Competition, Contracts, and Regulation in Water and Sanitation

Lessons from recent experience

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In recognition of the large long-term financing needs of water and sanitation projects, this paper highlights the importance of incentive mechanisms for encouraging efficient operations and investment. Three mechanisms to discipline private providers of infrastructure services are competition, regulatory oversight, and monitoring by financial markets (Mody 1996). Private water and sanitation service providers face little direct competition and, except in the United Kingdom, private providers have not used capital markets as sources of funds. As such, performance incentives require effective competition for the right to provide services backed-up by a regulatory system that enforces the contractual terms of service. Where regulation is not credible, supplementary commitments, including from third-parties, are required. This paper draws upon several recent examples of private provision of water and sanitation services to examine how the various disciplining mechanisms are being used.

Direct competition in the delivery of services is extremely limited in the water and wastewater sectors (although recent experiments in England bear watching). Yardstick competition, or the discipline exercised through comparison with other service providers, is being increasingly practiced. However, competition is commonly implemented in the award of the rights to operate. Operations and maintenance contracts, leases, concessions, and build-operate-transfer or build-own-operate arrangements (BOT/BOOs) are put out to competitive tendering where the pricing and technical delivery of services are market-tested, reducing the subsequent requirement for regulatory oversight.

Because of the unique characteristics of the water sector—economies of scale, large sunk costs, poor information on the state of the existing assets, and rising

environmental and health standards—competitive tendering of contracts does not eliminate the requirement for regulation since renegotiation of contractual terms is common. Following other infrastructure sectors, regulatory design in water and sanitation is relies increasingly on incentives for performance. An important example of incentive regulation is the agreement to allow price changes according to a predetermined formula: the so-called "price-cap" regulation. This is in contrast to a regulatory commitment to allow a prespecified rate of return, a practice that carries no incentives for cost efficiency. Also, performance targets set in terms of services delivered, rather than in terms of investments undertaken, are conducive to greater efficiency.

While regulatory innovations may sharpen incentives and thus potentially reduce the regulatory burden, continued challenges remain. Price-caps do not eliminate the need to determine a "fair" return to investors and hence are heavier on information requirements than was originally anticipated; as such, they carry some of the pitfalls of the rate of return regulation. Also, the various regulatory methods need to be supplemented with governmental oversight to ensure that increasingly stringent health and environment standards are met. Finally, the lack of credibility of the regulatory process itself requires supplemental arrangements to increase the predictability of the environment within which private providers operate.

Section 1 discusses the scope for direct and yardstick competition. Section 2 deals with the process for selecting operators and describes the prerequisites for successful competition as well as the limits of competitive bidding. In section 3, key procedures for adjusting tariffs and deliberating on investment target performance are discussed. The U.K. experience highlights the strengths and limitations of price-cap

regulation. Finally, section 4 describes institutions and mechanisms that have been used to mitigate regulatory risk, primarily by signaling commitment and ensuring the generation of accurate information about operator quality, asset condition, and service pricing.

1. Direct and Yardstick Competition in Service Provision

The high fixed costs associated with each segment of the water delivery system—sourcing, transmission, and distribution—all but rule out the possibility of *direct, or head-on, competition*. Limited competition between alternative suppliers of bulk water or treatment services may emerge in coming years. Also, in England and Wales, an experiment in competition is in progress whereby water companies are allowed to supply services to neighboring jurisdictions. Such cross-boundary competition follows the growing practice in electric power distribution in which the primary distribution company in an area is required to "transport" services provided by an alternative generator or distributor. The experience is new in the power sector and even newer in water and sanitation. As in the power sector, only customers with sizable demand will be eligible to take advantage of the competitive possibilities. Even such limited competition is expected to enforce discipline on the suppliers, however.

Yardstick (benchmark/comparative) competition creates additional information for the regulator, and the regulatory task is simplified, where similarly situated water and/or wastewater facilities exist whose financial and operating parameters can be readily compared. The regulator's dependence for information on a monopoly service provider is reduced and the ability to apply tighter control on lagging performers is increased.

Comparative performance is widely used, though the degree of sophistication in use varies considerably. The regulator for the water companies in England and Wales has compiled perhaps the most extensive information on relative productivities of the companies under his jurisdiction and uses that information to determine the allowed price increases. As public companies whose shares trade on the stock market, the performance of regional English and Welsh water companies is also closely scrutinized by analysts and traders.

Comparative performance is also used to evaluate the performance of companies operating in different parts of cities. Paris, for example, is divided into half, three distribution concessions have been awarded in Melbourne, and Mexico City has been divided into quadrants with separate companies responsible for water and sanitation services in each part of the city. Performance of each of the companies can be assessed by comparison with the other companies in the same city. The recent concessions in Manila, where the city was bifurcated and separate contracts awarded for each half of the city, were designed to obtain data that can be used to discipline the weaker concessionaire. Under yardstick competition, therefore, the companies compete indirectly by benchmarking their operating and financial performance against each other.

The success of such competition depends on the degree of comparability across jurisdictions, which is not always possible. For example, in England and Wales significant cost differences characterize different supply areas, diluting the force of comparative competition. Several differences between the East and West portions of Manila have been highlighted which will constrain the use of comparative competition. The Eastern district is smaller with a wealthier population and higher long-term demand

growth prospects; carries only 10 percent of the inherited debt; and the condition of the infrastructure in place is superior (*Public Works Financing,* March 1997, p. 24). Moreover, when large price differences arise in different jurisdictions because of very different initial price bids, as in Manila, the regulator may be under political pressure to make adjustments that are not economically justified—or risk reducing the acceptability of the process.

2. Competition for the Right to Provide Service

Competition for the Market

Competition for the right to serve a market, rather than direct competition with alternative suppliers within the same market area, is the most prevalent form of competition in the water and sanitation sector. Competition for the market is used for selecting new operators, implicitly or explicitly threatening incumbent operators, and in renewing or terminating contracts of incumbent operators. The focus on operator selection is an important step not only to achieving efficient outcomes, but also in demonstrating a government's commitment to establishing a fair and transparent partnership and achieving operational and financial improvements.

Before selecting a private operator, the government must establish the legal basis for private participation and put in place a fair and transparent process for soliciting and evaluating bids. The competitive bidding process should be designed to accommodate innovative ideas and flexibility in operation, while at the same time mindful of the cost and difficulty of soliciting proposals that are not directly comparable.

Establishing the Legal Prerequisites for Private Participation

A key legal undertaking by governments interested in attracting private participation in water and sanitation projects is enactment of a concession law that sets out the procedural steps and legal rights of the participants in the concession process. By providing a legal structure and certainty regarding the "rules of the game," this document provides comfort to operators and investors and encourages them to actively assess and develop projects. A concession law plays a particularly important role in countries in which there is little precedent for private participation in a particular sector. Although the circumstances are likely to vary across countries, the Brazilian experience highlights the main issues involved in creating a proper environment to award and execute concession contracts (box 1).

Box 1: Concession laws in Brazil: Providing the legal basis for private participation

On February 13, 1995, the federal concession law ("Concession and Permission for Operation of Public Services in Brazil") was passed. The law is intended to provide the foundation for the significant investment required to rehabilitate, modernize, and extend municipal water and sanitation facilities. The need for such investment is acute. Only about 31 percent of the population is connected to a sewerage system, and only 8 percent of sewage is treated. The federal government estimates that more than $20 billion will be needed to address these service deficiencies.

The Brazilian concession law allows federal, state, and local governments to contract with the private sector for the provision of public services and authorizes state and local governments to pass their own concession legislation, consistent with the federal law.* Some of the more important provisions of the law include the following (Jaffee 1996):

- No public service concession can be awarded without a formal public tender (Article 14).
- Requests for Proposals must contain a specified list of topics, including the criteria for readjustment and revision of rates and the criteria to be used in the consortium (Article 18).
- All concessions must be formalized in a contract that is consistent with the Concession Law, the relevant norms, and the bid tender, and a draft of the contract must be included in the bid package (Articles 4 and 18).
- Tariff levels may be adjusted up or down not only in change of law situations but also where such adjustments are necessary to maintain the economic and financial equilibrium of the contract (Article 9).
- The concession will be awarded to the party offering the lowest tariff, the highest offer (in the case of payment for the concession award), or a combination of the lowest tariff and highest offer (Article 15).
- Subconcessions are allowed provided the relevant authority (Article 26) expressly authorizes them.

While establishing the general parameters for which municipalities and states can grant concessions, the Concession Law does not address the difficult financial issues, such as the structuring of acceptable payment guarantees. Nevertheless, there are signs that the law has been successful. In May 1995, for example the city of Ribeirao Preto (with a population of 475,000) awarded a twenty-year concession for a new wastewater treatment plant (BOT structure) to a private consortium. In June 1995 the city of Limeira (with a population of 220,000) awarded a thirty-year concession to a consortium for the city's water and sanitation utility operations.

*The Public Bidding Law of 1993, which sets out the bidding procedures for concession projects, complements the federal concession law.

The Value of a Competitive Bidding Process

The process used for selecting an operator poses important trade-offs. An open and transparent competitive tendering process can be an efficient mechanism for discovering information about the value of a system's assets and thus establishing the "right" tariff level (the lowest tariff rate a private sector company is able to charge and accomplish the objectives of the concession). At the same time, this process has sometimes-significant time and resource costs on bidders and governments. Some concern also exists that in a competitive bid low prices will be offered by operators that may not be able to meet their supply obligations. A bidding process with a prequalification stage provides an effective mechanism for identifying qualified operators, and the entire process can help establish a credible set of terms for the concession. The risk of operator failure, or opportunistic behavior, is also constrained by the self-interest of the bidding companies, which seek to establish reputations for service performance to better market themselves in international competitions for contracts.

Different selection processes were used in the cases studied (table 1). Of the eight projects listed, half were awarded on a competitive basis and half on a negotiated or unsolicited basis. The Despite some of its shortcomings, the evidence is that competitive tendering results in a market-determined tariff and a qualified bidder. Moreover, when several private firms undertake due diligence, the competitive process is capable of revealing up-to-date information about the condition and value of assets and the operations of a system. Competitive bidding on the basis of the lowest tariff also addresses the classic economic problem of monopolies—price setting and control. The

value of this approach was confirmed in the competitive tender for the Buenos Aires concession that resulted in an initial tariff reduction of 27 percent.[1]

In contrast to competitive bids, negotiated agreements can generally be concluded more quickly than competitive tenders and can attract unique innovative designs (as in the case of the national sewerage project in Malaysia, described in chapter 8). But as the Izmit BOT (chapter 6) and Malaysia national sewerage projects indicate, there may be significant economic and political costs associated with not using the competitive process. Less information is generated on projects risks and the condition of assets (and thus investment needs) and the lack of political legitimacy of a noncompetitive process may make tariff increases less acceptable to customers.[2]

The asset privatization process in England and Wales involved both a public offering, which dispersed ownership and provided capital market monitoring, and a trade sale to incumbent management. Although the trade sale process was not competitive, it was viewed as an expeditious approach to gain the cooperation and full support of management toward the broader privatization process.

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[1] In early 1997 the two winning bidders for the eastern and western halves of Manila's water and sanitation system offered to operate their respective halves for 25 percent and 57 percent of the existing tariff (*Economist*, February 1997).

[2] For more than two years after the French water company Lyonnaise des Eaux was invited by the Moroccan government to take over the water and electricity distribution in Casablanca, the local authorities were unable to approve the contract. Because it was not subject to tender, and prices of both electricity and water services are expected to rise, political opponents of the government questioned "whether a better deal might be available" (*Financial Times*, March 5, 1997). The Casablanca city council finally did award the contract to a Lyonnaise-led concession company after a more moderate schedule of price increases was agreed upon (*Financial Times*, April 17, 1997). The now classic Dabhol power plant in India's Maharashtra State faced similar criticism. These and other cases of protracted negotiations make a dent in the argument that sole-sourcing is necessarily cheaper or faster than competitive tendering.

Table 5.1: Process used to select private operators

Project	Scope	Type of selection process	Outcomes
Indah Water Konsortium (Malaysia)	Countrywide sewerage	Unsolicited/ negotiated	Rapid privatization and process innovative proposal but significant problems in assessing risks and estimating investment needs
Buenos Aires, Argentina	Water and sewerage	Competitive tender	Transparent bidding process Selection of qualified consortium Initial tariff reduction of 27%
Izmit, Turkey	BOT water treatment	Negotiated bid	Slow privatization process because of political factors
Chihuahua, Mexico	BOT water treatment	Competitive award	Transparent process, market-determined tariff
Puerto Vallarta, Mexico	BOT wastewater treatment	Unsolicited bid	Speedy solution to sewerage problems; problems with tariff setting
Johor, Malaysia	BOT water treatment	Competitive tender	Low-cost, qualified bid
Sydney, Australia	BOO water treatment	Competitive tender; winning bid chosen in part because it had financial support of commercial banks	Qualified operator, market-determined tariff
England and Wales	Asset sale of the ten water and sanitation companies	Public offering and trade sale to incumbent statutory management	Dispersed shareholding transparent company accounts, daily stock market monitoring

The Limits of a Competitive Bidding Process

The competitive bidding process is costly to both governments and bidders. In Buenos Aires, for example, the cost of consultants hired to help the government evaluate the bids was an estimated $4 million;[3] in Manila, consultants cost the government $5.2 million and an additional $1 million was provided as a grant by the French Government. Companies bidding on projects spend significant resources to assess the condition and value of the infrastructure.[4] Each consortium bidding on the Buenos Aires tender reportedly spent about $2-$3 million preparing its proposal. In Manila, the bid preparation costs are reported to be even higher at $5 million per bidder.

The large sums required to prepare a competitive bid may deter some firms from participating. Innovative approaches to reducing the costs of upfront due diligence by providing benchmark data to all potential bidders can reduce these entry costs. Consultants, hired with World Bank assistance, provided the Government of Argentina with independent verification of assets that allowed objectivity in structuring the tendering process. Governments must ensure early on in the process that the water or wastewater authority fairly and openly discloses technical and financial information on the system to be put out to bid. Independent consultants can play an important role in structuring the privatization process and preparing bid documentation. In Buenos Aires external consultants provided information, transparency, and credibility to the

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[3] The consultants were instrumental in preparing the regulatory framework, bidding documents~~documetns~~, and concession contract. Under their contract, the consultants received a success fee of about $2.5 million, paid by the winning bidder (~~,~~ Triche, Mejia, and Idelovitch, 1993). ~~"Arranging Concessions for Wate Suppy and Sewerage Services: Lessons from Buenos Aires and Caracas," *Infrastructure Notes*, No. WS-10, Transportation, Water and Urban Development Department, The World Bank, May 1993.~~

international bidders. The absence of such a framework, as well as the low level of tariffs, led to the failure of proposed bidding for a water concession in Caracas (box.2).

Considerable specificity is required in technical and contract terms to ensure that all bidders compete on the same terms; if every bidder proposes a different technical solution, comparison of bids becomes very difficult. But excessive rigidity may restrict the flow of innovative ideas. One way around the problem, which was used for bids on South Australian water contracts, is to provide bidders with the opportunity to suggest modifications to specifications proposed by the government. Consultations with potential bidders before the bidding allow for changes in specifications and can lead to superior outcomes. Options to improve specifications can also be negotiated after the award of the contract. One criticism of the concession award process in Buenos Aires was that the "closed execution" bidding and contract award process, which accelerated the closure of the transaction, but left little opportunity for the winning contractor to negotiate changes in the tender specifications that could potentially have benefited both parties. Much care must be exercised in such consultations and negotiations—whether before the bidding or after—to ensure that the intellectual property of bidders is preserved and that terms are not diluted to weaken the discipline of the competitive process.

A second criticism of Buenos Aires is that the concession focuses too much on "processes" (how objectives are achieved) rather than the objectives themselves. Measuring the concessionaire's success by performance targets instead of processes is likely to involve lower monitoring costs and achieve more efficient outcomes because of

[4] According to representative of Bechtel Group, a developer of water, power, and road infrastructure projects, development costs range from 2 to 10 percent of total project costs (*Engineering News Record*, February 1997).

the greater flexibility it gives the operator to achieve a given end at the lowest cost. The Manila transaction has moved in that direction.

Box 2: The importance of establishing a good contracting environment

In 1991 the government of Venezuela announced that it would award a twenty-five year concession for the water and sewerage service of Caracas. The winning bidder would be responsible for making significant investments to rehabilitate and extend coverage of the system. Five international consortia were prequalified, and all five declined to bid on the project. What went wrong? Richard and Triche (1994) contrasted the experience of Buenos Aires with that of Caracas to highlight the shortcomings of the Venezuela government's approach:

• The quality of operational and commercial information provided by the Venezuela government was very poor. In contrast, the government of Argentina spent about $4 million to gather information. It also used consultants to promote the concession worldwide and identify potential investors.
• In the Buenos Aires concession a basic investment program of $4 billion, including sewage collection and treatment, was foreseen. In Caracas the investment program was not specified, and the final obligations of the concessionaire were unclear.
• In Caracas negotiations on tariffs following the award were ruled out. In Buenos Aires the need for negotiations was foreseen.
• The $0.04 per cubic meter tariff in Caracas covered a small fraction of operating costs; in Buenos Aires the $0.40 per cubic meter tariff covered all operating and maintenance costs. As a result of efficiency gains from private operation, tariffs were expected to, and did, decline in Buenos Aires.
• In Buenos Aires, investors are protected against foreign exchange risk; in Caracas no such protection was provided.
• The Caracas proposal to create a regulatory agency composed of municipal representatives lacked credibility because the local governments never reached agreement on the arrangement.

Along with the lack of good working relationships among the municipalities in Caracas and the political commitment at the highest level of government, these factors led to the failure to attract private sector participation.

Establishing Fair Contractual Terms

Contractual arrangements are at the core of most of the approaches to private sector participation (O&M contracts, leases, and concessions). Success or failure of a

given approach will ultimately be determined by how well a contract specifies performance parameters, provides predictable procedures for renegotiation and workable remedies for nonperformance, and creates an environment of trust and partnership. Equally important, the administration of contracts should not impose significant costs on either the government or the private operator.

As a result of its unique economic and technical characteristics (e.g., local monopoly services), independence from political discretion is one of the chief challenges of the water and sanitation sector. In Turkey local and national elections dragged out negotiations on the Izmit BOT project. The water and sewerage management contract in Trinidad had to be renegotiated after elections brought a change of government. And in the Argentine province of Tucuman a dispute over the quality of the water supplied by the concessionaire broke out after the provincial government changed hands and the provincial executive took direct control of the water regulatory body *(Financial Times*, 1 February 1996).[5] The doubling of water tariffs after the utility was turned over to the private sector exacerbated the situation.

Contractual agreements, especially long-term contracts, are "incomplete" in that no contract is able to take into account every possible outcome and contingency. This is particularly true in the water and sanitation sector, where future investment requirements and associated tariff levels are difficult to predict because of changing environmental quality standards and the difficulty of valuing underground assets. To attract private investment, contracts must be flexible enough to adapt to changing circumstances and needs by providing clear guidelines for renegotiation.

3. Incentive Regulation: The Use and Limits of Price-Cap Mechanisms

One of the most important contractual provisions for attracting and securing private capital is a well-defined process for adjusting tariffs. Private lenders and investors must have confidence that tariff revenue will be capable of meeting operating costs and debt service payments and achieving an acceptable rate of return. Achieving revenue stream stability and long-term profitability requires a credible tariff adjustment process that compensates a project company for costs outside its control (such as changes in the general price level or exchange rate) or that is not anticipated in the contract (such as additional or more rapid rehabilitation). Thus, clear and predictable tariff adjustment mechanisms are key to securing cash flows that make long-term investment possible.

Regulatory theory emphasizes the need for regulation to achieve two important objectives: (1) provide incentives for managers to make efficient operational and investment decisions, and (2) do so in a way that creates a minimal workload for both the regulator and the utility. By both of these standards, rate-of-return regulation has been found wanting. A key feature in rate-of-return regulation is a rate base that defines the types of capital expenditure that are guaranteed a fair rate of return. With guaranteed cost recovery, a utility has little incentive to minimize costs. The process of determining which costs are allowed in the rate base creates administrative costs for both parties, especially as this process (in the form of administrative hearings in the U.S.) may occur frequently to ensure that actual returns coincide with the allowed rate.

Incentive mechanisms—price caps, profit sharing, and automatic rate adjustments, for example—seek to encourage more efficient pricing and cost management and to streamline the regulatory workloads of the regulator and the utility

(for an early exposition of incentive regulation, see Brown, Einhorn, and Vogelsang 1991). Price caps achieve these objectives by severing the link between allowed price increases and a utility's actual costs. Under the formula RPI - X, tariffs are adjusted by the inflation rate (RPI) minus the expected rate of increase in productivity (X). Because increases in profit due to greater than expected efficiency improvements can be captured by a utility, it has a strong incentive to reduce costs and innovate. Key to creating this strong incentive effect, and lessening the regulatory burden, is that prices are set for a pre-determined period long enough to enable a utility to implement and benefit from productivity improvements.

The United Kingdom has been a pioneer in applying price caps to various regulated infrastructure markets. Application of the price-cap model to the water sector required some modification primarily because of the large investments required to meet stringent European Community environmental standards and the sector's generally low rate of productivity growth. The modification entails an additional burden and level of complexity for the regulator. The X factor must be broken into a factor that represents the scope for efficiency improvements in meeting existing service and quality standards and into another factor which represents the cost of complying with new and higher quality standards. Taken together, these two factors have meant that, while in virtually all other British utilities prices have risen below the rate of inflation, for water utilities prices have been above inflation.

Three important concerns have arisen over the application of price caps in the water sector. The first and most difficult problem is deciding at what level to set the price cap (Reehal, White, and Anker 1997). Regulators are handicapped in this process

because water utilities hold an information advantage as a result of their first-hand knowledge of costs and expenditures. This information asymmetry is a standard problem of monopoly regulation. OFWAT, the British water regulator has employed two tools to get around the water companies information monopoly: it has used intra- and inter-industry financial and operational comparative statistics at price reviews and consultants to perform engineering appraisals and capital expenditure certification to more closely get a handle on costs.

A second concern is that adjustment factors may be reviewed and prices changed so frequently as to nullify the incentive effect price caps were designed to generate. This outcome may largely be in response to overly generous initial price caps, political pressure, or both. For example, both of these may have played a role during the first five year regulatory cycle of the private English and Wale water companies when after setting a high price cap, OFWAT required two interim price reductions. A related concern that also moves price caps closer to rate-of-return regulation is the tendency of regulators to focus on profits (rates of return) rather than on prices.

Finally, the potential complexity and high information requirements of price caps suggests that, at least in the case of English and Welsh water companies, they may not be superior in streamlining the regulatory process and reducing administrative costs of both the regulator and the utility. The ultimate impact on a water company of information provision requirements and regulatory uncertainty can be significant. Van den Berg (1997) has observed that "[m]onitoring the performance of private utilities to ensure that effectiveness of price cap regulation has become an elaborate process that increasingly resembles Treasury scrutiny and control of utilities under public ownership." This

concern points to importance of not only ensuring regulatory independence but also accountability to counter an independent regulator's potential to wield too much discretionary power, a topic which is discussed later in this chapter.

Tariff Adjustment Procedures

The case study projects used a variety of tariff adjustment mechanisms (table.2). Tariff procedures for BOO/BOT projects are incorporated in long-term take-or-pay (or put-or-pay) contracts, which typically allow for two-part tariffs. A fixed component pays for the availability of service and guarantees that a minimum payment will be made even when the service is not utilized. This minimum payment is set to cover certain fixed costs (in particular, payments for debt service). Where the purchaser of the service is creditworthy, the stability of these fixed payments makes such contracts attractive for debt finance. The second part of the tariff is the payment for services actually delivered (volume of bulk water supplied or volume of water treated).

Table 2: Tariff adjustment procedures in selected projects

Project	Tariff adjustment process
Indah Water Konsortium, Malaysia	Three-year review procedure based on auditing of costs and review of engineering design; guaranteed internal rate of return of 14-18 percent, depending on collection rate
Buenos Aires, Argentinas	Only downward "ordinary" rate revisions in first ten years thereafter for investment-related changes only "Extraordinary" rate revisions for annual cost index changes greater than 7% or fundamental changes in the concession Tariff adjustment in event of change of parity of Argentine peso to the U.S. dollar
Izmit, Turkey	Take-or-pay agreement; variable portion of the tariff indexed monthly to inflation
Chihuahua, Mexico	Put-or-pay agreement, index monthly inflation
Johor, Malaysia	Two-part tariff, indexed to inflation
Sydney, Australia	Two-part tariff, includes adjustment for inflation
England and Wales	$RPI + K$ (see detailed discussion in chapter 9)

The tariff structures in the case-study BOO/BOT projects generally include automatic rate adjustments that track the prices of some basket of goods and services. Tariffs are adjusted for inflation and currency exchange rate changes, thereby shifting these risks away from financiers to customers. Negotiation over tariff adjustments often focus on the quality of raw water or sewage to be treated, which affects treatment costs. Although retail water and wastewater tariff policies are not part of the contract, they impact the off-taker's creditworthiness. Except in instances of unanticipated expansion in supply or treatment facilities or where demand has been overestimated, tariff adjustment procedures for these contractual arrangements are relatively straightforward

and less involve less exposure to regulatory risk than is the case for concessions and asset privatization.

Tariff adjustment mechanisms for full utility concessions are more complex because of the greater contingencies associated with responsibility for an entire infrastructure network, some of which is underground. The need for a transparent and predictable set of rules and an honest broker to review tariff increase requests and arbitrate disputes, is thus considerably greater. A fine line must be drawn between providing flexibility and limiting discretion. Flexible tariff adjustment rules, such as those employed in the Buenos Aires concession, provide for automatic adjustments in certain well-defined instances (such as changes in investment goals or increases in the cost index above a certain level) and can ensure coverage of unanticipated costs. The design of tariffs that reduces the natural disincentive to expand coverage in low-income neighborhoods is more problematic. Moreover, the relationship between increased metering of water consumption and tariff adjustments is not well understood.

The tariff adjustment procedures for the national sewerage concession in Malaysia differ from the price-cap formula adopted in Buenos Aires. Under the terms of the Malaysian concession an internal rate of return of 14-18 percent is guaranteed if the contractor achieves a collection rate of 90 percent. The low tariff collection rate experienced early on has reduced this rate of return to12 percent. The government of Malaysia adopted this approach largely because the uncertainty over the size of the investment program for a countrywide concession indicated a greater need for flexibility in compensating the operator.

Finally, water and sanitation operating companies owned jointly by private and public entities may have difficulty achieving tariff adjustments that are smooth and cover costs. A government's dual interest as operator and regulator tends to blur accountability and overly expose tariff adjustment decisions to political considerations. In Gdansk, Poland, where the lease contract is operated by a company with mixed ownership, the relationship between the city and the project company has been described as "complex and tense," the terms of the lease have been renegotiated four times, and tariff increases have lagged behind inflation (Zajc 1996). Mixed ownership of the operating company exists in North and South Bohemia, the Czech Republic, and Budapest, Hungary.

4. Creating Commitment: Responses to Regulatory Challenges

Analogous to the transition from project financing to corporate financing is the transition from contract-based regulation to a broader regulatory framework that ensures continuity and stability in regulatory decisionmaking. Clear, predictable, and fair rules serve as the basis for raising long-term private finance and facilitating cooperation between the private and public entities. Instead of being embedded in contracts and enforced contractually, regulations are set out in administrative law and enforced by regulatory entities. In either case, properly mitigating critical project risks—including the timing and level of investment, how and when tariffs will be adjusted, and the valuation of assets in case of early contract termination—will depend on the generation of high-quality information and predictable negotiation procedures.

A regulator's financial and political independence provides an important check against the government using the regulator's authority to arbitrarily interfere in the management and investment decisions of a utility. Similarly, a regulator's independence from the commercial utility is critical to prevent "regulatory capture." Clear separation of agency appointments from the political process and regulated utility help preserve independence. A regulator's independence is reinforced if it establishes autonomy. Thus, except for laws that define its mission, all other inputs such as funding and human resources should be available directly and not through the jurisdiction of a government department. Finally, procedures must be in place to hold regulators accountable for their decisions. Transparency of the agency's decisionmaking process and a clear framework for settling disputes are two key tools to keep a regulator's discretionary power in check.

Just as the development of regulatory capacity and expertise take time, achieving independence, autonomy, and accountability is an ongoing process that represents significant challenges. For example, the U.K.'s regulator has achieved independence and autonomy; however, some hold that the regulator possesses too much discretionary power and that its excessive control over utilities is eroding management autonomy (van den Berg 1997). Thus, although operating in a sophisticated developed country and under an independent regulator, the English and Welsh companies face regulatory and political uncertainty that restricts their ability to raise capital. For developing countries the opportunity exists to design and implement alternative regulatory institutions and approaches suited to their very limited regulatory capacities.

In this section, we address two related questions: If regulation is essential for securing private sector capital, why have lenders and investors participated in countries without fully developed regulatory framework? In the evolution to full-fledged regulation, what complementary institutions and practices can support regulation? We look to the experience of case-study projects for insights.

Private Sector Participation under Nascent Regulation

Despite the absence of fully developed regulatory institutions, projects have been financed. If regulation is critical to attracting private participation, how have these deals been concluded? First, in certain projects, such as those for bulk water or sewage treatment (BOO/BOT) facilities, there is less need for a comprehensive set of rules and a separate regulatory body, because the obligations of the private and public sector are fairly straightforward and can be incorporated into contracts. Moreover, because the public entities purchasing the services interface with retail consumers and utility employees, the projects do not have a high profile politically.

Second, water and sanitation services have historically been provided by local governments, which because of resource constraints are more likely to regulate by contract than to establish a regulatory agency. Third, and perhaps most reflective of the cases studied, a mix of federal government and bilateral/multilateral participation has played a key role in absorbing regulatory risk (see conclusions to chapter 4). Finally, in well-structured projects with robust economic and financial incentives and a clear matching of rewards to risks, developers have successfully raised long-term debt and

equity with minimum security and legal underpinning.[6] Sufficient comfort is obtained through legal and economic institutions that are capable of credibly signaling, or supporting, the public and private sectors' commitment to a project.

The level of government administrative authority and degree of independence varies across the case study projects (table 3). All of the projects received some financial support or monitoring provided by a level of government above the local level. The two full utility concessions (Buenos Aires and Malaysia national sewerage) are high-profile projects that receive federal government support and are regulated by independent agencies. Except for the Johor and Sydney BOT projects, which are supported by state governments strongly supportive of privatization, all of the BOO/BOT projects receive indirect federal support.

[6] For example, in a recent report, the International Finance Corporation (1996, p. 43) noted its experience~~by the IFC~~: "Fully functioning regulatory frameworks and international competitive~~competitiive~~ bidding are not always necessary or possible, particularly in early~~earlyl~~ stages of promoting PPI [private participation in infrastructure].

Table 3: Governmental oversight of projects

Project	Level of government with administrative responsibility	Degree of independence
Indah Water Konsortium Malaysia	National Directorate-General of Sewerage Services	Independent authority
Buenos Aires, Argentinas	ETOSS, a tripartite body representing local, provincial, and federal governments	Independent regulator funded by water and sewerage tariffs
Izmit, Turkey	Municipality; with guarantee provided by federal treasury	Potential "conflict of interest" because municipality holds shares in project company and oversees contract
Chihuahua, Mexico	Municipal Water Authority	Credit support from Banobras and State of Chihuahua
Puerto Vallarta, Mexico	SEAPAL-PV (municipal water authority)	SEAPAL-PV is an autonomous and financially independent government body
Johor, Malaysia	State Government of Johor	Jabatan Beklein Air Johor is an independent state government agency
Sydney, Australia	Sydney Water Corporation; offtake risk is guaranteed by State government of New South Wales	SWC is an independent "corporatized" government entity; oversight is provided by the Government Pricing Tribunal of New South Wales, an independent authority that regulates retail water rates
England and Wales	Ofwat, is a national regulatory body, assisted by customer service committees; three other institutions monitor quality	Independent regulator

A key demonstration of a government's commitment to private sector investment is the establishment of a regulatory body that is financially and politically independent. Such a body is critical to achieving a regulatory framework that is fair, transparent, and limits political interference. By limiting government discretion, regulation and rules become more predictable and stable, and investors have greater confidence about making long-term investments.

The extent of regulatory capacity development varies considerably across the case studies. While the Office of Water Services (Ofwat), the national regulatory body in England and Wales, is a well-established and innovative agency, regulatory development in the developing countries studied is at a very early stage. The most advanced agency, the ETOSS, in Argentina, has dealt with important challenges as the terms of the contract have had to be interpreted and, in at least one instance, renegotiated. ETOSS's lack of experience was an important risk for lenders and investors to assess. The fact that the authority is set up as an independent entity whose members are appointed by federal, state, and municipal authorities and have staggered terms of office, provides some degree of protection against political interference. (In addition, IFC participation in the project company provides investors comfort.)

Establishing independent regulatory bodies may be both economically and politically costly for very poor countries or countries with highly unstable political and legal institutions. Without a good legal track record there may be considerable uncertainty about whether policy undertakings will be subject to reinterpretations, reversals or amendments with a change of leadership. These countries are also likely to face human capital resource constraints in terms of legal and regulatory expertise. In

these circumstances it may make sense to conserve limited regulatory capacity by establishing a single regulator for all utilities and to rely more heavily on competition where regulation is less practical.

Alternatives to Regulation

Where regulation is not well developed, alternatives exist. For example, *a privatization program that distributes share ownership* among a country's broad population provides a safeguarding mechanism against arbitrary government action. Wide share ownership also provides stability and permanency to private sector participation, which may be as important in developing countries as in industrial countries. Since 1978 shares of SODECI, the private water company operating under a concession in Côte d'Ivoire, have been traded on the country's share market (box 3.4). There is good reason to believe that the company's broad public ownership and its high profile on the country's share market have aided longevity of private participation in the water sector. An important precondition for this alternative institutional safeguard is a developed local stock market and adequate security regulations.

Multilateral and export credit agencies as well as domestic development banks can play a key role as both direct lenders and suppliers of risk cover against regulatory and government actions. Multilateral and export credit agencies can provide strong direct or implicit cover against currency transfer, unenforceability of project contracts, and change of law and regulation. In the Izmit, Turkey, BOT project export credit agencies from three countries provided both debt and political risk cover. And lenders who participated in the IFC's B-loan program for the Aguas Argentinas project gained an

added level of safety against currency convertibility risk. In the Chihuahua, Mexico, project the state development bank Banobras provided credit support for the local government off taker.

Clear and fair arbitration procedures and independent judiciaries provide another set of institutional safeguards because they provide accountability, and thus help make the contracting environment predictable and credible. By recognizing that disputes naturally arise from "incomplete" long-term contracts, these institutions help establish and maintain a high level of trust and cooperation between the public and private sectors. Certainty is increased for both parties when clear procedures exist for dispute resolution through arbitration or, when arbitration fails, through independent courts. The quality of these institutions is critical in signaling the government's commitment to constraining the discretionary power of regulators.

Contractual arrangements generally recognize explicitly that should disputes arise, the parties will seek in "good faith and spirit of cooperation" to find an equitable solution. Failing direct negotiations between the parties themselves, formal arbitration channels are generally laid out. In the Izmit BOT agreement, for example, a referee jointly chosen and paid for by both parties is assigned to investigate and solve disputes. Where disputes remain unresolved, they are submitted upon the request of either party to an arbitral tribunal for binding decision. The rules of arbitration are those of the Arbitral Center of Vienna (Austria) Federal Economic Chamber, where the arbitration takes place.

Thus, independent judiciaries provide a fundamental backstop to a country's legal and regulatory system. An independent judiciary with a reputation for fairness adds credibility and transparency to the legal framework and thus gives comfort to investors.

For projects in countries without independent judiciary systems, international arbitration or the court system of a predetermined third country is often used. In the Buenos Aires concession, the operators agreed that the Argentine courts would provide a fair and competent hearing of disputes. In the water and sanitation concession for Metro Manila awarded in January 1997, a formal arbitration panel will be established.

Regulation may also be supported by, or take the form of, *a license agreement*, which grants a private company the exclusive right to own and operate in a defined service area in exchange for meeting clearly defined obligations and responsibilities. Licenses are often used when the assets are owned by the private sector, as they are in England and Wales. As holder of the license, the government has the authority to revoke it in the event of failure to perform. At the same time, the license acts to protect the private operator from unfair treatment. The clarity in defining the scope and process of regulatory appeals is important in this regard (in the United Kingdom, the appeals are directed to the Monopoly and Mergers Commission and in France to the Tribunauz Administtratifs).

Licenses serve as contracts between the regulated companies and their respective governments. The judiciary serves as a credible arbitrator, and attempts by either party to deviate from license's specifications can be challenged in court, thus promoting regulatory stability. The link between licenses and the judiciary indicates that this type of regulatory instrument will be more prevalent in countries with independent courts that have strong records of upholding contracts

5. Conclusions

Critical to private participation in the water and sanitation are the continuity and stability of the contractual environment, which determine the predictability of risk allocation, the cost of contracting, and thus the cost of raising long-term private finance. Greater competition, use of incentives, and a credible regulatory process are the mechanisms required to ensure transparency, efficiency, and predictability of the contractual and regulatory environment.

The regulatory task is complex, because regulators often lack sufficient information to balance the objectives of protecting the consumer while enabling efficient operators to earn an appropriate risk-adjusted rate of return. As a consequence, investors face considerable regulatory uncertainty which is one of the major barriers to attracting and securing private capital and initiative (Richard and Triche 1994). Overlaying such uncertainty is the risk of political pressure affecting the regulatory process and the risk of regulatory capture by industry. Separation of the "gamekeepers" (the regulators) from the "poachers" (the private operators) is necessary to increase regulatory and operational accountability and constrain the politicization of operational decision making.

The great diversity in institutional endowments across countries suggests no single regulatory framework will be a "best" option. Instead, as indicated by the case studies reviewed by us, individual projects and countries will rely on a range of overlapping institutions—credible contract provisions and safeguards, independent regulators that enforce predictable and fair rules, and third parties that can mitigate political risk.

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