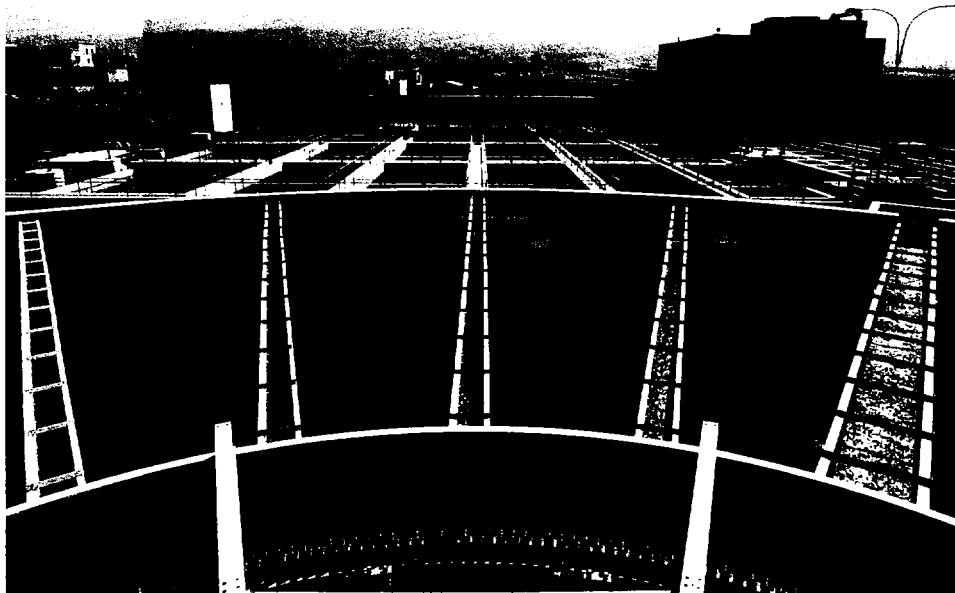


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Private Sector
Participation in
Water Supply
and Sanitation
in Latin America

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**Private Sector Participation
in Water Supply and Sanitation
in Latin America**

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The World Bank
Washington, D.C.

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Foreword

The water and sanitation sector in Latin America and the Caribbean is facing a crisis of confidence. The return of cholera to the region in 1991 was a symptom of deep-seated problems and exposed the fragility and inadequacy of publicly operated water supplies and sanitation systems. Despite substantial efforts to improve the quality and coverage of service, one-quarter of the urban population is not connected to a public water system, half lacks public sewerage, and the sewage is virtually untreated. The results are a constant threat to the health of the entire population, a perpetuation of unmet basic needs of the poor, and a steady deterioration of the environment.

The failure of the public sector to provide reliable service is largely explained by its inability to operate efficiently and maintain adequately existing water and sanitation systems. In addition, the investments for rehabilitation and expansion are very large. It is estimated that the region's countries need to invest an annual \$5 billion in water supply and \$7 billion in sewerage and sewage treatment over the next ten years.¹ These requirements are well beyond the public sector's financial capacity and have prompted a reexamination of its role as the main financier and provider of services. Instead, the notion is spreading that the public sector should establish the legal and regulatory framework, while remaining the owner of the assets, and then allow public and private companies to compete for the mandate to provide service.

As a result, the public water and sanitation agencies in Latin America and the Caribbean are entering a crucial phase. They have to decide whether they can sharply improve their performance while remaining in the public sector or whether they should seek to increase private sector participation in both operations and financing.

Although a few public water companies demonstrate a good performance record, the majority of them perform poorly, partly because of excessive outside interference in their daily operations and misguided financial policies. Wider private sector participation is likely to

improve operational efficiency, while at the same time attracting private finance and improving the efficiency of investment.

In recent years, private sector participation in water and sanitation has been a topic of discussion among various countries in Latin America, as evidenced by the large attendance at a number of regional seminars organized by the Technical Department of the World Bank's Latin America and the Caribbean Regional Office. These seminars have shown that virtually all public water companies are interested in cooperating with the private sector. Some have advanced further and have already involved the private sector in their operations in one way or another. The seminars have catalyzed the pursuit of greater private sector participation and the evolution of privatization models adapted to the institutional realities of Latin America and the Caribbean. This publication incorporates some of the insights gained at these seminars and is aimed at assisting the decisionmaking process that many countries face.

The publication consists of two chapters. In the first—Options for Private Sector Participation—the main problems of the public sector are analyzed, the rationale for private sector participation (PSP) is explained, and the array of options for PSP is reviewed. In the second chapter—Case Study: The Buenos Aires Concession—the large concession for the Greater Buenos Aires water supply and sewerage services awarded by the government of Argentina to a private consortium of foreign operators and local investors is presented and analyzed, because it provides an excellent example of the planning and implementation stages that are needed to ensure a successful transition from public to private management.

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Abbreviations

| | |
|-------|---|
| AA | Aguas Argentinas |
| BOO | Build-Own-Operate |
| BOOT | Build-Own-Operate-Transfer |
| BOT | Build-Operate-Transfer |
| ETOSS | Ente Tripartito de Obras y Servicios Sanitarios |
| IDB | Inter-American Development Bank |
| OSN | Obras Sanitarias de la Nación |
| PSP | Private sector participation |

Summary

The services provided by public water companies in developing countries have traditionally been plagued by a series of problems that are responsible for the poor performance and low productivity of most public companies. These problems may be classified into four categories: technical and operational, commercial and financial, human and institutional, and environmental. Because of the generally poor performance of public sector companies, many authorities have looked for alternative ways of providing water and sanitation services more efficiently. Currently, there is a growing consensus that at least some functions, and in many cases all functions, related to the management of water and sanitation services should be entrusted to the private sector.

The three primary objectives of the public sector with respect to private sector participation are to expand the water supply and sewerage systems in order to increase population coverage, to expand sewerage treatment in order to reduce water pollution and public health hazards, and to provide better quality of service. The secondary objectives are to ensure higher operating efficiency and to finance the system without public subsidies or guarantees.

Options for Private Sector Participation

Private participation in the water sector ranges from the fulfillment of limited attributions to overall responsibility. PSP has eight main options, which vary in the degree of involvement of the private sector, the risk for both the public and private sector, the private operator's autonomy and responsibility, the required capital investment, the duration of the contract, and the contractual relationship with the consumer. These options may be grouped into two distinct categories. In the first group, the ownership of the assets remains with the government or the public sector, whereas in the second group, partial or full ownership is transferred (permanently or temporarily) to the private sector. Each group includes four options. The first group—public

ownership—includes service contracts, management contracts, lease arrangements, and concessions. The second group—private ownership—includes BOOT (Build-Own-Operate-Transfer), reverse BOOT, joint ownership or mixed companies, and outright sale.

To varying degrees, all these options promote the operational efficiency and commercial viability of water and sanitation utilities. At the same time, they introduce competition, improved cost recovery, and, in most cases, performance-based compensation. They feature flexibility and the potential to progress from less risky arrangements with no private investment to more risky arrangements with private investment as the two parties gain credibility and confidence. A combination of options is also possible, for example, a lease for distribution systems and a concession or BOOT for a new treatment plant. In concessions, the private operator has an incentive to invest efficiently, because it is responsible for recovering both current and capital costs.

Some type of regulatory framework is necessary to monitor and control the private sector operations. Lack of regulatory systems and failure to enforce existing regulations are two of the main causes of unreliable service provided by public water utilities. In all PSP options, the central or local government retains its important regulatory role and can thus oversee the sector and provide the guidance it may need. Private sector participation does not mean that the public sector loses control, but rather that it adopts a new division of tasks between public and private partners, based on the comparative advantage of each. The main objectives of the regulatory system are to ensure compliance with standards of acceptable service, protect the rate payer from monopolistic behavior, and create a business environment that promotes commercial viability and attracts the private sector. In the absence of a formal regulatory body, contract regulation becomes necessary. The compliance of such contracts is monitored by the public partner. Contract disputes can be referred to civil courts for decisions.

Inevitably there are obstacles to PSP, such as lack of adequate legislation, the public sector's resistance to losing control, a reluctance to face labor problems, and simply the fear of trying the unknown. As a result, successful PSP requires public education and the consensus of all stakeholders. In most PSP options, many obstacles can be overcome by procuring the services required through a transparent bidding and award process. The bidding procedures should include, at a minimum, the establishment of sound qualification criteria and procedures, a clear definition of the evaluation methodology, and preparation of the documents well enough in advance to permit open and universal bidding.

A Case Study: The Buenos Aires Concession

The government of Argentina, with the World Bank's support and assistance, embarked in 1990 on a massive and ambitious privatization program, encompassing virtually all the public services and federally owned enterprises. As part of this effort, the operation of the water supply and sewerage systems of the large Buenos Aires metropolitan area was transferred in May 1993 from an inefficient public company to a competent consortium of private foreign operators and local investors, after a thorough and successful process of preparation and bidding. The model adopted was a thirty-year full concession, whereby the government remained the owner of the assets, but the concessionaire was responsible for operating, maintaining, and managing the system, investing in rehabilitation and expansion works, and alleviating contamination of water resources caused by the disposal of domestic sewage. Regulation and control of the concession were accomplished through a regulatory agency established specifically for this purpose.

Four main stages are necessary for achieving a successful transition from a public company to a private concession. These stages should be applicable, with minor adjustments or modifications, to other types of PSP as well. They are as follows:

- Stage I. *The initial activities*, which are undertaken prior to the decision on how to privatize
- Stage II. *The preparation of bidding documents and background materials* required for selecting a qualified operator
- Stage III. *The bidding and contracting process*, which culminates with the signing of the respective contract
- Stage IV. *The actual transfer of services* to the private operator and the setting up of the regulatory agency.

Numerous conclusions may be drawn from the successful privatization of the water supply and sewerage systems in Buenos Aires. Nineteen of the most relevant conclusions are briefly presented below.

1. Political commitment to privatization at the highest level should be ensured.
2. Privatization should preferably be part of a comprehensive program of economic reforms.
3. Consensus building among all stakeholders is important.

4. Risks of all types (political, economic, commercial, technical, and legal) should be assessed, and appropriate mechanisms to alleviate them should be adopted.

5. Participation of multilateral agencies, such as the World Bank, enhances the transparency and credibility of the process.

6. All PSP options must be analyzed prior to selecting the preferred privatization mode, but ownership of the system may remain with the public sector; the assets do not necessarily have to be privatized to promote efficiency and attract private capital.

7. Successful privatization cannot be accomplished overnight, even if the political decision is taken; careful preparation and reasonable time are required.

8. Although a concession contract provides self-contained regulation, a full regulatory framework and the regulatory institutional set-up should be clearly established, before starting the actual bidding process.

9. The technical and financial feasibility of the concession should be carefully studied prior to bidding.

10. Specialized, experienced consultants should be contracted to assist in various aspects of the preparation process; hiring a single, multidisciplinary consulting firm is preferable to contracting two or more firms.

11. Adequacy of water rates should be examined, and, if necessary, rate increases should be adopted prior to bidding.

12. Prequalification of potential bidders should be conducted to ensure that only qualified bidders eventually submit bids and to simplify the process of bid evaluation, but it requires extra effort and time.

13. Reduction of staff—probably the most sensitive of all privatization issues—is achievable, with the help of aggressive promotion of attractive early retirement packages to be financed by the government, the concessionaire, or both.

14. The regulatory entity should be strong enough to be able to confront an experienced international operator and should be assisted by specialized institutional consultants, if needed.

15. A residual public company must continue to function in parallel with the private operator for at least a year, until the orderly transfer of all services is accomplished and the nonconcession services are liquidated.

16. A clear understanding of the reasons for any extraordinary increase in rates, beyond that stipulated by the concession contract, is important to minimize the danger of reducing the credibility of the rate offered in the bid and used as main criterion of award.

17. Political pressure to impose priorities, although considerably diminished compared to that exerted on the public water company, can still be exerted on the private operator, through the regulatory agency, which is a public entity.

18. At least at the beginning of the operation, the private sector may not be willing to finance investments with its own resources, but it is willing to invest cash generated by the operation and to borrow money from multilateral agencies or commercial banks.

19. The concession contract must be realistic and as specific as possible to avoid disappointment and minimize conflicts and debate between the concessionaire and the regulatory authority. At the same time, it should be flexible, because it is expected that the targets, indicators, and other aspects of the contract can be more realistically determined after the first year of operation.

The Buenos Aires concession provides a valuable model of PSP in water supply and sanitation that is being adopted in other provinces in Argentina and can be useful to other countries. Nevertheless, privatization cannot be regarded as a universal panacea to problematic water companies. Its applicability and probability of success must be analyzed in the specific context of each country, in conjunction with other relevant measures and reforms that must accompany it.

1. Options for Private Sector Participation

There is growing awareness in many countries that government provision of water supply and sanitation services, as well as other infrastructure services such as power, telephone, gas, and transportation, has been inadequate. Inefficient public sector monopolies are widely blamed for the failure to provide access to safe water and adequate sanitation to the entire population, particularly the poor. The magnitude of the needs in the sector—more than 1 billion people worldwide lack a source of potable water near their homes, almost 2 billion are without adequate sanitation, and more than 4 billion discharge their wastes without treatment—has led to an increasing acceptance that wider participation of the private sector is needed in the provision of water and sanitation services.

In the 1980s, privatization of government-owned enterprises began to be recognized in some countries in Latin America as a tool for economic change. The objective was to sell state-owned or parastatal companies to the private sector as a way for governments to generate revenue in the case of profitable companies or to eliminate or at least reduce public subsidies as part of restructuring the public sector in the case of money-losing companies. In an effort to shrink the size of the public sector and to focus on providing those services that only the public sector can provide, the conviction grew that the public service monopolies should be opened up to competition and impartial regulation. Major and ambitious privatization programs were announced by several Latin American countries, such as Argentina, Chile, and Mexico, as well as by such diverse economies as Malaysia and Nigeria in other parts of the world. A number of additional countries embarked on major privatization studies in preparation for reforms.

In the early 1990s, it appeared that progress, though slower than anticipated, had been made in some countries, mostly in the power and telecommunications sectors. However, private sector participation

was slow in the water and sanitation sector, with the exception of Chile, where limited private sector participation took place in the form of service contracts, which will be discussed later in this study.

Since the early 1990s, however, a renewed interest in private sector participation in the provision of water and sanitation services, has been sweeping Latin America. Argentina has embarked on a major privatization program in all sectors including water and sanitation and is now in the forefront of this end-of-the-century privatization effort. Additional countries in Latin America that have privatized or are in the process of privatizing some of their water and sanitation services are Chile, Colombia, Mexico, and Peru. Other countries in Latin America and the Caribbean, such as Trinidad and Tobago, Uruguay, and Venezuela, have attempted to privatize their water companies on a more limited scale.

The Main Problems of the Public Water Company

Traditionally, the services provided by public water companies in developing countries have been plagued by a series of problems, which help to explain the poor performance and low productivity of most public companies. These problems may be classified into four categories: technical and operational, commercial and financial, human and institutional, and environmental. They are briefly described below.

Technical and Operational Problems

Operational practices are inefficient, regular maintenance is inadequate, and preventive maintenance does not exist. Unaccounted-for water is high—40–50 percent of the water produced compared with 10–20 percent in well-managed systems in industrial countries. This is partly due to physical losses through old pipes, which are neither properly maintained nor replaced in a timely manner. Under such circumstances, service expansion is rather limited and cannot cope with population growth.

Commercial and Financial Problems

Consumption metering is limited or does not exist at all. Even when it does, regular meter reading and billings based on actual consumption are rarely practiced. In many cases, water charges are based on lot size and property value, regardless of the amount of water consumed. The unmetered system creates distortions in consumer charges, which

result in legitimate consumer protests. The amount of water produced is usually estimated and not metered. The paucity of reliable data makes planning difficult. Under these circumstances, any attempt to manage demand becomes futile. Water demand may reach very high values of 500–600 liters per capita a day—double the norm for metered and well-managed water supply systems.

Poor consumer records, combined with inefficient billing and collection practices, create commercial losses—the main reason for the high levels of unaccounted-for water. The low collection rates reflect to a great extent the laws prohibiting cutting off water service because of nonpayment, which are based on the traditional idea that water is a basic human need and not a commodity that must be bought. Under these conditions, revenues are generally not sufficient to generate the funds needed to expand service or to protect the aquatic environment against contamination by untreated sewage discharges.

Tariff policies add to the financial problems. Invariably, the level of tariffs does not adequately reflect the true economic cost of future water supplies, let alone the costs of collecting and treating wastewater so that it will not create an environmental hazard. In an effort to reduce the costs of water consumed by low-income groups, tariff structures with large cross-subsidies are the rule. The unfortunate result has been the opposite of what was intended: in unmetered systems with underpriced water, the wealthy who consume more water enjoy the largest subsidies. The poor are rarely connected because utilities view them as commercially unattractive at the low prevailing tariffs. Chile represents an exception because water charges reflect full economic costs and subsidies are provided for the low-income population directly from the central budget rather than through cross-subsidies.

Human and Institutional Problems

Excess staff explains the low productivity of public water companies. Ratios of 5–10 employees per 1,000 water connections are common, compared with a ratio of 2–3 employees per 1,000 water connections for an efficient water company.

Public companies are also plagued by political appointments, excessive political intervention, and inability, due to lack of adequate incentives, to attract sufficient managerial talent and qualified technical staff. Political appointments and noncompetitive wages result in frequent turnover of high-level staff, low productivity, and lack of discipline of the labor force.

Another institutional problem, typical of public water companies, is the lack of clear regulatory responsibility. Many large, national water companies run the risk of a potential conflict of interest by being both operator and regulator. Consequently, in many cases, when the water quality obtained at a treatment plant, for example, is below the expected standard, the easiest regulatory measure is adopted, lowering the standard, rather than improving the operation of the treatment plant.

Environmental Problems

Public water companies have traditionally favored connecting the population to the water system and been slow in connecting them to the public sewerage system. Consequently, sewerage coverage is, in general, much lower than water coverage. When this occurs, the relatively large numbers of households not connected to the public sewerage system dispose of their sewage through cesspools and septic tanks, which may contaminate shallow groundwater aquifers from which some cities withdraw their potable water supply. At the same time, central sewerage systems usually discharge large quantities of untreated sewage into rivers or lakes located in the proximity of the city, sometimes endangering the main source of potable water for the city or of irrigation water for adjacent agricultural lands and creating aesthetic pollution in the city. The health hazards involved in such practices escalated considerably after the recent cholera outbreak in a number of Latin American countries.

The combination of all these problems—technical, financial, institutional, and environmental—ultimately results in unreliable service and unsatisfied consumers and exposes the urban population to unnecessary and unacceptable health hazards.

Rationale for Private Sector Participation

Under the circumstances, it is easy to explain why many authorities have looked for ways of providing water and sanitation services more efficiently. There is a growing consensus that at least some functions, and in many cases all functions, related to the management of water and sanitation services can be entrusted to the private sector. In this context, it is important to remember some of the main characteristics of the water sector.

Water supply is a natural monopoly. In simple words, it is uneconomic to duplicate the water and sewerage network in the city streets. As a consequence, one service provider has such a dominant position that competition is difficult to achieve. In order to protect consumers against abuses of monopoly powers, regulation becomes necessary and important.

The water and sanitation sector is capital intensive. Studies from the United States indicate that the ratio of investments in fixed assets to annual tariff revenue is on the order of 10:1 as compared with 3:1 for telecommunications and 4:1 for the electric power. The higher ratio for water supply and sanitation makes it more difficult to attract private sector participation with responsibility for financing investments because the payback period is long.

The sector has important externalities, mostly related to public health and environmental effects. As a result, there is a need to promote sector investments over and above what a private operator may wish to do because the socioeconomic benefits are larger than the apparent financial benefits. In particular, the importance of achieving full coverage of both water supply and sanitation must be emphasized.

Experience in industrial countries and in some developing countries that have delegated some water and sanitation services to the private sector has shown that private sector participation can result in benefits such as stable management, higher efficiency, and improved access to private capital. The access to long-term private capital is particularly crucial, because water supply and sewerage investments are large and bulky, and the costs can be recovered only over many years. Private financing will generally depend on the perceived risks and the rewards in compensation. The availability of long-term funding will depend on whether a long-term capital market exists. Some countries such as Chile have been successful in creating private pension funds that have invested in infrastructure development. The incentives for international capital to finance the investments are contingent on the guarantees and rewards offered.

Experience has shown that the main catalyst for the interest in private sector participation is the proven record of poor performance and mismanagement characterizing most publicly owned and operated utilities in the region. The few well-managed publicly owned utilities seem to be the exception that confirms the general rule. A second important consideration is the insufficiency of public funds alone to meet the increasing investment needs of both the water and sanitation sector and other sectors.

Two important objectives of private sector participation are, then, to ensure improved management and higher efficiency and to acquire the capital needed for investments. These objectives are closely related. Efficiency gains result in cost savings that can generate investment funds, whereas improved management may ensure easier access to private capital. The incorporation of large amounts of private capital for investment also creates an additional incentive for improving operational efficiency.

Risks Involved in Private Sector Participation

There are risks involved in PSP for both the public and the private sector. There are two primary risks for the public agency: the risk that services supplied by the private sector will not be in accordance with the desired standards and the risk that the cost of such services will be much higher than that currently charged by the public entity.

The risks for the private investor include commercial, financial, technical, legal, and political risks. The commercial risks are that he will not be paid for his services at all times, he will not be able to recover costs in the long term, if the rates are too low and cannot be increased according to needs, and he will not make a reasonable profit. Another commercial risk is related to the market, and that is the risk that the demand for services will be lower than that planned for or assumed. The financial risks are related to currency devaluations and convertibility of local to foreign currency. The issue of convertibility is an important risk, because revenues will be in local currency and part of the investments and borrowings will be in foreign currency.

The technical risks are related to the lack of sufficient knowledge about the state of the installations, the need for replacement, rehabilitation, and expansion, and the resulting operational risk that the installation will not perform as expected. An additional risk is that construction costs will escalate beyond what is planned because of unit price escalation beyond expectations and delays in the construction timetable. As a rule, the construction risk is better borne by the private sector, because experience has shown that private companies are better qualified to execute investments within the budget and timetable envisaged.

The legal risks are related to the ways in which contractual disputes will be resolved, and the main political risk is that the government will expropriate the assets or change its policy toward privatization in the

future. Another political risk is the reluctance of governments to raise tariffs, particularly before elections.

Successful PSP will be conditioned to a great extent on how well these risks can be quantified and mitigated. Careful analysis of the risks involved is required at an early stage of the process, and the sharing of risks between the private and public sector should follow the guiding principle that whoever can control the risk best should assume it and should receive adequate compensation for doing so. Some measures that can reduce the risks will be discussed later in this study, with examples from the Buenos Aires case study.

Options of Private Sector Participation

Private participation in the water sector varies from the fulfillment of limited attributions to overall responsibility. PSP has eight main options, which vary in the degree of involvement of the private sector, the risk for both the public and private sector, the private operator's autonomy and responsibility, the required capital investment, the duration of the contract, and the contractual relationship with the consumer. These PSP options may be grouped into two distinct categories. In the first group, the ownership of the assets remains with the government or the public sector, whereas in the second group, partial or full ownership is transferred (permanently or temporarily) to the private sector. Each group includes four options, which will be reviewed in the order of increasing private sector involvement.

The first group—public ownership—includes:

- Service contracts
- Management contracts
- Lease arrangements
- Concessions.

The second group—at least partial private ownership—includes:

- BOOT (Build-Own-Operate-Transfer) and its variations such as BOT (Build-Operate-Transfer) and BOO (Build-Own-Operate)
- Reverse BOOT
- Joint ownership or mixed companies
- Outright sale.

Service Contracts

Service contracts are the simplest form of private sector participation, whereby the public authority retains overall responsibility for operation and maintenance of the system, except for the specific, limited-scope services that are contracted out or outsourced. The public authority also bears all the commercial risk and must finance fixed assets as well as working capital. The responsibility of the private contractor is limited to managing its own personnel and services efficiently. Service contracts can cover a wide range of activities. Typically, service contracts are used for maintenance, emergency repairs, meter reading, billing and collection, upgrading of existing or construction of new facilities, and equipment rental.

Public authorities that plan to use service contracts extensively may need to undergo some changes to fulfill their new role, which shifts from execution to supervision. For example, institutional reforms may be required to decentralize control, to provide technical assistance at the local level, to enforce standards for quality and control, and to manage staffing changes.

Service contracts are usually set for periods of one to two years and are usually renewable. These contracts require little or no fixed investment on the part of the private firm. Because the contract period is short, contractors are subjected to frequent competition, which encourages efficient performance. In large urban areas, different firms can be contracted in separate geographical areas to deliver the same services. Multiple contracts ensure adequate competition and enable the water authority to compare costs and performance on an ongoing basis.

A major benefit of service contracts is that payments to the contractor are linked to the work performed, instead of guaranteed wages paid to a public utility's workers. For example, a contract for meter reading would stipulate that the operator be paid a set amount for each meter read.

Management Contracts

Management contracts are a more comprehensive arrangement, where the public authority transfers to a private company responsibility for the entire operation and maintenance of a system. This gives the private company the freedom to make day-to-day management decisions without assuming any commercial risks. Under this arrangement, the contractor has no direct legal relationship with the consumer. The private contractor acts at all times on behalf of the public authority, and yet it

will not get paid unless rates are collected from the consumers. The government or public authority retains financial responsibility for the service and has to provide funds for working and investment capital.

Payments to a management contractor are usually proportional to some physical parameters, such as improved efficiency, volume of water produced, improved collection rates, or reduction of unaccounted-for water. Such a payment system creates an incentive for increasing productivity. In case the management contractor does not control the functions affecting productivity or quality, it is often compensated on the basis of a fixed fee.

Because management contracts do not require the contractor to make large investments with long payback periods, their duration is generally from three to five years. They can also feature an option to convert to more intensive, longer-term PSP arrangements. In many cases, management contracts precede leasing or concession contracts. In this case, their main purpose is to put the utility in order when the quality of service is poor or when accounting, consumer records, and information on the physical facilities are not reliable or available.

Lease Contracts

Lease contracts, also known as affermage, are arrangements whereby a private operator rents the facilities from the public authority for a certain period and is responsible for operation, maintenance, and management of the system. The public authority, which remains the sole owner of the assets, is responsible for capital expenditures for new projects, replacement of major works, debt service, and tariffs and cost-recovery policies.

Leaseholders are responsible for all operation and maintenance functions, including offices, vehicles and spare parts, renewals, and replacements as well as for billing, collection, and financing working capital. In many cases, leaseholders pay the owners a rental fee sufficient to service the debt and finance part of the investment program.

Lease contracts can be medium or long-term in duration. They usually last five to ten years but can be extended for as long as twenty years.

Payments to leaseholders are contingent on the difference between the tariff revenues collected and the operating costs. The contractor should be ensured a reasonable return on investment and have incentives for maintaining efficient operations. The fact that the contractor depends on collections for revenue is an incentive to provide good service and establish good billing and collection practices.

The risks involved in a lease arrangement tend to be limited, making them a low-risk PSP option, which allows a private firm to become acquainted with the system and may pave the way for more extensive involvement in the future. When risks are limited, there is more competition from potential private partners, which benefits the public authority. In most cases, the public authority assumes the capital investment risk, and the leaseholder assumes the commercial risk.

The lease contract usually provides for automatic periodic revisions of the contractor rate using price index formulas. It is also common to have periodic renegotiations of the rates and cost index formulas on the basis of results achieved. In this way, savings that the leaseholder has been able to achieve during past years can be passed on to consumers, if the public negotiators are knowledgeable about the potential for reducing costs.

The lease contract also states the penalties that will apply in the case of poor performance. Lease contractors usually put up a security deposit that can be called in by the public authority if performance is unacceptable. If, for example, a major goal of involving the private sector is to reduce pollution, penalties for not meeting quality standards can serve as a contractually backed incentive. A common performance indicator is the level of unaccounted-for water.

Concessions

In a concession, the private contractor, or concessionaire, has overall responsibility for the services, including operation, maintenance, and management, as well as capital investments for the expansion of services. The fixed assets, however, remain the property of the government or public authority, but they are entrusted to the concessionaire for the duration of the concession contract and must be returned in the same condition at the end of the concession period.

The advantage of combining responsibility for operations and investments in the same entity is that it provides an incentive to the operator to make efficient investment decisions, because their consequences will affect it directly. It also provides an incentive for technological innovations, because the operator will benefit directly from any efficiency improvements.

Concession contracts usually run for twenty to thirty years, depending on the level of investments and the payback period needed for the concessionaire to recover investment costs. The concessionaire retains exclusive rights for the duration of the contract. When the contract

expires, all works and equipment are turned over to the government or public authority. If some capital expenditures have not been fully amortized by the end of the contract, the contract usually allows the contractor to be compensated accordingly.

Under concession contracts, the contractor is paid for its services directly by the consumer, based on the contractually set price. The contractor retains the balance of revenues after paying back any taxes and charges levied on consumers by the public authority. If expenses exceed revenues, the private company suffers losses, which is the largest risk it assumes.

Penalties in concession contracts are levied if the concessionaire fails to meet either the targets for service coverage or the quality of service specified in the contract. The penalty fines should be explicitly linked to each cause and should ascend as the breach of contract becomes more serious. The penalties are generally paid to the regulatory agency.

The second part of this study will discuss in detail numerous aspects of the concession arrangement, based on the case study of the Buenos Aires concession.

BOOT Contracts

Under a BOOT contract, a firm or a consortium of firms finances, builds, owns, and operates a specific new facility or system. After a predetermined period of time, ownership of the facility is transferred to the public authority. BOOT contracts have not been used extensively in the water and sanitation sector but are becoming increasingly common in the power and transportation sectors. BOOT arrangements are attractive mostly for new plants that require large amounts of financing—for example, large water treatment plants or wastewater treatment plants—but they are not suitable for water distribution or wastewater collection systems.

Under a BOOT contract, the public authority is often responsible for determining the demand for the service being contracted and, therefore, for the size of the facility. Demand is often guaranteed by the contracting agency, and problems may arise if there are differences between real and estimated demand.

The duration of BOOT contracts is almost always the period of time needed to retire the debt incurred and to provide a return to equity investors. At the end of this period, the contractor transfers the facility to the public authority. In some cases, provisions may be made for holding new negotiations to determine possible ongoing private interest in ownership or participation in operations.

A BOOT contract can represent a substantial risk for the private firm, if there are no assurances that the output of the investment will be paid for by the public authority or that the quality of services will be uniform and according to design standards. The enforcing capacity of the public authority to ensure that only legal discharges into the source will be allowed is a special risk for the private operator.

Experience with BOOTS has shown that four issues require careful consideration. First, the legal basis for private sector involvement in areas often reserved for the public sector has to be established. The second issue pertains to the effect on financing caused by the size and length of time of these contracts. The time taken to implement a BOOT transaction is usually longest for the first one undertaken by a country. Subsequent projects may be expedited due to previous experience. Many BOOT projects tend to be large and can cost millions of dollars. The large size and the long maturities required raise the complexity of the financing package and, often, the number of financiers needed to complete the package.

The third issue pertains to pricing and contractual arrangements. The risks are unique because of the normally regulated structure of the water industry. Pricing and contractual arrangements in some cases have to cover the project's foreign exchange risk because infrastructural BOOTS rarely have foreign exchange revenues, but dividends to foreign equity investors as well as debt service of external loans need to be in foreign currency. Pricing is also difficult because it is often predetermined, and the private investor does not have the opportunity to recoup early losses by realizing higher profits when industry conditions improve. These pricing arrangements are often based on preconstruction estimates of capital costs and project implementation times.

And, fourth, the level of tariffs and the quality of service provided can become particularly sensitive because, in most cases, the private company is providing a service directly to consumers.

A slight variation of the BOOT system is known as BOT, whereby ownership is transferred to the public sector as soon as the facility is completed, and the function of the private firm is only to build and operate it. Another variation is BOO, whereby ownership is not transferred to the public sector but remains with the private firm that builds and operates the facility.

Reverse BOOT Contracts

In countries where economic or political risks are high, private sector firms either may not be interested in participating in a BOOT-bidding

process or may request very high risk premiums in return for their participation. In these cases, it may be preferable for the public sector to finance and build the plant itself and then to contract a private firm to operate the plant over a long period of time. To acquire the plant gradually, the private firm pays an annual fee to the public authority, which usually covers the full debt service of the entire investment cost.

The lower risk of reverse BOOT, as compared to BOOT, may encourage more private sector firms to participate. Reverse BOOT offers the advantages of efficient private sector operations and encourages the private operator to maintain the facility well because it expects to become the owner at some point in the future.

Joint Ownership

In some cases, it may not be feasible to pass full responsibility for investment and operations to the private sector, particularly during the initial stages of a sector reform program. If the country environment is risky, capital investments may have to be separated from operations in order to attract private involvement in operations. In such cases, where it is desirable to maintain a higher degree of private sector participation than service or lease contracts allow, joint ownership may be a good solution. Under joint ownership, a private sector firm and the public authority incorporate a firm under the normal commercial code. Initially, they have equal or almost equal shares, then later, the public authority may sell off its shares. Although both own shares, the public authority may keep a golden share, which entitles it to special powers that may be used only in specific situations.

The private partner typically has majority representation on the board of directors of the new firm, even though the public and private equity shares are equal. In this case, the private sector partner prevails in the day-to-day management of the new firm. More substantial decisions are made by a qualified majority, as required by law.

Joint ownership companies require a corporate agreement that spells out in detail the objectives of joint ownership, the duties and obligations of the two partners, and their rights. In particular, the corporate agreement should spell out how profits will be shared between the public and private partners. Successful jointly owned companies can be expected to establish creditworthiness and to raise capital by floating bonds or issuing notes. This has the advantage of limiting public sector debt, an important sector objective.

In countries with a weak regulatory tradition, joint ownership may satisfy regulatory requirements because the public sector is repre-

sented by a board of directors and will have broad insights into the firm's operations.

Outright Sale

The sale and private ownership of water supply and sewerage systems may be prompted by the desire to completely separate ownership from operations and maintenance. It is also a way for the public sector to raise revenues. The attraction to private buyers depends mainly on the rates they are permitted to charge, because the installations themselves have virtually no alternative value. Even when water supply and sewerage systems are privately owned, it does not follow automatically that the water resources are also private.

Recent experience with full privatization of the water sector is limited, but shares of the company are usually sold on the stock market to private investors. Pressure to operate efficiently is exerted through the operation of the stock market.

Comparison of PSP Options

The eight PSP options reviewed vary in the private and public entity's roles in ownership, financing, and management. To varying degrees, all these options promote the operational efficiency and commercial viability of water and sanitation utilities. At the same time, they introduce competition, improved cost recovery, and, in most cases, performance-based compensation.

They feature flexibility and the potential to progress from less risky arrangements with no private investment to more risky arrangements that involve private investment as the two parties gain credibility and confidence. A combination of options is also possible, for example a lease for distribution systems and a concession or BOOT for a new treatment plant.

Service and management contracts are designed to improve operations within specific activities, usually in the short term. The public authority retains ownership and responsibility for the system. Arrangements in which the contractor assumes commercial risks offer the advantage of motivating the contractor to improve the efficiency of the system. Thus, lease contracts and concessions are more likely to lead to the least-cost output than are service contracts in which compensation is not linked to revenues. Concessions may be preferable to lease contracts if there are advantages to assigning responsibility for investment, in addition to operations, or if large amounts of private capital

are required. The operator is well placed to forecast demand and make investment decisions that will satisfy demand in a commercially viable way.

Only in concessions does the private operator have an incentive to invest efficiently, because it is responsible for recovering both current and capital costs. In contrast, in lease contracts, the lessee who is responsible only for current costs may influence the public owner of the assets to make excessive investments in order to reduce the operating costs. The potential conflict is greater if the lessee/operator belongs to an integrated group that manufactures equipment, while at the same time providing advice to the public owner on investment decisions.

Recent efforts to attract large-scale private investment in water supply assets through BOOT contracts have been successful in a few cases. Because BOOT contracts involve gradual transfer to the public authority or the private contractor at some future time, they can be a useful transitional approach in countries where the private sector has previously not had any role in providing water services.

Joint ownership or mixed companies can reduce risks and attract private sector involvement more readily. Full privatization by selling assets or floating shares on the stock market is the most advanced option, but it is rarely used in the water sector.

Table 1-1 provides a summary comparison of the four PSP options in which ownership remains with the public sector: service, management, lease, and concession contracts. It shows the sharing of responsibilities between the public and private sectors, with respect to the financing of investments and working capital, as well as the contractual relation with the consumers and the setting of rates. The private capital needed, the private sector responsibility and autonomy, as well as the financial risk involved grow from low to high in the options compared.

Table 1-2 summarizes the eight options for PSP with emphasis on the ownership and financing of fixed assets and on the management of the system.

Main Elements of Success and Obstacles to PSP

A successful PSP should be viewed as a partnership between the public and private sectors aimed at maximizing the benefits for the consumers.

The three objectives of the public sector with respect to private sector participation are to expand the water supply and sewerage systems in order to increase population coverage, to expand sewage treatment

Table 1-1. Main Features of PSP Options with Public Ownership

| <i>PSP option</i> | <i>Service contract</i> | <i>Management contract</i> | <i>Lease contract</i> | <i>Concession contract</i> |
|--|--------------------------------|---|------------------------------|----------------------------|
| Financing of investments | Public sector | Public sector | Public sector | Private sector |
| Financing of working capital | Public sector | Public sector | Private sector | Private sector |
| Contractual relation with customers | Public sector | Private sector on behalf of public sector | Private sector | Private sector |
| Private sector responsibility and autonomy | Low..... | | | High |
| Need for private capital | Low..... | | | High |
| Financial risk | Low..... | | | High |
| Duration (years) | 1-2 | 3-5 | 5-10 | 20-30 |
| Responsibility for setting rates | Public sector | Public sector | Contract | Contract |
| Method of payment | Work done—unit price, lump sum | Cost-plus and productivity bonus | Basic rates | Rates |
| Method of recovering public expenditures | Rates | Rates | User overcharge | Not applicable |
| Main objective of PSP | Improve operating efficiency | Improve operating efficiency | Improve operating efficiency | Mobilize private capital |

Table 1-2. Comparison of PSP Options

| <i>Option</i> | <i>Ownership</i> | <i>Financing</i> | <i>Management</i> |
|------------------|----------------------|--------------------|----------------------|
| Service contract | Public | Public | Public, some private |
| Management | Public | Public | Private |
| Lease | Public | Public | Private |
| Concession | Public | Private | Private |
| BOOT | Private, then public | Private | Private |
| Reverse BOOT | Public, then private | Public | Private |
| Joint ownership | Private and public | Private and public | Private and public |
| Outright sale | Private | Private | Private |

in order to reduce water pollution and public health hazards, and to provide better quality of service. The secondary objectives are to ensure higher operating efficiency and to finance the system without public subsidies or guarantees.

The cooperation between the public and private sectors must be of mutual benefit, and the public must be informed and educated about the reasons for involving the private sector in what is perceived as a natural, public sector monopoly.

The most adequate PSP option should be selected in each case, and the consensus of the main stakeholders must be obtained to ensure its adoption. The selection of the most suitable PSP option must take into account the political, legal, and cultural circumstances of the country involved as well as the institutional, financial, and technical characteristics of the water and sewerage system or project involved.

The contracts with the private sector must be robust to resist time and public scrutiny, and the public sector must be capable of supervising these contracts. The targets set in the contracts must be realistic so that they translate into reasonable and affordable rates.

In order to achieve these objectives, experienced advisors (technical, financial, and legal) must be retained by the public sector agency, if necessary.

Some of the main obstacles to private sector participation are:

- Resistance to what is perceived as loss of control
- Lack of adequate legislation

- Bureaucratic inertia
- Lack of confidence in the private sector, based on the sometimes prevailing misconception that it “just wants to make money”
- Lack of knowledge about private sector methods
- Reluctance to face labor problems
- Lack of interest on the part of the private sector
- Unfavorable public opinion
- Fear of foreign operation.

In most PSP options, some of these obstacles can be overcome by procuring the services required through a transparent bidding and award process. The bidding procedures should include, at a minimum, establishment of sound prequalification criteria and procedures, clear definition of evaluation criteria, and preparation of the documents well enough in advance to permit open and universal bidding.

The most important factor that can determine the success or failure of a concession is a clear contract that defines the relationship between the concessionaire and the regulatory body. An effective agreement should clearly define the geographical area of the concession; the specific services to be provided; the standards to be met for quality, service coverage, or effluent standards; the financial, accounting, and management objectives; the employer’s obligations that the concessionaire must follow; the conditions for terminating the contract and applicable penalties; the recourse the concessionaire has if new laws or regulations affect original conditions; and the right to arbitration.

Regulatory System

Some type of regulatory framework is necessary to monitor and control the private sector operations. In this context, lack of regulatory systems or failure to enforce existing regulations are two of the main causes of unreliable service provided by public water utilities.

In all PSP options, the central or local government retains its important regulatory role and can thus oversee the sector and provide the guidance it may need. Private sector participation does not mean that the public sector loses control, but rather that it adopts a new division of tasks between public and private partners, based on the comparative advantage of each. The main objectives of the regulatory system are to: ensure compliance with standards of acceptable service, protect the rate payer from monopolistic behavior, and create a business environment that promotes commercial viability and attracts the private sector.

One of the main elements that affects the success of a PSP arrangement such as a concession is the establishment of an adequate regulatory body that oversees the compliance of the concessionaire with the terms of the concession contract. The regulatory body should have political independence—members should be appointed for a fixed period of time and only be removed for abuse of authority or illegal activities—and transparency—all the proceedings of the body should be a matter of public record. The concession agreement should be followed in such a way that the rights and obligations of all parties are guaranteed. The regulatory body should have access to legal recourse to ensure a reasonable degree of predictability. In most cases, the newly established regulatory agency will have to be strengthened so that it is able to confront an experienced private operator.

In the absence of a formal regulatory body, contract regulation becomes necessary. The compliance of such contracts is monitored by the public partner. Contract disputes can be referred to civil courts for decisions.

PSP in Latin America and the World

Service contracts have been used successfully in Chile. Since 1977, EMOS—the public water utility in Santiago—has encouraged its employees to leave the company and form private firms that can bid for service contracts. Contracts for meter reading, billing, maintenance, and vehicle leasing are awarded by competitive bidding for periods of one to two years. As a result of this policy, EMOS has one of the lowest rates of staff per water connections (2.2 company employees per 1,000 water connections, or 3.5 per 1,000 water connections considering the equivalent cost of the service contracts).

Management contracts, which have been traditionally used in France and Spain, have been recently introduced in Guinea-Bissau and Mexico.

Lease contracts have been used extensively in France and Spain for some time and are presently used in Bolivia, Côte d'Ivoire, the Gambia, and Guinea. Concession contracts have been used extensively in France and Spain and, more recently, in Argentina, Chile, and Côte d'Ivoire.

In Latin America, examples of BOTs or BOOTs in the water sector can be found mostly in Mexico for upgrading and expanding wastewater treatment plants in various cities. Chile has plans for to use BOT arrangements to contract the construction and operation of major wastewater treatment plants for Greater Santiago. In Australia and Malaysia,

BOOT arrangements are used for the construction of large water treatment plants.

Examples of joint ownership or mixed companies can be found in France, Guinea, and Spain. In Latin America, the mixed-company model was recently adopted in Colombia. The best example of full privatization of water supply and sewerage is that of the United Kingdom, where the ten major water companies were privatized in 1989 through the sale of shares to private investors on the stock market. A special regulatory body (OFWAT) was created to protect consumers from the excessive charges that might result from such privatization. In the United States, a large number of small privately owned systems are in operation.

As experience with these types of operational and investment options grows, it is expected that more governments will develop the institutional capabilities to enable a more permanent private sector presence in the water sector, while at the same time ensuring the protection of public interests.

2. Case Study— The Buenos Aires Concession

The government of Argentina, with the World Bank's support and assistance, embarked in 1990 on a massive and ambitious privatization program, encompassing virtually all the public services and federally owned enterprises such as electricity, natural gas, oil, telephone, water supply and sewerage, airlines, railways, subways, roads, and ports. Privatization was part of a comprehensive state reform, which consisted of a series of macroeconomic measures adopted by the government with the ultimate objective of promoting economic stability. The most notable of these reforms was the convertibility plan establishing parity between the Argentine peso and the U.S. dollar. Privatization in Argentina was basically aimed at reducing the fiscal deficit by collecting more revenues from either the direct sale of assets or the elimination of subsidized, inefficient public services, while at the same time improving the quality of the infrastructure services provided to the population.

By the end of 1992, the shares of at least thirty companies had been partially or totally sold to the private sector, and more than twenty services had been transferred to the private sector in the form of concessions. By the end of 1994, more than 90 percent of the federal privatization program was completed, and various provincial privatization programs had gotten under way.

In the water sector, the concession for the water supply and sewerage services of Greater Buenos Aires, which started operating in May 1993, was preceded by a smaller concession in the province of Corrientes. By the end of 1994, several other provincial water companies, which were following the Buenos Aires concession model, were in advanced stages of contract negotiations, bidding, or bid preparation.

Background

At the beginning of the century (1912), a national public company—Obras Sanitarias de la Nación (OSN)—was established to be in charge of water supply and sewerage for the entire country. Many decades later (1980), a major reform to decentralize the sector took place, whereby the provincial governments took over from the federal government the responsibility for local water supply and sewerage services, and OSN remained in charge of Buenos Aires only.

The Greater Buenos Aires area is comprised of the city of Buenos Aires—the federal capital—plus thirteen municipalities surrounding the capital and belonging to the province of Buenos Aires (first-belt municipalities), which are connected to the same water supply and sewerage systems. The total population of Greater Buenos Aires was 8.6 million in 1991, of which only some 6 million (70 percent) and 5 million (58 percent) were connected to the public water supply and sewerage systems, respectively.

The magnitude of the Greater Buenos Aires system is indicated by the huge extension of its water distribution network (some 11,000 kilometers) and sewage collection network (more than 7,000 kilometers) as well as by the large daily water production capacity—more than 3.6 million cubic meters a day, of which more than 70 percent are produced at the San Martín water treatment plant, which is one of the largest of its kind in the world (a capacity of almost 30 cubic meters a second). The main source of water supply is the River Plate, which feeds both the San Martín plant and a second smaller and newer plant (Belgrano), which has a capacity of 1.0 million cubic meters a day. The river water is conveyed to the consumption areas by means of several gravity tunnels referred to as underground rivers (*ríos subterráneos*), from which it is pumped to the distribution network and storage reservoirs. The remainder is supplied by groundwater wells (about 250 are presently in operation), which have been contaminated, mostly by nitrates as a result of the direct disposal of untreated sewage, and are being gradually phased out.

Most of the sewage collected by the network—some 2.2 million cubic meters a day—is returned without any prior treatment to the River Plate, downstream of the two main water intakes, by means of an outfall 2.5 kilometers long. Untreated domestic and industrial sewage also flows into several rivers and creeks crossing the metropolitan area and eventually discharging into the River Plate, in some cases upstream of the water intake. Only one wastewater treatment plant (the Southwestern plant, with a capacity of 120,000 cubic meters a day)

treats a small percentage (5 percent) of the total sewage flow before discharging its effluent into the nearby river.

Prior to privatization, OSN administered about 1.2 million water connections and almost 1 million sewage connections. Its yearly billing amounted to some \$300 million.

Rationale for Private Sector Participation

The operation of the Greater Buenos Aires system by OSN was characterized through the years by a series of problems, most of which are experienced by many water companies in Latin America and around the world. Most of these problems were described in chapter 1 of this study.

Unaccounted-for water was high—about 45 percent of the water produced. OSN was famous for constructing monumental waterworks, some of which were only partially used, while at the same time devoting little attention to the rehabilitation of existing installations.

Water meters were installed at only 20 percent of the connections, but regular meter reading and billing based on actual consumption were virtually absent. Water demand was estimated in the high range of 400–500 liters per capita a day—double the norm for metered and well-managed water supply systems.

With a staff of some 8,000, OSN had a serious problem of excess personnel—a ratio of 8–9 employees per 1,000 connections, compared with a ratio of 2–3 for an efficient water company. This problem was exacerbated after the 1980 decentralization reform, when almost the same number of employees who had previously operated the water systems of the entire country remained in charge of Greater Buenos Aires only, that is, about one-third of the total number of connections. In addition, the company was plagued by a series of political appointments and excessive political intervention.

The decision of the central government, supported by the World Bank, to include OSN in the first package of state-operated enterprises where private sector participation would be sought, was based on the recognition that huge investments were required for rehabilitating and expanding the water and sewerage systems, on the one hand, and that the performance of OSN as a public company continued to be poor, despite various attempts to improve it, on the other hand.

In addition to a series of substantial loans provided to OSN by the Inter-American Development Bank (IDB), one attempt to improve its operation was the inclusion of OSN (together with the provincial water

companies of Córdoba and Santa Fe) in the World Bank's first water supply loan to Argentina, which was granted in 1986. This loan provided funds for a technical assistance ("twinning" type) contract between OSN and a consortium composed of an international operator of a well-managed water system and an international consulting firm. After a lengthy selection process, OSN hired twinning consultants in 1988 to assist in increasing its operational and institutional efficiency. The work was to be carried out in three phases: first, preparation of a detailed diagnosis of the situation; second, identification and evaluation of possible solutions; and third, help in implementing the recommended solutions. The consultants managed to complete successfully only the first and part of the second phase of their work. Although some of their recommendations could have been carried out to provide rapid improvements, OSN never implemented them.

In 1991, the government's decision to privatize OSN, and OSN's decision not to contract the twinning consultants to assist in this task, dealt the final blow to the twinning contract and provided OSN with a legitimate excuse not to implement any of the consultants' recommendations. It was decided to let the future private operator make all the necessary improvements. The twinning contract, which had suffered all along from a lack of cooperation between the consultants and OSN, was terminated after lengthy negotiations of the consultants' claims; the twinning consultants were phased out. Nevertheless, a major effort was undertaken at the World Bank's initiative to rescue at least the large amount of information accumulated by the twinning consultants during their work.

The main reasons that led to the decision to privatize OSN are in line with experience elsewhere, which has shown that either one of the following two considerations, or a combination of both, are the main catalysts of private sector participation: (1) the record of poor performance and mismanagement characterizing public utilities in general and (2) the insufficiency of public funds alone to meet the increasing investment needs of the water and sewerage sector.

Main Stages of Transition from Public to Private Operation

The transition from a problematic, inefficient public operation to a competent private operation cannot be accomplished instantaneously—it is a process encompassing many activities that must be carried out sequentially within a certain period of time in order to ensure the successful completion of the whole process.

Four stages can be distinguished in the case of Buenos Aires that should be applicable, with minor adjustments or modifications, to any operation involving private sector participation:

- Stage I. *The initial activities*, which are undertaken prior to the decision on how to privatize
- Stage II. *The preparation of bidding documents and background materials* required for selecting a qualified operator
- Stage III. *The bidding and contracting process*, which culminates with the signing of the respective contract
- Stage IV. *The actual transfer of services* to the private operator and the setting up of the regulatory agency.

The main activities involved in each of these stages, together with some observations resulting from the Buenos Aires case, are presented below.

Stage I: Initial Activities

This stage includes all the activities undertaken from the moment privatization is considered until the decision is made to issue the call for bids for a specific form of private sector participation. It is the most complex and often the most time-consuming of all stages, because it involves a series of important high-level decisions that have to be made.

COMMITTEE FOR PRIVATIZATION. To manage the privatization process without interfering with the daily operation of the company, the government appointed an eleven-member special Privatization Committee, whose main task was to overview and coordinate all the activities involved in preparing the private concession. The committee included representatives from the relevant institutions: OSN, municipality of Buenos Aires, province of Buenos Aires, Ministry of Economy (Public Works and Privatization Secretariats), Congress, and the labor unions. Concern was expressed about whether a committee representing such a broad range of interests and opinions was capable of making timely decisions. Nevertheless, the committee, which chose to make its decisions by consensus building, worked intensively and managed to fulfill its tasks satisfactorily and more or less within the timetable established.

SELECTION OF PSP OPTION. As soon as the decision was made to consider privatization of OSN, the relevant government officials briefly

considered the possible options of private sector participation, such as service contracts, management contracts, leases, concessions, and the sale of assets. It was determined that a long-term concession was the most appropriate option to pursue. Because of the need for large investments in water supply and, especially, in sewerage and control of water pollution, all of the options that exclude the obligation of the concessionaire to invest in the system (service contracts, management, lease) were considered unsuitable in this case. The concept adopted was the French concession model, whereby a private or mixed enterprise assumes responsibility for operating, maintaining, and investing in the system during a long period of time (twenty to thirty years), but the assets remain the property of the public sector.

EVALUATION OF RISK. The risks involved in PSP for both the public sector and the private operator were evaluated with the objective of identifying the main factors that could mitigate such risks and thus increase the likelihood of private sector participation. The main risks for the public agency and the private investor were reviewed in chapter 1. To reduce the risk for the public sector that services supplied by the private sector would not be in accordance with the desired standards, it was decided to prequalify all interested participants to ensure that only capable, qualified firms would eventually participate in the bidding process. To reduce the risk for the public sector that the cost of such services would be much higher than that currently charged by the public entity, it was decided to carry out a careful evaluation of the technical and economic feasibility of the venture prior to issuing the bids and to ensure maximum transparency of the bidding process.

As for the private participants, the technical and commercial risks were mitigated by providing potential bidders with all the available information on the system and by changing existing legislation and policies, if necessary, to ensure payment for services provided and to permit cutting off the service in case of nonpayment. The financial risks were reduced by ensuring free convertibility of foreign currency. And, finally, the legal risks were reduced by introducing in the concession contract clear clauses on arbitration or other modalities of resolving disputes.

SCOPE OF OPERATION. A decision had to be made on the scope of the concession, because OSN, in addition to its main task of providing water supply and sewerage services to Greater Buenos Aires, had developed a series of other activities, some related and some not related to the main services provided. It was decided that the concession

would include operation and management of the water supply and sewerage systems in the service area of OSN, rehabilitation of existing facilities, and gradual expansion and upgrading of service in the same area. In future, the concession could also be extended to areas presently serviced by others, by mutual agreement of the concessionaire and the regulatory authority. It was also decided that complementary activities carried out by OSN, which were related to its main task, such as production of water treatment chemicals, repair shops, transport, and laboratory services, could continue as they were modified or discontinued by the concessionaire.

Some of the activities previously under the responsibility of OSN but not related to the provision of water supply and sewerage services were excluded from the concession. These included rainstorm drainage (which was transferred to the municipalities), control of industrial water pollution (for which a new Secretariat for Environment had been established), certification of sanitary devices, as well as a series of establishments used for the employees' benefit such as a kindergarten, a school, a hospital, and a club.

CONCESSION SIZE. Because of the huge size of the proposed concession, consideration was given to the possibility of dividing the service area into two or more concessions. The advantages of such a division, which was favored by the World Bank, would be to avoid a monopolistic approach, to spur competition, and to enable comparisons between the performance of at least two operators. The division of Buenos Aires was conceivable, because the city is supplied by two production and treatment plants. Nevertheless, because the two systems are connected, it would have been necessary to separate them physically and to meter the amount of water transferred from one system to the other (similar to the situation in Paris, France). The construction of such separation required certain investments and time. Another disadvantage was that the division of the area into two concessions would have granted one concessionaire a more affluent area, leaving the other with a lower-income population having less capacity to pay for the service. Because such division would have delayed the whole process of privatization, it was eventually rejected.

Stage II: Preparation of Bidding Documents

After the important aspects mentioned above had been analyzed and the relevant decisions taken, it was necessary to prepare the bidding documents and the background material required for bidding. To do

this, the Privatization Committee decided to hire specialized privatization consultants. In this particular case, two consulting firms were contracted: a technical engineering firm for preparing the technical and legal documentation required and a financial engineering firm for carrying out the financial analysis required and promoting the concession among potential investors. Funds for the privatization consultants, as well as technical advice, were provided by the World Bank through the ongoing loan to OSN.

The Privatization Committee, with the assistance of the World Bank, prepared the terms of reference and the short list for the privatization consultants, evaluated and compared the proposals received, and awarded the consultant contracts, in accordance with the guidelines for contracting consulting services financed by World Bank funds.

REGULATORY FRAMEWORK. The first major task of the technical privatization consultants was to prepare the draft regulatory framework under which the concession would operate, which, after it was reviewed and completed by the Privatization Committee, was submitted to Congress for approval. At the same time, the representatives of the municipality of Buenos Aires, the province of Buenos Aires, and the federal government (via OSN) started laying the ground for the new regulatory agency (Ente Tripartito de Obras y Servicios Sanitarios—ETOSS), where these three organisms would be equally represented: the central government as the owner of the assets and the municipality and the province of Buenos Aires as the representatives of the geographical areas served by the concession.

PROMOTION AND DISSEMINATION. A brochure was prepared for the purpose of promoting the future concession among potential investors worldwide. The brochure contained a general description of the existing system, the objectives and legal background of the privatization, the general terms of the bidding process to be used, some essential aspects of the concession, the regulatory framework, and the expected timetable. The brochure was widely distributed to potential investors and operators, both nationally and at a series of international seminars organized in the world's main financial centers.

TECHNICAL AND FINANCIAL FEASIBILITY. The technical and financial feasibility of the concession had to be carefully evaluated before starting the bidding process, to avoid setting up unrealistic levels of expectations and creating the embarrassing situation whereby potential bidders would be initially interested only to discover later that the

“business” was not attractive. Because enormous investments were required to rehabilitate and expand both the water supply system and the sewage collection and treatment system, it was necessary to identify and compare various possible scenarios for expansion of these systems, in order to select the recommended scenario—a set of achievable targets resulting in reasonable water rates. These targets would be presented in the bidding documents as the basis for the offers submitted.

LEGAL ASPECTS. In order to provide the potential bidders with clear and unequivocal information on the legal environment with which they might not have been familiar, a review and analysis were undertaken of all current laws, decrees, and policies relevant to the concession. This kind of information, which was eventually incorporated as an annex to the bidding documents, included, for example, details on the rather elaborate current system of water rates for unmetered and metered consumption and on the variety of federal, provincial, and municipal taxes, duties, and contributions currently applicable in Argentina for local and foreign operations.

FINANCIAL MODEL. The privatization consultants developed a financial model designed to help in the evaluation of the different programs proposed by bidders. This model included the proposed program’s sensitivity to operational improvements such as billing and collection efficacy, the cost recovery at various water rates that would be charged, and the requirements for self-financing by the private investor.

WATER QUALITY STANDARDS. A set of water quality parameters was defined for the purpose of serving as standards for the potable water to be produced under the concession. Similarly, two sets of effluent quality parameters were determined for wastewater undergoing primary and secondary treatment. All these figures were based on national and international standards as well as on historic data collected by OSN.

PREQUALIFICATION DOCUMENT. Because of the interest expressed by many national and foreign companies, it was decided early in the process to incorporate a prequalification stage to ensure that only qualified bidders would submit bids. This decision resulted in an additional task for the privatization consultants—the definition of prequalification criteria and the preparation of a brief prequalification document.

BIDDING DOCUMENTS. The ultimate and most important task of the privatization consultants was to prepare the complete bidding documents to be used for inviting bids from the prequalified participants. The multivolume document included a detailed description of the existing situation, the essential aspects of the concession, the various performance targets that should be met at various stages of the concession, a model contract, as well as the evaluation and award methodology to be employed.

The numerous annexes to the bidding documents included additional material such as the regulatory framework; the current water rate system; the current tax system; consumer regulations;² the water and wastewater quality standards expected; water test results; inventories of fixed and mobile assets; lists of ongoing construction and service contracts, projects prepared or in execution, and materials in stock; details on existing OSN loans from IDB and the World Bank; and lists of OSN personnel with their qualifications and experience.

In addition to the material prepared by the privatization consultants specifically for the bidding documents, the large amount of information generated previously by the twinning consultants was also considered useful and incorporated as an annex to the bidding documents. This annex included a description of the condition of existing installations and, in some cases, recommendations on the low-cost operational improvements that could be carried out to produce rapid gains in operational efficiency and to raise revenues.

Before the publication of the bidding documents, the Privatization Committee organized a meeting with the bidders—all representing companies of recognized experience and prestige—in order to test their reaction to some controversial aspects of the concession and the bidding process. The privatization consultants took into account some of the comments made during this meeting when they prepared the final version of the bidding documents.

Stage III: Bidding and Contracting Process

This stage includes all the activities from the moment bids are called for until the contract with the winning consortium is signed. If a prequalification step is included, it starts with the call for prequalification.

THE PREQUALIFICATION PROCESS. The main objective of the prequalification was to ensure that participation was restricted only to bidders having the technical expertise and financial capability to undertake a concession of such magnitude and to minimize the effort and

time eventually needed to evaluate the proposals submitted. As a result of the high prequalification standards and possibly of the relatively high cost for the prequalification document (\$30,000, which included the cost of the bidding documents for the prequalified firms), some companies that had expressed interest withdrew, and others formed consortia among themselves or with newly recruited partners.

The technical requirement for prequalification stipulated the minimum population of the largest city served by the bidder and the minimum aggregate population served by its entire operation. The financial requirements were minimum figures for the total annual billing and the net share capital. An additional requirement that had to be fulfilled was related to the shareholding distribution regime of a consortium. At least 25 percent of the shares had to be owned by the operator, 10 percent had to be allocated to the employees,³ and at least 51 percent had to be owned at any time by the concessionaire, that is, only a minority of up of 49 percent of the shares could be sold.

Five strong international consortia, incorporating French, British, Spanish, and local partners, were prequalified. The operators leading these consortia were the two largest French private firms (Lyonnaise des Eaux-Dumez and Compagnie Générale des Eaux), two of the largest British private firms (Thames Water and Northwest Water), and the largest Spanish public firm (Canal Isabel II).

THE BIDDING PROCESS. All the prequalified participants were invited to submit bids. At this stage, the World Bank's assistance and direct involvement in the procurement process came to an end, because the Bank was not going to be involved in financing the operation of the concession. The privatization consultants, however, continued to assist the Privatization Committee at all stages of evaluating the bids and awarding and contracting the concession. The participants reacted positively to the bidding documents. Because of the magnitude of the operation and the high risks involved, all the bidders spent a large amount of resources to send their own engineering and financial teams to carry out an independent evaluation of the system and prepare the detailed proposal. All bidders were satisfied with the clarity of the documents, the technical requirements, and the evaluation criteria. This confirmed that the intensive work invested in preparing the bidding documents by all parties involved (the Privatization Committee, privatization consultants, and the World Bank) had been worthwhile and the extra time taken well spent. It eventually allowed timely

and straightforward evaluation of the proposals and award of the contract, which did not cause any dispute or polemic.

All five prequalified firms participated in the bidding process, although only four bids were submitted (rather than compete with one another, the two French operators agreed on a joint venture for this large operation). Bid evaluation was a two-envelope process. The envelopes with the technical proposals were opened and evaluated first. One consortium proposed an innovative and original wastewater treatment solution, consisting of chemically aided primary sedimentation followed by aerated lagoons, constructed on two artificial islands to be built in the River Plate, at a distance of several kilometers from the shore. The Privatization Committee, with the assistance of independent engineering consultants, evaluated the proposed technology and concluded that its technical and economic feasibility were not fully proved. Because of the unknown geotechnical conditions of the riverbed, such a solution could result in high cost overruns and construction delays. That bid was considered technically unresponsive. The other three bids were considered technically responsive, and their corresponding price envelopes were opened.

As stipulated in the bid evaluation and award methodology, the concession was awarded to the bidder who offered to charge the lowest water rate, while meeting the required service levels and performance targets. The proposed water rate was expressed by means of a K factor (similar to the one used in the British privatization)—a decimal fraction applied to the current water rate, which could be less than, equal to, or more than 1.

Two aspects of the price offers were particularly interesting. First, the winning bidder offered a rate almost 27 percent lower than the current water rate at the time of bidding.⁴ Second, the difference between the rate of the winner ($k = 0.731$) and of the runner-up ($k = 0.739$) was minimal, whereas the rate of the third bidder was higher ($k = 0.885$). The first aspect—the considerable reduction of the water rate—proved beyond any doubt that the private concession was feasible and that the operation of the Greater Buenos Aires system could be an attractive business, if carried out efficiently. In this context, it should be mentioned that the government had decided to implement a long-due raise in water rates by approximately 8 percent just prior to the call for bids. The second aspect—the closeness of the price offers—demonstrated that the bidding documents were clear and unambiguous.

THE CONCESSION CONTRACT. After final negotiations with the winning bidder, a thirty-year concession contract was signed, and a take-

over date was set to coincide with the beginning of a bimonthly billing period. On May 1, 1993, the private concessionaire—an international consortium named Aguas Argentinas (AA), led by Lyonnaise des Eaux-Dumez and comprised of four French, Spanish, and British operators as well as three Argentine investors,⁵ started operating the Greater Buenos Aires system—the largest private water and sewerage concession in the world to date. On the same date, ETOSS started to function formally as the regulatory agency in charge of administering the concession contract. Some important aspects of the concession contract are briefly described below.

- *Performance targets.* The concession contract did not specify the investments that must be made. Instead, gradual performance targets were set for such parameters as water and sewerage coverage (percentage of population served), percentage of wastewater to receive primary and secondary treatment, percentage of water and sewerage network to be renovated, and maximum percentage of unaccounted-for water (see table 2-1).
- *Quality of service.* The contract also stipulated the quality of service required (water pressure, continuity of supply, and water quality) as well as the maximum acceptable levels of various contaminants allowed in the sewage discharged to collectors and in the sewage disposed of into receiving water bodies without treatment, with primary treatment, and with secondary treatment. The frequency of sampling and analysis was also stipulated. The quality requirements for both potable water and sewage effluents were set to tighten gradually every five years (1993, 1998, and

Table 2-1. Performance Targets of the Buenos Aires Concession
(percent)

| Year of the conces- sion | Population coverage | | Sewage treatment | | Network renovation (cumulative) | | Unaccounted- for water |
|--------------------------------|------------------------|----------------------|---------------------|----------------|---------------------------------------|---------------|---------------------------|
| | Water supply | Sewage collection | Prim- ary | Secon- dary | Water supply | Sewer- age | |
| 0 | 70 | 58 | 4 | 4 | 0 | 0 | 45 |
| 5 | 81 | 64 | 64 | 7 | 9 | 2 | 37 |
| 10 | 90 | 73 | 73 | 14 | 12 | 3 | 34 |
| 20 | 97 | 82 | 88 | 88 | 28 | 4 | 28 |
| 30 | 100 | 90 | 93 | 93 | 45 | 5 | 25 |

2003). These requirements, together with many others, are enforced by a government decree issued in 1992, which set up the regulatory framework of the concession.

- *Metering.* Metering of consumption and the application of the corresponding rates based on consumption were compulsory for nonresidential (large) consumers and for bulk water sales, within a period of two years. To motivate the concessionaire to accelerate the installation of meters for large consumers, the contract stipulated that if after two years the concessionaire had not installed meters to such consumers, the rate applied would be the fixed charge in the formula for metered consumption, that is, assuming zero consumption. For residential consumers, metering was optional, at the discretion of either the consumer or the concessionaire.
- *Water rates.* Under the contract provisions, the water rates would be reassessed every five years, based on the next five-year updated investment plan and updated estimates of expenditures. An inflation index formula agreed upon in the contract enabled ETOSS to monitor cost increases. The contract stipulated that the rates could be revised only if cost increases due to inflation were above 7 percent.
- *Procurement.* The contract stipulated that major works and equipment amounting to more than \$10 million must be procured by international competitive bidding.

INVESTMENT PROGRAM. The challenging coverage targets foreseen for the first fifteen years of the concession signify the connection of approximately 1 million inhabitants every five years to both the water supply and the sewerage systems. Compliance with all the performance targets stipulated in the concession contract implies an average investment on the order of \$130 million a year, or a total of \$4.0 billion over the thirty-year period of the concession. These investments will eventually permit 100 percent coverage in water supply and 93 percent in sewerage, representing an additional population of 4.0 million to 4.5 million that would be connected to water and sewerage services. In the first five years of the concession (1993–98), for which specific development plans are available, total investments would reach some \$1.2 billion or \$240 million a year. This impressive five-year investment program is one order of magnitude higher than the average historic investment made by OSN in the last decade (\$20 million a year).

FINANCING. This investment program will be financed by a recently negotiated loan from the International Finance Corporation (\$250 mil-

lion), which as a result, will become the owner of 5 percent of AA shares, an IDB loan to OSN (\$98 million) that is being transferred to AA, and funds generated internally from cash flow. If needed, long-term bonds and short-term loans from local commercial banks are also envisaged. It appears that, at least at the beginning of the operation, the private sector was not eager to finance investments with its own resources but was willing to invest the cash generated by the operation and to borrow money from multilateral agencies and commercial banks.

Stage IV: Transfer of Services

The final stage includes all the activities from the moment the concession contract is signed until the operation is fully transferred to the private concessionaire. The major activities taking place during this period are analyzed below.

REDUCTION IN WORKFORCE. OSN, like many other public water companies in Latin America and other parts of the world, was grossly overstaffed (some 8–9 employees per 1,000 connections). Initially, 7,600 employees were to be transferred to the concessionaire, whereas in accordance with the privatization consultants and the World Bank's estimates, half that number would have been sufficient to operate the system efficiently. Of these, about 1,600 employees accepted a voluntary early retirement program, whereby the central government financed \$40 million for severance payments. Another 2,000 employees were separated through a similar voluntary retirement program launched and financed (\$50 million) by the concessionaire soon after taking over the operation. As a result of these changes, the number of employees of Aguas Argentinas was reduced to approximately 4,000 (50 percent) in less than six months—a remarkable achievement considering the complexity and sensitivity of the issue.

The present ratio of approximately 3.5 employees per 1,000 water connections is acceptable and is expected to remain more or less constant in the future. On one hand, the number of connections will gradually increase as a result of the expansion of the water supply system, and, on the other hand, the number of employees should also slightly increase as a result of the additional qualified staff that will be needed to fulfill the future goals of the concession contract.

PHASING OUT OF THE PUBLIC COMPANY. A residual OSN organization remained in charge of some services until the concessionaire became fully established and capable of taking over as well as of the services

not transferred to the concession. A liquidator of the residual company was appointed by the government to terminate within one year the nonconcession facilities and close all other pending business (such as collecting the large amount of past debt accumulated from unpaid water bills). At the end of 1994, a year and a half after the concession started operating, the residual OSN organization was still in the process of liquidation.

THE REGULATORY AGENCY. In accordance with the central government's regulatory decree, the regulatory agency (ETOSS) was created as an autonomous, self-sustaining entity "to ensure the quality of the service and protect the consumers as well as to monitor the compliance with the existing norms and the provisions of the concession contract." Its board of directors consists of six members—two representing each of the three entities involved: the central government, the province of Buenos Aires, and the municipality of Buenos Aires. ETOSS is financed by the consumers. Its annual budget of about \$8 million is collected by the concessionaire through billing and represents a user surcharge of 2.7 percent of the water and sewerage bill.

During the initial period, it became clear that ETOSS had to focus on capacity building to fulfill its role at the level required to confront the experienced concessionaire. Consultants for institutional strengthening were contracted by ETOSS for the first year of operation with funds and assistance provided by the World Bank. The consultants' contract generally produced the anticipated results and was extended for a second year to help ETOSS consolidate its position. The personnel of the agency—some seventy professionals—first were drawn from former OSN employees and later were hired through a comprehensive process of job description and competitive recruitment, carried out in accordance with the consultants' recommendations.

Sharing Out of Tasks among Main Entities

Considering the variety of activities that must be undertaken for the preparation and operation of a private concession, it is important to summarize, based on the experience of Buenos Aires, the division of task responsibilities among the various parties involved (see table 2-2). A distinction is made between preparatory activities and privatization activities. The parties considered are the government, the Privatization Committee, and the consultants.

The World Bank's involvement in preparing the Buenos Aires concession included a dialogue with the government during the initial,

Table 2-2. Division of Tasks among Main Entities in the Buenos Aires Concession

| <i>Task</i> | <i>Responsible party</i> |
|---|-------------------------------------|
| <i>Preparatory activities</i> | |
| Appoint Privatization Committee or similar forum | Government |
| Set up legal framework for regulatory agency | Government |
| Prepare terms of reference for consultants | Privatization Committee |
| Prepare short list of consultants or hire sole-source consultants | Privatization Committee |
| Evaluate proposals, recommend award, and contact consultants | Privatization Committee |
| Prepare timetable | Privatization Committee |
| Review work of consultants | Privatization Committee |
| Set up regulatory agency | Government |
| Reach consensus on major controversial issues | Government/Privatization Committee |
| <i>Privatization activities</i> | |
| Prepare draft regulatory legislation | Consultants |
| Prepare promotion plan | Consultants |
| Review existing water and sewerage systems | Consultants |
| Define possible scenarios | Consultants |
| Carry out feasibility study | Consultants |
| Determine investment needs or performance targets | Consultants |
| Select recommended scenario | Government/Privatization Committee |
| Prepare prequalification process (if adopted) | Privatization Committee/Consultants |
| Prepare bidding documents | Consultants |
| Award contract | Privatization Committee |
| Transfer service | Government/Privatization Committee |

preparatory stages; assistance to the Privatization Committee in preparing the terms of reference and selecting the privatization consultants; assistance to the Privatization Committee in guiding and reviewing the work done by the privatization consultants at various stages, up to the call for concession bids; a dialogue with the Privatization Committee and the privatization consultants on major controversial issues; and assistance to ETOSS on institutional strengthening.

World Bank funds from an ongoing loan were used to finance the twinning consultants, the technical and the financial privatization consultants, and the institutional consultants as well as to acquire computer systems for the regulatory agency.

Timetable

The Privatization Committee set up an ambitious timetable for the concession and took all possible measures to ensure that the privatization process was completed with minimum possible delays. In accordance with the original timetable envisaged (see table 2-3), the bidding process was planned for December 1991, when it was assumed that the regulatory framework would have been approved. An eight-month interval was foreseen for preparing and evaluating the bids and awarding and signing the contract, so that the concession was expected to start operating in August 1992. Nevertheless,

Table 2-3. Intended and Actual Timetable of the Buenos Aires Concession

| <i>Activity and timetable</i> | <i>Intended</i> | <i>Actual</i> |
|---------------------------------------|-------------------|----------------|
| <i>Activity (date)</i> | | |
| Commencement | June 1991 | June 1991 |
| Regulatory framework | December 1991 | June 1992 |
| Prequalification | Not envisaged | January 1992 |
| Call for bids | December 1991 | June 1992 |
| Bid opening | April 1992 | September 1992 |
| Award | June 1992 | December 1992 |
| Contract | August 1992 | March 1993 |
| Transfer | September 1, 1992 | May 1, 1993 |
| <i>Duration (months)</i> | | |
| Preparatory activities | 6 | 12 |
| Bidding process | 9 | 11 |
| Total | 15 | 23 |
| <i>Delay (months)</i> | | |
| Regulatory framework/prequalification | n.a. | 6 |
| Bidding | n.a. | 2 |
| Total | n.a. | 8 |

n.a. Not applicable.

two parallel events caused delays: the regulatory framework was approved only in June 1992 (a six-month delay) and the decision to include a prequalification process delayed the bidding of the concession by six months, too. In addition to these unavoidable delays, there was an additional minor delay of two months in the process of award and contracting, so that the concession started operating on May 1, 1993, eight months after the originally planned date.

In spite of these delays, the timetable for the Buenos Aires concession, like many other aspects of this undertaking, should be regarded as a success, considering its magnitude and its pioneering nature for Latin America at the time. The whole privatization process took about two years, with one year dedicated to preparatory activities (prior to the actual bidding) and another year dedicated to privatization activities (from bidding to concession).

First-Year Results

It is too early to carry out a systematic evaluation of the concession results. For such purpose, operational data and reliable quantitative indicators must be available for at least three years of operation. Nevertheless, some preliminary comments on the results of the first year of the concession can be made. They are based on first-hand impressions collected during a visit to Buenos Aires in August 1994, informal conversations held with representatives of the concessionaire and the regulatory agency, as well as data presented by the concessionaire in its first, audited annual report.

- More than a year after the concession started operating, some noticeable improvements in the Greater Buenos Aires water supply and sewerage system took place:
 - For the first time in many years, the city did not experience water shortages during the summer months of peak demand; this was achieved by operating the San Martín plant at almost 20 percent capacity higher than before (2.7 million cubic meters a day in March 1994) and by improving the operating efficiency of some pumping stations.
 - The water quality achieved at the San Martín plant was generally better than before, due to improvements in the quality of chemical products used and in the performance of the treatment process, in spite of the higher hydraulic load; the improved performance appears to be the result

of a series of low-cost, rapid improvements carried out at the plant, some of which are still in progress.

- At the Southwest wastewater treatment plant, which consists of primary and secondary treatment units, the secondary units (very large circular trickling filters), which had never been operated by OSN because of mechanical problems, were operated successfully, as a result of simple mechanical modifications; consequently, the effluent quality obtained was much higher than before.
- The relation with the consumers appears to have improved as a result of faster and better response to complaints. The reported number of complaints for broken pipes received by the concessionaire was still high (some 5,000 a month for water and 10,000 a month for sewage), but the time required for repair was reduced to some 48 hours (compared to 180 hours previously), and the number of pending complaints at the end of the month was reduced from several thousand to several hundred.⁶
- During the first year, some 40,000 water meters were installed for large, nonresidential consumers, some 125 kilometers of water distribution pipes and 2,600 valves were rehabilitated or renovated,⁷ and about 1,000 kilometers of sewage collection pipes were cleaned.
- Nevertheless, interruptions in service continued to occur, either as a result of unexpected power breaks or as a result of planned repair works carried out by the concessionaire. An effort was made to minimize such interruptions by attempting to coordinate the power interruptions with the power company and informing the affected consumers about repair works involving interruptions of service.
- A major achievement was the drastic reduction of staff and increased staff efficiency.
- No less important than these operational achievements was the comprehensive collection of field data, planning, and design efforts that were initiated. For this purpose, the concessionaire contracted the services of a reputable consortium of French and U.S. consulting engineering companies, which began working at full steam to prepare for the major challenges that will face the operator in the next few years. Most notable in this context are the fieldwork carried out to measure the flow in the water and sewage pipes, the campaign to monitor water quality and river water pollution, and the consumer census to detect illegal consumers.

- The cash deficit of some \$25 million reported by the concessionaire at the end of the first year is understandable, considering that an amount of \$50 million was spent for the early retirement plan. Financial projections indicate a positive cash flow for the second and third year of the concession.
- So far the operator has made only minor investments in urgent, high-return operational improvements. Future financing seems to be assured by loans from the International Finance Corporation and IDB, together with funds generated from cash surpluses in the next years of operation and possibly additional loans from commercial banks.
- A major task of the concessionaire is related to the high nitrate concentrations in some of the wells supplying potable water. Almost half of the operating wells exceed the allowable nitrate concentration of 45 milligrams per liter, while a small percentage of wells exceeds 100 milligrams per liter. The concessionaire and ETOSS agreed that the latter will be given priority in the first stage, by replacing such wells with either wells of low nitrate concentration or new surface water supply systems.
- The single most important event related to the concession was an extraordinary rate increase of 13.5 percent granted by ETOSS to the concessionaire in July 1994, that is, at the beginning of the second year of the concession. This was due in part to the advancement of investments to increase coverage targets and replace nitrate-contaminated wells, as a result of pressure by various municipalities to solve urgent water and sewerage problems, and in part by the recognition of higher labor costs incurred by the concessionaire, beyond the inflation formula included in the contract. Even after this increase, the water rates were still 17 percent lower than the OSN rates before the concession.
- As a result of its activity during the first year of operation and the better knowledge of the system gained, the concessionaire raised a series of interesting points and issues and suggested changes in the provisions of the bid and the contract, mostly with respect to sewage treatment. All of this will require review and decisions by the regulatory agency.
- The relationship between the concessionaire and the regulatory agency at the end of the first year of the concession seemed to be somewhat tense, due to controversial approaches to issues such as the degree of independence of the operator vis-à-vis the regulator, the frequency and quality of reporting, and the reliability of some of the available information. The main problem seems to be that the

regulatory entity had high expectations from the very beginning of the operation, while the operator thought that it was being excessively controlled and at times had a different view on priorities than the regulator.

In general, the overall achievements of the concession seem reasonable, considering that in the first six to twelve months of the new concession, as indeed was anticipated in the proposal of the winning consortium, a great amount of time and resources had to be spent on becoming familiar with the system, setting up new offices, corroborating existing and collecting additional information, restructuring staff, mobilizing short- and medium-term financial resources, and so forth.

Conclusions and Lessons from Experience

Numerous conclusions may be drawn and lessons of various types may be learned from the successful contracting of a large water supply and sewerage concession in Buenos Aires. The most relevant are briefly presented below.

- Political commitment to privatization at the highest level should be ensured.
- Privatization should preferably be part of a comprehensive program of economic reforms.
- Consensus building among all stakeholders is important.
- Risks of all types (political, economic, commercial, technical, and legal) should be assessed, and appropriate mechanisms to alleviate them should be adopted.
- Participation of multilateral agencies, such as the World Bank, enhances the transparency and credibility of the process.
- All PSP options must be analyzed prior to selecting the preferred privatization mode, but ownership of the system may remain with the public sector; the assets do not necessarily have to be privatized to promote efficiency and attract private capital.
- Successful privatization cannot be accomplished overnight, even if the political decision is taken; careful preparation and reasonable time are required.
- Although a concession contract provides self-contained regulation, a full regulatory framework and the regulatory institutional setup should be clearly established, before starting the actual bidding process.

- The technical and financial feasibility of the concession should be carefully studied prior to bidding.
- Specialized, experienced consultants should be contracted to assist in various aspects of the preparation process; hiring a single, multidisciplinary consulting firm is preferable to contracting two or more firms.
- Adequacy of water rates should be examined, and, if necessary, rate increases should be adopted prior to bidding.
- Prequalification of potential bidders should be conducted to ensure that only qualified bidders eventually submit bids and to simplify the process of bid evaluation, but it requires extra effort and time.
- Reduction of staff—probably the most sensitive of all privatization issues—is achievable, with the help of aggressive promotion of attractive early retirement packages to be financed by the government, the concessionaire, or both.
- The regulatory entity should be strong enough to be able to confront an experienced international operator and should be assisted by specialized institutional consultants, if needed.
- A residual public company must continue to function in parallel with the private operator for at least a year, until the orderly transfer of all services is accomplished and the nonconcession services are liquidated.
- A clear understanding of the reasons for any extraordinary increase in rates, beyond that stipulated by the concession contract, is important to minimize the danger of reducing the credibility of the rate offered in the bid and used as main criterion of award.
- Political pressure to impose priorities, although considerably diminished compared to that exerted on the public water company, can still be exerted on the private operator, through the regulatory agency, which is a public entity.
- At least at the beginning of the operation, the private sector may not be willing to finance investments with its own resources, but it may be willing to invest cash generated by the operation and to borrow money from multilateral agencies or commercial banks.
- The concession contract must be realistic and as specific as possible to avoid disappointment and minimize conflicts and debate between the concessionaire and the regulatory authority. At the same time, it should be flexible, because it is expected that the targets, indicators, and other aspects of the contract can be more realistically determined after the first year of operation.

The success of the Buenos Aires water and sewerage concession has awakened great interest in the last couple of years and provided a PSP model that is being adopted by other provinces in Argentina as well as by other countries. A word of caution is required, though. Privatization, no matter how successful it is proven in one circumstance or another, cannot be regarded as a universal panacea to problematic water companies. Its applicability and probability of success must be analyzed in the context of the specific country where it is to be adopted, in conjunction with existing laws and policies and other relevant measures and reforms that must accompany it.

Notes

1. All dollars are in U.S. dollars; a billion is 1,000 million.
2. This document establishes guidelines for the relationship between the concessionaire and the consumers.
3. This is in accordance with a law stipulating workers' participation in the ownership of privatized companies (Ley de Propiedad Participada).
4. The water rate at the time of bidding was \$0.66 per cubic meter for households with both water and sewerage connection and \$0.33 per cubic meter for households with water connection only. These variable rates were applicable to metered residential connections—in addition to a fixed charge equivalent to half the rate for unmetered connections—for consumption over a free consumption allowed, which varies according to the property size.
5. The share distribution was 50.4 percent foreign operators (of which Lyonnaise des Eaux-Dumez holds 25.3 percent), 39.6 percent local investors, and 10.0 percent company employees through the Programa de Propiedad Participada.
6. In this context, it should be remembered that an additional entity (ETOSS) also receives consumer complaints but in general only deals with problems not dealt with or resolved by the concessionaire.
7. The target for renovation of the water distribution network at the end of the fifth year was 900 kilometers.



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