

Economic Regulation of Urban Water and Sanitation Services: Some Practical Lessons

David Ehrhardt, Eric Groom, Jonathan Halpern, and Seini O'Connor



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ACRONYMS AND ABBREVIATIONS

BNWP	Bank-Netherlands Water Partnership
CRA	Regulatory Commission for Water and Basic Sanitation Services (Colombia) Comisión de Regulación de Agua Potable y Saneamiento Básico
GPOBA	Global Partnership on Output Based Aid
OBA	Output-based aid
Ofwat	The economic regulator for the water and sewerage industry in England and Wales
PPIAF	Public-Private Infrastructure Advisory Facility
PSC	Public Services Commission (U.S.)
SSP	Public Services Superintendent Superintendencia de Servicios Públicos

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PREFACE

Much has been written about the theory and application of regulation, but little is understood about how regulatory systems work in practice in developing country environments. In order to develop some clear guidelines on the type of regulatory approaches, systems and methods that really work—not only in principle, but in practice—the World Bank embarked on a program of work on the regulation of urban water supply and sanitation services in 2005. This program has been jointly funded by the Public-Private Infrastructure Advisory Facility (PPIAF), the Bank-Netherlands Water Partnership (BNWP), and the World Bank.

The program comprised several research and advisory activities, including preparation of the following:

- **Explanatory notes on key regulatory issues.** These notes provide guidance for Bank staff and policy makers in a way that is accessible and concise, and that does not require specialized expertise in regulation.
- **In-depth case studies on water sector regulation in four countries.** These case studies identify causes of regulatory success and failure, and study the influence of social, institutional and sector-specific contexts on regulatory effectiveness.
- **Guidelines for setting low-discretion rules.** These guidelines are meant to help Bank staff and policy makers develop regulatory arrangements that support private participation, and improve the effectiveness of existing regulation.
- **A review of regulation of publicly owned water and sanitation suppliers.** This is meant to assist policy makers in assessing alternative approaches and instruments for regulation of government-owned providers.

This paper brings together key findings from the four pieces of work outlined above. It aims to show how real experience supports the theoretical principles of good design, and to present key regulatory concepts in way that is accessible to policy makers, service providers, nongovernmental organizations, and other stakeholders concerned with improving the provision of water supply and sanitation services.

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EXECUTIVE SUMMARY

Good water services are essential—but many people don't get them

Good water and sanitation services are essential for health, economic development, and environmental protection. Recognizing the importance of access to a safe and adequate water supply, most large cities now have reticulated water systems run by a municipal or national utility. Additional small, private providers may also operate. However, in many developing countries, the water services provided are inadequate—quality is often poor, providers' financial sustainability may be under threat, and parts of the population do not receive service at all.

Sector reform, including regulatory reform, can help to improve services

Governments may embark on a path of sector reform to improve services. Reforms often introduce private sector participation or reorganize public utilities so that they operate more efficiently. The government may decide to rationalize the provision of subsidies to particular customer groups, through direct publicly funded payments or cross-subsidies from other users. Because water utilities are generally monopolies, prices are generally regulated in some sense.¹

Regulatory design has often focused on best-practice models...

The topic of designing effective regulation for water and sanitation services is not a new one. However, past best-practice design has tended to follow a check-box approach to regulation. Advisors have diagnosed the need for regulation and prescribed an independent regulator (or similar model, often taken from a different country or sector context), in the hope that it would solve many sector problems.

...but these model solutions haven't always been successful

This approach has not always worked well. For example, in Manila, when private sector participation was introduced, an "independent regulator" was also established to regulate the two new providers. However, because each of the providers had entered into a concession contract that set out the relevant service standards and rules governing financial remuneration, the regulator's role was unclear. An independent regulator generally has discretion to set standards and apply rules, but in this case these functions conflicted with the contract—the rules were already set through the contracts. Uncertainty about the relationship between the contracts and the regulator resulted in public disputes, the unsuccessful handling of many appeals, and political intervention on tariffs.

Admittedly, services did improve significantly in Manila following the signing of the concessions. Furthermore, one of the greatest tariff problems encountered by the concessionaires was related to the currency crisis—a ruinously large and unforeseen shock that may well have overwhelmed any regulatory system. Overall, however, the frequent lapses of regulatory coherence, predictability, and transparency were a significant reason why the concession experience was not as encouraging for the public—or for potential future private providers—as had been hoped.

A better approach focuses on first principles and unique country contexts

Although this is just one case of disappointing regulatory performance, it is indicative of many of the faults in a check-box approach to regulatory design. Approaches to regulation need to be rethought, with more emphasis on the first principles of regulation, how these are best developed within a variety of legal instruments and organizations, and how they can be applied in a specific country context.

¹ Governments are generally unwilling to allow water operators to set prices as they wish. Normally rules or institutions are established to set prices and service standards. It is in this sense that prices and service standards are regulated.

There are three types of key attributes that a good regulatory system should embody

These attributes can be achieved through various functionally equivalent designs

Key sector objectives should be identified first

Good design will incorporate lessons from international experience

These first principles may be thought of as a set of regulatory attributes that a good regulatory system should embody, such as the following:

- **Coherence.** Tariffs and service standards are inter-related: higher service standards, or greater coverage, mean that higher costs will be incurred. These costs need to be covered either by the government or consumers. A regulatory system should be able to ensure both that providers recover their costs and that people receive the services they are willing to pay for.
- **Predictability and credibility.** If service standards and rules for cost recovery through tariffs are clear and unlikely to change unpredictably, and regulation provides credible provider protection, it will be easier to procure competent new providers, and existing providers will face less risk in investing to improve and expand water system infrastructure. Predictable and credible regulation requires not only well-designed regulatory arrangements, but also sound policy and governance frameworks for the sector.
- **Legitimacy and accountability.** Regulatory processes and outcomes need to be understood and generally accepted by consumers who bear the ultimate impact of tariff and service standard decisions.

International experience has shown that these attributes can be embodied in a variety of regulatory designs, which involve different combinations of instruments and organizations. For example, *regulation by contract* has been successful in countries, such as Côte d'Ivoire, the Czech Republic, Senegal, and Vanuatu. Rather than having an independent regulator, these countries have contracts that define service standards and tariff-setting (or operator remuneration) rules. In many cases, specialist government organizations support the contract by monitoring and enforcing compliance with the contract rules.

Which combination of legal instruments and organizations works best will vary from country to country. There is no “one-size-fits-all” regulatory solution. A good design process should aim to identify a suitable regulatory architecture by

- Defining the underlying problems, principal objectives, and the means for improving sector performance.
- Determining whether and how economic regulation—that is, *the rules and organizations that set, monitor, enforce, and change allowed tariffs and service standards*—can help achieve the defined sector objectives.
- Identifying the specific regulatory actions needed to achieve those objectives. For example, should the system focus more on getting tariffs up to cost-recovery levels? Or should it focus on keeping tariffs for potentially inefficient providers down? Such choices depend on what the underlying performance problems are.
- Deciding which legal instruments are best suited to embody the regulatory rules and processes, and which organizations are best suited to perform the regulatory functions.

In reviewing international experience, we have identified a number of design features that may be particularly—and, in some cases, surprisingly—helpful in improving coherence, predictability, and legitimacy. These features are discussed in this paper, and could be summarized as follows:

- **Working with the existing organizational framework.** Regulatory design does not start with a blank slate. By designing regulation within the existing framework of organizations and legal instruments, governments can capitalize on existing strengths (such as legal support and strong precedents for contract enforcement) and introduce solutions for existing weaknesses (such as a unit to monitor and enforce contracts, if this function is poorly performed by government). Moreover, regulatory regimes are more likely to be publicly accepted if they fit with existing traditions and organizational structures.

Most importantly, regulation should be designed to fit in a unique country environment—there is no single best-practice design

- **Creating an appropriate role for politics.** Politics is likely to intervene in unpredictable and damaging ways if attempts are made to completely keep it out. However, a well-defined role for politics in regulation can have positive effects by providing a source of collective decision making and accountability, and creating a safety valve for government action when public pressures intensify. The key is to ensure that politicians are constrained to making coherent decisions and long-term commitments. Contracts help achieve such constraint—politicians can make a choice between coherent service and tariff combinations at the start, which will then be locked into contractual terms. If the government needs an ongoing political role in tariff-setting as a political safety valve, consumer tariffs and operator revenue could be decoupled, or government could fund performance-based subsidies that can help keep costs down and target subsidies to particular localities or households. This does not preclude broader policy or political interventions. However, such interventions should be transparent and “disciplined.” The costs of interventions should be made clear and be borne by the decision maker (for example, transparent subsidies funded from the budget of the relevant ministry or agency).
- **Limiting the discretion given to regulatory decision makers.** Low-discretion rules provide greater security for providers and the public by making the outcomes of regulatory decisions clearer and more predictable. They can also increase transparency in the way that regulators or policy makers make decisions, and decrease the risk that external pressures will influence these decisions over time. As organizational competence and experience increases, circumstances change, or flaws with strictly defined rules are revealed, it may be appropriate for more discretion to be introduced.
- **Trading off sophistication in favor of simplicity.** If regulatory decision makers do not have enough information to apply rules consistently and correctly, or do not fully understand the rules, the outcomes of their decisions will not be predictable. As a result, the regulator’s credibility may be undermined. Rules that lack precision can become more obstructive if the decision-making processes also lack clarity, with the result that external pressures may inordinately influence decisions. Although sophisticated rules may be conceptually appealing, simple rules may work better in practice, because they promote legitimacy better and require less expertise to be followed correctly.

The most important lesson for regulatory designers to bear in mind is that there is no single international best practice for regulatory design. A check-box approach to introducing regulation has often been unsuccessful.

A better approach would incorporate country-specific considerations and make room for politics and pragmatic design features in regulation. It would also ensure that regulatory decisions are credible and coherent by limiting the discretion given to decision makers and setting out clear and simple rules and processes for their application to enhance transparency. This type of approach should help designers to select a combination of legal instruments and organizations that best suits the specific country environment, and that achieves regulatory coherence, predictability, and legitimacy.

1 INTRODUCTION

This paper discusses the regulation of water and sanitation services in urban areas. Specifically, it explores ways of thinking about regulatory design as part of a wider, country-specific program to reform the way in which water supply and sanitation services are provided and paid for.

In the past, regulatory advisers often focused on the need to introduce international best practice—generally in the form of an independent regulatory organization—to solve a wide range of performance problems. However, this approach was seldom straightforward, nor was it always successful.

There is no one-size-fits-all regulatory design that can be reliably applied to resolve performance problems. Rather, regulation is best developed on a country-by-country basis through answering questions such as the following:

- What are the real sector problems, and which of these can regulation solve?
- What specific objectives is regulation aiming to achieve?
- What combination of organizations and instruments is most suitable and would work best for achieving these regulatory objectives?

By carefully delimiting *what* the regulatory system is to achieve, and objectively determining *how* it can be structured to achieve these objectives, governments can design a system that is coherent, predictable, and legitimate.² Identifying the key decisions to be made is just one element of design. The hard part can be actually making these decisions. This paper draws on lessons learned from a number of in-depth country case studies and other international experience to distill some lessons on approaches to design that can assist with the identification of regulatory objectives, functions, and choice of regulatory instruments and organizations. We explore the use of contracts as effective regulatory instruments, the role of politics in fostering regulatory legitimacy and deciding on policy tradeoffs, the importance of limited discretion for decision makers, and the need for clarity and simplicity in regulatory rules and procedures.

This paper is not intended to be a detailed guide for regulatory design. Rather, it discusses how to approach regulatory design. This approach encourages decision makers and their advisors to apply sound principles within country-specific settings, rather than advocate best-practice models without a thorough analysis of whether these are suitable for the country's context. The best combination of rules and institutions for setting tariffs and service standards³,—and indeed, the best reform options in general—will vary from country to country.⁴ Regulatory designers should select this combination by first focusing on the principal sector objectives and working with institutions that may already be responsible for achieving them.

Objectives of Sector Reform

Good water and sanitation services are essential for health, well-being, and economic development. However, in many developing countries the way these services are delivered can be less than ideal. Service quality may be low, service providers' financial capacity to deliver may be under threat, and large segments of the population may not receive service at all.

2 *Coherent* means the right tariff level is chosen, given the required level of service—that is, that the decision maker does not simultaneously order tariffs to be decreased, and services to be improved or expanded. We define coherency as a regulatory attribute, in the section, Choosing Legal Instruments and Organizations. These definitions apply throughout the paper.

3 Examples of service standards relate to water quality, continuity of supply, pressure, and definition of a connection.

4 Experts in many different areas of development now recognize the importance of country-specific solutions. For example, Hausmann, Rodrik, and Velasco (2005, p. 1) emphasize that “[w]hat the experience of the last 15 years has shown...is that the impact of these [Washington Consensus] reforms is heavily dependent on circumstances. Policies that work wonders in some places may have weak, unintended, or negative effects in others.”

To improve urban water and sanitation services, a government first needs to identify the sector’s underlying problems. Such problems become especially clear when the water services that people actually get are compared with the services people would like to get, and the conditions under which most stakeholders would like the services to be provided. As the table shows, the gap between the actual and the ideal is often considerable.

Table 1. Goals versus Actual Conditions in the Provision of Water Service

Key goals for water service provision	Actual conditions of water service provision in many developing countries
Safe and adequate water and sanitation for all inhabitants in the area	Many people rely on water vendors and methods of on-site disposal of waste that may be unsafe, expensive, and inconvenient. Those who do have a piped connection often get water only a few hours a week, and it may not be safe to drink.
Sufficient investment in infrastructure to meet new demands and increase access	A utility that is constantly on the verge of bankruptcy faces frequent crises and cannot expand its service as demand grows, so more and more people go without, and economic activity suffers.
Good management that keeps costs of service low	Poor management, waste, corrupt practices, inadequate maintenance, leakage, and low labor productivity often mean that costs are higher than they should be.
Tariffs that cover costs (but no more), with a social safety net to ensure that everyone can get at least basic services	Tariffs usually cover operating costs at most, because the government wants to keep water affordable. The government carries some of the utility’s costs, for example, writing off debt when the utility cannot pay. However, subsidies and low tariffs benefit only those connected to the network, who tend to be better off, while the unconnected get no subsidy and suffer, because low tariffs means the utility cannot expand to serve them.
Source: Castalia, based on World Bank 2006.	

Having identified the principal sector problems, the government then needs to define a path of reform that can move the sector from the actual (the services people get) toward the ideal (the services people want). This reform path needs to be well planned. It will involve a number of important decisions, including who should make policy decisions, who should own and manage the entities providing water services, who should invest and finance the investments, and how services should be paid for.

Regulation of Private and Public Providers

Water and sanitation is an essential service, and its provision—in particular, through piped supply and collection—has strong (natural) monopoly characteristics. This makes it important to control providers and make them accountable in some way, *regardless* of whether the provider is publicly

or privately owned and operated. Private providers are generally regulated by autonomous agencies or contracts, or both. Regulation is often considered necessary, because without it private providers might make unreasonable profits by overcharging and underdelivering.⁵

Whether publicly owned providers can or should be regulated by an autonomous regulator is less clear. Among the questions to be considered are the following:

- Whether certainty and predictability in the regulatory environment can strongly and positively influence the performance of government-owned water operators.
- Whether transparency in political and policy interventions is also important for good policy making, and for stronger government and service provider accountability when the service provider is government-owned.
- Whether potential benefits are outweighed by the costs and resource constraints—especially for small municipal service providers.

Public providers can be controlled and made accountable through ownership and governance.⁶ However, the line separating ownership and governance from regulation is not a bright one. Some analysts recommend making the separation between these forms of control more formal by turning the publicly owned and operated utility into a corporatized, regulated entity that mimics a privately owned company. This highlights the range of operating models that exist for government-owned water service providers.

A variety of regulatory approaches can be used across the range of operating models. In some cases, “autonomous” regulators try to control publicly owned providers as if they were privately owned. In other cases, mayors or ministers approve prices through informal, nontransparent processes. At present, there is little quantitative information on the linkage between regulation, governance structures, and performance outcomes. Some analysts highlight the success of some governments—such as national governments in Botswana and Burkina Faso, and municipalities in the Netherlands, New Zealand, and Scandinavia—in owning, operating, and controlling public utilities successfully without separate regulatory agencies. In other jurisdictions with public utilities—such as in Scotland and New South Wales (Australia)—regulatory agencies have been established to provide greater transparency and facilitate performance improvements and price reform, with some apparent success.

We do not intend to resolve the issue of the best form of control for public utilities in the following sections. A separate report, with a focus on the particular problems faced by public utilities, is being prepared alongside this paper.⁷ However, the lessons presented in this paper may apply not only to private utilities, but also to public entities that have been corporatized and that have performance-based incentive structures. It is likely that regulating other publicly owned providers will also, to some extent, build on experience on how to regulate *private* providers effectively.

Overview

In the following sections, we discuss key approaches to regulatory design, including identifying the problems regulation can genuinely help address and designing the regulatory system to work well within a specific country environment. We indicate areas in which different considerations may be necessary

⁵ In actuality, private providers also have often faced the problem that political pressures have held prices below costs.

⁶ **Governance** refers to the relationship between the owners, directors, and managers and the rules, laws, policies, and customs that define this relationship and ensure that the managers and directors are accountable to the owners for the pursuit of objectives consistent with those of the owners and that the entity complies with all laws and regulations.

⁷ Because reforms generally involve complex interactions between governance and regulation, it may not be meaningful to analyze the regulation of public providers in isolation from their governance. However, treating the two aspects as distinct highlights how they interact, and may provide greater conceptual clarity for sector advisors.

for public providers. The main focus is on identifying the broad processes and considerations that should be involved in regulatory design. Filling in the details will be the role of regulatory and policy specialists who know the country context well and who understand the end goals of sector reform.

2 APPROACH TO REGULATORY DESIGN

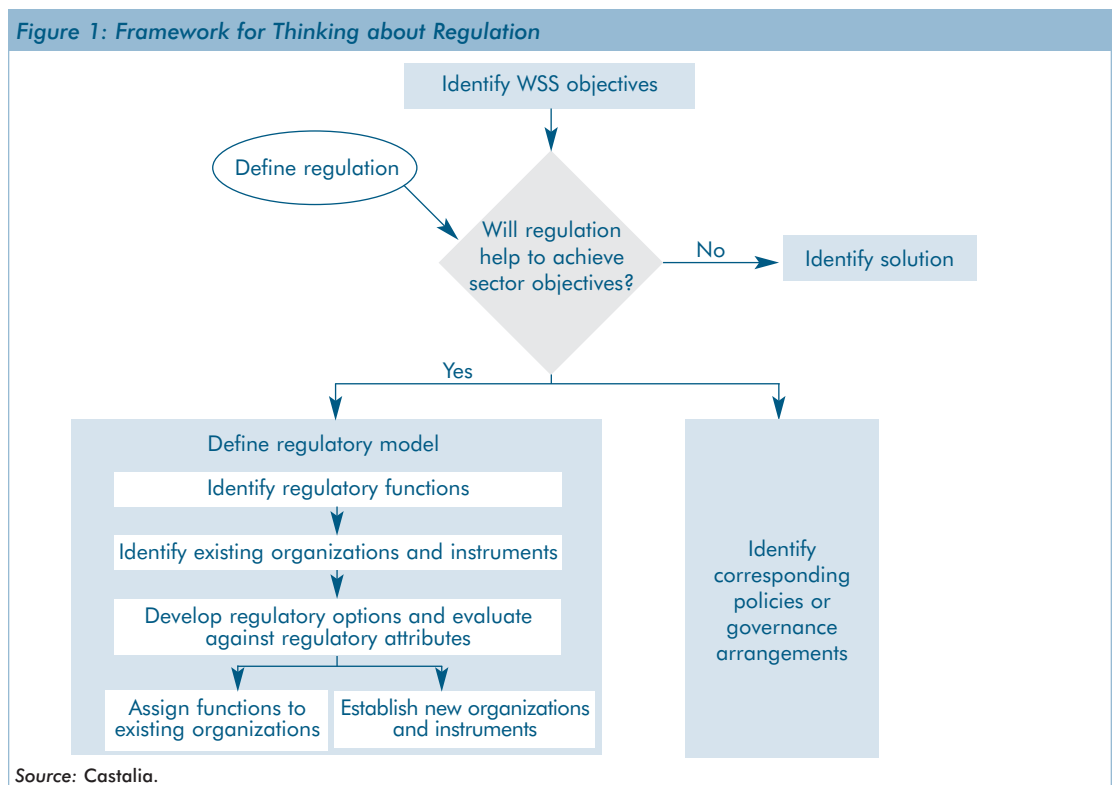
Governments embarking on water and sanitation sector reforms need to decide how providers will be given better incentives to deliver the services that people want at a reasonable price. This is where regulatory design becomes important. The regulatory system (a combination of rules and organizations) needs to be able to help solve the country’s key regulatory problems, and to work well with existing sector institutions.

These may seem like simple objectives, but regulatory systems have often failed to resolve problems effectively. Many newly minted regulators have fit poorly with other sector institutions. Governments can reduce the risk of failures and poor fit by thinking carefully about regulatory design and by following a logical decision making process, as described in this section.

The process of regulatory design needs to assess where and how regulation is needed, before setting out to put regulatory systems in place. A good way to design effective regulation involves four basic steps:

- Defining the underlying problems and objectives in the sector.
- Assessing whether existing regulatory systems are well suited to achieving the objectives.
- Identifying the specific regulatory functions needed to achieve those objectives.
- Deciding, in light of existing institutions, which legal instruments are best suited to embody the regulatory rules, and which organizations are best suited to perform the regulatory functions.

These steps are illustrated in figure 1.



Defining the Problems and Sector Objectives

As described in the section above, the provision of water supply and sanitation services in developing countries often faces a number of performance problems. On one level, these problems can easily be identified: leaking pipes, inadequate water pressure, poor water quality, and low service coverage. A one-off cash injection could feasibly solve many of these issues in the short term, but sector reform needs to focus on realizing improvements that can be sustained in the long term. To achieve such improvements, the *underlying* causes of poor performance need to be identified and remedied. For many countries, the underlying causes of poor sector performance include the following:

- Inadequate investment in, and maintenance of, system assets. This may be caused by
 - Inadequate cash flow, due to tariffs being set below cost-recovery level, or costs being inefficiently high.
 - Poor planning or disagreement between the government and provider over investment plans.
 - Lack of confidence in the regulatory arrangements or, more generally, broad political risk.
- Poor maintenance and operating practices.
- Poorly defined or enforced service standards.
- Lack of clear policies on service coverage expansion.
- Barriers to entry for small private providers.

By examining existing sector policies and consulting with providers, consumers, and other sector participants, governments can build a clear picture of what the real problems are and thus what the reform objectives should be.

Assessing Whether Regulation Can Solve the Problems

Some of the underlying problems identified in the first stage can be effectively solved by a good regulatory system; other problems need a policy or structural solution. It is important to clearly identify which problems regulation can solve. This requires understanding what economic regulation is and does, and what it cannot do.

Defining Economic Regulation and the Problems It Can Solve

Economic regulation is best thought of as the legal controls placed on water and sanitation providers in order to overcome the problems inherent in an essential, monopoly service. This points to a core definition of economic regulation as

...the rules and organizations that set, change, monitor, and enforce allowed tariffs and allowed service standards for water providers.⁸

Water is an essential service, and is generally worth a lot more to people than it costs to supply. Private providers could take advantage of this by overcharging and making high profits at the expense of consumers.⁹ In some cases, this opportunity for profiteering may be limited by competition. In the case of large-scale piped provision, however, competition is not feasible. Economic regulation can usefully be thought of as mimicking the pressures that competition provides in other markets. In other words, it can help to stop tariffs from increasing above the level required to recover reasonable costs and make the service provider bear costs that are considered excessive.

⁸ By rules, we mean *formal* rules—that is, rules that are not just informal guides, norms, or practices (including self-regulation).

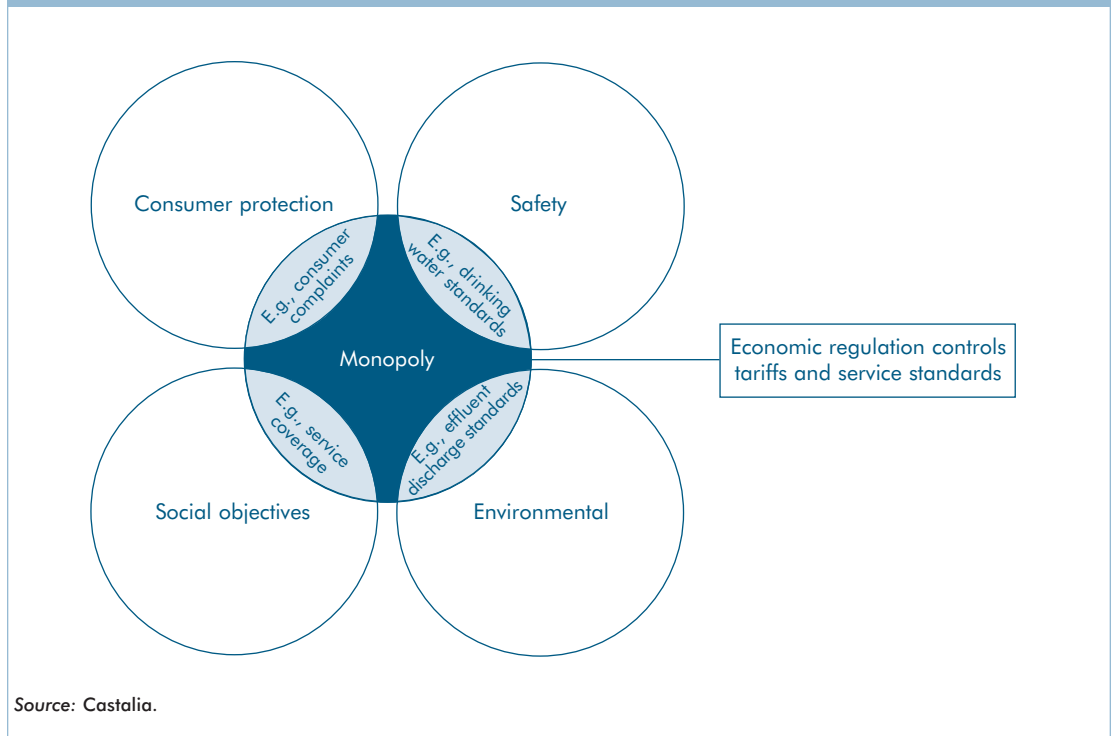
⁹ Government-owned providers might also take advantage of consumers by dissipating tariff revenues in inefficiencies, such as low labor productivity or corruption.

Regulation can also set and enforce service standards to ensure that utilities are providing the services that people want. However, tariffs and service standards are inevitably related—if tariffs are too low to recover costs, the provider may not be able to meet the required service standards, or the government may bear the fiscal burden of providing (implicit or explicit) subsidies. Thus, regulation also has a role to play in ensuring that tariffs are not “too low.”

Problems Regulation Could Help with—but That Other Tools Might Solve Better

Beyond this narrow role of setting, monitoring, and enforcing rules on tariffs and service quality, economic regulation begins to overlap with other areas of regulation and policy. This overlap is illustrated in figure 2. The darkest area in the middle represents the core of economic regulation—addressing the monopoly problem. In the “gray area” around the core, a choice is needed as to whether a particular regulatory function should be considered part of economic regulation or dealt with in another way.

Figure 2: Economic Regulation—Addressing the Monopoly Problem



For example, setting drinking water standards may be considered part of economic regulation, or it may be dealt with as an aspect of health or food safety regulation. Service coverage may be governed by regulatory requirements on the provider to connect more customers, or by subsidies for service expansion, or both. Another way could mean a different form of regulation—governments can use the power of the law to instruct providers to do certain things, and to enforce these instructions through penalties and other forms of compulsion (such as providing incentives or withdrawing privileges). Another way could mean a different form of control altogether. Governments have a range of tools they can use to achieve social, environmental, safety, and consumer protection objectives. For example, governments may aim to achieve social

objectives by influencing providers through subsidies (such as output-based payments for extending service to poor households) and tax incentives.

There are also problems that economic regulation cannot solve—or at least cannot solve alone. For example, integrated policy approaches are often necessary for the following:

- Ensuring that services remain affordable to low-income households.
- Increasing provider efficiency.
- Improving capital expenditure planning.
- Improving poor payment records by government departments and agencies.

Thus, even when governments choose to expand the role of regulation beyond simply setting, monitoring, and enforcing rules on tariffs and service quality, supporting regulation with other policy initiatives is generally necessary.

There are vital government roles in water supply and sanitation services that support regulation, but which are distinct from it:

- **Policy making.** Policy defines sector objectives and principles and sets out who should do what to achieve those objectives. The extent to which consumers or taxpayers should pay for water services and infrastructure is a policy decision, as is the ownership of the providers and the general strategy for controlling tariffs and service standards.
- **Ownership, service provision, and governance.** Provider performance is greatly influenced by who owns the water assets, who is responsible for service provision, and how the owner exercises control over the utility's management (governance). The government needs to ensure that these factors and regulatory design are aligned with each other.
- **Coordination.** Governments must coordinate water supply and sanitation services by ensuring that policy decisions and implementation plans are consistent, managing input from the various bodies involved in water sector activities, and coordinating public expenditure priorities. The regulatory regime must be coordinated with other interventions.

Defining Specific Regulatory Functions

In developed countries with private providers, the core regulatory goals may be to keep tariffs down (that is, to constrain the provider from raising tariffs above the reasonable cost of service) and to keep service standards up. In developing countries, it cannot be assumed that the regulatory functions are the same. Before putting a regulatory system in place, governments should be clear on the following issues:

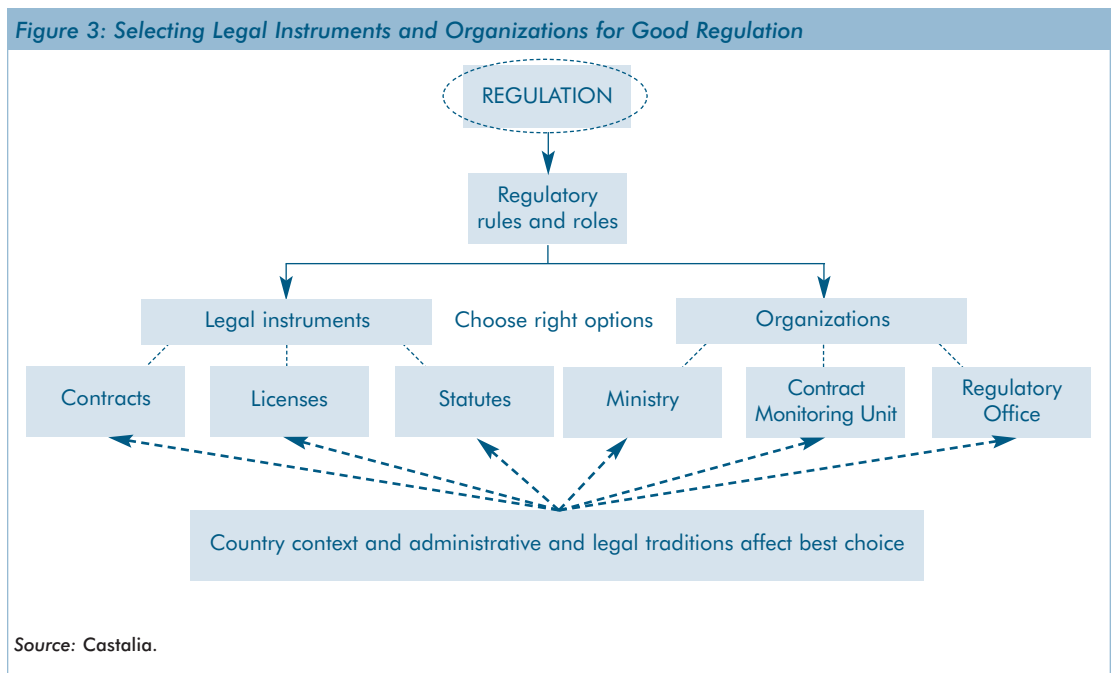
- Will the regulatory system be designed with the aim of keeping tariffs “down” and service standards “up,” through regular and in-depth scrutiny of the provider's financial and technical performance (as was the intention in Manila)?
- Or is it more important to move tariffs up through rules that require cost-recovery tariffs (as the design of the tariff rules aimed to achieve in Colombia)?
- Is there a need for neutral, fair adjudication between the government and a private provider (as in the United Kingdom or Guyana)?
- Or is the provider owned and managed by the government in a way that makes third-party adjudication less necessary or acceptable (as in New Zealand, or Phnom Penh)?

Clarity on sector objectives and priorities is essential for choosing effective regulatory instruments and organizations.

Choosing Legal Instruments and Organizations

Regulatory systems can take a number of forms. In the past, some regulatory advisors have advocated that some of these forms are better at achieving good regulation. In particular, advisors have viewed an “independent regulator” as the best-practice model. This view was based on the model’s perceived success in other infrastructure sectors, and in such countries as the United States, the United Kingdom, and Australia.

In practice, which models work best depends on a country’s objectives and circumstances. Regulatory systems that seem structurally different may carry out the same regulatory functions to solve similar problems. As figure 3 illustrates, a number of different legal instruments and organizations can be combined to create a variety of regulatory architectures.



For example, regulation in Florida is based on a combination of statute, a regulatory office, and a government ministry or department. The Public Services Commission (PSC) was established by statute, and it has broad discretion to set, change, monitor, and enforce limits on tariffs. However, the regulatory function of setting standards for water pressure is the job of the Department for Environmental Protection. This department also controls drinking water quality and effluent discharge standards.

A different regulatory architecture can be seen in Colombia. The Regulatory Commission for Water and Basic Sanitation Services (CRA) establishes the tariff-setting methodology. Providers set their own tariffs in accordance with this methodology (or apply to the CRA to set the tariffs a different way). Service standards are set by the Ministry of Economic Development. The Public Services Superintendent (SSP) monitors the providers to verify that they are following the tariff-setting rules and complying with the service standards. However, where private providers operate under concession contracts with a municipality, the general practice is for the contract to set service standards and tariffs, which are to be monitored and enforced by the municipality.

In Côte d'Ivoire, an affermage contract is the regulatory instrument. The Ministry of Economic Infrastructure designed, negotiated, and signed the affermage contract with the private provider. One of its departments, the Water Directorate, is the owner of the supply network and is responsible for monitoring the provider's compliance with the contract. The Directorate also leads negotiations on tariff adjustments and is responsible for granting approval for some construction projects. A separate government department monitors the costs incurred by the provider when it undertakes network renewal and extension activities.

Each of these designs represents a different regulatory architecture, but each is functionally equivalent in terms of the roles for setting tariffs and service standards that are performed.

Attributes of Good Regulation

Given that a range of functionally equivalent designs are possible, clear criteria for selecting the right legal instruments and organizations (for a specific country environment) are needed. These criteria can be thought of as attributes—the qualities that a good regulatory system should have.

The goal of regulation is to achieve good service for consumers at a price that enables providers to operate efficiently and sustainably, consistent with a clear and reasonable tradeoff between service levels and tariffs. To achieve these goals, a regulatory system should have the following attributes:

1. **Coherence.** If a provider needs to meet higher service standards or to focus on system expansion, it is likely to incur higher costs, which will need to be compensated through higher tariffs or a combination of tariffs and subsidies.¹⁰ In contrast, if tariffs need to be lower (because the government believes the poor cannot afford water and sanitation services), but subsidies are not an option for achieving this, it makes sense that the required service standards are lower, too. The regulatory system should be able to select, and settle on the right combination of tariffs and subsidies, and service standards and coverage, such that providers are able to recover their costs, and people receive the services they are willing to pay for.

In Bogotá, Colombia, a lack of coherence in regulatory decision making triggered friction and political intervention that undermined the regulator's independence and autonomy. The tariff-setting methodology of the CRA (the regulator) focused on achieving full cost recovery through tariffs, partly on the assumption that municipalities were seeking political support by suppressing water rates. However, when the methodology was applied in Bogotá, average tariffs increased by more than 100 percent. The municipality had included a large provision for capital works in the tariff calculation. Considerable debate ensued over whether the calculation was reasonable, with the President eventually intervening to direct the CRA's decision.

In contrast, in Senegal such tariff shocks for consumers were carefully avoided, and coherence between tariffs and services was maintained through the combination of a planned, gradual increase in consumer tariffs and guaranteed cost-recovery payments from the government to the provider. The government, having made a policy decision on the gradual tariff path, bore the risk of service costs and tariffs diverging. This risk was limited for the government as the service levels, the capital investments, and the performance of the operator were linked.

¹⁰ The long-term relationship between coverage and costs may be more complex because of questions of economies of scale (that is, the marginal costs of service extension relative to average costs) and the nature of the service demands of the newly connected users.

2. **Predictability and credibility.** Regulatory decisions should be time-consistent, and made on clear precedents and rules. This is essential for minimizing risk to providers and, in turn, encouraging good service provision and adequate asset maintenance and capital investment.

Many systems fail because of a lack of credible protection against regulatory expropriation. In Buenos Aires the water concessionaire suffered regulatory expropriation. Many other proposed reforms have failed because the regulatory system was not credible in assuring providers that they would be able to recover their costs. In contrast, in Vanuatu and Senegal, credibility was provided through the contract, which prevented short-term political intervention and created a predictable regulatory framework for providers. In Senegal, regulatory rules and processes that minimized the risk of steep tariffs increases also contributed to predictability and credibility.

3. **Legitimacy, transparency, and accountability.** Regulatory decisions need to be clear, widely accepted, and publicly accessible. Political and social stability is not only essential for a regulatory system's predictability; it also creates the conditions for the public to view regulation as legitimate. Moreover, beyond public scrutiny, regulatory institutions need reasons and incentives to make decisions in the long-term interests of consumers—strong, logical lines of accountability help. Accountability to the public, in turn, is essential for preventing corruption and improving legitimacy in the public eye.

In Cochabamba, Bolivia, the lack of legitimacy and transparency in the way tariff decisions were made was a key contributing factor in the failure of the concession. The public rioted against tariff increases, largely because they lacked information on the contract and its monitoring organizations, and doubted the role of regulation in protecting their interests. As a result of intense public pressure, the government cancelled the contract.

In contrast, in the United States, a highly transparent and participatory form of regulation is used in most states. Utilities submit applications (for example, for a rate increase) to the regulator, and any citizen or group has a right to contest the application in open hearings adjudicated by the regulator. All relevant technical and financial information is publicly available. The application of strong democratic principles helps regulation to achieve legitimacy, transparency, and accountability.¹¹

These attributes can be used as criteria for assessing the likely effectiveness of different regulatory architectures—that is, the combination of legal instruments and regulatory organizations.

Applying the Attributes to Build the Right Architecture

As illustrated in figure 3, each country's unique context and legal traditions should inform the way that regulatory roles are distributed amongst instruments and organizations, in order to achieve the desired attributes of regulation discussed above.

In many developed countries, an independent regulator model has worked well to achieve these attributes. For example, Ofwat, the water regulatory body for England and Wales, is viewed internationally as a model of successful, independent regulation. In the English political, economic, and social context—in which the government, administrators, regulators, and the general public share strong values on sector policy, and only modest changes in prices have been needed—a regulatory office like

¹¹ This approach is discussed in detail in: Palast, Oppenheim, and MacGregor (2003).

Owat has been able to regulate effectively, without direct political intervention. As this example shows, politicians are less prone to intervene where there is broad-based support for the regulatory mandate.

However, when this model is transposed to developing and transitional countries, regulatory independence is often undermined by frequent political intervention (in Manila, for example, the president intervened on tariff decisions a number of times).¹² In an environment where there is a high risk that politicians will make decisions that focus on short-term interests and lack coherency (between tariffs and service standards), a contract can be a good legal instrument for locking in regulatory rules and achieving coherence and predictability. Many developing and transition nations have relatively effective contract law and dispute resolution mechanisms, so regulation by contract can be a credible and legitimate form of regulation. In some countries, predictability may be increased if regulation is embodied directly in statute.¹³ It is a question of finding the most appropriate instrument in a particular country context.

Choosing Organizations to Make Contract-Based Regulation More Effective

Countries such as Senegal and Vanuatu have used contracts as an effective regulatory instrument for setting tariff rules and service standards. The legal systems in these countries were developed under influences from France, where a contract model of water regulation is widely and successfully used. As a result, in both Vanuatu and Senegal this model was well understood and respected by the government and sector participants.

For regulation by contract to work successfully, the rules must be monitored and enforced. Existing government organizations may lack the capacity or incentive to monitor performance effectively. Poor monitoring undermines customer protection, reducing the legitimacy of the regulatory system as a whole. This “legitimacy deficit” was evident, for example, in Vanuatu. Although the provider provides good services, the paucity of government monitoring has resulted in widespread concern over the lack of transparency, accountability, and legitimacy in the way the provider is controlled.

New organizational arrangements may be introduced to help increase government’s capacity to enforce the rules and overcome the legitimacy deficit. This was done effectively in Senegal—where a combination of dedicated contract monitoring units, ongoing performance monitoring by the government-owned asset holding company, and timely, independent mediation on disputed issues by an outside conciliator provided the necessary support for regulation by contract to operate successfully. The combination of the rules set out in the contract, and the roles performed by monitoring organizations and government ministries created a regulatory system that was generally coherent, predictable, legitimate, and accountable to the public.

The choice of regulatory organization must be made carefully to ensure an appropriate fit with existing institutions and with the legal instrument used for regulation. For example, a regulatory agency with broad powers and a contract may not be a sound combination, as the experience of Manila highlights. Because the concession contracts in Manila explicitly set out the tariff-setting and service standard rules for the providers, the role of the Regulatory Office was often unclear. Even Office staff became confused at times over the degree of discretion that the Office should exercise in setting and interpreting rules, or the extent to which it should focus solely on contract monitoring and enforcement. A better organizational choice may have been a contract monitoring unit with a clear mandate to monitor and enforce compliance with the regulatory rules already established in the contracts.

¹² Political interventions also occur in developed country environments—but stronger or more complementary institutional environments tend to constrain the extent of interventions or force more transparent interventions. Hence, the extent of independence that is feasible will depend, in part, on the strength and support of enabling institutions and the traditions on which they are based.

¹³ For more on the appropriate use of statutes and other legal instruments, refer to the work of Levy and Spiller (for example, Levy and Spiller 1996).

As the examples discussed above illustrate, a variety of regulatory architectures are possible. Although these architectures may be functionally equivalent (in setting, monitoring, enforcing, and modifying tariffs and service standards), they are not equally successful in different country environments. Regulatory designers should choose legal instruments and organizations that form a sound overall design. The design should also be cognizant of the specific sector problems regulation needs to solve, and the particular country environment in which regulation will be seated. Design features that can help in achieving this fit are discussed in the next section.

3 IMPROVING REGULATORY DESIGN

Since good regulatory design needs to reflect the country context, it is hard to provide singular guidelines. However, observations from regulatory successes and failures internationally, including experience from recently completed in-depth country case studies, reveal several lessons on what makes for effective regulation. These lessons point to several aspects of good regulatory design: designing-in political and context-specific features to a purpose-built regulatory model, rather than adopting a best-practice model that does not fit the country context and attempts to operate outside existing institutions.

From these lessons we have identified a number of design approaches that can help improve a regulatory regime's performance concerning the key attributes of coherence, predictability, and legitimacy.

These approaches include the following:

- Working with the existing organizational framework.
- Designing in the politics.
- Limiting discretion in decision making.
- Trading off sophistication in favor of simplicity.

These approaches are discussed in the sections that follow.

Working with the Existing Organizational Framework

Regulatory design never actually starts with a blank slate. Regulation is generally introduced in an environment where some sector organizations already exist; legal and political systems are well developed; some measures for consumer protection have already been introduced; and relationships between politicians, providers, and the public have been established. The resulting complexity of structures and incentives is not a backdrop that regulation should seek to overcome or be imposed on top of. Rather, it provides a framework for regulation to work *within*.

Considering the existing organizational framework can help achieve good regulation

- ✓ **Credibility** By choosing regulatory instruments that existing organizations are familiar with, and have the capacity to manage well, regulatory outcomes are likely to be more credible and predictable.
- ✓ **Legitimacy** Regulatory regimes are more likely to be understood and publicly accepted if they fit with existing traditions and organizational structures.

The choice of legal instruments and regulatory organizations should reflect the existing country conditions, but regulatory designers should also realize that these conditions may change. For example, as a country's institutional capacity and credibility improve over time, it may be appropriate for regulatory organizations to take on a stronger or more extensive role.

Sometimes such evolution is planned—initial legislation may limit the role and discretion of a new regulatory body for a limited period, but these limits may be relaxed over time (as in Victoria, Australia).¹⁴ Sometimes the need to modify a regulatory regime becomes apparent over time, as government policies change or weaknesses in the existing arrangements become obvious. For example, Vanuatu is currently developing a new agency to assist the government in monitoring and enforcing Port Vila's water concession contract.

In general, however, the choice of instruments (and related organizations) is a long-term one. For a regulatory system to be credible, the public and investors must perceive that it requires long-term commitments and lasting structures. Below we explore how regulatory designers can select suitable regulatory instruments and organizations in light of the country's institutional context.

Choice of Legal Instruments

A variety of legal instruments can be used to support regulation. Past approaches to regulatory design have often ignored or downplayed the role of contracts in regulation. More emphasis has been placed on developing strong regulatory agencies with broad discretionary powers. However, contracts are often a good starting point for establishing clear and enforceable regulatory rules. In civil-law countries (including countries with French heritage—such as Vanuatu and Senegal—and many countries in Latin America), contracts are seen as a familiar and legitimate tool for controlling service provision.¹⁵ For such countries, including service standard and rules for operator remuneration within a contract, rather than having an independent regulator set such rules, is more contextually consistent.

In some circumstances, a contract (or a contract alone) may not be the best choice. For example, if a given jurisdiction has several regulated water service providers, there may be some advantage in creating a single legal instrument, such as a statute or uniform license, that sets basic rules for all of them. Another potential attraction of setting rules in a statute is that it is generally difficult to change primary legislation.¹⁶ Investors may perceive regulatory risk as being lower if contractual provisions entered into with local governments are backed up by consistent laws at the national level.

Choice of Organization

Some form of organization will be needed to ensure that the rules are followed even where rules are set in a contract. The degree of organizational support that a contract requires will depend on the strength of existing administrative and judicial systems.

¹⁴ In 1994 a Government Act established an Office of the Regulator-General in Victoria with the purpose of creating an economic framework for safeguarding competition or preventing the misuse of monopoly power. The Office's functions and powers were initially limited to Melbourne's three metropolitan retail companies. Later the water and sewerage industry outside the Melbourne metropolitan area were included as regulated industries for which the Office had responsibility. The government retained control over water pricing and water pricing policy until 1998 when the Office took responsibility for tariff reviews. Water services throughout Victoria are now regulated by the Essential Services Commission, which subsumed the Office's role in 2000.

¹⁵ Contracts between local government and private providers have been used in France for many years as a means of regulating water services.

¹⁶ By "difficult," we mean more difficult than changing a license or a piece of secondary legislation, but not necessarily more difficult than changing a contract. Thus, where contract law is strong, it may not be necessary to add primary legislation. However, legislation can provide an extra layer of security for investors and enhance the credibility of the regulatory system.

Vanuatu provides an example of a regulatory design that did not adequately consider the country's existing institutional context. The Vanuatu government had entered into a concession contract with a private provider, UNELCO. The contracting ministry was notionally responsible for monitoring the concessionaire's performance under the contract. In reality, little monitoring has been undertaken, and the government and public do not feel in control.

In retrospect, the government might have done better to give contract-monitoring responsibilities to stronger organizations. Candidates would have included the Ministry of Finance, a specially created contract monitoring unit, or a consulting firm hired for the purpose. Better contract monitoring could have increased the legitimacy of the regulatory system.

Senegal's regulatory system had a better organizational design (as illustrated in figure 4).

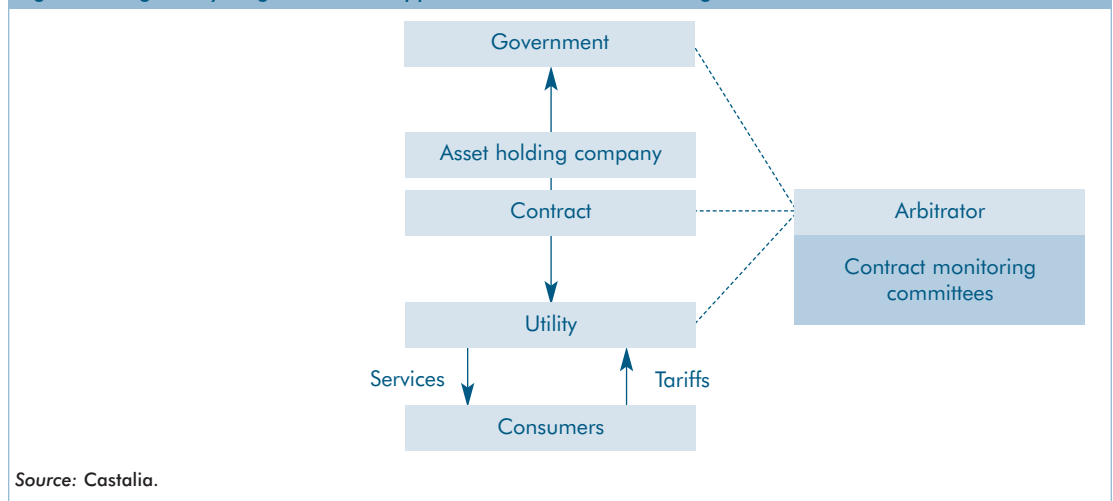
Regulation in Senegal worked better than in Vanuatu, largely for the following reasons:

- The contracting party to the utility's performance contract, SONES (the state-owned, asset-holding company, which had considerable technical expertise) undertook regular and thorough monitoring.
- Dedicated contract monitoring units were established (although, in the end, they played a minimal role).¹⁷
- The government was active in its relationship with the utility.

Conciliators (arbitrators) were brought in to help resolve disputes emerging between SONES and the utility (either because of contract imprecision or because of one of the parties failing on its commitments). Donors also played an ongoing and important mediating role.

In summary, organizations were brought in at the potential weak points of the regulatory structure in Senegal. Regulation was more successful because the need for these organizations was identified during the design stage. A contract-based model of regulation was thus adapted to suit Senegal's existing institutional context better.

Figure 4: Regulatory Organizations Supported the Contract in Senegal



¹⁷ One monitoring unit was established for the performance contract between the utility and asset-holding company, and another for the planning contract attached to the concession contract between the government and the asset-holding company.

Consistency with Parallel Processes

In addition to considering the institutions that are *already* in place when regulation is designed, regulatory designers need to be fully cognizant of the institutions that are being introduced through parallel reforms. In particular, regulation is often introduced at the same time as private sector participation, which clearly influence which functions the regulatory system will need to fulfill.

Designing a package of economic regulation and contract-based private participation is more difficult than is sometimes realized. Common regulatory models were designed to work with utilities that are fully privately owned. However, private participation for WSS services is generally based on contracts between government and private companies, not outright sale of the utility. Lack of logical interface between the contract and regulatory design processes can create a mismatch between economic regulation and the private participation arrangements it was intended to support.

For example, in Manila, the Regulatory Office was not clear whether it should simply apply the rules in the concession contract, or whether it could change the rules when circumstances changed. This uncertainty contributed to a messy and confused response when a currency crisis created financial distress for one of the concessionaires.¹⁸ Similarly in Colombia, the relationship between rules set by the CRA (the regulator) and rules in municipal concession and lease contracts is not quite clear. This lack of clarity creates unnecessary risk for both the provider and the local government.

Create an Appropriate Role for Politics

Past approaches to regulation strove for regulatory independence with the objective of keeping politics out of regulatory decision making. Political intervention, however, may be inevitable. Moreover, politics can sometimes play a positive role. The key is to ensure that the regulatory and policy framework encourages or at least constrains politicians to make coherent decisions and honor long-term commitments. This means that the role of politics should be well defined and limited.

Governments can be made to commit to their decisions if key service and tariff provisions are locked into contracts.¹⁹ However, they can still be given a political safety valve to influence tariffs. For example, regulatory designers can decouple consumer tariffs and operator revenue, or provide for government-funded, output-based subsidies that can help keep consumer tariffs down.

Political Decisions Can Be Short-Term and Inconsistent

Many advisors believe that regulation should adequately balance provider cost recovery and consumer protection, and that politics can interfere by tipping the scales or by undermining the entire balancing system. One of the principal problems with politicians playing a directive role in regulation is that their decisions tend to lack long-term commitment to coherent tariff and service

¹⁸ Admittedly, financial problems encountered by the concessionaires were largely related to the currency crisis—an unforeseen and ruinously large shock that may well have overwhelmed any regulatory system. However, the frequent lapses of coherence, predictability, and transparency in Manila's regulatory system meant that this crisis was dealt with in a particularly ineffective way.

¹⁹ Other mechanisms are also available to promote this commitment, for example, partial privatization; commitments embedded in "golden shares" where the government retains part ownership; transparent, medium-term performance agreements that are effectively monitored; and corporatization with strong rights and obligations for board members.

combinations. Politicians are often tempted to make decisions that are based on short-term interests. They may push for tariffs that only recover short-run operating costs, meaning that the provider has insufficient funds to maintain long-lived assets or make new investments. This may win favor from consumers in the short term (lower tariffs are generally popular), but in the long term it will be detrimental as services begin to deteriorate.

Alternatively, politicians may demand that services be improved or coverage increased without allowing a corresponding increase in tariffs. The lack of coherence between services and tariffs harms both the provider and consumers in the long term.

But Politics Is Hard to Exclude—and Can Play a Positive Role

With these negative consequences of political intervention in mind, many designs have focused on reducing political involvement in regulation. Nonetheless, politics seems to rather consistently intervene, especially when it comes to setting tariffs. For example, in the Philippines and Colombia, the presidents became directly involved in tariff decisions on several occasions, even though the regulatory bodies in both countries were ostensibly autonomous. This type of intervention damaged not only the regulators' independence, but also their credibility.

Politics is especially hard to exclude if independence is combined with wide discretion to make socially and politically sensitive decisions on prices for basic community infrastructure services. This can create excessive risks for all stakeholders (investors, service providers, governments, and users)—especially where the current prices are far from levels that are sustainable in the medium to long term. In response, discretion may be reduced (see the section, Limiting the Discretion Given to Regulatory Decision Makers) or a transparent, accountable role for government policy provided, or both (see examples below).

The threat of damaging political intervention is not the only reason that regulatory designers should, from the outset, consider a role for political decision making in regulation.²⁰ There are three important arguments for giving politicians a well-defined role in regulation:

1. Politicians can make decisions that represent a **collective choice** on tradeoffs, such as having limited services for lower tariffs, or having better quality or more widely available services for higher tariffs. People will have different preferences on these choices; a democratically accountable government could be the best organization to make a choice that best reflects the needs of the community.
2. Politicians may have **accountability** to the public through the voting system. Although accountability through a democratic political system may be imperfect or diffuse, it at least provides a channel for public involvement. In the case of basic infrastructure services, this channel may be stronger for municipal or local governments than for governments at the national level. The government can exercise its accountability indirectly, by appointing independent regulators to make regulatory decisions, or directly, by choosing a coherent tariff and service standard combination on behalf of consumers.
3. If extreme events—such as a sharp increase in tariffs—occur, the public will demand that the government *does something*. A well-defined regulatory role will provide the government with a **safety valve**, allowing it to act in a way that minimizes damage to the regulatory system while responding to the public.

²⁰ For example, interventions that are nontransparent, focused on short-term political objectives, inconsistent over time or inconsistent with sustainable service provision, or reduce the accountability of the service provider.

These arguments point to a positive, if limited, role for politics in regulation. However, regulatory designers still need to ensure that political decision makers will take into account relevant information and advice, act transparently, and make credible, coherent, and time-consistent decisions.

How does creating a limited role for politics help achieve good regulation?

- ✓ **Predictability** Politics is likely to intervene in unpredictable ways if attempts are made to keep it out. Politicians may be tempted to make decisions that are based on short-term interests or that lack coherency. Having low tariffs *and* improved services today is politically appealing, but has negative consequences in the long term.

Focusing on limiting short-termist decision making by politicians, rather than eliminating political involvement altogether, can help achieve predictability in regulatory decisions.

- ✓ **Accountability** The democratic system provides a form of accountability. The public's collective interests may be better served if elected representatives of consumers are given responsibility for decisions on service standards and coverage, given the tariff-level tradeoff these imply.

How Governments Can Credibly Commit to Long-Term Regulatory Coherence

A well-defined role for politics should be one that commits the government to coherent, long-term decisions on tariffs and service standards. The independent regulator model attempted to achieve such commitment by limiting government involvement to setting legislation that established the regulatory body, or appointing some of the regulators. In other words, under this approach the government commits to devolve all tariff and service standard decisions to the independent regulator.

However, the independent regulator approach has frequently failed to achieve political commitment to long-term regulatory coherence. Policy makers and politicians often feel uncomfortable with relinquishing decision-making powers, and face strong pressures to intervene on tariff issues anyway. An alternative way to achieve commitment and consistency is through a contract. The government and provider could decide on coherent rules on tariffs and service standards, which would be locked into the contract, and adjusted only through well-defined periodic reviews. For example, in both Vanuatu and Monteria, the governments were involved in deciding on appropriate service standards and acceptable tariff rules when the service contract was negotiated.

Once the contract is signed, government involvement should be limited to monitoring the contract, and ensuring that the legitimacy of regulation through the contract is maintained (for example, by providing sufficient information for the public, remaining active as a contracting partner, and participating in the renegotiation of the contract if it is desired by, and in the interest of, both parties).²¹

21 This ongoing role is important. For example, in Vanuatu the government did not actively monitor the provider's performance under the concession contract. When the public became concerned about rising tariffs, the government did not have sufficient understanding of the contractual provisions—or of the provider's adherence to these provisions—either to provide assurance that tariffs were not funding extraordinary profits or to take action to review tariffs in a contractually permitted way. Instead, the government began to investigate ways to cancel the contract or to create a regulatory authority to overrule it. Although neither of these options was eventually pursued, they would have greatly damaged the credibility of the regulatory system. Ongoing monitoring could have helped the government maintain accountability to the public without undermining the contract.

The government may also take part in tariff reviews, which should occur on a preagreed periodic basis, or be triggered by preagreed changes in economic or social conditions. Such reviews can create another well-defined role for political decision making, and also provide the government with a safety valve to act if shocks (the triggers specified in the contract) occur.

Governments Can Be Provided a Safety Valve for Influencing Tariffs

There may be further ways in which regulatory designers can provide a safety valve for political decision making that minimizes damage to regulatory credibility. These could enable the government to influence consumer tariffs, if necessary, without influencing operator revenues. For example, in Senegal, politicians take responsibility for public welfare decisions, such as the tradeoff between high service levels and high tariffs. The Senegalese government pays the provider a contractually guaranteed fee, sets consumer tariffs, and is responsible for investing in the system assets. These arrangements let the government bear the political and fiscal risks involved in setting tariffs and in influencing long-term service levels (by choosing the level of investment), while ensuring that the provider can cover its costs.

Under an alternative arrangement, the government could set consumer rates at a “socially acceptable” (but below cost-recovery) level, and make a firm commitment to grant an output-based subsidy for services provided at this reduced consumer rate. This approach has been used successfully for electricity services in the Philippines, where a kilowatt-per-hour consumption subsidy is provided for poor consumers in remote areas. This subsidy is financed by a levy on all electricity consumption.

A slightly different output-based aid (OBA) approach would involve the government agreeing with the provider on service extensions to new communities, and committing to providing a connection subsidy for each new household connection made by the provider. This type of OBA scheme is currently being implemented for water service expansion in countries such as Brazil and Indonesia.²²

Limiting the Discretion Given to Regulatory Decision Makers

The quality of the decisions made by a regulatory organization will depend on both the people involved in making the decisions and the rules by which the decisions are made. By *quality* we mean whether the decision helps achieve regulatory predictability, coherence, and transparency. Good decisions require competent individuals whose incentives are aligned with regulatory goals, and well-defined rules that are easy to implement.

How limiting discretion can help achieve good regulation

- ✓ **Predictability** Low-discretion rules provide greater security for providers and the public by making the outcomes of regulatory decisions clearer and more predictable.
- ✓ **Transparency** Low-discretion rules can increase transparency in the way that regulators or policy makers make decisions, and decrease the risk that external pressures will influence these decisions.

²² Although the Global Partnership on Output Based Aid (GPOBA) is providing the initial funds for these schemes, it hopes that the municipal governments involved (Manaus in Brazil and Jakarta in Indonesia) will carry on the schemes in the future and extend them to cover new communities.

The relative importance of the individuals and the written rules depends on how much *discretion* individual decision makers are provided—either unintentionally, through poorly formulated rules, or intentionally, through the use of regulatory principles in place of precise rules, or through organizational design.

In the spectrum from low to high discretion, a “pure” regulation by contract model is sometimes identified with low discretion, and a “pure” independent regulator (regulation by agency) model is sometimes identified with high discretion. In practice, the relationship between discretion and the regulatory instrument is more complex.

Many contracts fail to specify price reset provisions in detail. Although the process for negotiation and arbitration of price resets may be well specified, the basis for negotiating tariffs, and the various factors to be taken into account, may be quite broadly specified—creating a high degree of discretion. By the same token, it is possible to establish an independent regulatory agency with clearly limited discretion. Legislation or subsidiary instruments can specify the initial price path and key parameters or approaches to be used by the regulator during price resets.²³

In practice, the reset provisions under regulation by contract or agency are often vague and poorly defined, and are a source of considerable risk and uncertainty for the investor. However, a key distinction is that under regulation by contract, the new price paths are to be agreed with the operator, with recourse to arbitration in the event that agreement cannot be reached. In contrast, under regulation by agency, a new price path may be imposed upon the utility, subject to possible recourse to appeal mechanisms. In either case, it is often preferable to define clear and binding rules for price resets, which will limit regulatory discretion and reduce uncertainty for investors and other stakeholders.

Effects of Different Levels of Discretion in Regulatory Rules

High-discretion rules—that is, price-setting provisions in contracts or legislation that are effectively principles and that include concepts that need to be defined by the decision maker—have three key advantages:

- Precise, low-discretion rules may result in the wrong decision in some circumstances (such as if unforeseen financial shocks occur, or if base conditions change over time).
- High-discretion rules allow a competent decision maker to consider basic policy objectives when making a decision.
- High-discretion rules may involve lower setup costs—more precise rules will take longer to develop and gain consensus on.

In the context of a competent, independent regulatory organization or established legal precedents that provide clear guidance on the exercise of this discretion, these advantages may make higher-discretion rules the right choice. However, if such precedents are lacking, if the regulatory organization lacks the competence or capacity to exercise a high degree of discretion, or if the impartiality of decision is likely to be threatened by political (or provider) intervention, low-discretion rules are likely to lead to better decisions.

²³ Examples from energy sector reform are the specification of the initial prices and price reset provisions for the electricity networks in South Australia and Victoria and the specification of the principles for setting transmission charges in the Philippines under the relevant act (EPIRA) and implementing rules and regulations. In the Philippines, the regulator (the ERC) has taken this a step further by issuing Transmission Wheeling Rate Guidelines that are intended to be binding on future regulators. These guidelines set out in considerable detail how future transmission price paths are to be determined.

Low-discretion rules are likely to be a better choice for countries with limited institutional capacity and regulatory traditions, because they

- Make the outcomes of regulatory decisions more certain and predictable.
- Reduce the potential for decisions to be inconsistent, biased, or arbitrary.
- Enable each regulatory decision to be made more quickly, and with fewer resources.

Potential for Organization Discretion to Evolve over Time

The advantages listed above suggest that low-discretion rules may be a good starting point for regulatory systems that involve a large degree of decision making by an organization (in contrast to systems that set rules in contracts, and only call for decision making by an independent organization in special circumstances).

As time passes and experience with the regulatory system grows, institutional strength—in particular, the competence of regulatory organizations—may improve; the legitimacy of the regulatory system (in the view of the public, the provider, and the government) may be enhanced; and sector participants may discover that certain regulatory rules have not been effective or useful in all situations. If these conditions hold, the government may decide that the regulatory organization should have a greater degree of discretion. However, the purpose of increasing discretion should be to improve the quality of important regulatory decisions by permitting more flexibility in adjusting prices to changing circumstances and incorporating lessons learned from regulatory practice elsewhere, rather than to widen the scope of regulation.

Trading Off Sophistication in Favor of Simplicity

Once decisions are made on the general regulatory framework—which organizations and legal instruments work best given the country context—attention turns to filling in the regulatory details (for example, tariff formulas and rules for calculating costs). International experience has shown that a lack of detail in regulatory rules can lead to important decisions being disputed or can reduce the effectiveness of key processes. For example, in Manila an ongoing debate arose over the role of the financial models that the concessionaires had used when submitting their bids (it was not clear from the contract whether the assumptions in the models should be binding). In Vanuatu, the contract does not clearly specify how a tariff review should be undertaken, which may have discouraged the government from entering into this process. Such examples highlight the importance of ensuring adequate details in the rules.

Conversely, the drive to provide detail should not come at the cost of simplicity and usability. Tradition and professional instinct may urge those designing regulatory systems to aim for economic optimization. For example, an ideal set of regulatory rules would achieve full cost recovery for the provider, at the

How favoring simplicity can help achieve good regulation

- ✓ **Predictability and credibility** If adequate information is not available to effectively apply rules, or if the rules are not well understood, regulatory decisions will not be made in a predictable way, and the regulator’s credibility may be undermined.
- ✓ **Transparency** Transparency is achieved when rules are simple and clear. Overly sophisticated rules may be hard to understand and implement.

most efficient tariff, and for the most appropriate level of service, given the community's needs and willingness to pay. This, however, is a demanding ideal. Regulatory designers should not let the perfect be the enemy of the good. By creating sophisticated rules, which require large amounts of information or considerable technical expertise, designers may inadvertently reduce the effectiveness of regulation.

A clear example of sophistication being successfully put aside in favor of simplicity occurred in Colombia. The CRA, the Colombian water regulator, had brought in a well-known international regulatory theoretician to advise on how it could improve its regulatory methodology. The advisor's recommendations were to regulate service quality, apply penalties for noncompliance (which were to be automatically paid by utilities to customers), and open the water sector to competition by regulating bulk water prices, cross-subsidy levels, and access to distribution networks.

These ideas, which were innovative even for the water sector in developed nations, were revolutionary and unprecedented in an emerging market, such as Colombia's. Government and industry believed that the water sector was not ready for these reforms, but the CRA's leadership tried to push them through. The World Bank and other international experts explained that the proposed changes were impractical, costly, would create high regulatory risk, and would not easily solve the key water sector problems (coverage and service quality) in Colombia. Eventually, the sophisticated reforms were abandoned. A conceptually simpler, cost-based methodology was retained for setting tariffs, allowing utilities a more reliable revenue flow, and enabling them to invest in improvements to service quality and coverage.

4 CONCLUSION

The provision of urban water and sanitation services in many countries is poor. The services people actually get generally fall short of the services people want and would be willing to pay for. In response, governments often engage in sectorwide reform to help improve services. These reforms may involve introducing economic regulation—that is, rules and organizations that set, monitor, enforce, and change allowed tariffs and service standards for water and sanitation service providers.

Economic regulation helps to ensure that utilities with natural monopoly power in water supply and sanitation services provide the services people want at reasonable prices. The government can achieve other sector objectives, such as extending service to poor consumers, or managing environmental impacts, through tools other than economic regulation (for example, subsidies or environmental regulation). Early in the reform process, the decision makers in government should set out a clear, but limited, role for economic regulation in the context of other interventions.

Having defined the role of regulation, a regulatory structure needs to be designed with an appropriate combination of legal instruments and organizations. When building this structure, designers need to consider a range of country-specific factors: the existing organizational framework, legal and political systems, and culture and traditions. In other words, there is no international best practice for regulatory design—one standard model will not fit well with, or be successful in, every country context.

To be successful, regulatory designs should embody the following attributes:

- **Coherence.** Regulation should ensure both that providers recover their costs and that people receive the services they are willing to pay for. Tariffs and service standards are inter-related. Higher service standards, or greater coverage, means that higher costs will be incurred. These costs need to be covered either by the government or consumers.

- **Predictability and credibility.** Regulation needs to provide credible protection for both consumers and providers. If service standards and rules for cost recovery through tariffs are unclear or subject to unpredictable change, it will be hard to procure competent new providers, and existing providers will not want to invest in new or improved water system infrastructure or leave (as occurred in Mali.).
- **Legitimacy, transparency, and accountability.** Decision makers need to be accountable for making good decisions. This means regulatory processes should be understood and generally accepted by consumers and providers, who will bear the ultimate impact of tariff and service standard decisions.

Although no best-practice design guarantees these attributes, they can be enhanced by focusing on particular design features. One such design feature is an appropriate avenue for political decision making. Politics can intervene in unpredictable ways, even when attempts are made to shut it out. Such ad hoc interventions can undermine the credibility and legitimacy of the regulatory system. Political decision making, however, can be channeled into the limited areas where the government is best placed to make decisions that require collective accountability. These areas include decisions on policy-related issues, such as whether and how to provide subsidies, or which of a range of consistent tariff and service standard combinations would best serve the public's needs. Contracts can be used to enshrine government commitments to decisions it has made. With careful design, a limited, well-defined decision-making role can provide a safety valve for government involvement in exceptional circumstances (such as tariff shocks caused by a sudden change in supply costs).

Other features of good regulatory design include limiting discretion for regulatory decision makers, and using clear and simple regulatory rules. When organizations lack strength and experience, more precise rules and well-defined roles will improve the predictability and transparency of regulation. However, rules must also be easy to understand and implement. This may mean trading off sophistication in favor of rules that are easier to use in practice.

Finally, regulatory design should reflect the specific country context. In countries with credible government organizations, independent regulators may work well. In other countries, regulatory rules embodied in contracts can provide the required predictability and credibility. Contract-based regulation can be improved with well-designed specialist organizations, such as the contract monitoring units and the mediator in Senegal. On the other hand, trying to combine an independent regulator with contract-based regulation can cause problems, as happened in Manila.

In summary, good regulatory design should address three sets of decisions:

1. Clearly defining the regulatory functions that need to be performed to achieve sector reform objectives (for example, controlling tariffs and linking mandatory service standards with tariffs and efficiency measures).
2. Taking into account the legal traditions, informal norms and practices, and institutional endowments of the country concerned.
3. Choosing organizations and legal instruments that effectively perform the required regulatory functions in a coherent, credible, predictable, legitimate, transparent, and accountable way.

We recognize that these processes and decisions are not easily undertaken, and that many factors intervene to affect the success of even the best regulatory designs. International experience has shown that achieving good economic regulation is not an easy task. However, the principles we have discussed in this paper should lead to better regulatory design, and provide ideas on where existing regulatory systems could be usefully improved.

FURTHER READING

Listed below are selected references for readers interested in more in-depth evaluations of regulatory concepts and practices. These references are intentionally limited—the literature on regulation is expansive, and this list is just a starting point for further reading.

Bakovic, Tonci, Bernard Tenenbaum, and Fiona Woolf. 2006. *Regulation by Contract: A New Way to Privatize Electricity Distribution?* Energy and Mining Sector Board Discussion Paper 7, World Bank, Washington, D.C.

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The Challenge of Reducing Non-Revenue Water (NRW) in Developing Countries. How the Private Sector Can Help: A Look at Performance-Based Service Contracting. March 2007. *Water Supply and Sanitation Sector Board Series, Paper No. 8.* In this report, a number of case studies, taken from some of the largest and most recent performance-based NRW contracts, are studied and discussed in terms of their technical and financial performance. Lessons learned from the case studies are analyzed, showing the potential benefits of NRW performance-based service contracting with the private sector.

Getting the Assumptions Right: Private Sector Participation Transaction Design and the Poor in Southwest Sri Lanka. October 2006. *Water Supply and Sanitation Sector Board Discussion Paper Series, Paper No. 7.* This paper investigates how a set of basic assumptions on service coverage, service levels, tariffs, and subsidies in the proposed transactions in Southwest Sri Lanka held up against consumer preferences.

Explanatory Notes on Key Topics in the Regulation of Water and Sanitation Services. June 2006. *Water Supply and Sanitation Sector Board Discussion Paper Series, Paper No. 6.* The notes provide an integrated view of regulatory functions and the principles and practice underlying the design of regulatory systems in the water supply and sanitation (WSS) sector. Additionally, it provides a brief analysis of consistent approaches to resetting tariffs for WSS services.

Water for the Urban Poor: Water Markets, Household Demand, and Service Preferences in Kenya. January 2005. *Water Supply and Sanitation Sector Board Discussion Paper Series, Paper No. 5.* This paper examines current water use and unit costs in three Kenyan cities and also tests the willingness of the unconnected to pay for piped water, yard connections, or an improved water kiosk (standpipe) service.

Financing Water Supply and Sanitation Investments: Utilizing Risk Mitigation Instruments to Bridge the Financing Gap. January 2005. *Water Supply and Sanitation Sector Board Discussion Paper Series, Paper No. 4.* This paper attempts to offer observations on what can be done to move the WSS sector finance agenda forward, with particular focus on the deployment of risk mitigation instruments and guarantees.

Ten Years of Water Service Reform in Latin America: Towards an Anglo-French Model. January 2005. *Water Supply and Sanitation Sector Board Discussion Paper Series, Paper No. 3.* The purpose of this paper is to provide a synthesis and evaluation of the reform experience in the Latin American water supply industry during the eventful decade of the 1990s.

Can the Principles of Franchising be used to Improve Water Supply and Sanitation Services? – A Preliminary Analysis. January 2004. *Water Supply and Sanitation Sector Board Discussion Paper Series, Paper No. 2.* This paper analyzes the principles of franchising as a tool to transfer knowledge and the best practices to local WSS operators.

Innovative Contracts, Sound Relationships: Urban Water Sector Reform in Senegal. January 2004. *Water Supply and Sanitation Sector Board Discussion Paper Series, Paper No. 1.* This paper analyzes a successful reform process in Senegal. It describes how several years of hard work reforming the sector resulted in considerable improvements in services for existing customers and expansion to new customers.



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