

REGULATION OF WATER SUPPLY AND SANITATION SERVICES

A Review of Experience in Selected Countries in Latin America

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Abstract

Sector reforms initiated by most governments in the Latin America and Caribbean (LAC) region in the last 10 to 15 years focused on improving the provision of water and sanitation services and promoting decentralization and private sector participation (PSP) in financing and operating services. In the more developed countries in the region, reforms also included the creation of regulatory agencies to help deliver better and more efficient services and to protect consumers against potential abuse of monopoly power by public or private operators.

Regulatory initiatives often occurred simultaneously with efforts to decentralize water supply and sanitation (WS&S) services. These dual initiatives frequently were not complementary. Those who favored local governments' being in charge of operations were often opposed to a central regulatory system. In fact, regulation of medium-sized and small cities poses a special challenge to central regulation because of their size and wide disparities in human and financial resources. In practice, many small and medium-sized cities still regulate their services under an inadequate framework. On the other hand, economies of scale and scarce resources suggest that most local governments, and medium and small cities in particular, will need technical assistance and resources to effectively regulate services. Thus, the challenge is where to locate the regulator and the definition of functions as well as the development of a suitable mandate and policy framework within which effective regulation will take place.

This chapter provides an overview of the organizational trends in the region in the past 40 years. It describes the special characteristics of WS&S services that make them a classic monopoly and delineates the general principles of and options for regulation. The discussion, which is based on a review of the literature, looks at sector reform and regulatory initiatives in Guatemala, Honduras, El Salvador, Nicaragua, Panama, Dominican Republic, Paraguay, and Bolivia. In general, these countries have relatively small populations (less than 10 million) and numerous small and medium-sized cities, the largest of which has a fraction of the population of the capital. These countries are at an early stage of the sector reform process.

The chapter concludes with some preliminary observations and recommendations for framing a regulatory system, including the delegation of economic regulation to local governments and quality or social regulation to the central government. A key observation is that the responsibilities of the central government should include setting

and vigorously enforcing realistic drinking water and wastewater discharge quality and service standards, promoting competition and benchmarking.

1. An Overview of Water and Sanitation Institutions in Latin America

By the early 1960s most Latin American countries had adopted a centralized organizational approach for providing water supply and sanitation (WS&S) services. This reflected the previous unsatisfactory delegation of responsibilities to the local level. Economies of scale and scarce talent were often cited as the driving forces behind the consolidation of services to the center. Chile in the 1980s opted for a delegated approach, with CORFO (*Corporación de Fomento*), a central government agency, as the holding company of regional utilities. Brazil also moved from local to state control of services in the early 1970s; that organization is still in place. Centralized systems had failed to deliver good and universal services¹. Rates far below cost and lack of accountability led to low quality of services, limited access to services, operational inefficiency, and at times corruption.

By the early 1980s, many policymakers were ready to acknowledge that a centralized organizational scheme had failed to ensure universal access and efficient services. Large countries in particular began to abandon the centralized organizational model and once again, returned responsibilities to the local level. By the mid-1980s central agencies in charge of service provision had disappeared in many of the largest countries including Argentina, Mexico, Colombia, and Chile and, some years later, in Venezuela and Peru. In contrast, the small countries in Central America and the Caribbean (except Guatemala) as well as Uruguay and Paraguay in South America kept centralized organizations. But even in these countries as well as in Brazil, many local governments continued, *de facto*, to be in charge of services, a testimony to the less-than-resounding success of the centralized organizational model.

Subsidies were predicated on the need to keep prices low to make services “affordable” to all. As a result, investments and operations in the sector have been heavily subsidized in most Latin American countries. Cross-subsidized tariffs were also part of the paradigm of affordable services². Cross-subsidy occurs when prices are kept below cost for some consumers (often, residential users) and above cost for others (often, industry and commercial customers), usually in response to concerns about social goals. While the intent is benign, in practice subsidies and cross-subsidies have not met, and might have even hindered, the goal of universal services. Low tariffs doomed public utilities to a precarious financial situation that constrained service provision and maintenance, and inevitably services for the poor were most seriously affected³. But the environment has

¹ Savedoff, William, D. and Pablo T. Spiller. *Spilled Water. Institutional Commitment in the Provision of Water Services*, IDB. Washington, D.C., 1999.

² Yepes, Guillermo. *Do cross-subsidies help the poor benefit from water and wastewater services? Lessons from a case study*. World Bank Infrastructure Note W-18. April 1998.

³ Alfaro, Raquel, Vivianne Blanlot, R. Bradburg, and John Briscoe. *Reforming Former Public Monopolies: The Case of Water Supply*. Unpublished. World Bank, 1997.

suffered as well, as water pollution remained largely unabated, and in many urban areas, drinking water quality has not met government standards.

The shortcomings of the centralized system were not addressed before the devolution of responsibilities to local governments. In most cases the transfer was made in haste with local governments often unprepared to assume these new responsibilities. The authority to set tariffs, in most cases, remained at the center so that financial policies remained unchanged, e.g., prices were kept below cost and non-transparent subsidies continued. Thus, decentralization was not able to attain the goal of improved and universal services; inadequate service under the central system was simply replicated at the local level, which further eroded support for government-operated WS&S institutions.

Policymakers, disenchanted with the results of publicly provided services, were also facing the need to fund large investments in the sector at a time of strained government resources. This led many to question whether the public sector could provide WS&S services adequately and to ask if new organizational and financing alternatives could be developed.

The particular problems of medium and small cities were also of concern to policymakers in some countries. Policymakers and public administrators are looking for ways to develop effective organizational options, such as promoting voluntary association of local governments and community participation, and more transparency in the way that public agencies conduct their business, as a means to increase accountability.

The increase of private sector participation in the region also has affected the issue of regulation. A major breakthrough occurred in the early 1990s when Argentine authorities invited private sector participation (PSP) in financing and operating services under a long-term concession contract for Buenos Aires. Rapid and substantial improvements in quality and coverage awakened interest in the region in the possibilities of PSP. Several countries (Argentina, Bolivia, and Chile) have made successful efforts to bring PSP to large cities; Colombia has involved the local private sector in the management of water and wastewater operations in medium and small cities. Such interest in private sector involvement has resulted in the need to provide adequate regulation of private operators.

The success of Chile's regulatory system in improving the quality of services increased regional interest in regulation. Participation of the private sector also made evident the need to safeguard consumers from potentially undesirable conduct and abuse of monopoly services. Policymakers were well aware that undesirable monopolistic behavior of public utilities had existed before, but regulation of public utilities was mostly ad hoc and intended to keep tariffs low. Moreover, regulation and service provision were often under the same institution, with obvious conflicts of interest. Monopolistic behavior by public agencies often translated into monetary and other benefits (rents) to some groups to the detriment of many, particularly the very poor, who had not benefited from services in the first place.

The reform dialogue in some LAC countries has been confusing at times for lack of clarity about central and local functions, enforcement, and financing instruments including the role of subsidies. Many local governments have a mandate to provide services but lack the authority to determine the financial resources needed to meet that obligation. One clear lesson from the Latin American experience is that lack of separation between the regulating and regulated entities made it extremely difficult for either to function effectively and contributed to the failure of the public service delivery model.

2. Regulation of Water and Sanitation Services

Water and sanitation services are often cited as the classic example of a monopoly service: large economies of scale, slow pace of technical innovation, and limited scope for competition. Moreover, these services are highly capital-intensive with long-lasting infrastructure as compared with other public services⁴. For instance, the ratio of total assets to annual revenues is about 10:1 to 13:1 for water services, about 3:1 to 7:1 for electric utilities, and 3:1 for telephone services. Water and sanitation services are also massively consumed, and they can have profound positive and negative effects on the health of the population, water resources, and the environment.

These characteristics render WS&S services difficult to provide through competitive markets and lead to potentially significant politicization of the sector's pricing and operations. Moreover, customers can seldom impose discipline on a utility that offers an inferior service by abandoning it for another provider that offers a better service³.

The goal of regulating monopolistic water and sanitation services should be to improve and maximize the well-being of the whole population. This can be achieved by sector reforms that foster accountability, transparency, and a level playing field for public and private service providers, and give them adequate incentives to reduce costs, increase efficiency, make services available to all, and protect the environment. To achieve these goals, governments have several options, which are not mutually exclusive.

- Continue provision of services through an autonomous public agency. Cooperatives (e.g., Bolivia), community-based water boards (e.g., Ecuador), municipal companies (Colombia), and voluntary associations of local governments (e.g., in the legislation in Colombia) are promising organizational options, particularly for small towns and peri-urban areas.
- Enact regulation and reforms that promote good services regardless of the legal nature (public or private) of the service provider. Under this approach, regulation attempts to provide a level playing field for public and private service providers and sets basic rules of conduct for both. This is the case, for instance, in Chile and Colombia.

⁴ World Bank. Meeting the Infrastructure Challenge in Latin America and the Caribbean. Directions in Development, 1995

- Accept some of the problems of a private monopoly as the lesser of two evils and do nothing about it. Concerns about these imperfections may be less important when weighed against current losses from poor services by a public monopoly.
- Transfer responsibility for services to the private sector and use government regulation to influence behavior (e.g., Argentina)

Experience from many countries suggests that there is a typical learning curve for regulation, and effective regulators capitalize on their successes as well as their mistakes to improve services. Therefore, it is advisable to start regulation with a light approach and to avoid the temptation to solve all problems—some of which have been in the making for many years—within the timeframe of a political mandate. Heavy regulation, in the form of unrealistic social and economic goals and the attempt to regulate all aspects, has often discouraged compliance as it makes services more expensive and goals harder to reach and breeds public discontent for the regulator. A lighter approach also implies a balance between centralized and local regulation.

The following sections provide an overview of the different kinds of regulation.

Structure and Conduct Regulation

The challenge for the water and sanitation sector becomes how to introduce effective regulation. To address this, governments must be concerned with the structure of the business and the conduct of its operators.

Structural regulation. Structural regulation seeks to isolate monopoly elements and prevent service providers entrusted with monopoly activities from extending their monopoly power. Therefore, it determines the degree of functional separation, i.e., the vertical and horizontal structure of a sector in which different firms can engage in. An example of vertical regulation is found in the power sector, where government dictates the functional separation of generation, transmission, and distribution systems to foster competition. A similar vertical separation in the sector is under consideration in several countries such as Colombia. An example of horizontal regulation in the water and sanitation sector is found when services are separated geographically, an approach that can foster competition by benchmarking.

Considerations of economies of scale suggest that concerns about vertical structure are not too relevant for small towns. However, considerations about horizontal regulation open the possibility of providing incentives for local governments to join forces in the provision of these services.

Conduct regulation. This aspect aims to define the desired behavior of organizations in their chosen activities and develop a set of incentives and penalties. Conduct regulation includes economic (price) and social regulation and specific policies directed against anticompetitive behavior. Economic or price regulation is predicated on the inherent monopoly characteristics of WS&S services. Social regulation, a catch-all category, is

motivated by concerns about the performance of public or private operators as providers of a public service, equity considerations, and quality of services.

Economic Regulation

Price regulation is the cornerstone of conduct regulation. Its purpose is to protect consumers from abuses by monopoly providers and private firms from abuses by governments, and to create an environment that gives incentives to public and private service providers to invest and operate efficiently. A major issue can arise as to how to establish incentives in a situation where the service provider's and society's interests diverge. The situation is made more complicated as the regulator may not have access to full information. The main mechanisms of price regulation are:

- Rate-of-return regulation
- Price-cap regulation
- Regulation by commercial code.

Rate-of-return (RoR). RoR has been the traditional method of regulating investor-owned utilities in some countries. Under this regulation, utilities are allowed to earn an acceptable annual rate of return on eligible assets. A variant of the RoR is the “cost of service control,” which involves establishing a fair rate of return but as part of a wider evaluation of service costs.

RoR is based on capping profits rather than prices; there are few incentives for cost minimization, especially investment costs. Several studies of the drinking water supply in the United States, for example, have failed to find significant differences in the relative efficiency of private utilities subject to rate of return and unregulated public utilities. This seems to confirm the low-incentive characteristics of RoR regulation⁵.

Price-cap regulation (PC). Price-cap regulation was developed in the mid 1980s in the United Kingdom, in an attempt to avoid the problems associated with RoR regulation, particularly its tendency to put upward pressure on costs. PC regulation is also used in Chile, and most regulators in the region seem to be following this approach.

Under PC regulation, the regulator sets a maximum tariff (the price cap) so that an efficient firm will, on average, be able obtain the cost of capital (or rate of return) on the assets employed. The regulator determines the way the price cap can move over a fixed period (5 years in the UK) to allow the operator to reach sector development objectives. Over this period service rates are adjusted by a preannounced factor, endogenous to the regulated firm.

The experience of British regulators suggests that public acceptance of PC regulation depends on transparency and the willingness of companies to be ready to share benefits with their customers at an early stage.

⁵ Lambert, David K., Dimo Dichev, and Kambis Raffee. Ownership and sources of inefficiency in the provision of water services. *Water Resources Research*, Volume 29, June 1993.

Regulation by commercial code (CC). Commercial code regulation, also known as “light-handed” regulation, does not require a sector-specific regulatory framework. Firms operate freely without specific regulation; however, regulators monitor their performance on the basis of principles established by competition or antitrust legislation in general. For CC regulation to function it must provide a credible threat of regulatory intervention if firms engage in anticompetitive behavior, if prices rise too much, if quantity or quality become compromised, or if customers are not reasonably satisfied. CC regulation also requires well-functioning arbitration and judicial systems. For these reasons, it is more appropriate for countries with developed legal systems, predictable regulation tradition, and political stability. New Zealand provides a good example of CC regulation.

Judgments about what constitutes a reasonable rate of return or adequate quantity or quality of water are better substantiated by comparing costs and performance of service providers (benchmarking competition). Making this benchmarking information widely available to the public, service providers, and local governments also adds transparency and credibility to the regulatory process.

Social Regulation

Social regulation in the water and sanitation sector arises from concern that water production and consumption and discharge of wastewater can benefit or harm groups other than producers and users of services. Such effects, often referred to as “externalities,” are the justification for regulation of water quality, water resources, and the environment. Society is also concerned about services being available to all and about the need for consumers to have adequate information about the quality and costs of services.

Drinking water quality. Most consumers are not able to monitor water quality and are at the mercy of the operator. Therefore, governments have regulated water quality for drinking and other purposes. Many national governments in LAC and certainly all but a few local governments lack the knowledge and resources to establish drinking water standards and thus have adopted World Health Organization (WHO) drinking water quality guidelines or United States Environmental Protection Agency (USEPA) or European Union standards. These guidelines and standards include provisions to protect water supplies from contamination which, if properly enforced, can serve as the first line of defense to ensure safe drinking water. They also include mandatory requirements to inform the public of water quality problems or upcoming service interruptions. Governments set standards for design and construction materials for water and sanitation works, chemicals to be used in treatment processes, and indoor plumbing systems to protect water quality.

Regulation of drinking water quality, particularly for small towns, often fails to take into account their capacity to operate water supply systems to the same standards that large cities must meet. As a result, these standards are often not met, creating an undesirable precedent that can hinder future progress in achieving water quality goals. To break this cycle of noncompliance, emphasis should be placed initially on providing water that is

safe (in terms of bacteriological and toxic substances) and on building the capacity of local governments to deliver higher quality services in the future.

The environment and water resources. Protection of the environment is not only valid but is also a growing social concern worldwide. This has led to the regulation of the point and quality of wastewater discharges and treatment byproducts into receiving bodies of water or on land. The adequate use of water resources is another growing societal concern, particularly in countries or areas where water resources are becoming scarce. Optimum use of ground and surface waters, volume and location of water extractions, and satisfying competing demands by other water users including water needs of ecosystems are all issues for the water resource regulator to consider. However, water resources and environmental regulation are often entrusted to separate central agencies (e.g., Mexico).

Most countries in the region and elsewhere tend to rely on administrative or “command and control” regulation for drinking water quality, water resources, and environmental management rather than on regulation by incentives (carrots and sticks). An example of command and control regulation is the requirement that municipal wastewater should receive secondary treatment to meet certain water discharge quality standards. In contrast, incentive regulation leaves the selection of treatment process to the service provider and relies instead on imposing water pollution and discharge fees to reach water quality goals. While in practice, both approaches are needed, the trend seems to be in favor of introducing incentives to promote desired outcomes and changes in behavior. Recent water pollution control legislation in Colombia, for instance, relies heavily on incentives.

Contract and Discretionary Regulation

There are basically two strategies for economic and social regulation: contract or discretionary regulation, and both can and have been applied to influence the conduct of public and private operators.

In *contract regulation*, all obligations and rights of the operator, the government, and customers are incorporated in detail in the concession contract between the private operator and the government agency making the award.

Contract regulation with private operators is the form most often used in Latin America as well in other countries with no previous or limited regulatory experience dealing with private provision of water and sewerage services. Private investors are more comfortable with this form of regulation because of its clarity in less predictable political environments.

Some governments in LAC and elsewhere have extended contract regulation to public operators in the form of revocable operating licenses, letters of understanding, or action plans detailing service improvement objectives over a certain period. In the latter, the government often provides financing and other resources in exchange for the public

operator's achieving certain development goals. These agreements have been used in an attempt to improve the accountability of both parties, but in practice they have fallen short of expectations.

Discretionary regulation, on the other hand, rests on a framework of policies that cover the rights of providers and consumers. Under this approach, the regulator is given substantial discretion to set prices and service standards for the regulated service provider. While the authorizing statute constrains the regulator to some degree by specifying the factors that it must consider, the regulator enjoys substantial freedom in interpreting them (e.g., Colombia, Ecuador, Bolivia). The principal disadvantage of discretionary regulation is that it may be politically and technically difficult for the regulator to strike a reasonable balance between consumer and producer interests when setting price and service standards.

It is impossible to foresee all events that could affect a long-term contract with a public or private operator/investor and to specify the appropriate response to each event. In practice, therefore, elements of discretionary regulation are always present.

Multiple Regulators

The structure of regulation in most countries in Latin America and elsewhere is quite complex, as provision of WS&S services impinge on so many facets of community life. Moreover, how a community handles its WS&S services has the potential to adversely affect other communities or users. The many aspects of regulation of water and sanitation activities can thus involve several other regulatory agencies, each with specific roles, not always mutually consistent.

In Colombia, for example, economic regulation and social regulation are entrusted to two separate central agencies, one in charge of economic activity (*Comisión de Regulación de Agua Potable*) and the other of social regulation (*Superintendencia de Servicios Públicos*). In contrast, in Bolivia, Peru, and most Central American countries, the same functions are performed by a single central agency. In Argentina, specific regulatory agencies have been created to oversee private concessions, but formal regulation of public providers is still absent. Still other countries, such as Mexico and Ecuador have a split system: water resources and water quality are regulated at the central level while economic regulation is at the state or local level. In most countries in LAC, drinking water quality is the responsibility of the Ministry of Health, but regulation of quantity and quality of water resources rest with a separate agency. The Ministry of Environment sets wastewater discharge standards and other aspects with direct links to the environment.

The existence of several regulatory agencies with specific roles has a number of advantages: it insures open debate over the desirable allocation of water resources between competing uses and users; it also provides checks and balances which reduce the risk of one particular interest group dominating the industry; and it lessens the possibility of regulatory capture.

It would be naïve, however, to assume that the number of agencies involved does not entail problems. Regulation can become oppressive, with each agency seeking to impose different, and possibly incompatible or contradictory, requirements on the industry. This is the case, for instance, when the environmental regulator imposes drinking water or wastewater discharge standards that are out of line with the capacity of the population to pay and hence with price regulation. The existence of several regulators also makes it easier for the industry to play the regulation game by attempting to pit one regulator against the others⁶.

The critical point here is for the regulator to exercise restraint in imposing quality and service standards that are higher than the population can afford.

Where to Locate the Regulator

An ongoing debate in many countries in Latin America is at what level of government the regulator should be located and which responsibilities should be assigned to each level. This debate is driven by concerns about and prospects for effective regulation.

One group of policymakers favors regulating at the center, with consolidation of regulatory functions. This viewpoint is based on the complexity of regulation and the lack of expertise and resources at the local level to carry these functions effectively. Similarly, the argument that social regulation should reflect national objectives leads to the conclusion that a central agency would be better suited to help achieve them. One potential undesirable effect of central economic regulation is the political pressure from local governments for higher subsidies in lieu of high rates, pressure that many governments find difficult to resist (e.g. Peru, Costa Rica) as they can be easily perceived by the public as responsible for tariff increases. Decisions from the central regulator not to authorize proposed tariff increases also remove some of the responsibility of local operators to meet development goals.

Policymakers in favor of a decentralized public regulation system would place responsibility for social regulation at the center, while economic regulation would rest with local governments. However, local government can also have legitimate development objectives, going beyond those set by the central government. In such cases, local governments would be allowed to set additional goals and the economic or financial instruments to meet them. (To some extent, this is the model that prevails in the United States, where state and local governments can set more stringent standards than the Federal Government, and local governments are responsible for allocating financial

⁶ Rees, Judith. Regulation of Water and Wastewater Systems in the United Kingdom. World Bank seminar, 1994

resources and setting service rates to meet them.). For this option to work, it is wise to develop an adequate national framework and guidelines for local regulators to help them discharge their regulatory and service responsibilities in a cost-effective manner and to have a well-staffed central technical office that can help local governments in this endeavor, particularly small ones, in developing tariff guidelines that promote efficiency, good water demand management, and adequate protection of the environment.

In most large Latin American countries, a highly centralized regulatory system has not been able to deal effectively with price and quality regulation in the medium-to-small cities, given the sheer number of them (e.g., Colombia)⁷. In addition, some regulatory agencies have been less than effective in dealing with utilities in large cities as these often have more political clout. In practice, many local governments have to fend for themselves, albeit not very effectively, partly because of inadequate regulatory legislation but also due to wide differences in resources available to them.

A one-to-one regulator-service provider relationship can create special problems as observed in small countries where one service provider dominates the market (e.g., Costa Rica) or in large concessions where a regulator has been created to oversee a specific contract (e.g., Buenos Aires). The limitations of this arrangement are accentuated by the lack of transparency and an adequate benchmarking system and increases the risk of regulatory capture.

Regulatory regimes, once established, tend to resist change as government agencies are afraid of losing credibility by changing the rules in favor of certain groups. It is difficult to design a perfect regulatory system, and regulatory bodies have a natural tendency to avoid flexibility. For these reasons, it is best to design systems that are not too elaborate and complex. In the initial stages it is particularly important to avoid the temptation to second-guess operational decisions of service providers as they lead to interference. Interventions by the regulators should be determined by outcomes rather than inputs. A recent review⁷ of the economic regulatory experience in Colombia recommended simplification of the system to make it more operational, given the resources available at the central and local levels. The lighter the regulatory touch and the more transparent the system, the easier it will be to change when necessary. This implies a regulatory environment where the central agency does not try to regulate everything and instead establishes guidelines within which local regulation can take place. Core regulatory function such as tariff approval and monitoring of service provision can be delegated to local governments.

Public Participation

Consumers are often the best monitors of service quality; consequently, consumer feedback can motivate suppliers to provide high-quality services, and their input can be critical to efficient service. However, be they individuals, business, or industry,

⁷ Spiller, Pablo T. Plan de Acción y Estrategia Regulatoria. Comisión de Regulación de AguamPotable y Saneamiento Básico - Colombia. Informe Final. Mayo 19, 2000.

consumers are seldom involved in the regulatory process. Consumer participation in the regulatory process also adds transparency to the decisions of the regulator. In the United Kingdom, for instance, there is a consumer commission in each of the 10 water service jurisdictions, each headed by a commissioner who reports to the regulator (OFWAT) about the needs and the concerns of the consumers.

Organizing effective consumer involvement in the regulatory process is likely to take time and effort in most countries in the LAC region, as there is little experience with such participation. Nonetheless, governments should strive to provide an adequate legal, institutional, and policy framework to promote participation.

The Cost of Regulation

Regulation imposes direct and indirect costs on the regulated firms as well as on the economy both in terms of money and possible misallocation of resources.

The direct cost of administering the regulatory process includes the budget of the regulatory agency and the cost borne by the regulated industry. The direct cost is often the smaller of the two. For example, in Buenos Aires there is a 2.7% tax, collected by the operator, on all water bills to fund the regulator (ETTOS). In Chile, the 1993 budget of the regulator (*Superintendencia de Servicios Sanitarios- SSS*), financed by the central government budget, was about 0.6% of the water industry billing. Some argue that although effective regulation has a cost, in the long run it provides savings to consumers by promoting efficiency and keeping a watchful eye on tariffs.

Local governments have similar options to finance the costs of their regulatory effort. The financing option should minimize the burden and costs on the operator and the local government. Moreover, it is important to avoid built-in mechanisms that encourage regulatory growth, as they are likely to create a bloated bureaucracy and thus regulatory inefficiency and rigidity in the long run³.

The regulated industry and not the regulators tend to bear the main costs of administrative regulation. The operator must invest in planning units whose function is to monitor the conduct of the regulators, to attempt to predict future regulatory decisions and changes in regulatory policy, to prepare documentation for regulatory reviews, and to support the utility's claims at the time of regulatory reviews. Misallocation of resources can occur when the regulator directs the service provider to undertake actions, including investments, where the costs far exceed the benefits. It is important to keep in mind that eventually users pay these costs.

Independence of the Regulator

Regulators should have sufficient independence from the legislative and executive branches of government to allow them to make final decisions, subject to a normal appellate process, and to be free from short-term or partisan political considerations. The

issue is not so much that the regulator should be entirely free of politics (which is not the case in any country), but rather that the process should be as de-politicized as possible, while holding the regulators accountable⁸.

Practical ways to put some distance between the regulator and politics are appointment of high-level regulator officials for terms exceeding those of elected officials and limiting the conditions for their removal (e.g., reasons other than incompetence or illegal conduct). Such terms contribute to the autonomy of the regulator.

Regulatory agencies, like all institutions, interact with other institutions and interests, including the businesses they regulate. In this milieu, the regulator is often eager to respond favorably to the needs of a particular group, e.g., the government, the regulated utility or its workers, the consumer or special interest groups, a process often referred to as “regulatory capture.” Establishing an open and transparent regulatory system is perhaps the best way to avoid this problem. Given the long history in the LAC region of state interference at all levels in the provision of water and sanitation services, establishing a non-political regulatory system can be a formidable challenge to the legislator.

Competition

Framework for competition. The WS&S industry is the most often quoted example of a natural monopoly. However, the success of competition in the telecommunications, gas, and electricity sectors, which were once considered natural monopolies, suggests that competition might also benefit the water sector. While it is unlikely that competition in the sector will obviate the need for regulation, pro-competition reforms should be considered alongside familiar models of public and private service providers and regulation⁹. Two basic forms of competition are possible: competition *for* the market and competition *in* the market.

Competition for the market entails awarding PSP contracts always through an open and transparent bidding process. This form is important but limited, as frequent rebidding is seldom cost effective. Exclusion of the incumbent from future bidding may not be cost effective, so it could be difficult but not impossible to attract new bidders if the incumbent is allowed to participate in the bidding process.

Competition in the market, while limited in scope in the water and sanitation sector, opens the possibility of firms competing in the production, treatment, and distribution of water and in the collection and treatment of wastewater. Perhaps the most promising areas of competition in the market are in the treatment of water and wastewater. However, as the experience in Paraguay clearly shows, competition in the distribution of piped drinking water is also possible.

⁸ Infrastructure in a Market Economy Seminar. Harvard University. July 1999. Class Notes.

⁹ London Economics. Competition in Water, April 1998.

Benchmarking competition. All regulators face the shortcomings of information, as the operator is always in a better position to know more about its business. Therefore, adequate information is of the utmost importance for effective regulation. Benchmarking competition attempts to redress the information imbalance by comparing investment and operating costs, and input/output levels of different utilities (public and private) operating under rules that ensure a level playing field.

Benchmarking competition relies on the collection, comparison, and dissemination of information, under uniform and consistent reporting requirements, of operations and investments of service providers. Examples of operational parameters include staff per connection or revenue ratios, water losses, hours of service, financial ratios, and maintenance indicators (e.g., pipe breaks per unit length of distribution system). Investment information is often reported as costs per unit of capacity installed. Benchmarking competition is more than just comparing operational or investment results as many indicators are sensitive to economies of scale and geographical conditions that need to be properly understood to draw meaningful comparisons. This information provides the regulator and the public with valuable information to judge the performance of service provided and the reasonableness of the cost of providing them. OFWAT in the U.K. has been at the forefront of using benchmarking, both within and outside the industry, to assess utility performance. The concept of the “model utility” in Chilean regulation also uses benchmarking to determine its costs and to assess the rates that each utility can charge. The regulator in Peru has begun to introduce benchmarking competition and dissemination of information with promising results.

Benchmarking competition is particularly important if local governments are entrusted with economic regulation. However, it would be prohibitively expensive for each local government to collect information about operations and investments from other cities and to draw meaningful comparisons. Nonetheless, a central government agency need not be in charge of collecting and disseminating information for benchmarking to work. Professional associations, such as AWWA in the United States, have performed this function in a non-confrontational environment, and similar organizations in Argentina (AIDIS) and Ecuador are considering following AWWA’s steps. Associations of local governments, such as AME in Ecuador, also have the potential to perform these services.

There is a danger when introducing benchmarking of the regulator’s imposing too many indicators and too frequent reporting requirements on the operator in an attempt to know all about the sector and each operator. In such cases, the regulator may lack the resources to process the information effectively and to insure that the information is reliable (e.g., Mexico). The operator, in turn, may find many of these indicators useless and thus be unwilling to collect and report them. An early attempt in Peru to set up benchmarking failed, in part, for these reasons.

3. Regulation Experience in Selected Countries.

In the sample of small countries described in this section, regulation was either weak or nonexistent until recently. National public operators generally were unregulated (El Salvador and the Dominican Republic). It was not uncommon to entrust operational and regulatory functions to the same agency (Costa Rica, Panama, and Ecuador). In practice, municipal operators in most of these countries are self-regulated; they are not required to meet formal sector goals, constrained by a hard budget imposed from the outside, or obligated to respond to a regulator who is vigilant about compliance.

Most central and local governments seem eager to escape the familiar trap of bad services and low cost recovery; they want to improve services and coverage. Yet, political will to adopt profound sector reforms, including establishing a sound legal and regulatory framework, to escape from this trap is still weak in most of these countries. Moreover, sector reform and regulatory initiatives in several countries (e.g., Panama, Ecuador) stalled after a good start. The public (in Panama) and local governments (in Ecuador) were not adequately informed about the rationale and goals of these initiatives and, not surprisingly, did not support them or even opposed them. As a result, efforts to reform the sector and establish an effective regulatory framework have proved difficult.

Municipalization and decentralization reforms have been intertwined in the water and sanitation reform dialogue in many of these countries. This has further complicated the question of regulation since in many countries, municipalities see central government regulation as an infringement on their rights, especially in light of the poor track record of central government in providing services.

Dominican Republic. Regulatory reform is under consideration in this country. Strategies have been proposed for reorganizing service provision based on the corporatization of services in main urban centers. To this end, INAPA, the national agency, has been regionalized and progressively broken down into regional state companies. In addition, small-scale urban and rural systems have been returned to community control. The rapid expansion of resort areas also has prompted the government to consider providing WS&S services in those locations through concessions to private operators.

In this context, the main functions of the national regulator would be to set maximum tariffs under efficiency criteria, protect consumer's service rights, and provide contract supervision with private operators. Two consultative groups would be attached to the regulator representing the users, private developers, and voluntary organizations active in the sector. There is concern that these consultative groups might "capture" the regulator. Environmental regulation still is not clearly defined. As to water quality, no effective mechanism has been established to monitor, supervise, control, and enforce standards.

El Salvador. The central government has drafted a regulatory law for the WS&S sector. The draft law would establish a central regulatory body to oversee the sector, determine the rules of the game, and grant all concessions. The new regulatory agency would be responsible for conduct, economic, and social regulation. Municipalities would have little

or no role in determining how services are provided. Concessions could be requested from both public and private entities using a range of management models including municipal companies, water boards, or management contracts, but the municipality would have no voice in the granting of the concession. This law will be debated in the legislative assembly in 2001. Currently ANDA, the national water authority controls tariffs for municipal systems that it operates, but would no longer do so under a decentralized system. The regulatory situation will not be further clarified until the law is drafted and approved.

Guatemala. The organization of Guatemala's WS&S sector is unique in Central America, as no single national office is responsible for oversight of sector development, and service delivery thus is effectively decentralized¹⁰. Local government is the central actor responsible for service provision, planning, and regulation of urban services. In practice, local governments do not effectively regulate services. Low service levels and low quality of services call this model into question. In addition, in the sector transformation, the central government has not provided the necessary leadership to improve sector performance.

Honduras. Currently there is no formal regulation at the local level in Honduras, although a national commission (CNSP – *Comisión Nacional de Servicios Públicos*) oversees SANAA's tariff. SANAA operates less than half of the municipal water and sanitation systems in the country. The 14-member deliberative council of CNSP is made up of members representing diverse social and interest groups with frequently conflicting interests. In theory, CNSP deals with all public services that do not have their own regulator, but it lacks the resources to perform its duties effectively¹.

Previous efforts to reform the sector stalled. However, the law governing the water and sanitation sector is currently being revised and is expected to be approved by Congress in 2001. Although the main structures in the sector will remain, the responsibilities will be reorganized and better defined. The Ministry of Health will remain the lead agency and will formulate national policy, develop objectives and strategies, and establish regulations and standards. A proposed new regulatory commission that will operate under the auspices of the MOH will have legal authority to enforce regulations and standards in rural and urban areas. It will also oversee the granting of concessions. SANAA will no longer be a service provider, as all systems will be transferred to municipalities, but it will still be responsible for the development of rural WS&S systems. The municipalities can choose to operate the system directly or through a municipal company or award a concession to a private or public organization.

The reform process initiated in 1995-1996 proposed the creation of a national regulator's office. The reform stalled in part because local governments, which were to assume control of the system operation under the same law, contested the proposed central regulator. Local governments argued, not without reason, that establishing a national regulator was inconsistent with municipal autonomy. A similar reform process in

Ecuador met the same fate. If the new law is passed in Honduras, the acceptance of the regulator by municipalities may still be an issue that will need to be addressed.

Nicaragua. The actions of the Chamorro (1990-1996) and Alemán (1996 to present) administrations set the pace for the rapid modernization of the water supply and sanitation sector¹⁰. The reform seems to be on the right path; the reform law passed in 1998 designated the newly-created ENACAL as the holding company of eight regional companies, with the intent of later privatization of these companies. Under the same reforms, sector planning was assigned to the Ministry of Construction and Transport and transformed INAA, the former national operator, into the regulator. However, because the capacity of the Ministry of Construction and Transport to carry out sector planning is low, the National Commission for Water Supply and Sanitation was formed to act as temporary coordinator and possibly become a permanent agency for the future. INAA is the entity with primary responsibility for structure, economic, and social regulation. Specifically, INAA regulates service quality, concessions tariffs, norms and standards, compliance with environmental regulations (with the Ministry of Natural Resources and Environment), and compliance with water quality norms (with the Ministry of Health). It also imposes sanctions and mediates conflicts.

This reform model and path is similar to the successful one followed by Chile in the 1980s. It represents an extraordinary achievement in Central America, where discontinuity in government policies normally occurs when a new administration comes to power.

Bolivia. In the late 1990s, Bolivian authorities embarked on an ambitious sector reform that began with the creation of a multi-regulatory agency (SIRESE -*Sistema de Regulación Sectorial*) and five sector-specific regulators (*Superintendencias* for Electricity, Hydrocarbons, Telecommunications, Transport, and Water). The reformed sector system apparently was performing well until recently, as measured by the positive results of the concession in La Paz. However, earlier in the Banzer administration, the regulator was stripped of some of its authority. Most recently, the Cochabamba water and sanitation concession, granted through direct negotiations with a private operator, was revoked less than a year after the concession contract was signed, allegedly because of violent customer complaints about a tariff increase approved by the regulator. It is likely that the water price increase approved “was simply the spark that ignited a host of smoldering internal tensions”¹¹. It is too early to assess the effects of these government decisions, but they may discourage future private investment.

Paraguay. Paraguay passed a regulatory law in November 2000 that creates a central body (ERSSAN) to oversee the provision of services and conduct, economic, and social regulation. Under the new law, services will be provided through concessions or permits granted by ERSSAN. Currently services are provided by the National Water Company,

¹⁰ Walker, Ian, and Max Velasquez. Regional Analysis of Water Supply and Sanitation in Central America and the Dominican Republic. EHP Activity Report No. 65. May 1999.

¹¹ Global Water Report. Bolivia: The Cochabamba Crisis. April 14, 2000

CORPOSANA, to communities over 4,000 and by the National Environmental Health Service, SENASA, to communities under 4,000. In practice CORPOSANA provides services to only 19 of the 57 municipalities under its jurisdiction. The role of SENASA and CORPOSANA will change under the new law. SENASA will no longer have a regulatory or supervisory role, but will continue to implement projects in communities under 10,000. The future of CORPOSANA is not yet determined. The new law will provide the following:

- Establishment of a regulatory body (ERSSAN) that will provide overall regulation and establish agreements between the national government and local governments
- Greater involvement of the private sector in service provision and building infrastructure
- Authority to grant all concessions and permits rests with ERSSAN
- Provision for some participation of municipal and department governments by giving them representation on the regulatory committee.

In the proposed law, all forms of regulation—structure and conduct, economic, and social—would reside in a single body at the national level. The central government retains the primary right to provide services rather than making it an inherent right of local governments. ERSSAN is responsible to the Executive Branch and has the sole authority to grant concessions. Under the new law, subnational governments may have a role in the provision of WS&S services depending on their capacity and the willingness of the Executive to transfer this right to them. If ERSSAN awards concessions to private companies as the primary way to provide services, then the role of ERSSAN as a regulator of private companies will become critical. The 400 small, local private operators (*aguateros*) that provide services to about 20% and 16% of the urban and rural population, respectively, will also be regulated by ERSSAN and will be granted permits for 10 years, after which the infrastructure will revert to government ownership.

4. Conclusions

This overview of regulation in Latin America has highlighted several central questions facing countries as they approach regulatory reform:

- What are the core regulatory functions?
- At what level of government should the regulators be located?
- What are the core functions of a central regulatory agency?
- What is the effect of multiple regulators?
- What is the cost of regulation?
- How can an effective regulatory environment be established.

Although definitive answers to these questions do not exist, the examples reviewed provide guidance on what the important issues are. In the sample of countries surveyed, some key lessons have emerged:

- Political support as well as consultation with local governments is essential to enact reforms that are widely accepted and establish a regulatory framework providing a minimum level of oversight. For example political support for the reform in Nicaragua is one of the primary reasons for its success.
- Public campaigns are also important to educate the populace about the merits of the proposed reforms, including decentralization, private sector participation, and regulation, and who stands to win and lose from such reforms. After many years of bad service and broken promises, the public is understandably skeptical. Some countries (e.g., El Salvador) have been reluctant to fully engage the public in the reform debate.
- Decentralization and central regulatory objectives must be compatible to preserve devolution of power to local governments and enhance accountability. Hence, the issue of where to place the regulator remains open. In Paraguay, for example, the professed goals of decentralization are largely incompatible with the sweeping powers of the proposed central regulatory body. In Honduras, the resistance by the municipalities to the establishment of a national regulatory framework because of their desire to protect their autonomy resulted in a stalemate for several years, which now seems to be resolved.
- To make economic regulation work effectively, local governments, particularly medium and small ones, will require technical support, including collection and dissemination of benchmarking information about costs and quality of services. One of the weaknesses of the decentralization of services in Colombia in 1987 was the failure to provide this type of technical support.
- Countries without a history of regulation should start out slowly and not try to regulate all aspects immediately. Getting accustomed to being regulated, developing enforcement mechanisms, and learning how to regulate all take time and experience.
- All regulation does not need to occur at the national level. In the foreseeable future, it is not realistic or even desirable for a central agency to be responsible for all regulation. The capacity to monitor and enforce regulation does not exist at present. Local regulation should be considered an integral aspect of a national system. At a minimum the national government should set water quality norms, technical norms and standards, and environmental standards and prevent monopolistic behavior by private sector providers.

Regulatory experience in nearly all countries in the sample is in its early stages, but is likely to develop rapidly as successful (and even less successful) lessons become known throughout the region. Much more remains to be done, particularly in the following areas:

- Adequate regulation of public enterprises continues to be a challenge. Overall regulatory experience in Latin America is less than satisfactory with the notable exception of Chile. Quality of services provided by public enterprises, at all levels,

has not improved noticeably after formal regulation was introduced. The emphasis has been on keeping rates down, though they were never high in the first place, at the expense of social regulation (quality of services).

- The regulator must have adequate independence from political pressure. Most regulatory agencies would benefit from greater independence to build a consistent and predictable set of rules applicable to all regulated utilities, including developing a level playing field for public and public utilities.

Acronyms

CC	commercial code
CNSP	<i>Comisión Nacional de Servicios Públicos</i> (National Commission of Public Services), Honduras
CORFO	<i>Corporación de Fomento</i> , Chile
CORPOSANA	Sanitary Works Company , Paraguay
ENACAL	National Water Supply and Sanitation Company, Nicaragua
ERSSAN	newly established regulatory body for WS&S services; responsible to the Executive Branch, Paraguay
PC	price cap
PSP	private sector participation
RoR	rate of return
SANAA	National Water Supply and Sewerage Company, Honduras
SIRESE	<i>Sistema de Regulación Sectorial</i> , a multi-regulatory agency in Brazil
WHO	World Health Organization
WS&S	water supply and sanitation