved areas. As is commonly observed, tariffs are usually kept low by politicians who want to buy political capital. Such low tariffs negatively affect service quality and limit the utility's capacity to expand its services to nonserved customers. The subsidy that is implicitly provided by keeping tariffs low is limited to those who have access to piped water supplies,

when the urban poor are less likely to have access to such services and usually pay much higher tariffs for inadequate services. Keeping tariffs low only aggravates this state of affairs; on the contrary, increasing tariff levels to finance investment may be one of the most efficient ways of benefiting poor customers in the medium to long term.

3.2.2 Regulation of Tariff Structures along with Tariff Levels

The tariff structure (that is, the number of customer classes or consumption blocks and the level of tariffs for each of these classes or blocks) can also have a substantial impact on accessibility for the poor. There is abundant guidance in the literature on principles for setting tariffs that benefit the poor (see annex C for useful references), which can be boiled down to the following:

- Focus on providing connection subsidies, such as “social connections,” rather than consumption subsidies, and pay particular attention to defining the criteria for awarding such social connections to those most in need.
- Introduce bulk water tariffs in order to facilitate water resale arrangements (see the section on “Regulating Alternative Service Providers” for more details).
- When metering is in place, improve the design of the tariff structure by reducing the size of the first block in the case of increasing block tariffs, or move to volume-differentiated tariffs, whereby only those consuming less than a lifeline volume get a subsidy.

When metering is not universal, principles for tariff design are less clear because it would be necessary to consider the trade-offs between introducing universal metering and applying some other form of tariff differentiation that is based on geographic location or means testing.

3.2.3 Subsidies to Make Access More Affordable

Considerable evidence has been accumulated demonstrating that connection subsidies are more efficient than consumption subsidies for targeting subsidies onto poor customers. The common argument made in favor of connection subsidies is that the single most significant barrier to the poor having access to services is high connection charges, although non-price barriers such as land tenure or administrative procedures are also significant and should be dealt with (see section 3.1). As a first step, connection charges can be reduced by eliminating additional costs that artificially increase the cost of a new connection or the fixed charge for this connection. For example, the meter rental charge in Djibouti is set so that the cost of the meter is depreciated in three months. This is obviously too high and drives away poor consumers who cannot afford such a high charge.

If subsidies are provided for social connections, clear criteria should be defined for identifying the poor. Experiences in Senegal and Côte d'Ivoire reveal that although the existing social connection programs are intended to target the poor, they often do not reach those they are expecting to target, that is, the very poor, because in both countries' cases, communities are eligible only if they have secured land tenure, a criterion that precludes the very poor living in informal settlements (Debomy, Lauria, and Hopkins 2005).

3.2.4 Improvements in the Design of Tariff Structures

Tariff structures often incorporate a “social block,” that is, a low consumption block for which the tariff is supposed to be affordable. The underlying assumption is that poor consumers, if they can keep their consumption within that block, can benefit from lower tariffs. Obviously, a tariff structure with a social block would have better prospects of focusing subsidies on the poor if those consumers are already connected, which means that greater emphasis should be placed on subsidizing connections rather than on social tariffs. These block tariffs can be structured in various ways: increasing-block tariffs (IBTs) are stepped tariffs in which a different price per unit is charged for different blocks of consumption. In the case of an IBT, the price charged rises with each successive consumption block. If the first block is subsidized, customers consuming in the higher blocks would still benefit from this subsidy. An alternative way of structuring consumption subsidies can be described as a volume-differentiated tariff (VDT). With this type of tariff structure, consumers would be charged the unit price for the last block of their consumption, irrespective of the number of blocks. Only those who limit their consumption to the lower blocks would get a subsidy. Any household consuming above that threshold would pay the higher tariff for all of its consumption.

Whether this kind of tariff structure actually helps the poor is the subject of considerable debate. Analysts have pointed out that in some cases, such tariff structures can harm the poor because they would tend to consume more water (either through collective connections or standpipes) or would often be unconnected, therefore unable to benefit from this kind of cross-subsidy (termed *exclusion risk*). Besides, in many countries the percentage of metered connections is low, which means that this tariff structure (and embedded subsidy) would benefit only a small portion of the population. In Nairobi, Kenya, for example, less than 25 percent of customers are metered, which means that the increasing-block tariff structure does not necessarily benefit the poor. Where no meter is installed, a monthly flat fee of €1.84 is charged, whereas the first tariff block (for 10 m³) is charged at only €0.13.

Moreover, if the size of the first block is very large (that is, a relatively large monthly consumption gets subsidized), the error of inclusion then becomes high, with a large number of relatively well-off people benefiting from the subsidy. In a recent review of tariff structures in seven African countries for GTZ (Burkina Faso, Kenya, Mali, Senegal, Tanzania, Uganda, and Zambia), it was found that all countries had an increasing-block tariff except Uganda. The size of the social block varied from 5 m³ in DAWASA (the Dar es Salaam Water and Sewerage Authority in Tanzania) to 20 m³ in Mali or Senegal, where the difference in tariff level between the first block and the second block was also the sharpest. Large social blocks are also observed in Asia, where the size of the first block averages 13 m³ per month, or Latin America, where it averages 24 m³ per month, according to a recent study by the World Bank (Komives and others 2005). Because the size of the first block is quite high, the risk is that the significant subsidy provided to consumers in the first block could actually benefit many consumers who are relatively well-off.

One potential way of alleviating this problem is to reduce the size of the first block, if an IBT is in place. An optimal size for the first block in a block structure would usually be considered to be 6 m³ per month, which would be sufficient to provide a minimum of 40 litres per capita per day for a family of five. The World Bank study concluded that reducing the size of the first block is usually not as efficient as moving to a volume-differentiated tariff. Overall, it also concurred that reforming consumption subsidies was not going to substantially benefit the poor, as compared with introducing connection subsidies in areas where coverage is low.

3.2.5 Who Should Do What?

Increasing tariffs to cost-covering levels is typically a decision that would require strong political backing; the regulator alone may not succeed. The regulator may formulate recommendations on bringing tariffs to cost-covering levels, or in some cases, depending on its standing, may be able to impose such tariff changes. Recommendations formulated by regulators are often focused on maintaining the service provider's financial viability. However, to convey the importance of bringing tariff levels to cost-covering levels, regulators could evaluate the trade-offs between keeping tariffs below costs and having the opportunity cost of low coverage, estimated in economic terms, in an attempt to foster political backing for such difficult decisions.

The regulator may have more leeway to regulate tariff structures, as this is often considered to be more technical and attracts less attention from policy makers. In fact, many regulators themselves pay relatively little attention to the issue of tariff structure and are focused on setting tariff levels alone. The regulator could take the lead to review the existing tariff structure, including charges for a new connection and fixed charges, in order to evaluate whether subsidies (either cross-subsidies or direct subsidies) are targeted to those who most need them. Such analysis could make evident the trade-offs between various tariff structures and subsidy mechanisms. Ultimately, however, the decision to modify the tariff structure is likely to require political backing as well (probably in the context of a change in the tariff level), unless the regulator has strongly established its independence in this regard.

3.3 Regulating Service Quality

Quality standards are a key determinant of service costs and therefore drive tariff levels. One way of keeping tariffs at affordable levels while recovering service costs is to adapt quality standards to local needs. Quality regulation therefore needs to be flexible and to consider the trade-offs between service quality and price, so that quality standards and requirements can be adapted to the circumstances in different service areas and to the types of customers and service providers.

3.3.1 What Quality Aspects Should Be Considered?

Service quality can have many facets. First, it is important to agree on what constitutes key quality parameters before evaluating the impact that varying those quality parameters can have on costs and on the potential to reduce tariffs. Quality characteristics usually include the following types:

- Quality standards that have an impact on society as a whole. These would typically include water abstraction or discharge standards, which have an impact on the environment. These standards would need to be regulated under any type of contractual arrangements.
- Quality standards that are not perceived by customers would be the engineering and construction standards that are set in order to ensure the reliability and durability of the installations. They may also include health and safety requirements for the operator's workers. In the case of short-term private sector contracts (or even construction contracts), it is particularly important to monitor those so that the operators (or constructors) are not tempted to save on construction costs.
- Service quality parameters that are perceived by customers would typically include service characteristics such as hours of service, pressure, taste, physical characteristics (color, turbidity, etc), potability, and customer service standards (time for installing a new connection, repairing leaks, or answering and resolving a complaint; billing options, etc.).

3.3.2 Environmental Standards Should Be Set Based on Consideration of their Costs

In developing countries, environmental standards are either nonexistent or typically set at relatively high standards that are difficult or too costly for operators to meet. However, regulating the impact of water services on the environment is acutely required, particularly when there are risks of overabstraction or contamination of water sources. Inappropriate regulation may actually have a substantial impact on the operators' costs, for example, if overabstraction of groundwater resources means that the next available water source requires building a large diversion scheme. It may also have a substantial impact on poor people, who are more likely to rely on wells or other water sources that run the risk of drying up or who are more likely to live next to contaminated water bodies. Regulating such aspects would usually be the remit of regulators in charge of environmental regulation functions (see annex A for a description of such functions). Regulators in charge of economic regulation can do relatively little in this area, except for the following:

- Alert responsible ministries to the negative impact that inadequate enforcement of standards is having on vulnerable poor people.
- When tariffs are being reset, alert responsible authorities to the impact of standards on service providers' costs.
- Potentially recommend alternative standards that would be more enforceable and focused on outcomes rather than inputs.

3.3.3 Technical Standards Should be Adapted to Circumstances

In many countries, technical standards have been imported from developed countries and are too costly, given the local circumstances. In many cases, engineering and construction standards could vary to reflect the local geography without any significant loss in quality. This is because the soil condition, weather (including fluctuations in temperature), and other geographical matters may affect the design specifications for abstraction technology, water supply delivery, and treatment procedures. In practice, however, such standards are often the same as in developed countries.

Design standards are often applied from project to project without appropriate adjustments, thereby resulting in higher construction and operation costs. This may be because they are considered best practices, and engineers would not want to consider lowering such standards. In other cases, however, the standards may have been imported from another country (typically, the former colonial power) without appropriate adjustments. Such standards may create artificial barriers to entry and limit innovation, particularly if they are focused on inputs and processes. For example, in Paraguay, alternative service providers such as the Aguateros use low-cost technologies, using simple well-drilling techniques and plastic hosing. As a result, they have managed to reduce installation costs of small water networks to US\$250 per person, whereas the regulatory standards that govern construction for

the main utility are very rigid, calling for more expensive technologies (Solo 2003). Appropriate incentives often are not present that would have the public utilities revisit the applicability of design and engineering standards. Therefore, alternative service providers can often bring lower-cost technologies and therefore make the extension of new service more affordable and more feasible for the poor. However, in order to do this sustainably, those providers must be recognized and adequately regulated (see section 3.4). They can then play a demonstration role and develop standards that could later be adopted by the main utility in order to compete and keep costs down.

3.3.4 Customer Service Standards Can Be Varied to Reflect Preferences

Customer service standards may vary based on customers' preferences and trade-off calculations between quality and price. They typically vary from one geographical area to another or from rich to poor areas. In poor areas, it may be possible to lower certain service characteristics in order to reduce the cost of service or the amount of subsidy required to expand service into those areas. For example, it may be possible to supply water at a lower pressure in periurban areas than in the dense urban center, simply because the buildings tend to be lower in those areas. By lowering design specifications with respect to pressure, the system may be able to provide the same quality of service to the end customer. This would be highly dependent on the topography of the service area, however, and on whether periurban areas are located on hills or on flat lands surrounding the urban center. In addition, because of the network nature of water services, service quality parameters, such as pressure, may be difficult to vary if, for example, only one production facility feeds the whole system.

For all these quality parameters, the impact of lowering the standards would need to be considered based on the costs and benefits of such actions, taking into account the potential cost savings and the impact on customer welfare. In all cases, it would also be preferable to focus on outcomes rather than on input standards so as to ensure that standards are not set at excessive levels.

3.3.5 What Instruments Can Be Used to Enforce Quality Requirements?

Besides its advisory role in setting standards, the regulator may be involved in verifying that the standards are applied effectively. In that case, it should consider other regulatory instruments apart from applying penalties for noncompliance. Penalties can be particularly stifling, especially if the service provider does not have the financial means to implement the standards, for example, if they have been set too high and tariff revenues are insufficient to cover the supplier's costs. Additional regulatory tools, such as benchmarking performance on a certain number of indicators between providers, or relying on self-regulation (whereby providers try to distinguish themselves by offering better quality guarantees), may be more appropriate than applying penalties.

3.3.6 Who Should Do What?

Setting quality standards is often the prerogative of the policy-making body, that is, the ministry responsible for that particular aspect. This may be the Ministry of Health for drinking water standards, the Ministry of Environment for abstraction and discharge standards, the Ministry of Public Works for construction standards, and so forth.

The institutions in charge of regulatory functions often have merely an advisory role for setting standards, except perhaps for customer service standards, which are more related to individual preferences rather than to society's preferences (such as billing methods, for example). However, variations in standards can have a significant impact on tariff levels. It would therefore be important to at least consult the institution in charge of economic regulation when setting such standards or to delegate them such responsibility. If consulted, the regulator could play a significant role in recommending adjustments that better reflect customers' preferences and, in particular, poor customers' preferences.

Regulators can work with standard-setting authorities to give incentives for innovation and the development of technical solutions that are suitable at lower prices. The water regulator in Bolivia, for example, took part in a partnership that tested the applicability of alternative standards for La Paz and El Alto. Those methods expanded water and sewerage services at a lower cost through the use of condominium networks, an innovation previously introduced in Brazil (see box 6). Testing of this new standard showed the possibility of achieving substantial reductions in costs, and the ministry later decided to adopt it as the new national standard.

Regulators may have more leeway to adapt customer service standards to reflect local preferences. However, this would depend on the institutional setup and on their willingness to be flexible. For example, in Colombia, the private operator of water services in the city of Cartagena found that customers in poor areas had a strong preference for receiving two bills a month, rather than one, in order to be able to monitor their expenditure more closely. However, the national norms specified that billing should be done monthly. The operator applied for a change of rule to the national regulator, CRA, but the latter refused to grant an exemption. The operator therefore had to find a way of “going around the rule”: even though it continued to send monthly bills, it started collecting payments in two installments per month to answer its customers' needs. In other cases, the regulator has been more in tune with operators' and customers' needs and more willing to adjust the rules accordingly. In Durban, South Africa, for example, the municipality (which also owns the municipal operator, Durban Metro Water Services) let the municipal company experiment with alternative service standards in order to meet the needs of customers in poor areas (see box 7). However, such innovations may have been easier in that case because the policy-making and regulatory functions are combined within the municipality, with internal checks and balances.

Box 6 Introducing Condominial Water and Sewerage Networks in La Paz and El Alto, Bolivia

In 1997, the Bolivian government signed a 30-year concession contract for water and sewerage services in the capital city of La Paz and adjacent El Alto (a poor neighborhood located on a plateau above La Paz). The contract set ambitious coverage targets for the private operator, setting out that all new connections had to be domestic and that the private operator had to close down existing standpipes. The concessionaire made significant efforts to extend coverage so that it met most of its coverage obligations, but this placed him in a difficult financial situation, as demand from these new connections was much lower than from connections in rich areas. By entering into a partnership with public and civil society actors (including the water regulator), the concessionaire introduced a new standard—condominial water and sewerage—that allowed reductions in the costs of expanding water and sewerage services. This standard involved technical innovation (with the use of shorter and shallower networks), hygiene education, community participation for construction and maintenance as well as microcredit for sanitary installations. It is estimated that, as a result of these innovations, network costs could go down by 10 to 20 percent and digging costs by 45 to 75 percent. Total cost savings for network expansion were around 40 percent for water and 25 percent for sewerage (in Brazil sewerage savings were 20 percent).

The introduction of this new standard was not without problems, however. The connection charge to those condominial networks was not lowered, and the only way that poor customers could get a reduction was by contributing their own labor. As a result, there were some difficulties getting people to accept the different standards. Also, they were labeled as “standards for the poor,” which, for example, had a negative effect on the price of the property. However, because the national water regulator (SSB) had been part of the partnership set up to test this new standard, it promptly recognized the standard's benefits and pushed for its incorporation in the new construction standards drafted by the ministry. The ministry later adopted construction standards that recognize condominial networks as an acceptable standard for the country as a whole.

Note: See annex D for more information.

Box 7 Adapting Quality Standards in Durban, South Africa

Durban Metro Water Services (DMWS), the municipal water service provider in Durban, has introduced a series of innovations to provide services to poor, predominantly black neighborhoods that were incorporated into its urban territory following the end of apartheid. The first was the adoption of the Free Basic Water Policy, that is, the provision of 6 cubic meters of water for free to all customers. This policy was deemed appropriate in Durban because the number of high-income customers (in particular, commercial customers) makes cross-subsidization of low-income customers eminently possible. The second innovation had to do with varying quality standards and giving customers the ability to choose among a range of options with varying price and quality characteristics. For example, DMWS developed nonpressurized water systems with the provision of a roof tank as an alternative to a full-pressurized system (which may be unaffordable to some) or paying standpipe supplies (which are unattractive and often result in very low payment rates). In the nonpressurized system, water is reticulated using small-diameter piping, which is laid along the major access routes or tracks located within the informal area. At appropriate intervals, connections are made to this reticulation, and a manifold, which allows approximately 20 houses to connect to the water main, is installed. Each consumer receives a 200-litre water tank (or a number of tanks) that is serviced by a water bailiff every day. This system results in a low level of unaccounted-for water (UFW) because of the low pressure and effective management of customer demand. The overall water consumption through such a service delivery system is estimated to be up to 50 percent less than conventional systems to communities of similar profile. The approach nevertheless provides sufficient water to households to maintain a basic level of hygiene and health.

Note: See annex D for more information.

3.4 Regulating Alternative Service Providers

Alternative service providers, such as small network operators or water resellers, often account for a very important share of the market in developing countries (up to 60 or 70 percent), particularly in urban areas where they have emerged to serve customers in periurban areas not served by the main utility. Those alternative service providers have traditionally been relegated to illegality, because they are often considered a temporary solution that would need to be eliminated once the main utility (municipal or national) has developed sufficiently to expand its services in all areas.

Policy makers and regulators usually ignore those alternative service providers, because they deem that services can be provided more efficiently and at least cost through supporting the development of the main service provider, or they feel it would be too complicated or risky to try to regulate them. However, they have increasingly come to the realization that even though service provision by a large utility may be more cost-effective in the long run (thanks to economies of scale), there may be a long delay before the utility is in a position to extend services, during which time alternative providers can make a very positive contribution. Therefore, the role of alternative providers is increasingly being recognized. Cases of alternative service providers have been well documented in the literature, but examples of regulatory best practices are few and far between, as regulation would typically be nonexistent or too heavy-handed. Regulating alternative service providers has rapidly become one of the major challenges of water sector regulation, as demonstrated by the great interest this topic generated at a workshop on pro-poor regulation held in Nairobi in October 2005.

Below, we suggest a way of tackling this challenge based on what appears to be the main regulatory constraints facing these providers and provide an analysis of what policy makers and regulators can do to tackle those constraints.

3.4.1 Understanding the Market

To decide whether or not to bring alternative providers into the formal regulatory framework, regulators or policy makers must first have a better understanding of the market and services. The term "alternative water service providers," also referred to as small-scale independent providers (SSIPs) or independent water entrepreneurs, covers many distinct types of water supply solutions that may call for different regulatory regimes.

A recent report by Kariuki and Schwartz (2003) (in the annotated literature list) defined a typology of alternative water service providers and identified key regulatory issues for each of these types, as summarized in table 4. Two key distinctions can be made: whether they provide water to end consumers through piped networks, either at a single distribution point or through a mobile distribution system, such as tankers), and whether they get water in bulk from the main utility or whether they have an independent water source. A similar typology could be drawn out for sanitation service providers.

In addition, domestic water resellers may also play a significant role in the market, even though they would be less organized. In many areas, poor customers buy water from neighbors. This frequently occurs when water is not metered, which means that households with a connection can get a significant income from this activity.

Water resale is a significant activity in Abidjan, in Côte d'Ivoire, even though water is metered. Water resellers formed an association (AREQUAPCI) to be formally recognized so they could obtain a specific license allowing them to purchase water at bulk tariffs rather than at the domestic tariff (to avoid the penalizing impact of increasing block tariffs).

Consumers would generally take water from a combination of such sources. For example, the national regulatory agency for Mozambique (CRA) conducted a study in Maputo and found that the main utility, which the agency regulates, serves 60 percent of the market (20 percent through domestic connections, 20 percent through standpipes, and 20 percent indirectly through neighbor resale), whereas small network operators serve 30 percent of the market (11 percent through house connections and 19 percent through standpipes). The remaining 10 percent get water from wells or their own boreholes. In Maputo, the market share of small network operators is rapidly growing as they expand their networks, but this is likely to change because of an upcoming major investment project by FIPAG, the asset-holding company, which could displace some of the existing operators. The regulator must therefore quickly define the regulatory regime for those operators and identify what contribution they can make to the sector so as to avoid displacing them without compensation, which could lead to retaliation. Alternative providers have recently organized themselves to form a provider

Table 4 Types of Alternative Water Service Providers

<i>Key Features</i>	<i>Dependent on the main utility for bulk water</i>	<i>Independent bulk water source</i>
Piped networks		
Type of system	Private operator purchases bulk water from a public authority or utility and distributes to consumers through piped networks.	Private operator relies on or develops its own bulk water source (wells and the like) and connects consumers through piped networks.
Main regulatory issues	<ul style="list-style-type: none"> • Contract with the utility or bulk supplier • Bulk water rates • Business or operations license • Customer agreements • Consumer tariffs • Service quality 	<ul style="list-style-type: none"> • Groundwater extraction permits (where applicable) • Land title deeds • Resale permits • Bulk water quality testing • Business or operating licenses • Customer agreements • Consumer tariffs • Service quality
Point sources		
Type of system	Point sources—kiosks, standpipes, or even household connections—are connected to a public utility network. Consumers purchase water in bulk from the point source.	Point source is linked to a private bulk water supply such as a well or borehole. Consumers purchase water in bulk from the point source or from tankers that transport water from the bulk source.
Main regulatory issues	<ul style="list-style-type: none"> • Contract with the utility and agreement to off-sell • Operating license or permit • Bulk purchase price • Operator performance incentives • Consumer tariffs • Service quality 	<ul style="list-style-type: none"> • Groundwater extraction permit (where applicable) • Operating license or permit • Bulk water quality testing • Consumer tariff structure • Service quality
Mobile distributors		
Type of system	Tankers or trucks purchase water from bulk supplier (public utility) and deliver directly to consumers (institutional, commercial, and other users).	Tankers or trucks obtain water from private source and deliver directly to consumers (institutional, commercial, and other users).
Main regulatory issues	<ul style="list-style-type: none"> • Bulk water purchase rate • Contract with the utility • Business license • Transport license and vehicle regulations • Consumer tariffs • Service quality 	<ul style="list-style-type: none"> • Abstraction permits (where applicable) • Business license • Bulk water quality testing • Transport license and vehicle regulations • Consumer tariffs • Service quality

Source: Adapted from Kariuki and Schwartz 2003.

association and have initiated a dialogue with FIPAG (the asset-holding company in charge of making those investments) about their potential collaboration.

3.4.2 Recognizing Alternative Providers' Contribution

Once policy makers and regulators better understand the nature of the market, it is important to analyze the contribution that each segment of the provider market can make. Those suppliers can meet the needs of specific market segments much better than the utility is able to do. For example, Collignon and Vézina (2000) stressed that alternative providers had been able to reach populations that were previously unserved by African utilities, particularly those in illegal settlements (especially water resellers) or those consuming very low volumes of water, such as from water carts that sell water by the bucket.

Box 8 Water Trusts in Zambia

In Zambia, Water trusts are small network providers that have been established at the initiative of donors, in coordination with the local communities, in periurban areas of the capital city, Lusaka. They are currently operating in a legal vacuum, even though they collectively serve almost as many people as the public utility, Lusaka Water Services Company (37 percent of Lusaka's population are served by water trusts as opposed to 43 percent by LWSC, leaving 20 percent unserved). A recent survey carried out in the context of the Building Partnerships for Development (BPD) work on pro-poor regulation showed that they would like to see their services regularized and regulated, because they see that regulation would "enhance transparency and the trust of people in the Trusts." The main advantages they saw from regulation were that it could help "maintain standards and promote uniformity when it comes to water quality, accountability and transparency." However, they are keen to maintain their independence as well, and do not view favorably proposals to incorporate them into the main provider or to simply become their distributor. The solution currently being considered is for NWASCO, the national water service regulator, to issue them with either individual or collective licenses in order to regularize their operations

Source: Trémolet, Sophie, "Adapting regulation to the needs of the poor: Experience in 4 East African countries", BPD Research Series, May 2006.

An important first step is therefore for policy makers and the regulator to recognize the contribution that alternative providers can make to the sector. This would often represent a significant shift in emphasis, particularly if the regulator has previously been focusing on regulating the main service provider, and could therefore be marked by an open declaration. In Ghana (see box 14), PURC's (Public Utilities Regulatory Commission) Social Policy and Strategy for Water Regulation included such recognition as one of its key policy statements: "PURC recognizes the role and importance of secondary suppliers in the water distribution chain, particularly in reaching the urban poor. It will therefore support initiatives that enhance their capacity to deliver acceptable service at an affordable price."

Small providers themselves would be aware of the advantages of obtaining legal recognition and would therefore call for increased regulation, as in Zambia (see box 8). The main advantages of regulation for alternative providers would be increased security of investment, lower risk of expropriation, and improved access to finance. Those factors combined can lead to higher levels of investment in the sector, as happened in Ho Chi Minh City (see box 9).

3.4.3 Bringing Alternative Providers into the Formal Sector

The next step would entail bringing alternative providers into the formal sector or at least not relegating them to illegality. This could start with the lifting of exclusivity clauses awarded to the main utility over the urbanized area, especially when this does not reflect the reality on the ground. Of course, as exclusivity provides security for large operators, the latter may require compensation for any restriction to their exclusivity. It is important to note that exclusivity clauses may take many forms, ranging from exclusivity over water abstraction or distribution to extremely high service standards that implicitly exclude alternative service providers. For example, Bolivia's regulations regarding concession awards implied that the private operator, Aguas del Illimani (AISA), is the only entity that can legally provide water service in its concession area. The concession contract required the concessionaire to meter and eliminate all standpipes in the first years of the contract, and the 1992 regulations prohibited (AISA) from leaving public standpipes opened once a street receives in-house water connections. Similarly, households had to obtain authorization from the utility to keep a septic tank open once sewer service became available on their street. Finally, AISA could charge private wells for groundwater abstraction based on a tariff approved by the regulator.

It may also be that only one aspect of water service is covered by an exclusivity clause, but that would be sufficient to legally prevent alternative providers from providing service. Criteria for providing services, and corresponding operational and management requirements, can also exclude alternative providers. For example, in Colombia, alternative providers were essentially precluded from legally extending services because legal requirements stipulated

Box 9 Alternative Providers in Ho Chi Minh City, Vietnam

The regulatory authorities in Ho Chi Minh City adopted a deliberate policy of legitimizing alternative providers to encourage them to extend and improve services. This policy built on the observation that the public utility (Ho Chi Minh Water Supply Company) was unable to expand services and produce water at a rate to meet demand (particularly for the unserved poor). The municipal government defined a contractual regime whereby the rights and responsibilities of these alternative providers would be clearly set out in 5- to 10-year contracts. The right to provide services transferred to those operators is limited to this period (but guaranteed) in order to allow the public utility to provide service in that area at the end of the period or before, provided appropriate financial compensation is paid.

Note: See annex D for more information.

that each “public service enterprise” have an accounting department that employs one full-time professional accountant, which is usually justified only for businesses with a minimum of 14,000 clients (see Solo 2003).

Turning alternative providers into completely legal entities may be relatively complicated, as it requires that service providers obtain several authorizations, permissions, or licenses from various institutions, such as the corporate registration, tax, and social security authorities; the land registry and planning authorities; and the regulators in charge of environmental regulation functions (for water abstractions and discharges) and those in charge of regulating economic functions (if a license is required to provide a public service). Coordination between those institutions would be required so that all agree to make this activity legal and define a more formal regime for it. Such coordination between various institutions proved critical for the recognition of existing small-scale service providers in Ho Chi Minh City (Vietnam), based on the acknowledgment that the public water utility alone would not be able to extend services to all areas of the city (see box 9).

It would be useful if one institution could play a lead role to coordinate those institutions. For example, it could organize a “one-stop shop” for small water providers to obtain all or most of the required authorizations at once. The institution that issues the most important licenses, which is typically the municipality or the institution in charge of regulation, is likely to take the lead.

3.4.4 Deciding When to Regulate Alternative Providers

Regulators and policy makers should avoid overregulating alternative providers because it may stifle the dynamism that rendered those providers useful in the first place. For example, requiring providers to obtain a license to operate would increase their operating costs and reduce their ability to provide services at relatively low cost. Those additional costs could include the costs of having to submit formal accounts or of having to comply with technical design standards and customer service specifications. If the operators do not see clear advantages from such regulation, they may simply not be interested and would stay away from the formal regulatory regime, unless they get financial incentives for doing so, as in Cambodia, for example (see box 10).

Therefore, developing the regulatory framework on the back of a financial program to support those operators may be a good way of securing their buy-in, which is crucial to ensure the success of the regulatory regime. In the case of Zambia, for example (see box 7), it would have been preferable to define the regulatory framework ahead of the creation of the water trusts and to make compliance with the regulatory framework a condition for financing. This would call for stronger coordination between the regulator and entities providing financing, including government entities, donors, and NGOs, particularly if the regulator is assuming a lead role to formalize alternative service providers.

3.4.5 Determining What Service Characteristics Should Be Regulated

As theory prescribes, regulation should be needed only to correct market failures, such as monopoly power, information asymmetry, or externalities (see annex A for a summary of principles underlying

Box 10 “Spontaneous” Operators in Cambodia: Deciding When to Become Formal

In the absence of efficient public utilities, particularly following damages from the civil war, Cambodia witnessed the emergence of spontaneous private operators providing public services such as water and electricity. It is estimated that 300 private water systems are operating in Cambodia at present, mostly serving small towns and large villages with more than 1,000 inhabitants. Of those, 35 private operators have received a license from the central ministry, whereas only 12 public systems have done so. Private operators have usually decided to apply for a license when they have been receiving subsidies from donors, which have mandated a more formal approach.

For example, some operators have received subsidies from French donors to invest in a small water treatment plant and expand the system. To award such funds, the technical assistance team requested that those operators (small family-run businesses that in some cases predated the project) enter into a delegation contract with the municipal government and obtain a license from the central government. Operators have complied with both requirements, even though the coordination of licenses and concession contracts is uncertain at present, because the legal framework has yet to be established at the national level. When operators received funding from the World Bank (through either OBA or DBL contracts), they have entered directly into a contract with the central government. However, these tended to be larger operators that were already operating in the formal sector. When operators have received no external funding, they usually operate in an informal manner, with the tacit agreement of local authorities.

Source: BURGEAP. Water Supply and Sanitation Project in Small Towns of Cambodia: Upcoming Report for the Agence Française de Développement (2006).

regulation). In an analysis of the alternative service provider market, it would be important to identify where market failures are at play and have a detrimental effect on customers or the environment. An analysis also should compare the potential benefits of establishing a regulatory regime with the actual costs of doing so, in terms of compliance costs for the operators and monitoring and regulatory costs. Given the diversity of alternative provider types that may be operating at the same time (see table 4), it would be necessary to carry out this analysis for each type of provider in order to develop suitable regulatory frameworks for each type.

Analysts of existing experiences with alternative providers usually conclude that "light-handed" regulation is required in order to keep costs down and avoid driving those providers out of business. But the key tenets of such light-handed regulation are seldom spelled out, probably because of the lack of actual experience at doing so. At the minimum, regulation should focus on securing a level playing field for all types of operators, including the large utility provider and small-scale providers. They should all be able to operate on comparable terms, including paying the same price for electricity and abstracting groundwater, for example.

Light-handed regulation may be developed based on identifying the key aspects of the service that are currently unsatisfactory and are important to customers (for example, affordability, quality, and reliability). It would be preferable to regulate only those service characteristics, while leaving others to be regulated through market forces (that is, competition).

For example, alternative providers are often criticized for the high prices they charge to end consumers, although recent studies show that profit margins are relatively low and that those operators have to survive on modest incomes (see Conan and Paniagua 2003). Tariffs may appear high because the operators usually would not benefit from any "soft financing" and need to cover the full costs of the system in order to repay their creditors (who are usually close relatives or friends). There are of course exceptions: mafia-like operators also exist, but they usually tend to be the exception, rather than the rule. In a recent survey of spontaneous operators in Cambodia (see box 10), it was found that only a few operators have a predatory behavior, trying to exploit a de facto monopoly position to extract high prices, for example. Instead, most of them saw the water business not only as an investment but also as a way of making a positive contribution to society.

Regulating tariffs to distinguish between the honest and the predatory operators would require a deep understanding of their cost structures, which may be very time-consuming and inefficient. In fact, competitive pressures between those operators are usually sufficient to maintain tariffs at acceptable levels. In the case of the Aguateros in Paraguay, for example, an in-depth study by Fernando Troyano found that independent private entrepreneurs in the capital city, Asunción, charged the same or slightly less for the volumetric and connection charge than the public water company did, and this without any external public supervision. If tariff regulation for independent entrepreneurs was attempted, the risk of getting it wrong also could be quite high, because setting maximum allowable tariffs below costs could actually drive those operators out of business. Regulating tariffs may also include regulating bulk tariffs and network access terms between the main provider and the alternative providers, if those are dependent on the main provider for their supplies (the middle column on table 4).

Tariff regulation of alternative providers is often difficult and not necessarily cost-effective for the regulator to get involved with, as opposed to other aspects such as quality regulation. In Ghana, for example, the in-depth survey mentioned below (see box 15) led PURC to conclude that "it would not regulate the prices charged by secondary suppliers in the near future." On the other hand, PURC decided that it "will institute appropriate mechanisms to regulate the quality of water supplied by these suppliers in order to safeguard the health and safety of consumers." This focus on quality rather than price is probably well-guided given the difficulties of regulating prices, as highlighted above.

3.4.6 Determining Who Should Regulate Alternative Providers?

For regulators to be effective, policy makers would need to give guidance on whether or not alternative providers should be incorporated in a more formal regulatory regime. In some cases, legitimizing alternative providers' existence and formalizing contracts (for example, between the main operator and the alternative providers) may be sufficient and would not call for the involvement of a regulator. Disputes would come under the judicial process of contract violations. That would be the case for alternative providers subcontracted to the main operator (such as water kiosks). To formalize their existence, the main operator would usually issue them with a contract and monitor the quality of

Box 11 The Experience of the CCAEP in Mali

Small towns in Mali are served in two main ways. The national operator, EDM (*Energie du Mali*), which is regulated by a national regulatory agency (CREE – *Commission de Régulation de l'Electricité et de l'Eau*), serves 16 towns. Local operators, which are supervised at the commune level, serve small urban centers and some rural centers. The CCAEP is a central-level structure that provides support to the communes for performing their regulatory functions. It was originally set up in the context of a German-funded project as a department within the ministry. It recently split into two private structures, one covering a few towns in a specific region and the other covering 49 centers in the rest of the country. Together, both structures currently supervise 63 centers out of the 200 equipped with small distribution networks. These structures have five main functions:

- To supervise all local operators in their perimeter from a technical and financial point of view, with audits taking place every six months (and the results of those audits communicated to all actors, including the state, donors, local municipalities, and consumers);
- To prepare end-of-year financial results and present those results to the water user associations;
- To provide daily support to local operators via radio and upon request;
- To carry out initial and ongoing training provided to local operators;
- To provide specific services on request (feasibility studies, development of management tools, procurement of spare parts, etc.).

The staff of the previous project management units, including financial specialists and engineers, set up both private service providers. They signed five-year contracts with the Water Ministry for the provision of the above-mentioned services to local operators. They give advice to the operators (who are not obliged to conform to this advice) and notify any bad performance to the Water Ministry or the municipality. They are financed through a fee of CFAF 20 (US\$0.03) levied on each cubic meter of water produced, and they can charge for specific services.

The assistance provided by these structures has significantly improved the performance of the local operators, with better cash-flow management, a reduction in water tariffs (reflecting better management), improved service quality, continuity, and an ability for many of those operators to self-finance a portion of the required investments. Tariffs vary between CFAF 200 and CFAF 650 per cubic meter and are around CFAF 500 on average (US\$0.89).

Source: Ballance, Tony, and Sophie Trémolet. 2005. "Private Sector Participation in Urban Water Supply in Sub-Saharan Africa." A study for KfW and GTZ.

the end service. If disputes arise, these could be resolved in court, or the regulator, with greater sector knowledge, may be required to step in to resolve the dispute quicker.

Regulation of alternative providers could be done by issuing simple licenses, with initial monitoring of service quality aspects identified as key (for example, raw water quality), followed by regular monitoring, as specified in the license. Licenses would be particularly appropriate for existing operators using their own infrastructure to deliver the service. The objective of the license would be to grant them the right (exclusive or nonexclusive) to operate in a given territory and to exercise public service prerogatives over this given territory. Such licenses would typically be issued by a regulator or by a local authority. Alternatively, the regulator could encourage local authorities to sign contracts for the management of their assets (either new assets, if they are financing them at the same time, or existing assets). In that case, the entity that owns the assets would sign a contract with the operator, while the regulator may simply be in charge of monitoring contract compliance. These are general principles, and the way licenses and contracts would be combined in practice would be highly dependent on the institutional and legal framework in place. Experiences in Cambodia or in West Africa demonstrate that alternative service providers are usually satisfied with entering into such contracts or obtaining a license, as long as they can see a benefit from doing so.

The entity tasked with oversight of the main water service provider may not necessarily be in the best position to carry out such light-handed regulation. It may be more efficient to define a "relay" that the main regulator can rely upon, that is, an institution that is sufficiently close to the alternative providers to be able to carry out local-level regulation without overstressing the body in charge of regulating the main provider. In that case, the main regulator may choose to forge alliances with such local-level institutions.

For example, in Mali, a national regulator is in charge of regulating water services in all urban centers above 10,000 inhabitants. However, in practice, the national regulator is focusing only on the 16 towns that are served by the main service provider and has not sought to regulate other towns, which are served by local-level providers that have signed a contract with the municipality. An ad hoc body, the CCAEP (*Cellule de Conseil aux Adductions d'Eau Potable / Council for the Supply of Treated Water*) (see box 11) is in charge of providing ad hoc technical assistance to the operators and supervising them at the same time. It could therefore be argued that the CCAEP is performing regulatory

functions over those providers. Those local-level providers have strongly benefited from such light-handed and supporting regulation, which could be characterized as developmental regulation.

Another type of institution that regulators may rely on are service provider associations. We mentioned above the role played by AREQUAPCI in Côte d'Ivoire in militating in favor of a more attractive regime for water resellers in Abidjan. But such associations can also be relied upon to implement some benchmarking regimes, whereby the association itself publishes information on the performance of its members. Belonging to the association in the first place can be a sign that the service provider complies with certain principles, which would increase the customers' trust. If the association publishes league tables of its members, this can act as a strong incentive for its members to improve their performance, even better than a more formal licensing regime.

The role of such associations has received increased interest in recent years, and World Bank-financed research was recently initiated to look at their potential role by reviewing the experience of existing associations. That review shows that although service provider associations may play a useful role, they are often fragile institutions that may fail if they are not established in a credible and sound manner. When such associations are set up through external initiatives (at the initiative of donors, for example), they may not function as efficiently because they may be perceived as imposed rather than as endogenous developments. Such problems were reported with the vendors' association Maji Bora Kibera (MBK) in Nairobi, Kenya, which was created at the initiative of the Water and Sanitation Program, because the association allegedly lacked independence from its sponsor and had no enforcement mechanism over vendors.

3.5 Improving the Focus on Poor Customers

A key first step for adopting these practical measures and reflecting the needs of poor customers in the regulatory framework would be to improve the knowledge of poor customers' situations. With such understanding, policy makers and regulators could recommend changes to reflect the principles and practical guidance highlighted above. Depending on its remit, the regulator could take the lead in initiating and guiding this type of research as well as feeding the information into decision making at the right level.

3.5.1 Better Information about the Poor Is Needed

Proposed changes to the regulatory framework should be based on a good knowledge base about where the poor are, what their current problems are, and what they want. This may require conducting regular surveys or forming partnerships with other organizations that have access to this information. Indeed, some of this information may already be collected by agencies responsible for socioeconomic surveys and social protection systems in the country. These are not institutions in the water sector itself but rather are central agencies, universities, think tanks, and so forth that are working on the development and implementation of social programs. These agencies would have the most detailed information available on poverty and household characteristics, but this information is not always communicated to or used in the water sector by policy makers, regulators, or service providers alike.

If available information is not sufficiently detailed or adequate, it may be necessary to commission separate surveys or mapping exercises, for example, to combine available poverty information with maps of networks managed by the main utility of independent entrepreneurs. An objective of such surveys might, for example, be to identify where the poor are, that is, whether they are concentrated in specific periurban areas or spread around the city, because this distribution would call for different methods to target subsidies or define service quality requirements. Those surveys could also assess poor customers' preferences and circumstances in more detail (including non-price barriers to connection). Such exercises have been conducted in the context of preparing private sector transactions (see box 12) or designing subsidy schemes (in particular, for the design of OBA financing schemes), but they are more rarely undertaken in the context of existing regulatory frameworks.

Surveys have their limitations, however. They are often costly to undertake and can only give a snapshot of the situation at any given time. Unless a system is established to track this information over time, the results are likely to become quickly obsolete, especially given that poverty is by definition a very transient and precarious situation. People often move in and out of poverty (following

Box 12 Upstream Work for the Design of Pro-Poor Private Sector Transactions

This global activity, supported by the World Bank-Netherlands Water Partnership (BNWP), focused on conducting upstream work such as surveys and consultation exercises that would help design private sector transactions to benefit poor customers. Projects were carried out in parallel in Sri Lanka, Peru (Piura and Tumbes), and Honduras (Tegucigalpa). Based on comprehensive surveys of consumers that aimed at identifying where the poor are located and how they currently get services, the projects formulated concrete legal, regulatory, and contractual solutions to give system operators incentives to serve the poor. An essential part of this process was to understand the present service conditions of the poor and to study their preferences concerning improvements in the coverage and quality of water and sanitation services. In Sri Lanka and Peru, the studies were undertaken in the context of transactions that were already under way, so that the scope for informing the transaction design was limited to adjustments in the detailed implementation arrangements (the transaction in Sri Lanka was later aborted, so those recommendations were not actually implemented). In Tegucigalpa, the study was undertaken at a relatively early stage in the reform process, which opened considerably more scope for influencing the shape of the reforms in that city. The study could also be used by the new regulatory agency established under the 2003 Framework Law.

Box 13 The Interface between Regulatory Frameworks and Trisector Partnerships

In its first phase of operations, Building Partnerships for Development (BPD; <http://www.bpd-waterandsanitation.org/>) followed eight trisector partnerships between the public, private, and civil society regulators in Indonesia (Jakarta), South Africa (Durban and BoTT), Colombia (Cartagena), Bolivia (La Paz), Argentina (Buenos Aires), Senegal, and Haiti. In some cases, such as in Bolivia (SSB), the institution in charge of regulation was directly involved in the partnership. The BPD analyzed how the regulatory framework influenced the creation of such partnerships and how the partnerships themselves could contribute to make regulation more pro-poor. It found that such partnerships, because they have usually been created with the specific remit of helping the poor, can help focus the attention of regulatory institutions on poverty issues. It also found that partnerships can help gather information on the needs of the poor and make it available for regulation, thanks to their continuous presence in the field. More specifically, they may serve as a recourse mechanism for customers' complaints, particularly relaying poor customers' concerns. This role is especially useful when regulatory institutions are weak or inaccessible to the poor.

Source: Trémolet and Browning (2002). *The Interface between Regulatory Frameworks and Tri-Sector Partnerships.*

catastrophic events, a relative's death, or illness), and poor people also typically move around to seek employment opportunities or join family. Therefore, unless the social services have a very efficient way of tracking poor households (as they do in Chile or Colombia, for example), survey results may provide a very blunt instrument for tracking where poor people are and what their needs are.

Forming partnerships with local NGOs and community-based organizations (CBOs) that are working in areas where the poor are located may be an alternative or useful complement to conducting extensive survey work. Such organizations are present in the field and are working directly with poor customers so they can relay information on their needs or can act as customer advocates (see box 13).

3.5.2 Analysis of Existing Regulatory Constraints Can Help Identify Priorities for Action

An analysis of the existing regulatory framework is also needed to form a better idea of whether the existing framework is adequate to meet the needs of the poor as they have been identified. Annex B of this document provides initial guidance as to the type of evaluation that can be conducted. Such an evaluation was conducted in the context of an action-research program with water regulators in East African countries (see box 14). In that case, the decision was made when designing the research program to work specifically with regulators to sensitize them to those issues and also to build on the observation that they may have the highest level of competence in their sectors.

3.5.3 Who Should Do What?

Such information gathering and analytical exercises could in theory be carried out by either policy makers or regulators, depending on which entity takes the lead. Ideally, partnerships between key stakeholders (including policy makers and regulators) could be formed upstream, since it is relatively difficult to identify ahead of the process which entity is going to be in charge of making decisions.

Using more detailed information on the poor and the review of existing regulatory constraints, policy makers should issue guidance in this area that would go beyond the basic principles outlined in the law, if possible. If policy makers are not prepared to do that but trust regulators to take the agenda forward, it will be important that the regulator publish its strategy for taking account of the poor in regulation in advance and organize ample consultation around this strategy. The multisectoral regulator in Ghana has already gone through this type of process, as set out in box 15.

To organize these activities, regulators should have in-house staff who are trained to deal with poverty issues and have acquired skills in poverty mapping, social intermediation, public participation, and so forth. This approach will often require a radical internal reorientation and strategic thinking as to how these actions can be implemented. It may involve the creation of a small specialized unit within the regulator in charge of supervising those actions (which could be only one person to start with, or could be slightly bigger in the case of a multisectoral regulator, since those resources could be spread over several sectors).

Focusing on poor customers should not be treated as a side issue but should be a central preoccupation governing all tasks undertaken by regulators. The principles highlighted above are likely to influence all regulatory areas and functions, ranging from setting tariffs to regulating quality or competition. Therefore, taking the poor into account should not be relegated to a specialized unit within the regulator. Top-ranking staff within the regulator, including decision makers, should incorporate such principles in their decision making and in the preparation of the regulatory body's strategic development plan.

Box 14 Preparing Action Programs for Pro-Poor Regulation in East Africa

At the initiative of BPD (<http://www.bpd-waterandsanitation.org/>) and other donors (including GTZ and the World Bank), four East African regulators have initiated some work to identify potential actions in the area of pro-poor regulation. The regulators involved were CRA in Mozambique, NWASCO in Zambia, RURA in Rwanda, and WSRB in Kenya. As a first step, the regulators hired local consultants to conduct an evaluation of current service provision to the poor and of the regulators' own setup for protecting those customers as well as all others. In Mozambique and Zambia, these initial studies found, for example, that independent entrepreneurs were supplying a large share of the market (up to 30 percent in Mozambique) at relatively good levels of quality but that they were falling completely "off the map" of the regulators' current activities. Building on these initial assessments, the regulators held a workshop in Nairobi in October 2005 where they started developing programs of concrete actions that can be taken in this area, distinguishing between what can be done at their level and what would require policy intervention or the participation of other stakeholders. For example, CRA in Mozambique has decided to work on identifying local relays for regulating independent entrepreneurs, which have been developing very rapidly in recent years to bridge the gap left open by the main utility's inability to expand in Maputo. Those regulators have also established an informal network to exchange experiences in this area.

Box 15 Defining a Strategy for Social Regulation in Ghana

The multisectoral regulator in Ghana, PURC (<http://www.purc.com.gh/>), is in charge of protecting water consumers, which include both the served and unserved. To improve its understanding of the issues that are important to consumers (both existing and potential ones) and to develop its social regulation objectives, PURC commissioned a socioeconomic survey on accessibility of water supply in 2002. The survey, which took the form of a "use and satisfaction" survey in urban areas of Ghana, analyzed current service conditions. For example, it found that while the urban poor spend the same amount on water whether they are connected or not, the nonconnected get only 25 percent of the volume of water used by those who are connected. The survey identified that the first priorities of poor customers were accessibility, affordability, and quality.

On the basis of this survey, PURC assumed a lead role in addressing issues relative to delivery of water services to poor customers in urban areas. It established a working definition of the urban poor (defined as those without direct access to the utility's supplies, who depend on secondary suppliers, and who buy water by the bucket) and defined key policy objectives or actions that it would actively support, such as instructing urban water utilities to include criteria for reaching the poor when undertaking water supply projects. It also recognized the role of and importance of secondary suppliers and stated its intention to support initiatives that enhance their capacity to deliver acceptable service at an affordable price. For example, the regulator (PURC), the utility, WaterAid, and tanker suppliers formed a working group to define guidelines on tanker operations. As part of this process, various avenues for reducing the cost of delivery have been discussed, the utility has agreed to undertake disinfection of tankers at a cost, and a basic agreement has been reached on creating more filling points for tankers (within technical constraints). Even though the pilot is under way, the regulator supported these basic steps.

Obtaining information on the needs of the poor could be done through in-house mechanisms, such as regular visits to local communities or the creation of regional and local offices. However, the regulator's resources would inevitably become rapidly overstretched if it relied on such mechanisms alone. Besides, it is important to develop capacity within poor communities so that they can constructively contribute to the regulatory process.

Customer organizations and NGOs are slowly emerging that seek to develop their capacities in such a way. An initiative by Consumers International to build the capacity of local consumer groups and help them to "move from protest to proposal" went in that direction (see the annotated literature review in annex C). The regulator itself can play a proactive role in setting up and supporting customer representation groups, which can also take on the role of monitoring service delivery on the ground, and of relaying and resolving customer complaints in the first instance. Such a mechanism was successfully developed by NWASCO in Zambia (see box 16).

The regulator may also wish to encourage building capacity within the utility itself, especially if the alternative providers are regulated by the utility. It could therefore act as the leader to foster better understanding of those issues at the level of policy makers, service providers, and customers.

3.6 Conclusion

The guidance provided in this note sets out how the needs of poor customers can be taken into account in the regulatory process and framework. It could be of use to policy makers, regulators, service providers, donors, or consumers and their representatives to identify what should be done and decide the way to lift regulatory constraints that have been identified. Many of the actions and regulatory measures recommended here do not need to be labeled as pro-poor in order to achieve the expected benefits. In fact, in certain circumstances, labeling measures in such a way may actually reduce the buy-in from poor customers who would not want to be "put in a box" or labeled in such a way. They would simply be measures that acknowledge the true nature of the market for water services in many developing countries, which is a much more eclectic and fragmented market than in developed countries. Defining such programs of measures to take account of the poor in water sector regulation will require political will and initiative. Donors may have a substantial role to play in advocating and supporting such approaches.

Box 16 Water Watch Groups in Zambia

The national water service regulator for Zambia, NWASCO, was set up by law in 1997 and started functioning effectively in practice in 2000. It is in charge of regulating 10 commercial utilities throughout the country as well as purely private providers (in former mining districts) and local authorities. The commercial utilities are publicly owned corporatized entities whose service levels have traditionally been inadequate. NWASCO created Water Watch Groups (WWGs) in 2001, which are voluntary consumer groups responsible for ensuring that water consumer rights are protected and that information is readily available to consumers. Every group is independent and coordinates its activities with the person in charge of external relations at NWASCO. They were first created in the capital city, Lusaka, and in a few other cities. WWGs receive complaints and suggestions from community members, and they channel this information to the commercial utility or back to NWASCO if the commercial utility is found in breach of its obligations. They also relay information on regulation to the public (through plays or newspapers). They have received delegated powers from NWASCO to resolve customer complaints in the first instance. The WWGs have made a positive contribution to the development of the sector; commercial utilities in which WWGs are active have become more customer focused, and NWASCO can integrate their recommendations into an improved framework for evaluating operators' performance.

Note: See annex D for more information.

ANNEX A WHAT IS REGULATION?

Regulation consists of ensuring that water service providers comply with existing rules with respect to tariffs or quality standards and of adapting those rules over time to cope with unforeseen events. The objective of regulation is that those services be provided in an efficient, fair, and sustainable manner, while bearing in mind social priorities set out by the policy makers (both at national and local government levels).

The main objectives of regulation can be broken down into three elements:

- To protect customers from service providers' abuse of their monopoly power and from political interference,
- To protect service providers from politically driven decisions, and
- To enable the public sector to carry out long-term policy objectives.

The institution in charge of regulation should therefore act as an arbiter between various interests, namely those of customers, politicians, and service providers. This is a tough position to hold consistently, and institutions in charge of regulation need to have several attributes in order to fulfill this role efficiently, such as autonomy from policy makers and accountability to regulated entities and customers.

A.1 Why Regulate Water Services?

Regulation is needed when market mechanisms for a good or a service are not working properly to deliver society's objectives in that market, which means that the government has to regulate to correct the effect of those market failures.

Regulating water and sanitation services is important for several reasons, including the following:

- The observation that water services, in most cases, are a natural monopoly, that is, that it is cheaper to have a single provider in one area rather than several,
- The need to maintain adequate competitive conditions when possible,
- The fact that the government and the community often lack information about the service provided, even though it can have a substantial impact on public health,
- The fact that adequate water services can have a substantial impact on the welfare of the community as a whole, for example, by reducing the risk of epidemics,
- The need to limit political intervention in the water sector by ensuring that agreed-to rules are implemented independently from the political cycle.

The main market failings in the water sector are likely to include the following:

A.1.1 *Natural Monopoly*

Under normal operating conditions, water and sanitation services are provided most cheaply through an underground network. Because of high construction costs, it is generally not economical to build and operate two parallel networks, which means that water and sanitation services are generally considered to be natural monopolies. In practice, it is sometimes observed that several small networks are running in parallel, particularly in periurban areas, but that situation is likely to be more costly for society overall in the long run rather than having a single network dimensioned to serve the needs of the entire community.

When a single network is in place, a single firm is usually granted monopoly rights to provide water services over a single geographical area. This means that competition cannot be introduced and that public regulation is needed to ensure that this utility does not abuse its monopoly power by charging too high prices or by lowering production costs to increase its profits (in the absence of efficiency gains, cost reductions would usually result in lower service quality). Economic regulation can be used to mimic competitive pressures and can require that providers offer services their customers want and charge reasonable tariffs.

A.1.2 Competitive Conditions

In poor areas with no access to piped water, it might be uneconomical or unfeasible to build a network for a number of years. During the transitory period, water services are usually provided through other means, such as truck delivery or standpipes with on-selling arrangements. Those non-network solutions do not have natural monopoly characteristics, and competition can be introduced. In that case, regulation must ensure that all providers, large or small, can compete on a level playing field, so as to ensure that competition pressures play their role in reducing prices and improving quality. Such oversight of competitive conditions is also needed when letting a contract for the main provider, given that meaningful competition will act as a powerful lever for efficiency improvements.

A.1.3 Information Asymmetry

Another motivation for regulating water services is the fact that information regarding the service is not equally shared between the provider of water services and consumers. For example, it is very difficult for water consumers to assess whether water is of good or poor quality until they have actually consumed it, and poor quality can have very severe consequences. If the water supplied is of poor quality, it might affect the provider's reputation and reduce sales, but only in the long run and if other supply alternatives exist. In the meantime, many people may get sick. Therefore, the government needs to intervene to define target quality levels and monitor compliance with such objectives.

In doing so, the regulators must tackle another information asymmetry problem, which is the difficulty of having access to as much information as is available to the provider itself. To address this problem, introducing reporting requirements and acquiring the ability to monitor the quality of this information are absolutely key. In poor areas where information is scarce, direct information sources (via liaison agents or customer representatives) can provide a very good alternative to published information. Local media or neighborhood associations can also play an important role in relaying information about the service actually received.

A.1.4 External Effects

The provision of water and sanitation is deemed socially important because it has external effects, that is, effects that go beyond the individual consumer or the provider of services and affect a larger portion of society. For example, the provision of contaminated water may cause an epidemic that can spread beyond those customers who have consumed the water, as may be the case with cholera, for example. Overabstraction from the aquifer to serve one area of town may mean that not enough water is available for other parts of the city or for other types of use, such as agriculture. These are called negative externalities because they impose health, safety, or environmental costs or risks upon society as a whole. On the other hand, water and sanitation services can also generate positive external effects. For example, an increase in sewage treatment in one area can improve the living environment for a population located close to a sewage outfall, even if they are not connected to the sewer network. As a result of such external effects, the public sector needs to regulate to make sure that producers bear the full social costs of their activities and provide the optimal level of service.

A.1.5 Protection from Political Interference

In many cases, the role of regulation is also to protect consumers and service providers from the risk of political intervention. Given that water and sanitation are essential services, they often get a lot of attention from politicians eager to preserve their political situation. Political intervention is therefore common, either to keep prices as low as possible irrespective of the sector's financial needs or to meddle with personnel management and recruitment policies. For example, prior to important elections, a mayor may be tempted to reduce water prices to buy popularity, thereby ignoring the service provider's financial needs. Regulation can protect service providers from politically driven or unexpected changes in operating conditions that might be imposed by elected politicians and that would go against long-term development objectives.

A.2 What are Typical Regulatory Functions in the Water Sector?

Regulatory functions in the water and sanitation sectors can be broadly divided into three categories: economic, environmental, and public health.

A.2.1 Economic Regulation

Economic regulation consists of setting, monitoring, and enforcing tariffs and service standards for water service providers. Economic regulation can be broken down into four functions: price regulation, service quality regulation, competition regulation, and consumer protection (see more details in table A.1):

- *Price regulation* consists of setting overall tariff levels and tariff structures to ensure delivery of services at an affordable cost while ensuring the long-term financial viability of the sector.
- *Service quality regulation* entails defining levels of service based on product characteristics such as technical requirements or customer responsiveness.
- *Competition regulation* consists of monitoring competition for the market (in the case of a monopoly provider) and of ensuring competition in the market where applicable (in the case of small-scale providers, such as water tankers).
- *Consumer protection* entails resolving consumer complaints in the second instance (after they have been dealt with by service providers).

A.2.2 Environmental Regulation

Environmental regulation in the water sector broadly consists of regulating water abstractions and discharges back to the environment so as to manage resources in a sustainable manner. Abstraction and discharge rights are often ill defined in developing countries, where water extracted from the ground or from rivers tends to be taken for granted and environmental costs are seen as nobody's problem. Adequate sanitation is rarely provided, with sewage collection required, at best, but rarely sewage treatment. As a result, sewage tends to be put back in the rivers or in the sea with only rudimentary treatment.

- *Abstraction regulation* can be done through a variety of methods, with various degrees of effectiveness and cost. The first step would generally consist of establishing a registry of existing abstraction points and requiring that all new applicants wanting to develop a new water point obtain an authorization in advance, possibly with a small fee (to cover administrative costs and reflect the opportunity cost of water, particularly in resource-scarce areas). To grant an abstraction license, the regulator would need to verify the impact of the planned abstraction on existing usage and on the availability of water resources. More sophisticated systems include monitoring that water is abstracted only by licensed organizations and for the pre-specified volumes. Monitoring activities might be costly to establish and run effectively, but they may be absolutely necessary in water-scarce areas where several uses are competing for water.
- *Discharge regulation* can also be done in a variety of ways. The main tool is to set standards for discharges to prevent heavily polluting substances from being released in the environment. Some slightly less polluting substances may be allowed, but polluters would need to pay an extra charge if the "polluter pays" principle is implemented. In towns, in practice, this type of discharge regulation would seldom be applied, but it would be important to keep an eye on the major polluters (such as tanneries or breweries) and to be able to apply more stringent regulation if the level of pollution becomes harmful to the community.

A.2.3 Public Health Regulation

Public health regulation in the water sector would usually focus on regulation of drinking water quality, which is a key determinant of the quality and, therefore, the price of water services. Once drinking water standards have been set (usually at national level), monitoring must take place at the local level to ensure that such standards are met. Support for such monitoring activities may be provided at the national level, especially for carrying out more expensive testing activities.

A.3 What Does "Economic Regulation" Consist Of?

Economic regulation of service providers is particularly important for ensuring that water tariffs are set at the right level, that is, neither too low (not sufficient to cover operating and maintenance costs) nor too high (including a high margin).

Tariffs may be too low if local politicians have traditionally subsidized water to get political support. Rather than consumers' unwillingness-to-pay, many people have pointed to politicians' unwillingness-to-charge as a main reason for low and unsustainable tariffs. If tariff-setting principles are defined by law (see box A.1) and an independent institution in charge of economic regulation is in charge of applying those principles, that institution should be able to argue in favor of gradual tariff increases to reach a tariff level that covers service costs in a sustainable way and that customers can afford.

Tariffs may be too high if service providers can charge whatever they want because consumers cannot choose between competing suppliers and must therefore pay high prices because they value access to water services greatly and do not have any alternative. Even government-owned providers may take advantage of consumers by charging too much, because they make no effort to improve productivity or they artificially increase investment costs due to corruption. Tariff-setting principles may require that the institution in charge of economic regulation assess what efficient costs and a fair rate of return on investments would be, to define maximum tariff levels.

Box A.1 Common Tariff-Setting Principles

Most water service legislation specifies tariff-setting principles that are more or less binding when setting tariffs at the local (or national) level. Such tariff-setting principles usually focus on three characteristics:

- **Cost-recovery.** Tariffs should be sufficient to cover the costs of providing the service. Various definitions may be used, depending on how far the existing tariffs are from cost-recovery levels and how challenging moving to cost-recovery levels may be in the short term. Most legislation would require that tariffs cover at least operation and maintenance costs, plus the costs of investments (that is, depreciation and a fair return on capital) if there is a real attempt to move to sustainable services. In all cases, it can be useful to specify a transition path toward cost-recovering tariffs (including investment) so as to set clear targets for the utility's management.
- **Economic efficiency.** In particular, this is allocative efficiency, which refers to whether consumers are purchasing the optimal quantity of a product relative to its economic and social cost of production. For water services, the main preoccupation is that volumetric tariffs reflect the marginal cost of producing water, particularly in water-scarce environments where such marginal costs (that is, the cost of the last unit to be produced and consumed) can be very high when a lot of water coming from comparatively cheaper sources has been used. Increasing-block tariff structures are premised on this principle.
- **Equity.** Water (and sanitation) is often considered to be a social good, which means that it should be available to all at a price consumers can afford. Therefore, it is generally considered fair or equitable to apply a lower charge or lifeline tariff to a so-called "first block" (between 5 and 15 m³ per month per connection, depending on the country). However, the definition of equity is likely to vary substantially from one country to the next, depending on what is politically understood as equitable.

Table A.1 Typical Functions and Tasks for Economic Regulation

<i>Tasks</i> →	<i>Price regulation</i>	<i>Service quality regulation</i>	<i>Competition regulation</i>	<i>Consumer protection</i>
↓ <i>Functions</i>				
Gather information and data				
	<ul style="list-style-type: none"> • Get information on current and projected tariff revenues and costs • Get information on willingness-to-pay, for alternative service levels 	<ul style="list-style-type: none"> • Obtain information on current service levels • Carry out technical studies 	<ul style="list-style-type: none"> • Obtain information on illegal conduct or monopoly behavior 	<ul style="list-style-type: none"> • Conduct customer surveys • Organize call centers to file complaints
Monitor the implementation of existing rules				
	<ul style="list-style-type: none"> • Audit financial accounts • Ensure that adequate tariffs are charged 	<ul style="list-style-type: none"> • Monitor that levels of service are met • Monitor that coverage targets are met 	<ul style="list-style-type: none"> • Investigate abuses of monopoly power—predatory practices, etc. 	<ul style="list-style-type: none"> • Perform an administrative audit of systems and procedures in place to educate customers, and share information
Determine rules				
	<ul style="list-style-type: none"> • Tariff reviews, linked to inflation or tariff rebasing • Modify tariff structures and payment methods 	<ul style="list-style-type: none"> • Define or review quality standards • Adapt existing quality standards to real needs 	<ul style="list-style-type: none"> • Organize bidding process • Rule on competition case following complaint 	<ul style="list-style-type: none"> • Define consumer service standards or requirements
Enforce decisions				
	<ul style="list-style-type: none"> • Define tariff adjustments on basis of performance • Apply penalties 	<ul style="list-style-type: none"> • Require improvements in service quality 	<ul style="list-style-type: none"> • Mandate break-up of monopoly power or changes in access terms 	<ul style="list-style-type: none"> • Resolve dispute between consumers and regulated firm

A.4 What Are Typical Institutional Models for Economic Regulation?

Institutional models for regulation can vary substantially from one country to the next. In most countries, a different set of institutions would be in charge of economic, environmental, and public health regulation, which is why we deal with each of those areas separately in what follows. Of course, such separation may create coordination issues, because these areas are closely linked. For example, environmental standards can have a substantial impact on costs of service and on tariffs. A regulator in charge of economic regulation, mindful of affordability issues, may seek to convince the environmental regulator to set lower environmental standards; good coordination mechanisms would avoid too much discussion on such an issue. One common mistake when analyzing regulatory frameworks is to hastily conclude that, where there is no independent water sector regulator, there is no economic regulation. This assumption often is caused by confusion about the nature of economic regulation, because the latter does not always sit very well with some legal traditions, especially the civil law tradition of contract regulation.

In determining how economic regulation is currently carried out, the most important action is to analyze which institution is in charge of carrying out economic regulation functions, as set out in table A.1. Commonly encountered institutional models for economic regulation include the following:

Self-regulation. Some countries simply rely on the service providers to regulate themselves, usually through the corporate oversight board and with some supervision at the ministerial level. This is the case at national levels in less developed countries, such as Djibouti or Nepal, for example, but it is also often the case at town level, in the absence of more formal regulation mechanisms. Most of the time, such regulatory systems are not satisfactory because they do not correct most of the market failings identified above.

Regulation by contract. Certain countries are relying on contracts with built-in regulatory rules and incentives. This can be done whether private sector operators are hired (for example, in the case of the affermage contract in Senegal) or not (as with the performance contracts between the central and local offices of NWSC, a public corporation, in Uganda). Those contracts usually determine tariff-setting rules (if they have not been defined in the law) as well as rules for the remuneration of the service provider. They also contain precise performance evaluation criteria and incorporate mechanisms for resetting the rules in case of unforeseen events. Also, they usually specify dispute-resolution mechanisms, which often become very important in the absence of regulators.

Regulation by agency. Countries following the U.K. and U.S. style of regulation have often created an independent regulatory agency for the water sector (or sometimes as part of a multisector regulator for all infrastructure sectors). For example, several countries in Africa have created a water regulator (such as NWASCO in Zambia or CRA in Mozambique) or are in the process of doing so (such as EWURA in Tanzania, a multisector regulator that will also regulate the water sector). Such national-level regulators are particularly frequent in Latin America (SISS in Chile or SUNASS in Peru) but rarely encountered in South or Southeast Asia.

The responsibilities of those national water regulators vary, especially depending on the degree of water service decentralization. Some are purely advisory, such as SUNASS in Peru, but others have direct powers to set tariffs and quality standards, such as Ofwat in the U.K., where municipalities have no direct role in water services. This type of regulatory agency also exists at the local level, but more frequently is used for large municipalities or groups of municipalities (such as for Manila in the Philippines or Buenos Aires in Argentina) than for smaller towns.

ANNEX B EVALUATING WHETHER AN EXISTING REGULATORY FRAMEWORK BENEFITS THE POOR

This annex sets out a checklist for evaluating whether an existing regulatory framework benefits the poor or contains obstacles to serving them. It can be used by regulators seeking to analyze the regulatory framework in which they are operating as well as their own practices, so as to modify this framework or practices in order to benefit the poor. It can also be used by donor agencies seeking to shift the regulator's current approach to regulation or by policymakers seeking to modify the existing regulatory framework in order to better take account of poor customers' needs.

B.1 Analysis of Current Service Conditions

- What are the types of service providers currently providing services to the poor?
- How are poor customers currently receiving services: from what kind of providers (licensed, small-scale, NGOs, self-provided) and under what conditions (price, service quality, quality of customer service, long-term sustainability)?
- What are the main obstacles faced by service providers in extending services to the poor?

B.2 Allocation of Regulatory Functions

- What are the legal foundations (review of primary and secondary legislation)? How are regulatory functions allocated in the legal and contractual framework?
- Do these legal instruments specify the responsibilities of the institutions in charge of regulation for dealing with the interests of poor customers, especially the unserved poor?

To carry out such an analysis, you may find it useful to fill in a matrix as set out in table B.1 to identify which institutions are carrying out regulatory functions for each type of provider identified above (see table A.1 in annex A for a definition of those functions). The objective would be to identify which functions are currently performed and by which institution. It may be that some important supply options are not currently regulated or that certain functions, such as consumer protection, are not performed adequately for those supply options.

Table B.1 Regulation Matrix—Example of Possible Allocation, Based on the Case of the Mozambique Water Sector

	<i>Price regulation</i>	<i>Service quality regulation</i>	<i>Competition regulation</i>	<i>Consumer protection</i>
Main operator	Regulator?	Asset-holding company?	Bidding process?	Regulator?
Small network with bulk supply contract	Bulk supply contracts?	Bulk supply contracts?	Informal arrangement?	None?
Independent small networks	None?	None?	None?	None?
Standpipe operators with bulk supply	Bulk supply contracts?	Bulk supply contracts?	Informal arrangement?	None?
Domestic water resale	None (Illegal)?	None?	None?	None?

B.3 Organization of the Main Institution in Charge of Regulatory Functions (the “Regulator”)

(There may be more than one if regulatory functions are allocated to different institutions, in which case it would be necessary to carry out this analysis for each institutions)

- How is the perimeter of the regulator's activities defined? Does the regulator have responsibilities for regulating services in rural areas or areas without structured services?
- What are the operators that the regulator is currently in charge of regulating?
- In the organizational structure, how is the decision-making body nominated? Do the members of the decision-making body have experience in dealing with the interests of poor customers? Is that required by law?
- What human and financial resources are available? Is the regulator fully staffed? Does the regulator have staff with previous work experience in poor communities? Does the regulator have staff members who are familiar with social intermediation techniques?
- Has the regulator set up a specific department to deal with those issues? Does the regulator have a dedicated budget for regulatory activities in low-income communities?
- Does the regulator have specific communication activities for poor customers?

B.4 Regulator’s Remit with Respect to Poor Consumers

- Is it in the regulator's remit to protect consumers and particularly poor consumers? How does the regulator relate to the unserved? Is the regulator organized to do so?
- Do poor consumers turn to the regulator for support?
- Is there a structured body able to represent customers and particularly poor customers?
- Is the regulator focusing on the main provider's contract or the sector as a whole (both urban and rural)?

B.5 Regulatory Activities

B.5.1 The regulator’s knowledge of poverty issues

- Have detailed studies been conducted to identify where the poor are located, what type of service they currently receive (and at what price), and how much they would be willing to pay for improved services? Who has commissioned those studies? Does the regulator have access to this information? Please describe key characteristics of poverty and access to water and sanitation in the study area.
- Are there well-established groups representing poor customers, such as NGOs, CBOs, or other groups, such as churches? Has the regulator initiated contacts with representatives of those groups? If those groups do not currently exist, what is the regulator doing to stimulate their development?
- Has the regulator initiated any partnerships with those actors to develop specific regulatory approaches in poor areas? Which stage of development have such initiatives reached?
- Have the regulator's staff attended any training on social approaches or developed an interest in those issues?

B.5.2 Listening to the customer

- Are mechanisms in place to relay complaints by poor customers? Are they the same as the general customer representation mechanisms or are they specific representation mechanisms? How are such mechanisms organized and how could their functions be improved?
- What are the main complaints from poor customers? Are those complaints adequately addressed by the service provider, by the customer representation mechanism, and by the regulator?

- Are poor customers currently getting adequate support for interacting with service providers or the regulator (for example, to apply for a new connection, obtain explanations on bills, or have service reconnected following interruption for nonpayment)?
- Does the regulator have a help desk that people can come to? How accessible is it for those who don't have a phone line or who cannot write? Do poor consumers turn to the regulator for support? Does the regulator ever receive complaints from them?
- Is there a structured body able to represent customers and particularly poor customers? Do they have adequate capacity to meaningfully contribute? Has the regulator initiated contacts with representatives of that body?

B.5.3 Regulation of the main provider or providers

- What are the legal requirements of the main provider or providers (such as contractual requirements) to extend and supply services to poor communities?
- What are the aspects of the main provider's performance that are regulated and how?
- Are there specific provisions in the licenses or contracts that encourage or facilitate services to the poor, such as coverage targets, social connections, or the ability to offer differentiated service levels to different groups?
- Does the regulator have all necessary tools and instruments to regulate the main provider's performance in poor areas, especially coverage targets and quality indicators?
- If not, how could the regulator involve other actors (such as NGOs, CBOs, customer groups) to improve its ability to regulate the service in poor areas?
- Does the main provider have exclusivity, either explicitly or implicitly (for example, a monopoly over abstraction rights)?

B.5.4 Regulation of alternative providers

- Do alternative providers represent a large share of the market? What are the characteristics of the alternative provider market? Is the service they provide adequate, and could it be developed to cover broader areas? Are they currently regulated?
- Does the regulatory framework recognize the existence of alternative providers? Does the regulator have the remit and the ability to regulate them? If it is not responsible for regulating them, would it be appropriate for the regulator to play a role in this area? Does the regulator have contacts with alternative providers?
- Does the regulatory framework give alternative providers the ability to compete on a level playing ground? For example, are bulk water selling rules equitable?
- Is there any light regulation of small-scale independent providers (SSIPs) in place (such as publication of information, simplified licenses, or SSIP associations)?
- Does the regulatory framework give alternative providers incentive to invest and expand?
- What could be the role of main provider (s) for regulating small-scale providers?
- What are the aspects of their activities which are not currently regulated and should be (to control prices, monitor quality, ensure fair competition or make them accountable to customers)?
- Does the regulator have all necessary tools and instruments to monitor and regulate alternative providers or should it develop additional tools?

The questions below should ideally be answered for each type of service provider identified.

B.5.5 Coverage regulation

- Does the regulatory framework give adequate incentives to service providers to expand coverage? Or does it assist other alternative service providers who would like to do so?
- Is the definition of coverage appropriate or does it restrict certain service solutions?
- Is adequate funding in place for expanding coverage?

B.5.6 Tariff setting

- Does the regulator have the ability to set tariffs, and does it take social factors into consideration when doing so?
- Do tariff-setting principles emphasize the need to take account of poor customers? Do they define concepts such as equity or cost-recovery sufficiently clearly? How have they been interpreted by the regulator?
- Has the regulator reviewed the tariff structure to evaluate whether subsidies (including cross-subsidies through the tariff structure) are adequately targeted? Do tariff structures target subsidies to poor consumers? The following questions could be asked:
 - In the event of a block tariff structure, what is the size of the first block?
 - Are subsidies available to all, or they targeted?
 - What is the tariff for standpipes or bulk selling?
 - What is the price for a new connection and is that affordable? Is there a policy regarding shared connections or on-selling?
- If there is a social connection policy in place, do the criteria allow the poorest to benefit?

B.5.7 Quality standards

- Are quality objectives set at an appropriate standard to meet the needs of the poor? Do service providers have any flexibility to adapt service quality to those needs?
- Are appropriate quality-monitoring mechanisms in place to monitor service quality in poor areas so as to ensure that service providers do not sacrifice quality in those areas?

ANNEX C ANNOTATED LITERATURE REVIEW

This annotated literature review is broken down under several categories:

- General documents on regulation and services that benefit the poor
- Fostering access extension
- Targeting subsidies
- Regulating quality
- Regulating alternative service providers
- Improving focus on poor customers

Documents that are particularly relevant for their respective categories contain descriptions of the geographic focus, main points, and indication of relevancy for the debate. Sources that provide less specific but nevertheless interesting contextual information are included in shaded boxes.

C.1 General Documents on Regulation and Services That Benefit the Poor

Cranfield University. 2005. Case Studies in Pro-Poor Regulation (Argentina, Bolivia, Chile, England and Wales, Ghana, Zambia, Philippines, Uganda, Jordan, Indonesia, and India). Project documents and information are available online at <http://www.silsoe.cranfield.ac.uk/iwe/projects/regulation/publications.html>.

- *Geographic focus:* Separate case studies feature Argentina, Bolivia, Chile, England and Wales, Ghana, India, Indonesia, Jordan, Philippines, Uganda, and Zambia.
- *Key points:* Each of the country-specific case studies examines different aspects of public-private partnerships and relations forged between regulators, service providers, governments, and consumers. Each of the cases examines different objectives and relationships, some of which are described below:
 - Argentina: The case study describes objectives of the concession contract with Aguas Argentinas to reach universal service and the difficult role of the regulator as the impartial referee.
 - Bolivia: The case study examines the challenging role of the regulator, SISAB, as they attempted to establish themselves as a credible institution in the midst of a politically volatile situation. The case examines how SISAB must recognize the limitations of their power, particularly as there is low consumer ability to pay and frequent inability of its regulated service providers to extend service to poor areas.
 - Philippines: The case study stresses the importance of improved regulatory functions, particularly to improve the understanding of the poor and to improve their services. Specific recommendations are made to establish improved collaboration of service providers (public and private), consumers, and regulatory bodies with regard to legal aspects and availability of public information.
- *Relevance:* High. Each of the case studies presents unique challenges of public-private partnerships but notes that drawing lessons specific to pro-poor regulation is challenging.

Trémolet, Sophie. 2002. "Pro-Poor Regulation." Background Paper for PPIAF/ADB Conference on Infrastructure Development—Private Solutions for the Poor: The Asian Perspective, Manila, Philippines, October 28–30, 2002. Available online at <http://www.ppiaf.org/conference/presentations.html>.

- *Geographic focus:* None. Much of the evidence or examples draw from regulatory experiences in Latin America.
- *Key points:* This note highlights the primary challenges of pro-poor regulation of water services. Of primary importance is understanding poor consumers, including their location, means of organization, and desired service. The note highlights the key determinants of effective pro-poor regulation, including determining the level of government that should be responsible for oversight (assuming formal regulation by an institution as opposed to by contract or self-

regulation), whether regulation should be single sector or multisector, and whether a dedicated pro-poor regulatory body should be established. The note concludes with a discussion on subsidies, highlighting the advantage of output-based subsidies to target the poor.

- *Relevance:* High. Provides a framework for analyzing specific constraints affecting poor customers.

Water Utility Partnership for Capacity Building (WUP) Africa. 2003. Better Water and Sanitation for the Urban Poor; Good Practice from Sub-Saharan Africa. Water Utility Partnership for Capacity Building (WUP) Africa; Water Utility Partnership, Abidjan, Côte d'Ivoire. Available online at http://www.wupafrica.org/toolkit/resources/bibliography/abstracts/better_water_sanitation.html.

- *Geographic focus:* The paper draws on case studies and research in Sub-Saharan Africa. Examples are not limited to Sub-Saharan Africa and include the Philippines and Bolivia.
- *Key points:* The report focuses on services to the urban poor in Sub-Saharan Africa, concentrating primarily on extending access to the poor through private connections, standpipes, and small-scale providers. The role of the regulator can be seen throughout these types, particularly relating to tariff structure, in which, for example, the application of a uniform block tariff is preferred when connection costs are high and consumption levels are low. Of particular note to regulators is the discussion of approved domestic resellers of water to reach those residents without connections. Giving the example of Côte d'Ivoire, the case is made that efficient allocations from a private source can cover the needs of the poor when more sustainable services are unavailable. Recommendations for establishing appropriate reselling tariffs, shifting policies and regulation to recognize the practice, and establishing sufficient subsidies are issues discussed in relation to domestic reselling. The paper focuses on circumstances where monopoly utility providers do not serve all consumers within their service area. Regulation is called upon to stimulate the role of alternative providers (private sector, NGOs, or community investment) in service delivery to the unserved poor. In order to ensure that services can be regulated and therefore meet minimum standards, the paper recommends the emergence of professional or trade associations for small-scale or private providers.
- *Relevance:* High. The report provides a thorough description of problems faced in providing and regulating services and the means by which these challenges can be mitigated.

PPIAF and Water and Sanitation Program. 2002. New Designs for Water and Sanitation Transactions: Making Private Sector Participation Work for the Poor. PPIAF and WSP: Washington, DC. Available online at http://www.wsp.org/publications/global_newdesigns.pdf.

- *Geographic focus:* There is no geographic focus of the paper, and examples of approaches are drawn from all developing regions.
- *Key points:* Intended as a guide for providing technical assistance in the water sector, the paper focuses on the development of pro-poor transactions. In addition to describing the legal context and the choice of private arrangements that may benefit the poor, the paper examines pro-poor regulation in the context of enabling multiple service quality levels, tariffs and subsidy levels, and consultation with stakeholders. For the example of flexible quality standards, the paper compares the use of input and output standards and the benefits inherent in each. The examples of flexible design standards in Argentina, Bolivia, and the Philippines are given where legal standards recognize the right of the regulator to supersede national standards, thereby allowing for more affordable solutions for the poor. Regarding tariff structures, the paper supports five principles for the application of tariffs and subsidies, including that the subsidies should apply for access and not consumption. In addition, the paper weighs the advantages and disadvantages of increasing block tariffs and uniform volumetric charge.
- *Relevance:* High. The paper describes how contracts and design of private sector participation (PSP) can be tailored to meet the needs of the poor. This can include regulation, given that most regulatory frameworks are usually determined in contracts.

Mitlin, Diana. 2002. "Competition, Regulation and the Urban Poor: A Case Study of Water." Paper No. 37 for the University of Manchester. Available online at http://www.competition-regulation.org.uk/publications/working_papers/wp37.pdf.

- *Geographic focus:* None.

- *Key points:* The focus of the report is to provide an overview for how regulation and competition policy affect the poor. Mitlin describes three types of service provision—large utilities, small-scale (often informal) providers, and community-based projects—and presents differing opinions based on existing literature. She notes that there is relatively little experience in effectively combining service provision from formal large utilities and small informal providers and provides some reasons why. Separate sections on consumer pricing, for both informal and formal providers, present findings from existing literature, all suggesting that prices from informal providers are generally higher than those of formal providers and that these prices are sensitive to competition between providers (again, both formal and informal). A similar section exists on the need and application of subsidies for the poor. A section on tariff design highlights problems with shared connections whereby, in a rising block system, poor consumers that resell water to their neighbors are charged high consumption charges.
- *Relevance:* High. The introductory sections highlight the overarching regulatory issues faced in providing adequate water services to the poor. The sections on SSIP regulation raise an issue rarely mentioned elsewhere—notably the difference between designing regulatory instruments to regulate SSIPs and implementing such instruments.

Ehrhardt, David. “Impact of Market Structure on Service Options for the Poor.” Presented at Infrastructure for Development: Private Solutions and the Poor, May 31– June 2, 2000. London, U.K.. Available online at <http://www.ppiaf.org/conference/section2-paper1%20.pdf>.

- *Geographic focus:* None; draws anecdotal evidence from all regions.
- *Key points:* The report first describes different structural options—unbundling a monopoly provider, altering the ownership structure of an existing provider, and extending market access to new providers—and then features specific reforms within those options that benefit the poor. Most of the reform options are related to regulation of the sector, for example, establishing basic needs provisions and options for payment methods. A section specific to the relationship of market structure and regulatory design argues that, in the case in which a service area is served by both a large utility and a number of small-scale providers, it is difficult to impose similar regulation on both types of providers (for example, price cap regulation of a small provider may not be feasible, whereas similar regulation for a large utility is feasible). However, as long as the dominant provider or large utility is regulated, customers will always have the option of deferring to the utility if the service from the small-scale providers (which is unregulated) is not acceptable. Examples of this principle are given from the telecommunications market in New Zealand and the water supply market in Colombia.
- *Relevance:* Medium. This article is useful because it sets out a good framework to think about market structure. However, it predates much of the discussion on small-scale private providers and may therefore be slightly outdated.

Evans, Barbara, and Clarissa Brocklehurst. 2001. “Serving Poor Consumers in South Asian Cities—Private Sector Participation in Water and Sanitation.” Water and Sanitation Program—South Asia, New Delhi, India. Available online at [http://lnweb18.worldbank.org/ESSD/sdvext.nsf/81ByDocName/ServingPoorConsumersinSouth/\\$FILE/sa_psp_sa.pdf](http://lnweb18.worldbank.org/ESSD/sdvext.nsf/81ByDocName/ServingPoorConsumersinSouth/$FILE/sa_psp_sa.pdf).

- *Geographic focus:* The paper applies primarily to South Asian cities that are facing issues such as recovering O&M costs, extending coverage, and improving service quality and reliability.
- *Key points:* The paper reviews the extent of public-private partnerships (PPPs) in South Asian cities and the corresponding limits to increased activity, such as low willingness to charge for services. It is argued that the private sector can extend sustainable and affordable services to the poor, particularly by establishing robust regulatory structures. Some of the recommendations highlighted are to limit large-scale abstraction by industry but enable abstraction by tubewells, allow for choice of service delivery through alternative providers, enable consumers to have choice in water delivery quality to lower costs, and encourage citywide consultation forums so as to include the poor in decision making. The paper also highlights some recommendations for how the PPP contract can be tailored to provide for some regulation or oversight by contract, for example through including specific coverage extension targets for poor customers.

- *Relevance*: Medium. The paper focuses little on issues specific to regulation but does provide a thorough description of the environment (political, social, and that of the contract) that regulation must take into account to target the poor.

Franceys, Richard. 2003. "Public Private Community Partnerships for the Poor." Presentation to PPP Theme of the 3rd World Water Forum. Available online at <http://www.silsoe.cranfield.ac.uk/iwe/projects/3wwf/plenary.pdf>.

- *Geographic focus*: None; draws on several Asian Development Bank studies but is not limited to Asian countries.
- *Key points*: The report aims to guide development spending in the water supply sector, so as to address the discrepancy between service to the rich and poor. After demonstrating through anecdotal evidence the inferior service received by the poor, the report highlights the potential for public-private partnerships to address the needs of the poor. Specifically, it argues that certain provider types (namely SSIPs, NGOs, and CBOs) are more likely to service the poorest, because public providers, and particularly those in Asia, have reached a "performance ceiling" whereby they do not offer adequate services to the poor. The report gives examples in India and Bangladesh where CBOs and NGOs act as intermediaries between service providers and the poor. The report also offers options for utility reform—improving the ability of utilities to extend services to the poor—and tripartite partnerships. Examples of Buenos Aires, Manila, and Jakarta are given.
- *Relevance*: Medium. The report is useful in providing an overview of the potential benefit of PPPs to the poor. The report focuses primarily on the role of service providers and less on the role of the regulator, but it is possible to ascertain ways that regulation would improve service delivery and quality.

Katalyst Solutions and Castalia. 2004. "Private Sector Participation in Infrastructure: How Can Poor Households in Developing Countries Benefit?" A report for KfW (*Kreditanstalt für Wiederaufbau*, a German government owned development bank). Available on request from the authors of this note.

- *Geographic focus*: None. The report draws on evidence from many regions and includes case studies of Guinea, Bolivia, the Philippines, Guatemala, Kenya, and Nepal.
- *Key points*: The report highlights new approaches to private sector participation, primarily in the energy and water sectors. Of interest to regulators are the sections on the key factors to services that benefit the poor and the types of subsidies that target and benefit the poor. The report describes in detail the types of partnerships and transparency that are necessary to meet the demands of the poor. One example that regulators can take note of is a section on monitoring and feedback loops, in which customer service committees of the U.K. and community participation in Jakarta are described. A discussion on subsidies highlights four applications: provider subsidies, cross-subsidies, targeted customer subsidies, and output-based aid.
- *Relevance*: Medium. The report thoroughly describes challenges (and recommendations) to ensure that private participation in infrastructure benefits the poor, but because the report is not specific to the water sector, the report best serves as an overview of major issues.

Brook, Penelope, and Tim Irwin. 2003. Infrastructure for Poor People. Washington, DC: World Bank. Book publication; not available online.

- *Geographic focus*: None. Examples are drawn from several regions, but the main focus is not specific to any region.
- *Key points*: The report is broken down into separate sections of infrastructure services for poor people (not specific to water services). Of concern to regulatory design and implementation are sections on impacts of market structure on service options for the poor, general regulation of infrastructure services for the poor, and regulation of the quality of services (this latter section is discussed in detail in the annotation below by Baker and Trémolet). The report highlights upstream issues in designing effective regulation for the poor, namely, responsibilities of "intervening sparingly with care," controlling for market entry, and overseeing prices. In addition, the text distinguishes priorities in regulating the very poorest: ensuring access, affordability, and administrative capacity.

- *Relevance:* Medium. Sections on regulatory system design and regulation of quality of services are of particular use to regulators. However, because the sections are not specific to water services but rather to all infrastructure services, the recommendations are general in nature.

Tynan, Nicola. 2000. "Private Participation in Infrastructure and the Poor: Water and Sanitation."

Conference paper for "Infrastructure for Development: Private Solutions and the Poor." London, May 31–June 2. PPIAF, DFID, and World Bank. Available online at <http://www.ppiaf.org/conference/sector3-paper2.pdf>.

- *Geographic focus:* None, but the material focuses on services in urban areas only. The paper illustrates the general framework for making contracts target the poor but does not draw on country-specific examples.
- *Key points:* The paper provides a broad overview of how to make PPP contracts benefit the poor and starts by examining the assumptions about the nature of demand by poor consumers. Considerations about the steps of developing contracts—and the possibilities for including the considerations of the poor in the steps—are weighed in the context of large-scale contracts with the private sector. Of particular note to regulators is the introductory section on production and delivery costs of water services (providing a thorough overview of delivery options and their relative costs) and a section on demand and ability to pay (drawing comparisons between prices charged by public utilities and vendors' tankers and carts).
- *Relevance:* Medium. The report is useful for those interested in an overview of designing PPI (Private Participation in Infrastructure) contracts to benefit poor customers, but it does not discuss specific options or recommendations.

Weitz, Almud, and Richard Franceys, eds. 2002. *Beyond Boundaries: Extending Services to the Urban Poor*.

Manila: Asian Development Bank. Available online at http://www.adb.org/documents/books/beyond_boundaries/prelims.pdf.

- *Geographic focus:* The focus of the recommendations is for Asia, but applications are not limited to the one region. Case studies include Dhaka, Kathmandu, Karachi.
- *Key points:* Presenting a series of cases from Asian countries, the book highlights how private sector participation—in its various forms—can provide services to poor communities. Case studies are presented in the context of failed delivery by public authorities (Dhaka and Kathmandu), private participation in a variety of arrangements or contracting to NGOs (contracting out or short-term arrangements in Port Vila, Silang, and Depok (Indonesia) and long-term arrangements in Vanuatu, Philippines, Malaysia), and public-private-community partnerships (Manila and others). Available online at http://www.adb.org/Documents/Events/2001/Extending_Beyond/extending_beyond.pdf.
- *Relevance:* Medium. This is very much focused on the role of service providers and their interaction with customers rather than on the role of regulators.

McIntosh, Arthur. 2003. *Asian Water Supplies: Reaching the Urban Poor*. Manila: Asian Development Bank. Available online at http://www.adb.org/Documents/Books/Asian_Water_Supplies/default.asp.

- *Geographic focus:* Examples are drawn from Asia, but the recommendations are not limited to the region.
- *Key points:* The book details steps for carrying out comprehensive water sector reform. Throughout the book, the point is argued that expanding sustainable access to the urban poor is possible despite myths indicating it is not possible. Sections most useful for regulators are those on small-scale providers, tariff design and subsidies, and regulation and benchmarking. Conclusions from a regional meeting of regulators offer some practical hints about improving services—for example, "if you can't measure it, you can't monitor it," and most regulation and services will work provided that there is sufficient political will.
- *Relevance:* Medium. The book provides a general overview of what elements are important to regulation (selection of regulators, benchmarking, and the like) but few are examined in detail, and while the problems are highlighted, few suggestions addressing them are offered.

General Readings on Regulation PPPs That Benefit the Poor

Berg, Sanford V. 2002. "PURC Papers in Water Regulation." Public Utility Research Center: University of Florida. <http://bear.cba.ufl.edu/centers/purc/publications/sectorstudies.htm>.

World Bank. 2005. "A Handbook for Evaluating Infrastructure Regulatory Systems," by Ashley Brown, Jon Stern, and Bernard Tenenbaum with Defne Gencer. Available from the World Bank's Infoshop at http://publications.worldbank.org/e-commerce/catalog/product?item_id=5545727.

Bertolini, Lorenzo. 2004. "Pro Poor Regulation: Challenges and Implications for Regulatory Design." Presentation for Foundations Course on Utility Regulation in Africa: August 2004.

Hall, David, and Heather Skilling. 2003. "Getting the Incentives Right: Incorporating Strategies for Improving Services to Low-Income Consumers within PSP Water Sector Contracts." A report by Shaw Group and Atkins for DFID. <http://www.ruralwaterpsp.org/files/external/Atkins%20PSP%20incentives%20sheet%20May%202003.pdf>.

Jamison, Mark, Farid Gasmí, and José Távora. 2004. "Annotated Reading List for a Body of Knowledge on the Regulation of Utility Infrastructure and Services." Developed for the World Bank. Available online at <http://bear.cba.ufl.edu/centers/purc/documents/ReferencesandNarrativesforweb4.pdf>.

Saleth, R. Maria, and Ariel Dinar. 2003. "Water Challenge and Institutional Response: A Cross-Country Perspective". World Bank Working Paper. World Bank, Washington, DC. Available online at <http://www.worldbank.org/html/dec/Publications/Workpapers/wps2000series/wps2045/wps2045.pdf>.

Ballance, Tony, and Sophie Trémolet. 2005. "Private Sector Participation in Urban Water Supply in Sub-Saharan Africa." A report for the German Cooperation. Available online at: http://www.kfw-entwicklungsbank.de/DE_Home/Fachthemen/Kooperatio17/Privatsekt98/WaterPSPinSub-SaharanAfrica.pdf

World Bank/Rapid Response Unit. 2005. "Designing and Management of Utility Regulation Institutions. A reading list". Available online at <http://rru.worldbank.org/PapersLinks/Design-Management-Regulatory-Institutions>.

World Bank/Rapid Response Unit. 2005. "Privatizing Water and Sanitation Services." Reading list. Available online at <http://rru.worldbank.org/PapersLinks/Privatizing-Water-Sanitation-Services>.

C.2 Fostering Access Expansion

Komives, Kristin, and Penelope Brook Cowen. 1998. "Expanding Water and Sanitation Services to Low-Income Households." Note No. 178. Public Policy for the Private Sector. World Bank, Washington, DC. Available online at <http://rru.worldbank.org/Documents/PublicPolicyJournal/178komiv.pdf>.

- *Geographic focus:* The case examines the concession for water services in La Paz and El Alto, Bolivia.
- *Key points:* The concession contract developed for water services in La Paz and El Alto was developed explicitly to bring services to the poor in addition to improving service efficiency. To maximize services for the poor, the concession contract was designed to be won by the bidder identifying the number of water connections they would make in exchange for a prespecified tariff. Obligations to serve the poor were not only specified in the contract but were reinforced through regulation, primarily by the Superintendencia de Aguas. The regulator monitors installation of the contractually stipulated connections and the quality of services generated from the connections. Most useful to regulators are discussions of when exclusivity of service can be loosely or strictly interpreted and other possibilities for including coverage expansion targets into contracts, regulation, or a combination of the two.
- *Relevance:* High. Although the case examines one contract, the proposals for coverage expansion targets can be widely applied.

Rosenthal, Shane. 2002. "The Design of the Manila Concessions and Implications for the Poor." Background paper prepared for PPIAF/ADB Conference on Infrastructure Development, "Private Solutions for the Poor: The Asian Perspective," Manila, October 28–30, 2002. Available online at <http://www.ppiaf.org/conference/docs/Papers/Manila.pdf>.

- *Geographic focus:* The paper describes the Manila concessions, but the way in which coverage was calculated is applicable to other regions.
- *Key points:* The paper describes the design and implementation of the Manila concession contracts, drawing specifically on the coverage targets set forth in the contracts and the implications for the poor. While the contract was arguably not designed to explicitly benefit the poor, the effect of striving for nearly universal coverage meant that a large portion of the unserved poor would be covered in the new contracts. The paper reviews the system established in Manila whereby resale of bulk water to small networks was legitimized in the

contracts and thereby allowed water service to be provided at lower cost. Local resellers are not bound by the same service standards—particularly for prices charged—as those for the concessionaires. The paper also highlights how the contract and its enforcement give incentives to the concessionaires to either extend services or allow alternative providers in unserved areas. A formula for calculating coverage extension takes into account both populations served by the concessionaire and those indirectly served through alternative providers, and thereby the concessionaire partially achieves targets when any party serves new customers.

- *Relevance:* High. Most applicable are the description of the retail bulk water sale and the incentives presented to the concessionaires for extending service.

Brook, Penelope, and Suzanne Smith, eds. 2001. *Contracting for public services: Output-based aid and its applications*. Washington, DC: World Bank. Available online at <http://rru.worldbank.org/Features/OBABook.aspx> (also available in French and Spanish).

- *Geographic focus:* None. This book gives examples from everywhere, from Argentina to the U.K., including Guinea or Romania.
- *Key points:* This book was instrumental in defining the basic principles of output-based aid. The main concept behind this method of subsidy delivery is that service providers can receive subsidies based on outputs or results actually delivered to target beneficiaries. This book gathers cases of innovative, output-based approaches from across the infrastructure and social sectors, including construction of schools and IT learning facilities, energy, primary health care, roads, telecommunications, and water. In the water sector, this book concentrates on the design of the Guinea lease contract, which incorporated subsidies paid to the operator based on volumes of water sold to cover a transitional cash deficit.
- *Relevance:* Medium. Output-based aid can be a useful way to deliver subsidies in order to expand access to services in particular. Because the subsidies are provided based on results, this requires close monitoring, which may need coordination with the regulator.

Marin, Philippe. 2002. "Output-Based Aid (OBA). Possible Applications for the Design of Water Concessions." World Bank, Washington, DC. Available online at <http://rru.worldbank.org/Documents/PapersLinks/OBA%20Water%20Concessions%20PhM.pdf>.

Regional focus: None.

- *Key points:* This publication sets out four main ways in which the output-based aid concept can be applied in the design of water concessions, including an OBA-targeted consumption scheme, a coverage expansion scheme, a transition scheme (to cover a transitional deficit while gradually increasing tariffs), and a wastewater scheme. It discusses the pros and cons of each option and gives concrete examples of how this could be applied.
- *Relevance:* Medium. The options presented in this paper for applying output-based aid in the water sector could be adapted for use in any type of contract, with a public or private sector operator, when there are financial constraints for extending coverage.

Other Relevant Readings on Fostering Coverage Extensions

Cockburn, Mark. 2005. "What Is OBA? Supporting Infrastructure Delivery Through Explicit and Performance-based Subsidies." OBA Working Paper Series, Paper No 4. World Bank, Washington, DC. Available online at http://www.gpoba.org/docs/WorkingPaperNo4_WhatIsOBA1.pdf.

C.3 Targeting Subsidies

Debomy, Sylvie, Donald T. Lauria, and Omar S. Hopkins. 2005. "Pro-Poor Subsidies for Water Connections in West Africa." Water Supply and Sanitation Working Notes, Note No. 4. World Bank, Washington, DC. Available online at <http://www.worldbank.org/html/fpd/water/pdf/WSSWorkingNote4subsidiesshort.pdf>.

- *Geographic focus:* The focus is on West Africa, primarily Senegal and Côte d'Ivoire, although the analysis section that examines the need for social tariffs applies to a global context.
- *Key points:* Based on field interviews in Senegal and Côte d'Ivoire, the paper illustrates the design of social tariffs in the two countries. In Senegal, the institutional structure for decision

making combines a tripartite approach. The public asset-holding company SONES contracts with the Ministry of Water to provide services; Sénégalaise des Eaux (SDE) is the contracting authority overseeing the 10-year management and lease contract with SONES; and Environnement et Développement du Tiers Monde (ENDA) is an NGO that serves as an intermediary between developing communities or boroughs and SONES to determine which boroughs are selected for social connections and to prepare potential boroughs and their applications. Of particular note to regulators is the interplay between criteria for obtaining social connections and the process of preparing communities or boroughs for applications for social connections. One of the several selection criteria for determining which boroughs are eligible for social connections is that a potential household or communal connection has a pipe of the water network within 20 meters of the proposed social connection. Given the underdevelopment of boroughs, this criterion seems rather strict, as it presupposes that a water network has been sufficiently developed. The NGO partner, ENDA, works with boroughs to develop their basic infrastructure, thereby making this criterion more readily obtainable. Of other interest to regulators are the limitations of the social connection systems. Certain features of the social connection systems—for example, the frequency of billing and collection, the lack of water metering, and the targeting of “poor” consumers—could be improved so that poor consumers are in fact benefiting from the system and wealthier customers are not. Potential changes to the water tariff system and the billing and collection systems can enable more poor consumers to benefit in the long run.

- *Relevance:* High. This paper illustrates how social connection schemes can be designed and the issues to be looking out for in their design.

Foster, Vivian, Andreas Gomez-Lobo, and Jonathan Halpern. 2000. “Designing Direct Subsidies for Water and Sanitation Services in Panama: A Case Study.” Policy Research Working Paper 2344. World Bank, Washington, DC. Available online at <http://rru.worldbank.org/Documents/PapersLinks/32.pdf>.

- *Geographic focus:* The paper draws examples from Panama, although these can be applicable elsewhere.
- *Key points:* The use of direct subsidies is examined through the lens of Panama, where the existing subsidy scheme did not effectively target the poor. Responding to claims of misapplication (more than two-thirds of all customers benefit to some extent from the subsidy, implying that most beneficiaries are not poor), the paper proposes key design questions that should be taken into account for a new subsidy system. Most important to regulators are the discussions in the paper about the application of zonal subsidies, determining the size of the subsidies, and the interpretation of willingness-to-pay surveys for subsidy design. After determining the correct subsidy, the authors encourage that legal and regulatory codes be amended to properly reflect the subsidy reform. This includes amending legal and regulatory codes and monitoring the budgeting process and subsidy administration.
- *Relevance:* High. This paper provides practical tips about designing targeted subsidies.

Komives, Kristin, Vivien Foster, Jonathan Halpern, and Quentin Wodon. 2005. “Water, Electricity, and the Poor: Who Benefits from Utility Subsidies?” World Bank, Washington, DC.

- *Geographic focus:* None. The report draws on examples from many regions.
- *Key points:* The report brings together research and recommendations on subsidies in the energy and water sectors. Separate sections are dedicated to consumption and connection subsidies, with a discussion of indicators and targeting for the respective subsidy type. The report also presents ways to better define “poor” customers by examining willingness to pay, price and income elasticity, and their relation to the ability to reach cost-recovery tariffs (specific examples of Central America and India are given). These topics are again related to targeting the poor—through consumption subsidies (tariff structures) and connection subsidies; for example, the authors compare the size of the first and last tariff block in areas that use rising block tariff systems. One of the unique aspects that the paper examines is a discussion on the use of subsidies as instruments of broader social policy—for example, the presence of externalities and merit considerations. Of use to regulators is a section on measuring the targeting performance of utility subsidies. The report offers indicators and ways to derive respective indicators, such as the incidence of benefit for the poor and the materiality of the subsidy.

- *Relevance*: High. The report thoroughly presents both the relevant issues in extending subsidies and recommendations for improving the design and application of subsidies.

Gomez-Lobo, Andres. 2001. "Making water affordable. Output-based consumption subsidies in Chile." In *Contracting for Public Services: Output-Based Aid and Its Applications*, eds. Penelope J. Brook and Suzanne M. Smith. Washington, DC: World Bank. Available online at <http://rru.worldbank.org/Features/OBABook.aspx>.

- *Geographic focus*: The report focuses on Chile, but the application of means-tested water consumption subsidies is applicable to countries with the need for subsidies, particularly when private companies are charged with the responsibility of providing low-cost service to subsidy recipients.
- *Key points*: The report examines the means-tested water consumption subsidies implemented in Chile. Following the period of reform of the water sector, whereby all regions were eventually let to private providers, there was a reinforced need for subsidies for customers unable to pay for basic consumption. In lieu of regionally based or other types of subsidies, the country selected means-tested consumption subsidies to increase affordability. Implementation of the consumption subsidies—subsidies that cover the shortfall between actual charges of subsistence-level services and customers' ability to pay—is of particular note to regulators. In Chile, the process of obtaining subsidies is one that requires oversight of the private provider, proper government reimbursement, and local governments that are responsive to poor consumers' requests. Of particular note is the requirement that poor customers wanting to be eligible for the subsidy must have no payment arrears, providing incentive to improve customers' tariff payment accountability.
- *Relevance*: Medium. Few countries may be able to establish a system of targeted subsidies with the degree of sophistication encountered in Chile, a country with a very strong administrative tradition. However, a system of targeted subsidies on the Chilean model is the most effective way of distributing subsidies, and regulators can find inspiration in this model.

Chisari, Omar, Antonio Estache, and Catherine Waddams Price. 2001. "Access by the Poor in Latin America's Utility Reform Subsidies and Service Obligations." Discussion Paper No. 2001/75. World Institute for Development Economics Research, United Nations University, Helsinki,. Available online at http://www.unu.edu/hq/library/UNU_Publications/WIDER%5CWIDERdp.2001.75.pdf.

- *Geographic focus*: The focus region is Latin America, but the principles for increasing access for the poor and decreasing cost of services (thereby making them more affordable to the poor) are applicable to other regions.
- *Key points*: The report examines how subsidies and service obligations can better serve the urban poor in Latin America. The report covers several infrastructure sectors, so implications for the water sector are drawn from general principles governing all infrastructure. A particular highlight of the report is the case of Argentina and the balance struck by the regulator between ensuring financial viability of the operator and accelerating service extension targets. The report reveals how regulatory systems can influence the choice of technology (capital-intensive solutions versus less-capital-intensive solutions). In addition, the report discusses considerations for differentiating among quality standards (for example, obligatory service and universal service obligations) and the potential savings generated from lower-cost services.
- *Relevance*: Medium. The considerations and recommendations proposed in the report are thorough and useful; however, the information and recommendations are not specific to the water sector.

Lovei, Laszlo, Eugene Gurenko, Michael Haney, Philip O'Keefe, and Maria Shkaratan. 2000. "Scorecard for Subsidies: How Utility Subsidies Perform in Transition Economies." Note No. 218. Public Policy for the Private Sector. World Bank, Washington, DC. Available online at <http://rru.worldbank.org/Documents/PublicPolicyJournal/218Lovei-10-23.pdf>.

- *Geographic focus*: The note focuses on transitional economics primarily in Central and Eastern Europe and the former Soviet Union.
- *Key points*: The note describes an approach to score the effectiveness of subsidies in infrastructure utilities. Of importance to regulators are criteria that the authors develop to assess subsidy mechanisms, including how well the subsidy scheme reaches those in need and avoids

areas of exclusion, reaches the groups that were initially targeted, and improves predictability and planning at the household and sector levels. Seven types of subsidies are also described: no disconnection, across-the-board price subsidies, lifeline tariffs, price discounts for privileged consumers, burden limits, other earmarked cash transfers, and non-earmarked cash transfers.

- *Relevance:* Medium. The description of different subsidies and proposed scoring system is useful, but the report's short length and the concentration on all utilities dilute the relevance to the water sector.

Water and Sanitation Program. 2002. "Water Tariffs and Subsidies in South Asia: Understanding the Basics." Paper 1 of five papers. Available online at http://www.wsp.org/05_Initiatives_cbpcs_tariffs.asp.

- *Geographic focus:* This paper focuses on South Asia but have relevance for other countries. Quantitative evidence is presented to demonstrate the extent to which subsidies bypass the poor in two cities in particular: Bangalore in India and Kathmandu in Nepal.
- *Key points:* This paper sets out the basics of water pricing and subsidy design, going through the objectives of water pricing and tariff design options. The paper points out that subsidy schemes need to be carefully designed, as they have in the past often failed to target the majority of poor households and have simply distorted demand.
- *Relevance:* This paper, as well as the four companion papers (which are more focused on practical applications in South Asia) provides an excellent introduction to principles of water pricing and subsidy design. It could help regulators who want to commission or carry out tariff studies by helping with design of the objectives and scope of such an exercise.

Other Relevant Reading on Targeting Subsidies

Simpson, Robin (policy advisor to Consumer International). "Should Consumers Demand Higher Water Prices?". Undated. Available online at <http://www.wsp.org/publications/shouldconsumersdemandhigherwaterprices.pdf>.
Irwin, Timothy. 1997. "Price Structures, Cross-Subsidies, and Competition in Infrastructure." Note No. 107. Public Policy for the Private Sector. Washington, DC, World Bank. Available online at <http://rru.worldbank.org/Documents/PublicPolicyJournal/107irwin.pdf>.

C.4 Regulating Quality

Bill Baker and Sophie Trémolet. 2000. Public Policy for the Private Sector. Note Nos. 219, 220, and 221. World Bank, Washington, DC.

"Utility Reform: Regulating Quality Standards to Improve Access for the Poor." Note No. 219. <http://rru.worldbank.org/Documents/PublicPolicyJournal/219Baker-10-24.pdf>.

"Micro-infrastructure: Regulators Must Take Small Operators Seriously." Note No. 220. <http://rru.worldbank.org/Documents/PublicPolicyJournal/220Baker-10-24.pdf>.

"Regulating Quality: Let Competing Firms Offer a Mix of Price and Quality Options." Note No. 221. <http://rru.worldbank.org/Documents/PublicPolicyJournal/221Baker-10-24.pdf>.

- *Geographic focus:* None. These notes take examples from various geographical horizons.
- *Key points:* This series of notes argue in favor of differentiating service levels in order to reach poor customers, either for the main utility or for small-scale operators, and for letting different firms compete on the basis of quality as well as price. The authors note that in many developing countries, the regulation of infrastructure service standards is too rigid and makes services too expensive for the poor. These notes look at cases and options for rethinking quality regulation to expand consumer choice while meeting health, safety, and environmental objectives. They encourage regulators to treat alternative providers as valid service providers and to bring them under a regulatory umbrella.
- *Relevance:* High. These notes provide a framework for thinking about quality regulation. They are not strictly focused on the water sector, but this broader focus should help water regulators in drawing inspiration from other sectors as well.

Brocklehurst, Clarissa. 20001. "Durban Metro Water: Private Sector Partnerships to Serve the Poor." Water and Sanitation Program—Africa. Available online at http://www.wsp.org/publications/af_durban.pdf.

- *Geographic focus:* The case study examines Durban, South Africa. The decisions that the project leaders faced—whether to wait for an amended law that would recognize condominium sewerage or to proceed without legislation and thereby assume risk associated with installation—are not unique to South Africa but instead affect many countries faced with the possibility of different service standards.
- *Key points:* The paper describes the set of reforms developed by Durban Metro Water to ensure that a variety of services, including low-cost options, reach the poor. The first service considered includes the different options for water provision, namely conventional full-pressure systems, semi-pressure systems with ground tanks and roof tanks, and standposts. In addition, low-cost sewerage services were also developed through the partnership of the private provider (Lyonnaise des Eaux, together with local construction companies) and South Africa's Water Research Commission. The question was raised about what to do with the legal system, which did not specifically recognize the shallow sewerage option inherent with condominium sewerage.
- *Relevance:* High. The paper briefly discusses the challenges faced in providing services to poor customers and then focuses on the design of specific service solutions.

C.5 Regulating Alternative Service Providers

A growing body of literature exists on what can be done to regulate small-scale independent providers (SSIPs), also called small water service providers. Most of it focuses on the specific challenges that such regulation raises rather than on documenting concrete successes at doing so.

Collignon, Bernard, and Marc Vézina. 2000. "Independent Water and Sanitation Providers in African Cities: Full Report of a Ten-Case Study." Water and Sanitation Program, Washington, DC. Available online at http://www.wsp.org/publications/af_providers.pdf.

- *Geographic focus:* The focus is 10 countries in Africa, but the problems highlighted pertain to other areas that have little or no local experience with regulating services. Countries that have recently decentralized water supply and sanitation services would find the sections on "Decentralization and Local Government Roles" most useful.
- *Key points:* Based on a survey of 10 African cities, the report examines the role of municipal providers, the gaps in service, and the corresponding niche of independent providers. The report points out that, although municipal providers are charged with the responsibility of reaching all consumers, particularly in urban areas, the authorities serve at most 70 percent of the population, whereas independent providers serve the remainder. Examples are given for Bamako, where the provider EdM serves 18 percent of households. The juxtaposition of public and independent providers is reinforced by one table that compares water sector incomes in Port-au-Prince, Haiti, with five African cities. The report also highlights options for turning informal small-scale providers into formal providers (and thus covering them under a regulatory framework), including simpler and fairer taxation, which would discourage bribery, better legal protection for formalized businesses, and easier access to commercial loans. Of particular use to regulators is the topic of instituting better financial management of independent providers. The report highlights an arrangement in Mali whereby a tripartite system of the Users Association, local authorities, and outside experts have improved service delivery and reduced operating costs. Audits of provider accounts are carried out by an independent agency and reduce uncertainty about elevated customer tariffs.
- *Relevance:* High. The paper presents much insight into the types of small-scale providers the regulatory systems may need to oversee. Most important, it reviews commercial and pricing strategies and reveals where more demand-responsive strategies should be adopted to serve low-income households.

Conan, Hervé, and María Paniagua. 2003. "The Role of Scale of Small-scale Private Water Providers in Serving the Poor." Summary Paper and Recommendations. Presented at 3rd World Water Forum, Water in Cities, Kyoto, Japan, March 16–23, 2003. Available online at: http://www.adb.org/Documents/Events/2003/3WWF/Role_of_SSIWPs.pdf.

- *Geographic focus:* The paper draws evidence from Asian cities and their experience with SSIPs.

- *Key points:* The summary paper analyzes the characteristics of SSIPs and the challenges faced by municipalities that include SSIP provision of water and sanitation services. It concludes that the better the legal environment, the higher is the level of service and of investment. For example, investment per household connection is higher in Ho Chi Minh City (Vietnam) and Cebu (Philippines), where the connections are legal, than in Delhi, where they are illegal. The paper concludes by presenting three recommendations for improving the quality and coverage of service by SSIPs. To provide a conducive legal framework including long-term investment, a regulation on socialization of investment was implemented in Ho Chi Minh City to facilitate the investment of local private companies.
- *Relevance:* High. Concrete solutions about regulating small-scale private providers are given.

Kariuki, Mukami, and Jordan Schwartz. 2005. Small Scale Private Service Providers of Water Supply and Electricity. World Bank, Washington, DC. Available online at http://wdsbeta.worldbank.org/external/default/WDSContentServer/IW3P/IB/2005/09/23/000016406_20050923090807/Rendered/PDF/wps3727.pdf.

- *Geographic focus:* Global. The report examines literature regarding water and energy SSIPs in developing countries.
- *Key points:* The report examines evidence of the presence and characteristics of SSIPs in the energy and water and sanitation sectors, drawing from over 400 documents. In addition to classifying SSIPs by the types of services they provide and the sources of their bulk supply, the report identifies the primary characteristics of their supply. Of interest to regulators are the respective responsibilities of SSIPs and the organizational structure and financing of their operations. The report does not focus on how to implement proper regulation of such providers, but it does familiarize the regulator with the nature of these enterprises and the types of regulation that generally apply to the providers. For example, it points out that mobile distributors (tankers or fleets) often have transport licenses but rarely have permits to distribute or sell water to consumers.
- *Relevance:* High. This document provides interesting insights into SSIPs, although regulation aspects are not directly addressed.

Solo, Tova. 2003. Independent Water Entrepreneurs in Latin America: The Other Private Sector in Water Services. Washington, DC: World Bank. Available online at <http://wbIn0018.worldbank.org/lac/lac.nsf/0/2DCACD721793299785256DAA0071E435?Opendocument>.

- *Geographic focus:* The report draws on evidence of SSIPs in Latin America; however, the anecdotal evidence and recommendations extend far beyond the region.
- *Key points:* The report reviews the reach of SSIPs in Latin America and the conditions faced by SSIPs concerning their role in the market, their business risks, and strategies to manage such risks. Of particular interest to regulators is a section on business constraints that highlights the problems faced by SSIPs—problems for which there are not yet effective solutions. One complication relates to customer tariffs and their sporadic regulation, the impact of regulated tariffs on the SSIPs, and their inability to invest in assets because funds to service debt cannot be raised through tariffs or access capital markets. Also of interest is the need for regulations and legislation to be applicable to the scale of the market; existing regulations are generally tailored for medium to large-scale operators and therefore preclude any efficient operation from SSIPs.
- *Relevance:* High. The report thoroughly describes the operating conditions for SSIPs in Latin America. Most relevant to regulators is the section on constraints and strategies.

Abdullah, Roohi. 1999. The Role of Private Vending in Developing Country Water Service Delivery. The Case of Karachi, Pakistan. Unpublished master's thesis, Department of Urban Studies and Planning, Massachusetts Institute of Technology, Cambridge, MA.

- *Geographic focus:* The primary data concern Karachi, Pakistan; however the lessons learned in the market presence of SSIPs and the policy implications of SSIPs are not unique to Karachi and can apply to many cities.
- *Key points:* Based on findings of SSIPs in Karachi, including services provided, types of customers, tariff structure, and the like, the report examines the implications of SSIPs on urban planning. This paper is particularly important to regulators in determining the type of service demanded or expected from the public utility, and the tariff structure and level of consumer tariffs that match

those expectations. In the case of Karachi, the public utility was only able to meet half of the household demand, thereby altering the role of SSIPs from the usual supplemental source supplier to that of primary source supplier. Where SSIPs are unregulated, elevated consumer tariffs can have a significant effect on poorer customers, who often may not be able to afford water provided by SSIPs to meet their basic consumption needs. In the case of Karachi, the means by which SSIPs obtain raw water is contentious, leading to distortions in the city's availability of water and the equity between provider revenues. Private standpost operators historically have not fallen under the scope of water resources regulation and have not been charged for extraction; therefore, private hydrant owners are able to capture the full market value of the water in private markets. Improved regulations were deemed necessary to remove the problems associated with unlimited free abstraction, including implications for customers where water tariffs of such standposts are both unregulated and several times those of tariffs of the public utility.

- *Relevance:* Medium. The primary focus of the paper is the description of the many problems impeding regulation, but it does not describe in detail the set of solutions or proposals to respond to the regulatory and sector challenges.

Sohail, M., and Andrew Cotton. 2000. Performance Monitoring of Micro-Contracts for the Procurement of Urban Infrastructure. Loughborough University, U.K.. Available online at <http://www.lboro.ac.uk/wedc/publications/pmmc/pmmc.pdf>.

- *Geographic focus:* The study draws evidence from South Asia, but the guidance issued by the report is not region specific.
- *Key points:* This report is not specific to the water supply sector, but rather it draws evidence and presents recommendations for all “micro-contracts” in infrastructure. The report is divided into three respective sections, each guiding the framework for appraising, monitoring, and evaluating small or micro-contracts in infrastructure. The section on performance monitoring highlights general principles—for example, key performance indicators necessary for benchmarking—that should be applied. The report does not differentiate between types of service providers (formal versus informal, or large utilities versus SSIPs) but instead, assuming that performance monitoring and evaluation would be standard across the sector, offers steps to administer, collect, and evaluate performance.
- *Relevance:* Medium. The report provides a good framework for considering performance monitoring, but because it is not specific to the water sector, the concepts are only loosely applicable.

Other Relevant Reading on Alternative Water Service Providers

DFID. 2004. “Small Scale Private Participation in the Rural Water Supply Sector: Knowledge Review.” Prepared by Water Management Consultants, London. Available online at <http://www.ruralwaterpsp.org/files/internal/R8335%20Knowledge%20Review.pdf>.

Plummer, Janelle. 2002. “Developing Inclusive Public-Private Partnerships: The role of small-scale independent providers in the delivery of water and sanitation services.” October 2002. GHK International, London. Presented at the ‘Making Services Work for Poor People’ World Development Report (WDR) 2003/04 Workshop, Oxford. November 4–5, 2002. Available online at <http://www.ids.ac.uk/ids/govern/pdfs/plummerWDR.pdf>.

Snell, Suzanne. 1998. “Small-Scale Providers: Typology & Profiles.” Water and Sanitation Program Report. World Bank, Washington, DC. Available online at www.wsp.org/publications/global_typology.pdf.

Solo, Tova. 1998. “Competition in Water and Sanitation: The Role of Small Scale Entrepreneurs.” Public Policy for the Private Sector. Note No. 165. World Bank, Washington, DC. Available online at <http://rru.worldbank.org/Documents/PublicPolicyJournal/165solo.pdf>.

Van den Berg, Caroline. 2002. “Vietnam—Evolving Management Models for Small Towns’ Water Supply in a Transitional Economy.” Water and Sanitation Program for East Asia and the Pacific, Washington, DC. Available online at: http://www.wsp.org/pdfs/eap_vietnam_models.pdf.

C.6 Improving the Regulator’s Focus on Poor Customers

Trémolet, Sophie, and Sara Browning. 2002. “The Interface between Regulatory Frameworks and Tri-Sector Partnerships.” BPD Research and Survey Series. BPD Water and Sanitation, London. Available online at <http://www.bpd-waterandsanitation.org/english/docs/regulation1.pdf>.

- *Geographic focus*: Pilot projects in eight cities form the basis of the report (Cartagena, Colombia; Jakarta, Indonesia; Port-au-Prince, Haiti; La Paz and El Alto, Bolivia; Buenos Aires, Argentina; Eastern Cape and Northern Province, South Africa; Durban, South Africa; and Dakar, Senegal).
- *Key points*: The objective of the report is to highlight the role of regulation in effective public-private partnerships, particularly because improving relationships between regulators and other PPP actors can improve services to the poor. Throughout the report, "regulation" implies the regulatory framework made of institutions, contracts, and other arrangements. Findings and recommendations are based on pilot partnerships forged in eight cities. In addition to presenting the importance of partnerships in making regulation more pro-poor, the report summarizes how partnerships have made regulation more pro-poor in the eight projects. Some of the common characteristics of the partnerships were that they were created with the specific intent of focusing on the poor, and they generated information on the characteristics of the poor that improved services and regulation and improved understanding of "pro-poor regulation" by all PPP partners. These benefits, however, are achieved when partnerships' regulatory bodies act at the same level as other PPP actors, and when formal agreements between actors exist.
- *Relevance*: High. The report presents the analysis of regulatory constraints and how the creation of trisector partnerships can help alleviate such constraints.

Consumers International and Water and Sanitation Program. 2004. "Moving from Protest to Proposal: Building the Capacity of Consumer Organizations to Engage in Urban Water Supply and Sanitation Reform in Africa." Consumers International and WSP, Zimbabwe. Available online at http://www.wsp.org/publications/af_protest.pdf.

- *Geographic focus*: Africa (Chad, Senegal, Zambia, and Kenya).
- *Key points*: The report formulates recommendations on how consumer organizations can shift from emotional protests to constructive proposals. Portions of the report most related to regulation that benefits the poor are contained in the country reports, in which recommendations are made on the legislative and regulatory frameworks that would benefit the poor or other disadvantaged groups. The report also focuses on the processes—stakeholder meetings and capacity building and training—that are necessary to integrate the opinions of the poor into formation and reform of legislation and regulation. Throughout, the report discusses the strengths and weaknesses of consumer organizations in fulfilling certain roles, for example, representing consumers in the regulatory process.
- *Relevance*: Medium. The report gives concrete examples about how consumer organizations can contribute to the debate on regulation and how to build their capacity to do so. However, the report does not focus on what roles the regulator should play to respond to the expression of customer voice.

De Silva, S. 2000. "Community Contracting: A Review of Stakeholder Experience." World Bank, Washington, DC. Available online at http://www.worldbank.org/watersan/rwstoolkit/rwss_community_key.htm.

- *Geographic focus*: None.
- *Key points*: The report highlights the experience of World Bank projects that allocated responsibility through contracts to communities and community user organizations. Findings from this report are significant for regulations that seek to be tripartite (public, private, and community groups). The report highlights some of the challenges and potential solutions to projects, for example, the legal issues surrounding community user organizations obtaining legal status (the example of Ethiopia is given, where meeting minutes are required to obtain official status); difficulties encountered when communities lack sufficient legal status (the example is given of the creation of joint accounts in the Uttar Pradesh Water and Sanitation Project).
- *Relevance*: Medium. The report provides good general guidance on community user organizations but does not offer significant recommendations specific to regulation and the water sector.

ANNEX D REGULATORY MEASURES TARGETING THE POOR

The examples below present short snapshots of situations in which an existing regulatory framework was adapted to expand possibilities to serve poor customers:

- Regulating small-scale providers in **Ho Chi Minh City (Vietnam)**
- Increasing flexibility of quality standards and options for supply through a pilot project for condominium systems in **La Paz and El Alto (Bolivia)**
- Adapting quality standards to the needs of poor customers in **Durban (South Africa)**
- Improving the regulator's focus on poor customers through the Water Watch Groups in **Lusaka (Zambia)**

Each case gives a general overview of the sector institutional framework and structure, describes the process that was used for developing a regulatory tool that benefits poor customers, and evaluates its impact on the poor and potential for replicability.

Area: Regulation of small-scale providers

Country/City: Vietnam/Ho Chi Minh City

Overview of the water sector in Ho Chi Minh City

Access to urban water services is an urgent priority...

Ho Chi Minh City is growing rapidly. The city comprises three-fourths of all of the country's urban population, and over the past 10 years the GDP growth rate in the city has been 11 percent annually. However, underinvestment in the water sector and low coverage levels represent significant constraints on the city's development. Throughout the country, coverage rates for water supply are low: the urban coverage rate is 53 percent; for rural areas it is around 32 percent. Urban services are further marred by high levels of unaccounted-for water—as high as 55 percent in some areas—and poor water quality conditions—where an estimated 80 percent of urban water meets neither national nor World Health Organization standards.

...but there are many challenges to providing service.

Ho Chi Minh City faces two significant problems, as the city rapidly expands into unserved periurban areas and availability of raw water declines. The water shortage problem, with deficits exceeding 30 percent, is compounded by technical losses.

The utility provider recognized that it could not meet demand alone.

In the late 1990s, the public utility provider, Ho Chi Minh Water Supply Company, recognized that given their current institutional, financial, and production capacity, they would not be able to meet either the existing or growing demand. Despite modest increases in utility capacity, there was a growing recognition that the public utility would not be able to meet the demand in the coming 5 to 10 years. Because of this knowledge, the city government modified the legal and regulatory structure in 2001 to allow small-scale providers to meet the demand while not compromising the long-term sustainability of the public utility or the city's water sector.

Organization of the water sector in Ho Chi Minh City began to change in 2001.

The public utility, Ho Chi Minh Water Supply Company, served an estimated 55 percent of the city's residents in 2004. Their water supplies derive from three primary sources—the Dong Nai River, the Sai Gon River, and surface water—giving a maximum daily production of 1,630 billion liters per day, or a consumption rate of 307 liters per capita per day, or LPCD (assuming no losses and a city population of 5.3 million people). In addition, small-scale private providers have been informally involved in the sector for a long time, even before the 2001 regulations that legalized their existence. The extent of their activity prior to 2001, including the types of responsibilities they assumed and their geographic reach, was not readily known.

Area: Regulation of small-scale providers

Country/City: Vietnam/Ho Chi Minh City

Private sector participation has been limited.

Ho Chi Minh City has attempted to introduce private participation in its water services, although with limited success. The Binh An Water Corporation has been supplying raw water to the city under a 20-year build-operate-transfer contract signed in 1998. This project, the first BOT project in the water sector of Vietnam, entailed an estimated US\$38.8 million investment.

Later on, a large-scale concession agreement for the construction, operation, and investment in a water treatment and distribution facility in Ho Chi Minh City was signed. The project, the Thu Duc Water Project, valued at over US\$150 million, was canceled in 2003 when the operators withdrew from the project. Because the half-finished facility was not operational, the expected capacity of 300,000 cubic meters per day was not used, thereby placing higher reliance on existing water providers.

The legal framework is based on communist theory and civil law.

The country's legal framework was built on communist legal theory and the French civil law system. There are several pieces of legislation relating to the water supply sector. Service levels, coverage, and other supply standards were set forth in the National Water Supply Strategy in 1993. The national Water Law has been amended, most recently in 2003 when it reallocated responsibilities for river basin management.

Water services are decentralized to municipal level.

Responsibilities relating to water supply and sewerage are shared among several central ministries and provincial (and in the case of Ho Chi Minh City, municipal) governments. Central government departments, such as the Ministry of Construction and the Ministry of Health, establish construction quality standards and water quality standards, respectively. The municipality of Ho Chi Minh City, one of five municipalities in the country, monitors the water providers, ensuring that the standards set forth by the central government are fulfilled. The main provider in the city is the publicly owned Ho Chi Minh Water Supply Company.

Development of the regulatory tool for poor customers

National policy has stimulated reform at the municipal level.

The water supply problems and limited access to water services were problems that extended beyond Ho Chi Minh City into the rest of the country. In response, the national government adopted the Urban Master Plan in 1998 that set long-term targets for the period 2000–2020. The national goals were to increase the water supply capacity fourfold (to 15.94 million cubic meters per day by 2020) and to extend water supply coverage to 90 percent of urban population. These national goals provided the stimuli for reform at the municipal level in Ho Chi Minh City.

Public utility accepts involving small-scale providers.

Recognizing that the public utility would not expand services at the rate necessary to meet the national plan, the city government decided to bring alternative providers formally into the sector and to make them part of the solution rather than of the problem. The role that was assigned to those providers was to extend services in areas where the municipal utility recognized that it would be unable to expand services in the medium term.

Small-scale providers were legally recognized.

Reforms were introduced in two phases. First, Decree No. 93/2001/ND of December 2001 was adopted, which legalized small-scale providers, with the specific remit of serving areas not covered by the public utility. This formalization did not prove sufficient to foster investment, however. The municipal government therefore adopted additional measures in 2002, referred to as "socialization of investment." In those, local private companies were encouraged to extend and improve services not met by the public utility. A more

Area: Regulation of small-scale providers

Country/City: Vietnam/Ho Chi Minh City

Priority areas were selected.

formal process for defining priority areas and awarding contracts for serving those priority areas was developed at the time.

The areas where this program occurred were determined by a group consisting of a number of city-level institutions, including the Department of Public Works, the Department of Planning and Investments, the People Committee of Districts, and the public utility. These institutions worked in a coordinated manner to determine the areas of the city where the role of local private companies could and should be increased, based on the utility's own development plan. The public utility also determined the technical specifications that local private companies would be required to meet in extending and improving service.

Small-scale providers were selected.

Private providers were selected through a tender process. The Department of Public Works coordinated with the respective districts to select priority areas and organize the bidding process. Areas put out for bidding could include one or several districts and vary substantially in size. The public utility finally determines the terms of reference for the contracts. Alternative providers were involved in three areas:

- Bulk water supply to the public utility, with the sale of treated water abstracted from boreholes;
- Extension of water supply to consumers, with abstraction of water from boreholes, treatment of water, and distribution through piped or nonpiped networks to consumers;
- Improved water supply management, entailing reducing unaccounted for water in areas already served by the public utility.

The operator's remuneration for loss reduction is based on a formula stipulated in the contract.

Contracts were signed between public utility and small-scale providers.

Contracts are signed between the public utility and the small-scale provider. Under the contract, operations continue only until

- The duration of the contract expires (they are generally 10-year contracts, with possibility of renewal); or
- The public utility has expanded its capacity to the area covered under the contract, even if the duration of the contract has not yet been met.

In the latter case, the investor is faced with the possibility of ceasing activity and will be compensated for the value of interest equal to the average interest accrued during operations.

Contracts specify oversight of small-scale providers.

Though the contracts are between the public utility and the small-scale providers, oversight and enforcement are carried out by the municipal government. The small-scale providers are required to adhere to the municipal construction and building standards if they construct new assets. Although this can be criticized for preventing demand-driven solutions or lower-cost service options, it does allow for standardization of services in both urban and periurban areas. The municipal Department of Public Works carries out general oversight. In addition, that department, together with the Department of Planning and Investments and the People Committees of Districts, inspect service quality by small-scale providers.

Area: Regulation of small-scale providers

Country/City: Vietnam/Ho Chi Minh City

The number of small-scale providers has increased as a result.

As a result of the reform programs and the legal framework for alternative providers, more private providers arose, ranging from those providing full water supply services to those that were contracted for specific services, and also suppliers of service at different points of the supply chain. Following the growth of local private entrepreneurs, local service providers arose in several rural sanitation projects in addition to the urban services in Ho Chi Minh City.

One example of a new local provider is the Hiep An Company, a small private provider in the city's District 8. Less than one-fourth of its 1,300 m³/day production goes directly to its 250 household connections serving 2,000 people (with 3 km of pipe in 0.7 km²), whereas the bulk is directed toward the public utility. Water is pumped through two wells and treated in a water unit. It is provided 24 hours per day and meets the government's health standards. Tariffs are set at US\$0.25/m³ for consumers and US\$0.16/m³ for bulk sales to the public utility. The company started in 2000 with the three partners contributing a combined US\$150,000 initial investment. The company provides services in areas where the utility is not present, including in newly developed areas and in areas far from conventional water sources.

Impacts on the poor, markets, and the sector

As a result of the altered legal and regulatory structure, full-service providers as well as providers of essential services (maintenance and repair, spare parts, etc.) were able to enter the market in the designated areas. Although opportunities for small-scale providers have increased, the providers face competition from the public utility because as the small providers establish services in the poor or previously unserved areas, they are faced with the public utility eventually entering these areas. In addition, the small companies have had difficulty obtaining investment capital, and thus expansion has been more limited than originally hoped for. However, monitoring of progress has been relatively weak, and very limited data are available on actual results from this initiative.

Replicability

This approach requires close coordination between all authorities at the local level.

The involvement of small-scale providers in unserved areas of the city has proved to be an attractive solution for bridging a gap in service caused by limits on the expansion of the main water utility. All municipal institutions were able to agree on the way forward, including the municipal water company, which played a substantial role in the process. The water utility was realistic and accepted that it would be unable to serve certain areas; hence, it agreed to work in collaboration with small-scale providers provided they would operate in well-defined areas and use the utility's own technical standards. Such consensus could be achieved at the level of a municipality but may be more difficult to foster as part of a national program. For example, the solution requires close coordination between a large number of institutions, including the local planning and investment authorities as well as the water utility itself.

Sources:

ADB "Champions" article featuring Maria Paniagua, "Small Steps, Big Impacts", June 2003. Available online at <http://www.adb.org/Water/Champions/paniagua.asp>.

ADB. 2003. *Asian Water Supplies*. Manila: ADB. Available online at http://www.adb.org/Documents/Books/Asian_Water_Supplies.

BPD Newsletter, "Crystal Clear", November 8, 2003. Guest writer: Maria Paniagua. Available online at http://www.bpd-waterandsanitation.org/bpd/web/d/doc_73.pdf.

Ho Chi Minh City People Committee. 2002. "Regulations on Socialization of Investment in Services of Supplying Clean Water in Hochiminh City." Draft. Socialist Republic of Vietnam.
 Presentation (undated) by Hiep An Company, a small water provider in Ho Chi Minh City, Vietnam. Available online at <http://www.iadb.org/sds/inwap/seminars/okinawamdg/PhamNgocHuyhn.pdf>.

Area: Increasing flexibility of quality standards and options for supply

Country/City: Bolivia/La Paz and El Alto

Overview of the water sector in La Paz and El Alto

Private sector participation (PSP) was introduced through a concession contract...

Beginning in the mid-1990s, the government of Bolivia undertook significant reforms in the water and sanitation sector. In 1997, the government signed a 30-year concession contract for services in the capital city La Paz and adjacent El Alto with the French firm Suez, operating through its local venture AISA (AISA). The poor were placed at the center of the concession contract objectives, with ambitious coverage targets being used as bidding criteria for awarding the contract.

with ambitious coverage targets

The contract and the overall legal and regulatory framework set ambitious coverage targets for the private operator with high levels of service, including domestic in-house water connection and piped sewerage. The concessionaire soon realized that demand per connection was very low, as many of the inhabitants in El Alto were recent rural migrants who were not used to consuming much water. The concessionaire commissioned a series of anthropological studies in 1997 in order to understand in more detail those consumers' attitudes toward water consumption. For a variety of cultural reasons, the authorities also faced difficulties in inducing the population to switch to modern hygiene practices. To provide the right level of service at a cheaper tariff, the concessionaire started working in partnerships with donors (WSP, the Water and Sanitation Program), the regulator (SISAB, *Superintendencia de Saneamiento Básico*), and the ministry on a pilot condominium project. The objective of this pilot was to test alternative service levels. The short-term objective was to provide water and sanitation connections to 5,000 poor households. The pilot was successful: The project provided 4,000 households with access to drinking water supply and 5,500 households with access to sanitation, and the service levels developed through the pilot were later adopted by the ministry at a national level. The overall contract has since been terminated because of social unrest and political pressure, which meant that the country's president had to ask the concessionaire to go.

A national regulator was created.

Prior to signing the concession contract, the government created an independent regulatory agency to oversee the services. The agency, SISAB, has the authority to oversee all regulated companies—municipal, private, or cooperative. The head of the regulatory body, the superintendent of water, was given the responsibility of granting concessions in the water supply and sanitation sector, overseeing any contracts granted, and approving customer tariffs.

But the regulator had difficulty asserting its independence.

Although the regulatory body is supposed to be independent, in practice, the regulator has found it very hard to assert a different line from that of political powers, and in rare cases where disputes occurred between SISAB and the regulated companies, they were eventually settled at a political level. Institutional independence is in itself limited; for example, SISAB and the other sectoral regulatory authorities can only propose rules and regulations to the executive, not introduce them themselves.

Since its creation, SISAB has had to function in an extremely volatile political situation. The regulatory system was established in Bolivia at a time of increasing privatization and structural adjustment policies. The trade unions and indigenous movements ousted President Gonzalo Sanchez de Lozada in 2003 after bloody protests left more than 80 people dead. Since then, the country has undergone a period of economic paralysis, with more than 700 strikes, road blocks, and marches. Amid this turmoil, SISAB has been trying to establish itself as a credible institution and has found support among international agencies, such as the World Bank and European Union, to develop its own capacity to be an effective regulator.

The legal framework is very specific about service levels.

The legal framework in Bolivia is governed by the following codes and statutes:

Ley de Aguas (Water Law). The 1906 water law decentralized responsibility for distribution of water services to municipalities. This law was later amended in 1997 so that all providers (public and private) must have contracts with the Superintendencia de Aguas (Superintendent of Water).

National Regulations for Water and Sanitation Service in Urban Areas. The 1992 regulations established norms for water and sanitation supply in urban areas, granting that "connections" were only in-house, thereby formally excluding the installation of public or communal standposts, delivery with carts or tankers, and acceptance of communal latrines.

Ley No. 1600 (Law 1600). The 1994 law passed by El Sistema de Regulación Sectorial (SIRESE) created an independent regulator – Superintendencia de Aguas – for the nation's water sector. Subsequent laws passed in 1997 set out the responsibilities of the regulator.

Decreto Supremo No. 24716 (Supreme Decree 24716) 1997. This decree redefined the relationship between service providers and consumers; all providers (public and private) were required to obtain a concession from the superintendent to provide water supply and sanitation. Water quality and sanitation standards, as well as other performance criteria, were to be established in the individual contracts and thus were not defined nationally by the superintendent. This decree was amended by Law 2066 2001. The superintendent was given the capacity to evaluate municipal performance with respect to financial, technical, and commercial operations. Standard reporting systems were thereby required from all providers.

The concessionaire was granted exclusivity.

The concession contract granted exclusivity to the operator, Aguas del Illimani (AISA), for water supply and sanitation. The operator assumed control over the two cities from the previous primarily municipally owned operator, *Servicio Autónomo Municipal de Agua Potable y Alcantarillado*, or SEMAPA. Works such as network construction and repair were often contracted by the operator to local firms, but this was on an ad hoc basis. Households without in-house water connections or access to public standposts met their demand for water with a combination of water vendors, municipal water delivery service, neighbors with water service, rainwater collection, private household wells, and nearby streams. For households without sewer service, septic tanks offered an alternative, but in 1992, only 4 percent of households in El Alto had septic tanks. Without septic tanks or sewer connections in their homes, people used streambeds, latrines, public toilets, and toilets in other private homes.

Bolivia's regulations regarding concession awards implied that AISA is the only entity that can legally provide water service in its concession area. The regulations and the concession contract provided another source of protection for the concessionaire; they sought to eliminate competition from communal standpipes and septic tanks. AISA was required to meter and then eliminate all standposts in the first years of the contract, and the 1992 regulations prohibited AISA from leaving public standposts opened once a street received in-house water connections. Similarly, households had to obtain authorization from the utility to keep a septic tank open once sewer service became available on their street. The superintendent approved a tariff that AISA could charge private wells for groundwater abstraction.

Poverty is a significant issue, particularly in El Alto.

Poverty remains a big issue in Bolivia, where it is estimated that some 70 percent of the population live below the poverty line. The country was rated 114/175 in 2003 on the basis on the UNDP Human Development Index. According to United Nations figures, Bolivia is the poorest nation in South America. In the country's Poverty Reduction Strategy Paper (PSRP), improving access to water and sanitation is one of the key objectives. In La Paz-El Alto, the wealthiest residents of the metropolitan area live deep in the valley, and low-income families live in El Alto and on the steep slopes, or *laderas*, surrounding central La Paz. In El Alto, 66 percent of the population lives below the poverty line.

Limited coverage and low tariffs prevailed before the contract.

When AISA took over the concession, over 80 percent of the population of La Paz and 70 percent of the population of El Alto had a water connection, and over 60 percent of La Paz residents and 30 percent of El Alto residents had a sewerage connection. Water tariffs were extremely low, although there was a small increase in the tariff before the contract with AISA. The private operator tried many attempts to raise the prices during its concession contract but never managed to do so for political and socioeconomic reasons.

Development of the regulatory tool for poor customers

The initial regulatory conditions were very specific about coverage definition.

The concession contract stipulated that AISA should reach 100 percent water service coverage in La Paz and El Alto within a given time frame. It was clearly stated in the regulations and in the contract that all new connections should be in-house connections. The contract stated that the company must use "first-class" equipment that complies with all relevant norms. The contract also stipulated that the water quality must be improved to standards above the Bolivian national standards and achieve targets for water pressure and flow.

One issue with the contract was the definition of the concession area, which was relatively unclear. In one clause, the contract stipulated that the company should provide water and sewerage services to all houses in the municipal areas of La Paz and El Alto. Another clause contained a reference to the *area servida*, which is the existing served area that requires further provision of connections. This ambiguity has caused difficulties in agreeing on expansion targets and is likely to have provided ammunition to the antiprivatization and antiregulatory lobby to strengthen their case that increasing coverage was not taking place, or not taking place fast enough.

The AISA contract placed some restrictions on how the company must install connections. For example, 50 percent of the 71,752 water connections that the company installed in the El Alto subsystem by December 31, 2001, had to be expansion, rather than in-fill connections. This provision in the AISA contract at least left the company some room: the limit on in-fill connections does not apply to the yearly connection mandates, so AISA could postpone major water network expansion until later in the first five-year period. This is in fact what the company has done: the majority of the water and sewer connections in the company's first year of operation are in-fill connections on existing mains, rather than expansion into neighborhoods without any in-house connections.

The connection targets had strong penalties attached to them. AISA faced three types of penalties for failure to comply with expansion goals. First, the number of required connections for a given year would increase by one connection for every five required connections the company failed to install by the end of the previous year. In addition, if AISA was more than 15 percent short of the connection goal, the company had to pay a fine of US\$500 per connection it failed to install. The superintendent of water also had the power to cancel the concession contract if AISA fell more than 25 percent behind its expansion mandate. If the contract was canceled, the superintendent could execute a US\$5 million guarantee.

The condominium model allowed in-house connections to be provided at a lower cost.

The condominium model combines an innovative low-cost engineering design with a community participation component. The implementation of the project in El Alto can be divided into two partially overlapping phases: Phase One, which was the pilot proper, ran from November 1998 to February 2000 and encompassed six different neighborhoods; Phase Two, which ran from October 1999 to November 2000, was the first stage of scale-up. A key change between Phase One and Phase Two was that AISA began to take overall responsibility for implementing the condominium methodology, while the WSP team played a much more limited advisory role. Five additional neighborhoods were added under this phase.

The condominium pilot project experimented with a number of different components, including the following:

- Innovative engineering design of networks
- Community participation in network construction and maintenance
- Hygiene education to support the installation of household facilities
- Microcredit lines to finance the construction of bathrooms

Engineering design of networks. The purpose of the innovative engineering design was to reduce the length, diameter, and depth of the network required by routing the distribution pipes across pavements or backyards. The nature of the services provided differs by pilot neighborhood, depending on their original service endowment. Some of the pilot neighborhoods already had a conventional water supply. Hence, the pilot was limited to adding a condominium sewerage service. Elsewhere, condominium water and sewerage systems were provided simultaneously.

Community participation. Community participation brings a number of advantages, among them a further reduction in connection costs as a result of training local residents to construct and maintain their own condominium branches of the network. There is also some evidence suggesting that community participation increases the proportion of households that connect to the sewerage network once

it is built from 66 to 75 percent. However, community participation also introduces costs of social intermediation for the water company of around US\$8 per connection and requires each participating household to give up about a week of its time (valued at around US\$20).

Hygiene education. The purpose of the hygiene education component was to provide moral and technical support for households to adopt modern hygiene practices, in particular by helping them to construct their own bathrooms and associated facilities. Without such investments within the home, a sewerage connection brings little or no benefit to households and has been shown to have virtually no impact on water consumption. In El Alto, a key issue was the very low awareness of hygiene issues and limited exposure to modern sanitation facilities. Hence, considerable emphasis was placed on teaching households about the connection between water and health.

Microcredit. The purpose of the microcredit line was to help households finance the US\$400 worth of materials required to construct a fully equipped bathroom. Overall, 25 percent of households applied for credit, and 19 percent had their applications approved. The available evidence suggests that those households applying for credit tended to have above-average incomes. As a result, the microcredit line was dropped at an early stage of the project.

In the second phase of installation, the educational and microcredit components were largely cut back, because the government's own social investment fund (FNDR) was introducing a program to provide free bathrooms to households in El Alto.

The new standards were tested on a pilot basis.

The partnership was allowed to have a pilot project of alternative quality standards to those imposed by the national regulations. The successful experimentation with the condominium approach to service delivery has led to the development of alternative regulations that are better suited to the needs of the poor. This might have been aided by the fact that the regulator took part in the partnership, although only as an observer.

In designing the La Paz concession in 1997, the government intended to offer the concessionaire slightly more flexibility than the previous operator had with the material design. Although the AISA contract stated that the company must use first-class equipment, the contract then allowed the concessionaire to choose, subject to the superintendent's approval, the material standards to which it would adhere. One problem with the Bolivian standards was that, at the beginning, they limited Aguas del Illimani's flexibility to reduce investment costs. AISA had to use specific materials and designs, even though there may be less expensive ways of meeting output goals. The superintendent recognized that the materials and design standards could make it difficult for the concessionaire to serve some poor neighborhoods. He had therefore shown some openness to relaxing the input constraints. The superintendent had made it clear that he would only accept *in-house* connections, but he was willing to let AISA experiment with lower-cost technologies for providing those connections.

The company took over measures to adapt its services to poor customers, with regulatory approval.

In recognition of this problem of high technology bringing high costs, SISAB approved the pilot project to test condominal sewerage. The contract of 1997 itself opened the door for altering input standards in some limited circumstances. It specified that AISA can recommend exceptions to the materials' standards if expansion into certain parts of the concession area, using existing standards, would significantly raise total costs.

The water and sanitation sector regulations contained some procedural requirements, but AISA's contract imposed few additional required procedures. The company has taken advantage of its operational flexibility to dramatically simplify the process of applying for a household connection. The connection process under the public utility, SAMAPA, was a confusing, time-consuming, and expensive process. One of Aguas del Illimani's first procedural changes was to simplify this application and connection process, which helped make service expansion less costly and more attractive to the utility and also made service more accessible to households.

Regarding the competition issue, despite the mandate to eliminate all standposts, AISA has permitted and even expanded some alternative water distribution systems within its service area. In areas of the city where the population density did not meet the criteria of 50 inhabitants or 15 buildings per *manzana* (city block), AISA was not obliged to provide connections. In such cases, it was permitted that an individual household or group of households could install a pipeline and connect to the main line. In such cases, the households retained the right to charge other households a connection fee. After a period of five years, ownership of the pipeline was transferred to AISA. The municipality of El Alto provided water delivery by tanker trucks to some areas, and in July 1998 AISA initiated a similar service for households without access to the water network. Moreover, AISA requested and received authorization from the superintendent of water not to meet the contract's schedule for metering and removing communal standposts.

Low tariffs remained a significant issue.

One of the major challenges faced by the regulators and the company relates to tariff setting. It was intended that in the sixth year of the concession, the tariff should increase to cover the cost of extending sewerage and developing wastewater treatment, but socioeconomic pressures prevented this from happening.

The charges established in the concession contract of US\$155 and US\$180 for water and sewerage, respectively, fell substantially short of the average connection costs of US\$229 and US\$276 reported by the utility. Following the experience of Phase One, AISA introduced a standard differentiated connection charge for condominal water and sewerage services. Tariffs for these connections currently stand at US\$100 for each of the two services, although in practice the water connection charge includes an additional US\$36 to cover the cost of the water meter. Customers have the opportunity to reduce the cost by helping in to construct and maintain their own condominal branches of the network. However, there is no charge reduction for condominal connections undertaken without community participation.

Second, the tariff structure does not incorporate a fixed charge to cover the administrative costs of meter reading and billing. According to AISA, these costs amount to approximately US\$1 per month. Given that the charge for the first five cubic meters of water consumption is

Area: Increasing flexibility of quality standards and options for supply

Country/City: Bolivia/La Paz and El Alto

US\$0.22, the implication is that households that consume less than 5 m³ per month do not even generate enough revenue to cover billing costs.

Third, the rising block tariff structure is such that households with low levels of water consumption are not profitable to serve. The exact breakeven level of consumption depends on the true cost per cubic meter of water and sewerage services, a number that is not currently known.

Fourth, there is no separate tariff for the sewerage service. That is, a unified tariff is supposed to cover the cost of both services, which is paid by all customers regardless of whether they receive the sewerage service.

Finally, since condominiumal systems were not contemplated under the original concession contract, their existence is not reflected in the original tariff structure. A differentiated connection charge has now been introduced so that customers connected under the condominiumal system enjoy a price reduction to reflect the lower costs of the system. However, there is at present no differentiation in the volumetric tariff paid by condominiumal customers, although they take responsibility for maintaining their own network branches.

Demand was much lower than expected...

Besides the problem with tariff setting, other challenges altered the contract with AISA. Demand from these new connections turned out to be much lower than expected at the time the contract was signed for a mix of reasons, such as low household usage and the slowing down of in-country migration from rural areas. Furthermore, some customers involved in the pilot were reluctant to get connected to what they saw as a lower-grade system, because they considered that it would reduce the value of their properties. Criticisms of the system seem to have come less from those who participated in the condominiumal system than from other quarters. There was a fairly widespread public preference for the conventional system. El Alto's proximity to, and relationship with, La Paz was part of the reason. When people heard about the engineering differences, they often believed that a second-rate system was being imposed on the poor of El Alto, compared with La Paz, which had conventional water and sewerage. Municipal political leaders found this kind of claim to be effective for building political support and exploited it. Engineers were among the most difficult to persuade of its merits, because it was different from how they had been trained to build water and sewerage systems.

but the regulator refused to increase tariffs.

The low demand, combined with the low tariffs, placed the private operator in a difficult financial position. Despite attempts from the private operator to obtain an extraordinary tariff renegotiation, the regulator considered that the impact of low demand was not substantial enough to justify it.

Impacts on the poor, markets, and the sector

The concessionaire improved coverage substantially.

By June 2000, 100 percent of the 10,000 low-income households in La Paz-El Alto had been connected to the water supply networks. This surpassed contractual objectives, which targeted such a result for 2003. Three years after its inception, a vast investment program has resulted in the connection of 57,000 households to the water supply and 35,000 households to the sanitation system.

Area: Increasing flexibility of quality standards and options for supply

Country/City: Bolivia/La Paz and El Alto

Political resistance led to the concessionaire's demise.

This represents an average annual connection rate almost three times higher than under public management before the utility contract was signed. Changes in hygiene habits were even starker when related to home improvements such as a water connections, installation of bathroom fixtures, or connection to and use of the sewerage network.

However, a movement led by a district association in the city, FEJUVE of El Alto, unilaterally demanded nationalization of the management of the water services in the city. According to SISAB, service coverage and quality have improved in La Paz-El Alto. Representatives of FEJUVE also accept that certain aspects of service quality had improved under the AISA concession. However, because of political pressure, the government recently revoked the concession contract of AISA. A government decree has reestablished the La Paz-El Alto municipal water company to resume the management of water services. In an environment of political turmoil, SISAB has struggled to convince a skeptical public that regulation is a tool that can facilitate a sustainable and improving water supply service.

Replicability

The condominium approach achieved good results in a PSP context.

Although condominium systems have been successfully deployed in a number of cities around Brazil, the El Alto Pilot Project (EAPP) is believed to represent the first attempt to export the approach to another country with very different socioeconomic and sectoral conditions. Furthermore, the Brazilian experience of condominium systems has always been in the context of public sector service provision. The EAPP applied the model, for the first time, in the context of private sector participation. It therefore provides an opportunity to establish whether the social work component of the methodology is compatible with the *modus operandi* of a private utility. For both of these reasons, the experience is of interest not only in Bolivia, but also in other countries that may wish to experiment with the condominium system.

Benefits were limited by factors such as low demand and political pressure.

The peculiar cultural, geographical, and social circumstances of El Alto make it, if anything, an acid test for the condominium approach. In particular, a number of factors that have limited the benefits of the condominium system in Bolivia would not necessarily be present in other contexts to the same degree (including exceptionally low levels of households' consumption, the difficulties in inducing them to switch to modern hygiene practices for a variety of cultural reasons, and the political pressure). Consequently, the results of the evaluation should be regarded as specific to the El Alto context, even though in qualitative terms they are indicative of what can generally be achieved through the condominium approach.

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Overview of the water sector in South Africa

Access to water services was an urgent priority for the post-Apartheid government...

Following the end of Apartheid in 1994, the African National Congress (ANC) made the provision of basic services to disadvantaged people one of its top priorities, particularly in rural areas and the former townships. The newly elected democratic government was committed to redressing the wrongs of the past, particularly in relation to racial and gender discrimination. It was also committed to the eradication of poverty.

New policy and legislative tools have enabled the government to make some major inroads in expanding access to water and sanitation services, with at least 8 million people getting access to water in rural and urban areas since 1994. Legislative reforms in the water sector, which consisted of decentralizing responsibilities for the water service to the local level, took place in the context of broader local government reforms, which led to changes in the boundaries of local governments. The main objective of such reforms was to give the traditionally white municipalities in urban centers responsibility over neighboring township areas (traditionally black) whose public services had suffered from neglect and underinvestment.

...and Durban was no exception.

Durban is South Africa's second-largest industrial hub and one of the country's fastest-growing urban centers. It has a population of approximately 3 million. Much of the current Durban metro area is made up of areas that were previously black townships with separate administrative bodies under the old apartheid system. These areas have poor infrastructure and many have traditionally had inadequate provision of water supply and sanitation service. They have now been incorporated into the city jurisdiction and added to urban areas, which have extremely high standards of living and full, conventional reticulated water supply and sewerage systems. Addressing the resulting imbalances in the provision of water and sanitation services and quickly reaching the large number of unserved, poor households are major challenges for the city.

Water services are operated by a public entity, Durban Metro Water Services, which has been at the forefront of the water sector reforms in South Africa. It has been very innovative, with the adoption of flexible quality standards (based on a process reviewed here). It was also a testing ground for the Free Basic Water Policy, which now applies across South Africa (with the provision of the first 6 m³ of water free to all).

Reforms were introduced through a complete overhaul of the legal framework.

South Africa has had the rare opportunity to completely reform its water law since the first democratic elections were held in 1994. These reforms are outlined in a number of crucial policy documents and legislative texts, such as the Constitution of the Republic of South Africa (Act 108 of 1996), the Reconstruction and Development Programme (RDP), the White Paper on Water and Sanitation (1995), the Water Services Act (WSA; 1997), the White Paper on a National Water Policy for South Africa (1997), and the National Water Act (NWA; 1998). The legislation is framework legislation, with most of the detail being incorporated in regulations. Since the enactment of the legislation, the Department of Water Affairs and Forestry (DWAF) has engaged in a complex program of implementation. This is beginning to produce a number of very interesting documents, which are of interest beyond the particular circumstances of South Africa.

The **Reconstruction and Development Programme**, the development manifesto of the ANC government, recognized that in order for a new and just South Africa to rise out of the ashes of apartheid, a concrete program of action was needed. With regard to water, the RDP states that "the fundamental principle of our water resources policy is the right to access to clean water—'water security for all'." The Reconstruction and Development Programme is the governing policy statement for water services and sanitation.

The **National Water Act** established the DWAF as the custodian of the nation's water resources and recognized the need to use water beneficially in the public interest. At the same time, it gave DWAF the tools to make water available to previously disadvantaged communities for economic activities. The act also sets the framework for a new pricing strategy that aims to charge a realistic price for water in a country where water has been, for too long, a cheap resource.

The **Water Services Act (No. 108, 1997)** set out the common legislative framework for water services for all municipalities in South Africa. Together with the National Water Act of 1998, it replaced the Water Act of 1956, redefining the institutional roles and responsibilities and bringing the water services delivery framework in line with the constitution and principles of local governance. The responsibilities of DWAF were refocused to perform regulatory functions, and local governments were charged with defining methodologies for tariff setting and service levels and for monitoring water service activities of local governments.

The structure of the sector was totally revamped.

DWAF was assigned a regulatory role, while publicly owned water boards were assigned the role of providing bulk water service to municipalities within their supply area. This new role was in sharp contrast to DWAF's role prior to the act, which was closer to one of water service authority and provider, especially with the running of large supply schemes in rural areas.

An interesting innovation was a clear separation between Water Service Authorities...

The 1997 act assigned the role of **Water Service Authority (WSA)** to local government, entrusting it with the responsibility of providing access to affordable, sustainable water services to all existing and potential consumers in their areas. Water Service Authorities (WSAs) are in charge of monitoring and regulating service provision by the water service providers at a local level. According to the act, WSAs can act as service providers within their areas or enter into a water services contract with a service provider to perform those functions on its behalf, or they can enter into a joint-venture agreement to jointly perform this function, with the condition that they have to consider all the public providers capable of providing this function before entering into an agreement with a private provider.

... and water service providers.

The WSA defined the roles and responsibilities of **water service providers (WSPs)**, water service intermediaries, and water service committees. A WSP can be a public, private, or mixed entity, or the municipal government itself. In practice, WSPs are divided between bulk supply providers and retail supply providers. Bulk supply providers are the water boards, which produce and treat water and then sell it on to municipalities. About eight water boards (usually 100 percent publicly owned) provide this kind of services in the main urbanized areas of the country; in between, these services are DWAF's responsibility.

Area: Adapting quality standards

Country/City: South Africa/Durban

Poverty remains high in South Africa, and life expectancy has decreased with the AIDS epidemic.

In 1994, the UNDP listed South Africa as 90 on the Human Development Index (medium human development). The most recent UNDP listings of 2002, however, place South Africa as number 111 out of 174 countries. This fall is attributable mainly to the AIDS epidemic. The eradication of poverty is the most profound challenge facing South Africa today. High levels of poverty are compounded by high levels of inequality and lack of access to natural, political, and financial resources in certain sectors. Those facing the highest risk of poverty and marginalization are women, women-headed households, the young, the elderly, and rural people.

Access to water was one of the key needs identified by poor communities in 1994, as well as jobs, housing, health care, and education. At the time, only 44.7 percent of South African households had a tap inside their dwellings, 16.7 percent had a tap in the yard; 19.8 percent fetch water from a public tap, and over 14 percent access water from dams, rivers, boreholes, rainwater, or water carriers or tankers.

Although Durban is quite prosperous, poverty is endemic there too.

Poverty is a serious problem in Durban, despite the fact that Durban's stated aim is to be a thriving world-class industrial and commercial center by 2015, and that many parts of Durban are similar to affluent cities in highly developed countries. The Durban Metropolitan Profile of November 1999 reported that 41 percent of the economically active population of the Durban metro area was not in formal employment, and that 43 percent of households have incomes of less than US\$200 per month.

The gap between rich and poor is most evident when it comes to the issue of housing. The national government has initiated a People's Housing Process (PHP) for low-income households to develop and build their own houses, which includes subsidies designed to help people build a house on a serviced site (one with water supply, sewage disposal, road access, etc.). Durban Metro Water Services is supporting the PHP through a program of housing initiatives. However, the government's Provincial Housing Board (PHB) subsidies are insufficient for the provision of conventional housing and services infrastructure, and thus Durban Metro has a strong incentive to find low-cost ways to provide water supply and sanitation services to new housing areas.

Development of the regulatory tool for poor customers

Water services in Durban had limited coverage.

Durban Metro Water Services was serving 360,000 metered water connections in 2001. However, it was estimated that 155,000 households (500,000 people) in the city lacked household connections. Those people were relying on standposts, many of which were inherited by Durban Metro from the previous provincial administration, or they were not served by piped water at all and used surface water such as streams. There were also an estimated 10,000 to 20,000 illegal connections to the piped system.

Services were provided by a mix of local authorities.

Prior to the change in local authority demarcation boundaries in 1995, water services in the Durban metro area were managed by a number of local authorities. Some of these local authorities did not have adequate capacity and resources for effective water services delivery, which resulted in high levels of unaccounted-for water and inefficient water usage. Durban Metro Water Services was formed from the consolidation of smaller service providers, which increased the opportunity for effective service delivery management considerably.

Durban Metro Water Services introduced two types of innovations:

the Free Basic Water Policy, financed by cross-subsidies,

...and reduced service standards for poor people.

Durban Metro Water Services has two main initiatives to expand the provision of services to poor customers, with respect to tariff policy and the service quality standards: tariff policy and use of quality standards.

Tariff policy. Concerning the tariff, Durban was the first town in South Africa to initiate and try out the free water policy, which consists of giving the first 6 m³ of water free to all customers. This decision was made because the approach had been found to be cheaper than paying for administrative costs to collect money from low-volume and low-income users, and there are enough higher-income users in the area to subsidize the scheme. The viability of this policy in rural areas such as Pietermaritzburg is more problematic, where industry and more affluent households make up a smaller percentage of the customer base.

Furthermore, reluctance to pay has always been very high in South Africa, especially during the apartheid regime. Many NGOs and public sector organizations have campaigned for the poor to receive free water subsidies. A statement by the ANC in the run-up to local elections in 2000 promised "free basic services for all." This promise continues to support people's reluctance to pay and thus hampers the ability to collect payment for services.

Adapting quality standards. Durban Metro Water Services sought to adapt the levels of service according to affordability and preferences stated by the community. Various options of service delivery are given to new consumers, and extensive public participation is used to ensure that most people in that community accept the preferred option. Community participation in the operation and maintenance of the system is also a key element of the approach.

Two approaches to water supply were most commonly found in South Africa. The first is a full-pressure supply to each house, coupled with the provision of waterborne sanitation. The full-pressure supply method is found mainly in formalized areas. However, it is not affordable to households earning less than US\$350 per month. At the other end of the spectrum is the use of standpipes at distances of approximately 200 meters to provide water to communities. Standpipes are most commonly found in informal areas. It has been found that families earning less than US\$110 per month will not walk more than 100 meters for water if they are expected to pay for it. The standpipe system leads to very low levels of payment, if the provider is successful in achieving payment at all. For such a system to work, a stable water committee and a stable community are vital. It has been found that communities within informal settlements are fairly mobile, and with the ongoing political tensions, these two requirements are often not met. As a consequence, standpipe methods of water supply lead to high levels of water waste.

From discussions with these communities, it was found that the women spend enormous amounts of time each day carrying water, and this effectively prevents them from seeking formal employment. The method of carrying water using containers is also far from satisfactory, and research has shown that the bacterial contamination of this water is high, with the result that these communities suffer from poor public health.

Thus, there was a need for a solution to the water supply problem, which lay between the two options described previously, in order to

Nonpressurized water systems allowed regulating of the amount of water provided.

supply water to poor communities living in shacks (or what are known in South Africa as “informal settlements”). It is under these conditions that the nonpressurized system emerged in Durban.

The nonpressurized water system supplies water to poor communities through water tanks. Water is reticulated using small-diameter piping, which is laid along the major access routes or tracks located within the informal area. At appropriate intervals, connections are made to this reticulation, and a manifold is installed that allows approximately 20 houses to connect to the water main. Each consumer receives a 200-liter water tank (or a number of tanks) that is serviced by a water bailiff every day. This system results in a low level of unaccounted-for water because of the low pressure and effective customer demand management. The overall water consumption through such a service delivery system is estimated to be up to 50 percent less than conventional systems to communities of similar profile. The approach nevertheless provides sufficient water to households to maintain a basic level of hygiene and health.

Within the community, Durban Metro Water Service appoints water bailiffs to control approximately 10 sets of manifolds. This means that a bailiff is responsible for 200 customers. In addition, he is entitled to install a standpipe on his property, which is metered, from which he may sell water to those residents of the area who are not able to afford the tank system. Water from the standpipe is sold at a price that encourages the bailiff to promote the use of the tank system rather than the buying of water from him at the standpipe. By providing the standpipe at the water bailiff's house, the possibility of theft and nonpayment for water is considerably reduced.

Solutions are designed to deal with the problem of nonpayment and reduce wastage.

The intention of this solution was to deal with the following issues:

- Provide an acceptable quantity of clean drinking water at an affordable price, that is, at approximately US\$2 per month per household.
- Deliver water directly to each informal dwelling unit so as to do away with the need to carry water long distances.
- Provide water supply infrastructure at a low cost and in a manner that is flexible so that it could be removed or relocated in the event of the township being formalized.
- Control the volume of water supplied each day, rather than controlling the price that has to be paid per month, using a system of prepayment to avoid the incidence of bad debts.
- Provide infrastructure in a manner that would create employment and work opportunities within the community on an ongoing basis rather than just at the time of construction of the scheme.
- Reduce administration costs to the lowest level possible.
- Ensure a supply of clean drinking water.
- Provide infrastructure that makes it difficult to connect illegally to the water system and at the same time reduces water losses or unaccounted-for water.

Durban Metro Water Services entered into a series of pilot projects to test those approaches, ... including the nonpressurized systems.

Durban Metro Water Services entered into a series of partnerships with private and civil society actors to test those new service standards. The most important partnerships are detailed below.

BDP project. In March 1999, Durban Metro Water Services entered into an agreement with several partners to carry out a project to provide improved services to previously underprivileged communities in the Durban and Pietermaritzburg area. The partners included public

sector, private sector, and NGOs. One of the projects was part of the global Business Partners for Development (BPD) program, which aims to demonstrate the role that trisector partnerships can play in addressing development problems. This project included Umgeni Water (the regional water board and bulk water supplier), the Mvula Trust (an NGO), the South African Water Research Commission, and Vivendi Water (now Veolia, a private sector water company).

The objectives of the project encompassed a broad range of work and included provision of an adequate, affordable level of service; development of community awareness on water conservation, health, and hygiene issues; the relationship of drinking water and sanitation; water loss and maintenance issues; customer management systems, including cost-recovery procedures; information sharing; and the involvement of local communities. The most challenging issues related to incorporating the community voice in project design. Six initial pilot areas were chosen in Pietermaritzburg and Durban, each with a population of between 700 and 1,000 households, all with an average income below R 1,500 per month (approximately US\$238 per month).

Another pilot test was condominial sewerage.

Partnership with Lyonnaise des Eaux. In July 1999, Durban Metro Water signed a memorandum of understanding with Lyonnaise des Eaux, through its subsidiary WSSA. The aim of this partnership was to determine whether a condominial sewerage system was feasible in Durban poor areas. Lyonnaise des Eaux had experience with condominial sewerage from the project in El Alto, Bolivia, and was interested in exploring whether the system could be replicated in other countries. Durban Metro Water felt it was important to find a low-cost sanitation technology that complemented the affordable water delivery service provided by the semipressure system. Two areas were selected for the research pilot project; both of them were former black townships where new housing was being constructed. The systems in both areas have been designed and construction has started. In May 2001, a few houses were fully operational, and another 40 houses were awaiting the installation of bathrooms.

Durban Metro was relatively free to experiment.

These experiments were particularly aided by the fact that water services are largely regulated at the same level as Durban Metro Water so the company could adapt service conditions to perceived needs following a resolution from the municipality.

Impacts on the poor, markets, and the sector

These innovations have contributed to reducing waste

The introduction of water demand management measures by Durban Metro Water since 1997 has reduced the current demand growth to 0 percent, and it is envisaged that further opportunities for water demand management can offset the natural growth in demand and maintain a 0 percent growth for another seven years. Unaccounted-for water has been reduced from a calculated 41 percent in January 1998 to 30 percent by May 1999.

An additional reduction of up to 35 percent of the total consumption is estimated to be possible: 15 percent from reducing water leaks and 20 percent from the implementation of customer incentives and an increase in water use efficiency. In addition to reduced existing water demand, it is expected that the natural growth in demand will also be reduced from an estimated 4 percent to a maximum of 3 percent. The reduction in water demand by recycling to industry could also introduce further savings of up to 15 percent.

Area: Adapting quality standards

Country/City: South Africa/Durban

Social impact. Not having to pay for water decreases the pressure on household budgets and can therefore contribute to an improvement in the nutritional status of household members. At the same time, a regular supply of water that is not dependent on ability to pay means that poor households have sufficient water to meet basic hygiene needs. In light of the evidence that the amount of water used by a household is crucial to hygiene and health levels, and to the reduction of diarrhea, this could be an important contribution to higher levels of health.

Replicability

Replicability is in question, as Durban Metro Water's wealth and high administrative capacity largely account for its success.

Although the example of Durban Metro Water Services is instructive, it must be borne in mind that this is a well-established local authority with a large number of consumers who can afford to pay for services and can afford to cross-subsidize the provision of water to the extremely poor. This does not apply in a large number of local authorities in South Africa or elsewhere, particularly smaller towns and rural areas.

Area: Improving the regulator's focus on poor customers

Country/City: Zambia

Overview of the water sector in Zambia

Sector reform included decentralization and regulation.

Zambia underwent significant reforms in the water sector, which led to the definition of a new water policy and institutional framework in 2000. The main objectives of the reforms were to improve the entire sector, including water supply, sanitation provision, and water resource management. Instrumental in achieving these reforms were the moves toward decentralizing and strengthening sector oversight. These reform initiatives were embodied in two national programs: the new Water Policy of 1994 and the Water Supply and Sanitation Act of 1997.

Policy making and service provision were separated.

Separation of water resources from water supply vested responsibility for policy making with the Ministry of Energy and Water Development and resource management with the Department of Water Affairs. Responsibility for services was also vested with the Ministry of Local Government and Housing because the primary responsibility for water supply services was decentralized to local authorities. The separation of policy making and service provision between central and provincial levels of government was carried out to create more effective regulation and minimize political interference. Local authorities have often formed commercial utilities for water supply services (more than 90 percent of the urban and periurban population are serviced by commercial utilities).

A national regulator was created

The National Water Supply and Sanitation Council (NWASCO), an autonomous regulator, was created under the Water Supply and Sanitation Act of 1997. NWASCO implements regulatory tools for operators (issuing licenses, approving operator tariffs, monitoring operator accounts, and instituting comparative competition between providers) and consumers (relaying information from the operators and government to the public and resolving disputes between consumers and operators). NWASCO reports annually to the Ministry of Energy and Water Development. The budget for operation of NWASCO is provided by local authorities and operators through an initial licensing fee and monthly license fees and also through parliamentary allocations.

... that established voluntary consumer groups.

Water Watch Groups (WWGs), created by NWASCO, are voluntary consumer groups responsible for ensuring that water consumer rights are protected and that information is readily available to consumers. NWASCO charges the WWGs with monitoring performance of the local authorities or commercial utilities in which they reside. WWGs have been initiated in Lusaka, Kitwe, Chingola, and the Copper Belt, but a lack of financial resources has prevented their nationwide coverage.

A trust fund was created to finance the extension of coverage to the poor.

The Development Trust Fund, also created by NWASCO, is a financially separate institution responsible for providing financing for water supply operators to extend services to the urban poor. It has been crucial in an effort to subsidize connection payments for which poor customers would not be able to pay.

Changes to the legal framework guided reform.

The country's legal framework was adapted through laws enacted in 1991, 1994, and 1997:

- Local Government Act No. 22: Passed in 1991, the act decentralized control of water supply and sanitation services to local authorities. The power to provide services and also to create standards, by-laws, and other legislation was passed on to the local authorities.
- National Water Policy: Passed in 1994, the National Water Policy created the legal framework to implement decentralized water supply policy. The policy mandates that service provision in periurban and urban areas be treated as equally important.
- National Water Supply and Sanitation Act: Passed in 1997, the act established the national independent regulator, NWASCO, for the urban water and sanitation sector. The act also allocated responsibilities for provision to local authorities and encouraged the commercialization through the creation of commercial utilities. The introduction of private participation was also included in the option for commercialization.

NWASCO is in charge of drafting rules and issuing licenses.

NWASCO, the autonomous regulator at the central government level, establishes most of the by-laws and licenses for the sector. NWASCO's area of responsibility is loosely defined but, in practice, NWASCO has limited its oversight to urban areas. The local authorities have the ability to create additional standards but only in the context of regulation previously established by NWASCO. Other authorities and government bodies supervising the sector include

- Ministry of Energy and Water Development (MEWD). NWASCO reports to MEWD, which in turn reports to parliament.
- Ministry of Local Government and Housing, Department of Infrastructure and Support Services (DISS). This group is responsible for water services policy formation and resource mobilization.
- Ministry of Energy and Water Development, Department of Water Affairs. The ministry is responsible for water resource management.

The Zambian water sector is very decentralized.

Zambia's water sector has extended piped water services in nearly all 87 towns throughout the country. Services are provided by 10 commercial utilities, seven private companies (including commercial companies providing services to their workers and one management contract, in the Copper Belt), six local authorities that are fully licensed, and 16 local authorities with provisional licenses. Piped sewerage lags behind water supply and is rarely provided. Periurban areas are covered by piped services, public standposts, and wells. Commercially run water kiosks are becoming increasingly popular in periurban and poor areas where the commercial utilities do not

Small-scale providers provide an important share of those services.

extend services. However, because of the deterioration of assets and mismanagement, it is estimated that 40 percent of the population did not have access to an improved water source in 2004.

In the largest cities and towns, water services are the responsibility of commercial utilities that obtain licenses from NWASCO. Some areas are serviced by water trusts, particularly in the capital city of Lusaka. In the capital, a very large proportion of the periurban population is supplied by community-managed water trusts that do not have a license and are not subject to regulation.

Private sector participation is limited.

Private sector participation in the water services sector is limited. The country has seven private operators, which are concentrated in isolated areas, namely industrial zones and other cooperatives. One example of such private participation is the management contract led by SAUR in the mining town Copper Belt. The intention of the project was to provide services to the employees of the mining company.

Several studies have examined the feasibility of private participation for water services in the capital city Lusaka, but to date no arrangements have been created.

Performance contracts with the public sector induce improved services.

NWASCO indirectly issues performance contracts to public utilities through the use of comparative competition based on predefined indicators, including the following:

- Coverage of the service area
- Drinking water quality
- Service hours
- Billing for services (issuing and collecting bills)
- Client or customer contacts
- Interruption of water supply and blockages of sewers
- Network pressure (water supply)
- Unplanned or unjustified disconnections
- Sewage flooding
- Quality of effluent discharged
- Support given to public institutions to limit wastage and settle institutional tariffs.

Imbedded in these performance contracts are other incentive mechanisms to induce improved services. Some of these mechanisms are still in development:

- Required Minimum Service Level: As part of the above indicators for coverage of the service areas, all operators are required to submit to NWASCO a service-level agreement no later than two months after receiving an operating license. The agreement specifies the actions to be taken in a specified time frame (intended to span three-year periods).
- Tariff-setting regime: Currently under revision, tariff-setting reforms are designed to encourage commercial utilities to improve services, increase efficiency, and improve cost-recovery levels.
- Performance-Oriented Incentive Scheme: This scheme aims to increase the operating performance (primarily human resources management and development) of commercial utilities. Examples of indicators used are:

- Reduction in the turnover of management staff
- Expenses for personnel not exceeding 25 percent of total turnover
- Personnel productivity as measured by turnover per capita

Poor-performing utilities: A reform is under consideration to recognize and deal with "poor-performing" utilities.

Poverty is widespread, and providing service to the poor is a priority.

NWASCO and the Central Statistical Office estimate that 45 percent of the total population (11 million people) live in urban areas and that approximately 80 percent (3.9 million people) of the urban dwellers live in "low-cost" and periurban areas. It is estimated that 80 percent of Zambians live on less than US\$1 per day.

Through recent reforms and NWASCO supervision, priority was given to extending access to the poor. This was witnessed by the creation of the development trust fund. The exclusive use of the fund is for financing extension of water services in poor areas.

The legal framework of the National Water Policy also stipulates that periurban areas should be treated equally to urban areas, thereby safeguarding the poor against inequitable service standards. In the country's PRSP, launched in 2000, water and sanitation were initially identified in the drafting process as one of four cross-cutting themes for the entire country but were later removed. Attention to water and sanitation appeared as part of a general focus on infrastructure, with only 3.5 percent of the total PRSP budget earmarked for water and sanitation uses.

Sector performance is variable.

Although access rates for water supply are fairly high (in excess of 85 percent), access to sustainable, reliable, and affordable services is estimated to cover around 60 percent of the population. Mismanaged and defunct systems plague periurban and poor areas. There is great variance in the types of services that customers receive; poor customers rely primarily on wells and public standpipes, whereas the majority of wealthier consumers are serviced by in-house connections.

Tariff setting principles require that tariffs be affordable for the poor.

Government policy dictates that consumer tariffs should fully cover costs in the long run. Accordingly, the following considerations are taken into account when setting individual tariff levels for commercial utilities:

- Revenues sufficiency: Tariffs should generate enough revenue to cover costs arising from production and service delivery.
- Social consideration: Tariffs should be "affordable" for poor consumers.
- Economic efficiency: Tariff levels should reflect consumption; thus water metering is encouraged (but still not widespread).
- Resource conservation: Tariffs can be elevated for consumption levels exceeding normal necessities.
- Simplicity and transparency: Tariffs should be formed through transparent and participatory means.

Tariff structures vary, but most comprise either a rising block tariff or a flat rate charge. Because metering covers only a fraction of the connections, much of the country relies on flat rate charges, particularly periurban areas. Tariff levels also vary accordingly. For example, the Lusaka Water and Sanitation Company charges K 1,400 (US\$0.30) per month for individual yard taps and K 3,000 (US\$0.65) per month for a household drawing approximately 200 litres per day from

a public standpipe. NWASCO recently implemented a program that punishes commercial utilities for poor performance. Under the program, NWASCO reduces tariffs charged by commercial utilities until performance improvements have materialized.

Though the reform process embraces the concepts of cost recovery and service efficiency, operators are still experiencing great inefficiencies. Commercial utilities in several areas were found to have operating cost ratios lower than 1.0, indicating that water and sanitation revenues were lower than operating costs. Through improvements in billing issuance and collection, operating ratios are expected to dramatically improve. Because of the low levels of metering, unaccounted-for-water levels can only be estimated. Rough estimates suggest that UFW levels are currently around 50 percent.

Development of the regulatory tool for poor customers

Water Watch Groups project the voice of poor consumers.

Water Watch Groups were established by NWASCO in 2001 in order to increase the attention paid by commercial utilities to their consumers. It was thought that a relationship between consumers, commercial utilities, and NWASCO would ensure that the voice of consumers would properly be heard, both by service providers and regulators. The WWG program is in a pilot phase, with four groups under operation: Zambia, Chingola and Kitwe (Copper Belt), Kasama (Northern Province), and Lusaka.

Consumers first have the option of filing complaints with the commercial utility. If the utility ignores a complaint, the consumer then contacts their WWG. From this stage, the responsibilities of the Water Watch Group are highlighted below.

WWGs are flexible in their design and composition. The Lusaka WWG has seven members and one coordinator who typically meet once per week. They are responsible for

- Preparing a three-month program of events, field visits, and monitoring that is discussed with NWASCO.
- Receiving complaints and suggestions from community members. WWGs review complaints and relay information either to the Lusaka Water and Sanitation Committee or, in the case of a breach of actions by the commercial utility, to NWASCO.
- Actively approaching community members to obtain input for service delivery and perform consumer training

Impacts on the poor, markets, and the sector

Sector reform has improved services for the poor

The overall impact of sector reform has improved water services, particularly those for the poor. Arguably more important is the degree to which these improvements take into account consumer voice and opinions. Water Watch Groups (currently four) have fulfilled their mission and have effectively relayed information for improved services. Main complaints, such as erratic supply, poor water quality as a result of leakages and vandalism, lack of a clear customer care concept from the utility provider, and neglect of sewerage-related operations, have reached the appropriate service providers and are now being taken into account. NWASCO can integrate these recommendations into improved operator performance through the implications for poor performance and tariff levels.

Area: Adapting quality standards

Country/City: South Africa/Durban

The Water Watch Groups have been able to develop a positive image in the eyes of service providers. One group member commented that the utility now consults with the group and informs the group of upcoming events such as planned rations or supply interruptions. In this way, WWGs are responding to customer needs and informing them of their service rights regardless of whether they are poor.

Replicability

Perspectives for extending this mechanism throughout Zambia are strong.

Major components of the reform program, including the development of water trusts and development trust funds, are possible largely because of the presence of donor funds, minimal consumer willingness to pay, unmet consumer demand (not satisfied by utility providers), and strong community management. The latter—community management—has been a crucial factor leading to the success of Zambia's reform program. Consumer eagerness to participate in the formation of services and the operation and monitoring of such services has created a water sector where the responsibilities of actors is regularly called into question by the recipients of service. This strong sense of accountability, particularly as seen in Water Watch Groups, enables incentive systems and performance to be more adequately applied and measured.

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