

Environmental Issues in Privatizations: An Overview of the Major Issues

Introduction

Privatization offers tremendous opportunities to improve both commercial and environmental performance—if governments integrate environmental goals into their privatization efforts, both before and after the transaction closes.

The term “privatization” covers a number of different approaches for increasing private involvement in previously government-run operations. In addition to the out-right sale of a government-owned company, this includes the granting of long-term operating concessions (such as for water services) or the entry into “Build-Operate-Transfer” contracts under which private investors finance, construct and run a new facility (such as a power plant).

Of particular interest are privatizations in sectors that raise substantial environmental concerns, including power, water, mining and heavy industry. While many of the environmental issues raised are similar, their impact varies across the sectors (see annex 1).

Finally, the local context, combined with the type of privatization and sector involved, defines the specific ways that environmental factors affect any particular transaction. Local context includes the legal frameworks for both private investment and environmental protection, their implementation in practice, priority local needs for economic development and environmental improvement, as well as the political atmosphere in which both privatization and environmental initiatives take place.

Even with these variations, some general observations about privatization and the environment can be made—and they follow below. They are based on case studies conducted for the World Bank and other cases prepared as part of a book on *Private Capital Flows and the Environment*.¹

Misconceptions relevant to addressing environmental issues in privatizations

Many national and local government officials suffer from two major misconceptions about the links between privatization and the environment. Both need to be addressed at the earliest possible stage of any proposed transaction.

The first misconception is that if environmental issues are considered in the privatization, investors will be scared away by the additional costs. For many private investors, just the opposite is true—their goal is to reduce the risks facing their potential investment by having environmental issues analyzed and addressed as an integral part of the transaction. Once the risks are understood, they can be quantified and allocated in the privatization agreements. In the AHMSA steel privatization (Mexican Steel Privatization Case Study Paper), the Mexican government concluded that it would receive higher bid prices by including an environmental compliance plan as part of the transaction agreements. Just the opposite happened in the proposed privatization of the Centromin Peru mining operation—unresolved and well publicized environmental issues were a major reason no bids were received (Peruvian Mining Case Study Paper). In that respect, privatizations are no different than any other transaction facing significant commercial issues from environmental matters. Increasingly well recognized approaches to managing these risks are being applied by governments and private investors (see annex 2).

The second misconception is that privatization means the government’s role in the business is finished. Again, just the opposite is true—while the government’s role has changed dramatically, it has not diminished in importance. Instead of being the doers, governments move to being the enabler and overseer of the privatized operation. Enabler, in that it adopts and maintains the frame-

works—contractual, statutory—under which the privatized entity operates. Overseer, in that it monitors and takes action if performance dips below that required. In the case of monopoly infrastructure services like water, that oversight role includes an extensive economic and pricing function (as described in Privatization Case Study Papers on Buenos Aires Water (Aguas Argentinas) and Malaysian Sewerage (the Indah Water Konsortium or “IWK”). In all privatizations, it covers enforcement of the environmental and other standards to be met by the private operator.

Lessons from the cases—major opportunities

Privatization usually improves environmental performance as a result of enhanced incentives to address environmental issues and improved ability to do so. In most cases, privatization of existing production facilities leads to rapid improvements in the environmental performance of their operations (see AHMSA and Aguas Argentinas Case Studies). More difficult issues are raised by the need to address historical contamination or to construct new, environmentally “friendly” facilities—although both can be readily done through privatization.

For existing facilities, the transfer from government ownership and operation often creates new incentives to improve environmental performance, including those from:

- The process of privatization itself;
- The operating framework established by the privatization agreement and associated regulatory structure;
- Separation of the government’s ownership of the privatized entity from its regulatory authority over it; and
- “International” environmental pressures from financiers, customers, shareholders, NGOs and the media. In addition, the privatized firm’s ability to respond to these incentives is often increased as a result of its:
 - Removal from the governmental budgeting process;
 - Improved access to investment capital (both international and domestic);
 - Improved employee awareness of and involvement in addressing environmental issues;
 - Greater need and freedom to improve its relations with the surrounding community;

- Increased access to international environmental experience; and
- Expanded information on environmental conditions and performance.

Privatization also offers an opportunity to optimize economic and environmental goals. Privatizations are usually driven by goals unrelated to the environment (see AHMSA, Aguas Argentinas and IWK Case Studies). The reasons can range from the need to improve deteriorating public services, to the government’s need for cash. In addition, the company or operation to be privatized is usually in extremely poor shape—financially, managerially and environmentally—for a wide variety of reasons—from competing uses of public funds to labor issues. Many of these problems appear intractable as long as the operation remains in government hands. Privatization is often viewed as the best way to “break the logjam” and allow the operations to be restructured to support a wide range of improvements in performance.

Including environment as one of the areas expressly targeted for performance improvements allows governments to achieve their goals most cost-effectively. Environmental issues will be factored into the earliest stages of project design and financing provisions made for them at the same time as for other business issues. Taking this approach is much less expensive and more efficient than waiting for environmental issues to arise in the future, at a time when designs and financial allocations are complete.

Lessons from the cases—major risks

The environmental gains from privatization will be limited or lost without effective, post privatization incentives for continued improvement. For many existing operations, their pre-privatization environmental performance is so bad, that it is almost impossible not to make things better as part of normal efforts to improve productivity or customer satisfaction. More difficulties arise once these initial gains are made. In the AHMSA case, financing for further reductions in dust emissions was more difficult to find. In Aguas Argentinas, construction of new sewage treatment facilities were delayed.

If governments want to see continued improvements in environmental performance, they need to maintain

effective incentives—the same as for any productive operation. Such incentives can range from enforcement of regulatory or contractual performance requirements, to the pricing of inputs (such as water or energy), to the release of information on environmental performance.

Many different aspects of the bidding process can undermine or limit the environmental gains from privatization. Use of capital expenditure plans developed by governments prior to privatization as the basis for bids, leads to missed opportunities for private operators to design more cost-effective solutions (as happened in the case of Aguas Argentinas). Lack of transparency in the award of concessions, can create severe implementation issues even for technically innovative and cost-effective approaches (as in the case of IWK). The absence of significant input to bid design from environmental regulatory authorities can lead to unnecessary conflicts over the standards to be met by the privatized entity (as in the case of Aguas Argentinas).

Lessons from the cases—environmentally “ideal” privatizations

Governments can increase the environmental benefits of privatization by considering environmental factors from the beginning of the privatization process, including the plan for post-privatization activities. The level and durability of the improvements in environmental performance depend in large part on actions taken by the government both before and after privatization. Environmental gains are maximized if the government

includes environmental goals among those to be optimized by the private bidders, and leaves the bidders flexibility in deciding how best to do so. Effective incentives for continuing improvements in environmental performance also need to be put in place to ensure the durability of the performance gains. Based on experience to date, the major components of an environmentally “ideal” privatization include the:

- Use of transparent mechanisms for the privatization process;
- Involvement of environmental regulatory authorities at the earliest stage;
- Identification of current, priority environmental issues facing the firm;
- Identification of opportunities to resolve particular environmental issues as part of preparing the entity for privatization;
- Specification of the environmental performance standards to be met by the privatized entity, but not the methods or facilities to be used to meet them;
- Adoption of economic incentives for enhanced environmental performance post-privatization;
- Development and inclusion of an environmental action plan in the privatization agreements; and
- Provisions for continuing oversight of the privatized company’s environmental performance, including by governments, NGOs and citizens.

Note

B. Gentry, *Privatization, Foreign Investment and the Environment*, (World Bank Discussion Paper 1996); B. Gentry, ed, *Private Capital Flows and the Environment*, (Edward Elgar, forthcoming 1998).

Annex 1: Environmental Risks Across Sectors

How environmental issues affect any particular privatization depends on how six major project characteristics are expressed in the local context:

- *Sites* chosen, including both main and ancillary facilities, as well as the possibility of historical contamination;
- *Design*, including expected emissions and other impacts;
- *Construction*;
- *Operation* of the facilities;

- *Secondary impacts*, including opening up new areas to development; and
- *Political sensitivity* of the type of service being provided or project being undertaken.

The following table provides a rough comparison of the nature and intensity of the environmental issues facing different types of privatizations. Checks are used to indicate the relative importance of a risk to a particular aspect of a project (for example, three checks (“√√√”) indicates that a particular risk is usually a major issue for that kind of project, such as siting for hydropower projects).

	<i>Thermal power</i>	<i>Hydro power</i>	<i>Renewable power</i>	<i>Drinking water</i>	<i>Sewerage</i>	<i>Mining</i>	<i>Heavy Industry</i>
<i>Siting</i>							
Facility	√	√√√	√	√	√√	√√√	√√√
Ancillary	√√√	√√	√√	√	√√	√√√	√
Contamination	√√		√	√√√	√	√√√	√√√
<i>Design</i>							
Air	√√√					√	√√√
Water	√	√√√		√√√	√√√	√√√	√√√
Waste	√√				√√√	√√√	√√√
Noise	√	√	√			√	√√
H&S	√√	√	√	√	√	√√√	√√√
<i>Construction</i>							
Air	√	√	√	√	√	√√	√
Water	√	√	√	√	√	√√	√√
Waste	√	√	√	√	√	√	√
Noise	√	√	√	√	√	√	√√
<i>Operation</i>							
Mgmt	√√√	√√√	√	√√√	√√√	√√√	√√√
H&S	√√	√√	√	√	√	√√√	√√√
Emergencies	√	√√		√√√	√√	√√√	√√√
Secondary impacts	√	√√√	√			√√√	√√
Political sensitivity	√√	√√√	√	√√√	√√√	√√√	√√

Annex 2: Managing Environmental Risks in Transactions

Governments should follow five basic steps when managing the environmental risks and opportunities in particular privatizations:

- *Identify* risks and opportunities, through fresh environmental assessments (including public consultation);
- Assess the relative financial importance of particular risks and opportunities to the transaction;
- *Capture opportunities and mitigate significant risks* through project design and pre-privatization activities;
- *Allocate* residual risks to the parties best able to manage them—purchasers, governments, development banks, and private financiers; and

- *Implement* risk mitigation steps in a timely and effective manner.

Environmental risks are just one part of a much larger suite of risks facing investors in privatized operations. The following table suggests a rough allocation of only these risks among the government, project operators (including any subcontractors), development banks and passive private investors (such as commercial banks). The relative degree of involvement with any particular risk is indicated with a number: “1” indicates that the party usually takes the lead on addressing or bearing this risk—contractually and operationally; “2” that this party often effectively bears a portion of this risk and works actively to address it; and “3” that this party usually provides technical support on or actively monitors the level of the risk being borne by other parties.

<i>Risk</i>	<i>Host country</i>	<i>Operator</i>	<i>Development banks</i>	<i>Private financiers</i>
Meeting legal standards		1	3	
Operational risks		1		
Political risks				
Local opposition	1	1	2	3
International opposition	1	1	2	3
Fee collection	1	2	2 (if guarantee)	3
Change in law	1			

Mexican Steel Privatization Case Study Paper

Introduction and overview

Between 1982 and 1992 the Mexican government privatized 80 percent of state-owned or controlled companies, including those in the steel sector. In November 1991, Altos Hornos de Mexico S.A. de C.V. (AHMSA), Mexico's largest integrated steel mill, was sold by the government to Mexican investors and as minority partner, a Dutch steel concern. The bid included a US\$535 million commitment for modernization investments of which \$160 million was earmarked for environmental improvements.

To prepare the mill for sale, the government closed the open blast furnace, which significantly reduced emissions. Since the sale, investments made to increase production efficiency and reduce costs have also benefited the environment and include wastewater treatment and recycling. New management practices to improve housekeeping and community relations have led to reduced oil and dust problems and local tree planting programs.

The Mexican government helped guarantee an "environmental" return on the privatization as well as an economic one by providing certainty on timing and risk allocation prior to the sale. Key features included a compliance and monitoring agreement between Mexico's environmental authority and the mill's buyers and government retention of liability for "hidden" environmental problems at the site.

Major findings

AHMSA is the largest integrated steel complex in Mexico. While the company has and continues to have an interest in other facilities (including mines), the focus here is on the steel production facilities located in Monclova, State of Coahuila, Mexico.

The company commenced operations in 1944 under local management, but government ownership. During the period from 1971 until 1982, the national government assumed greater management responsibilities for its operations. This change in approach was not economically successful, with high operating costs (particularly for personnel), declining revenues and reduced investment. Specifically, no investment had been made to upgrade the production equipment. Substantial environmental problems were caused by the plant's operations, most notably emissions of particulates to the air and acid wastewaters to local water bodies.

Privatization process

With the change in government in 1982, an effort to restructure and rebuild the Mexican steel industry commenced. This effort picked up pace considerably in 1988 when the World Bank made a US\$400 million loan to the Mexican Government to modernize the steel sector. These restructuring efforts set the stage for the 1990 decision to privatize SIDERMEX, the government owned steel concern, including AHMSA. Some US\$170 million of the World Bank loan was available for upgrading production facilities at individual companies, including AHMSA. One of the major improvements at AHMSA was the Spring 1991 closure of the open hearth blast furnace, the major source of particulate emissions at the facility.

The winning bid for AHMSA came from Grupo Acerero del Norte or "GAN." GAN's primary shareholders are members of the Ancira and Autrey families. A minority stake is held by Hoogovens, the Dutch steel company and technical advisor to GAN. The bid included: US\$145 million in cash; the assumption of US\$350 million in long term debt; and a commitment to a modernization investment program of US\$535 million (including US\$160 million for environmental improvements). As of July 1995, AHMSA's expected

modernization program from 1992 until 2000 is approximately US\$800 million.

As part of the privatization process, the government retained consultants to conduct an environmental audit of the facility and to identify the actions necessary to bring AHMSA into compliance with then existing Mexican environmental requirements. The results were incorporated into a three year agreement between AHMSA and the national environmental regulatory agency (SEDUE). The obligations to undertake the actions outlined in the agreement were transferred to the buyers as part of the privatization contracts. In addition, the government retained responsibility for liabilities not reflected in the contracts, arguably including environmental problems discovered after the transfer.

Post-privatization regulatory structure

AHMSA's progress under the SEDUE Agreement was monitored both by AHMSA (with the submission of quarterly progress reports) and by SEDUE (through periodic site visits). At the end of the three year term of the SEDUE Agreement, a second agreement was negotiated with the national environmental enforcement agency (then PROFEPA). While not contemplated or required by the original agreement or the purchase contract, the 1994 agreement was based on a new environmental audit and covered both the items left undone from the first agreement and those required by new legislation.

Environmental improvements

Substantial, additional improvements in the environmental performance of the mill have been made since the privatization. This has been particularly true in the areas where: (i) both environmental and production gains can be achieved through the same modernization investment (such as controlling certain fugitive air emissions); (ii) there are clear cost advantages to be achieved (such as wastewater collection and recycling efforts); (iii) employee involvement and awareness has been raised (such as housekeeping for oils and dust); and (iv) there are benefits to be gained from good community relations (such as tree planting initiatives).

Between the time the decision to privatize AHMSA was taken in 1991 and 1995, the company had increased steel production and:

- Decreased dust emissions by more than 50%;
- Reduced water discharges per unit of production by more than 70%;
- Reduced total water discharges by more than 60%;
- Increased the pH of the wastewater from 1 (highly acidic) to 7 (neutral); and
- Reduced the amount of solid waste generated per unit of production and increased recycling of the wastes which are generated.

The major barriers to further improvements in environmental performance (measured in terms of meeting Mexican requirements) relate primarily to access to and application of investment capital. From the company's point of view, the first investment priority has to be in improving its competitive position. Now that much of that investment has been made and is starting to bear fruit, investments in less economically productive areas (such as certain dust collection systems) is proceeding. In addition, continued work in the employee awareness and environmental management systems (tied to ISO quality systems) is underway.

What are the general lessons for maximizing the environmental improvements resulting from future privatizations

Positive lessons

1. *Using the process of preparing the company for privatization to address major environmental issues.* Several major improvements in both the company's production efficiency and environmental impact (particularly closure of the open hearth furnace) were made during the privatization process. Not only did these changes improve the environment, they made AHMSA much more attractive to private investors, thus allowing an increase in the purchase price.

2. *Identifying remaining environmental issues during the privatization process and incorporating them in an agreement with environmental regulatory authorities.* As with the prior point, the attractiveness of AHMSA to a potential purchaser was also enhanced by the government's identification of outstanding environmental compliance issues and agreement not to seek to enforce those standards if the problems were fixed within a

specified period of time. While not all of the commitments made in the SEDUE Agreement were met by AHMSA, progress has been made on many fronts and the unfinished items are reflected in the PROFEPA Agreement. Having such an agreement available before the bids were submitted provided potential purchasers with a basis for reflecting the costs of performing the agreement in their bid price. Structuring the agreement as one which focused on performance goals and timing was also important in giving AHMSA the flexibility to decide how best to meet those requirements.

3. *Post-privatization environmental standards and regulatory structure are clear.* While several different agencies have responsibility for aspects of AHMSA's environmental performance (PROFEPA, CNA, state and local offices), the lines among their areas of jurisdiction appear to be clearly drawn (either in law or in practice). This is a benefit to AHMSA's efforts to meet applicable requirements and, given the number of different actors involved and pressure points, to the pace of environmental improvement at the facility.

4. *Pricing regimes for the use of environmental resources are critical.* AHMSA's move to acid regeneration and toward zero discharge made both environmental and economic sense (even when measured against more classic investments in other productivity improvements) in large part because of the water abstraction charges and wastewater discharge fees imposed in Mexico. These pricing schemes for water usage created effective incentives for AHMSA to develop an innovative response to both a production and an environmental problem.

5. *Management systems greatly influence improvements in environmental performance.* AHMSA's progress on certain environmental issues owes much to changes in company management, including: moving away from public sector budgeting and spending processes; increasing employee responsibility and involvement in company affairs; the utility of tapping into international environmental management experience (in this case with Hoogovens); and the practical links between ISO quality management as an export promotion tool and environmental management systems.

6. *Investment capital should be available.* In addition to the remainder of the World Bank loan, AHMSA has been and should continue to be able to tap domestic and

international capital markets for investment funds, including commercial debt, trade debt, export financing and listings on the Mexican and US stock exchanges.

7. *International pressures play a role in environmental improvements.* In the case of AHMSA such pressures came both at the micro level (through the environmental pressure brought to bear by the World Bank as part of the restructuring loan) and at the macro level (given the increasing importance of environmental performance to AHMSA's export markets as a result of NAFTA and increased sales to Europe).

Lessons from areas of actual or potential difficulty

1. *Progress on environmental problems which do not lead to major increases in production efficiencies is slack.* While none of the parties interviewed challenged the view that substantial environmental progress had been made by AHMSA as a result of the privatization, several parties complained that the rate of progress was not sufficient. As a financial matter, AHMSA's environmental investment choices will become even more difficult as it completes the clearest "win/win" investments and is confronted by environmental investments which do not lead to as immediate or any increases in production efficiencies. The degree to which AHMSA chooses to make such investments and the timing thereof will depend, in large part, on the intensity of PROFEPA's efforts to force the investments to occur. Whether and how they will do so, if necessary, remains to be seen.

2. *Continuing availability of finance for environmental investments is a concern.* Even if AHMSA were to choose to make all such investments in a rapid manner, the question of whether finance is available will still present itself. As long as AHMSA's export and other markets remain strong, this should not be a major barrier. In addition, to the extent that AHMSA can continue to take advantage of other countries' efforts to promote exports of environmental technologies (including by offering attractive financing packages—such as was done for the acid regeneration system), its financing burden will be reduced still further.

Note

B. Gentry, *Privatization, Foreign Investment and the Environment*, (World Bank Discussion Paper 1996); B. Gentry, ed, *Private Capital Flows and the Environment*, (Edward Elgar, forthcoming 1998).

Peruvian Mining Privatization Case Study Paper

The Compañía Minera del Centro del Perú (Centromín Perú) became a thorn in the side of the relatively successful privatization process initiated by the Peruvian government in 1991. This process began as a way to invigorate Peru's economy, which collapsed in the chaotic aftermath of Alan García's government.

Centromín Perú is the biggest state-owned mining company in Peru and its operations are located in the geographic axis formed by the cities of Cerro de Pasco and La Oroya, in the Central Andean region of the country. The company produces copper (11% of the country's total), lead (41.2% of the country's total), zinc (39.9% of the country's total), silver (25% of the country's total) and gold in its metallic state (37.7% of the country's total). It also produces bismuth, cadmium, indium, antimony, selenium, tellurium, sulfuric acid and copper and zinc sulfates.

Once the decision was made in 1992 to privatize the company, the government hired First Boston Bank and a local company, Macroconsult, to value the company's assets in preparation for auction. A base price of \$340 million was finally decided upon, \$60 million of which would be payable in Peruvian external debt certificates and the rest in cash. Any company interested in acquiring Centromín Perú would be required to commit an additional \$240 million over the purchase price in investments in the company over a period of 3 to 5 years. Another condition of sale was the Peruvian government's insistence that the company be sold as a single entity.

Because of Centromín Perú's enormous productive potential, its high levels of proven and expected mineral reserves, and the potential for increasing productivity, a total of 28 companies, among them several important firms from Canada, England, Japan and China, signed up to participate in the auction. However, despite the initial interest shown, during the first call for bids in April of 1994, none of the compa-

nies submitted a proposal and the auction had to be declared a failure.

In trying to understand the sudden loss of interest, officials from the privatization authority noticed that an article entitled "How Brown Was My Valley. Peru: Selling off an Environmental Mess" was published by Newsweek magazine several days before the auction. Written by an environmental activist named Corinne Schmidt, the article detailed a large portion of the environmental damage caused by Centromín Perú's activities and pointed out that the Peruvian government had not yet clearly defined who would eventually be held responsible for the environmental liabilities of the company once privatized. Additionally, an article ran in the Peruvian press entitled "The Agony of the Lake," which alerted the public to the environmental damage caused by mining activity at the Lake Junín National Reserve.

Taken by surprise by the articles, the government initially adopted a defensive position, denying that there was a problem at all and claiming that articles were politically motivated. Once it became clear, however, that the problem of environmental liability really was the reason that the first call for bids failed, the government began to discuss ways to mitigate the damage done to those zones adversely affected by mining operations. After a series of debates, the government unofficially adopted a proposal presented by members of Group for Analysis of Development (GRADE), a non-governmental organization dedicated to the study of economic and social themes. The proposal called for using \$80 million from the sale of the company to create of a fiduciary fund to be used to revive the environmental areas impacted by mining.

Note

Gabriel Quijandría. *Centromín Perú (A)*. (Alajuela: INCAE, 1995); reprinted in B. Gentry, ed, *Private Capital Flows and the Environment*, (Edward Elgar, forthcoming 1998).

Buenos Aires Water and Sewerage Privatization Case Study Paper

Introduction and overview

As part of Argentina's extensive privatization program, Greater Buenos Aires' water and sewage service was awarded as a monopoly concession to Aguas Argentinas (AA), a consortium with more than half foreign involvement, led by the French operator Lyonnaise des Eaux. AA offered the highest reduction over the existing public provider's (Obras Sanitarias de la Nación—OSN) tariff and agreed to a 30 year investment plan of US\$4 billion to connect 100% of the population in the concession area to drinking water and 90% to sewage collection. Sources of funds for AA's required capital program include a euro-commercial paper offering and IFC syndicated loans, partly from commercial banks.

AA faced extensive groundwater and surface water contamination issues, as well as overconsumption of water (twice the amount per capita as a metered system). Post-privatization, AA has connected half a million new residents to drinking water and 300,000 to sewerage. Drinking water supplies have grown under AA and quality has improved. Increased efficiency has led to environmental benefits from a diminished use of chemicals. Commercial incentives have led AA to conduct water quality sampling more frequently than required by regulation and to re-examine how to address the thorny issue of wastewater discharges.

Argentina's overlapping authorities to regulate environmental matters have led to confusion regarding control of AA. It appears that AA is governed not only by the regulatory structure authorizing the concession, including environmental standards, and the body established to preside over it, but also by separate, conflicting legislation enforced by the national environment ministry and other provincial and municipal authorities. The government is working to establish and enforce clear environmental norms so that the con-

cessionaire can operate in a more certain regulatory climate and proceed on treatment projects that have been delayed due to the confusion over authority.

Major findings

Prior to the award of the concession agreement, the operations of OSN had deteriorated dramatically for a wide variety of reasons, including lack of investment. When the federal government embarked upon its extensive privatization program in 1989, OSN was an obvious candidate.

The goal of the privatization was to achieve a "successful" privatization, almost exclusively measured in economic and political terms. Environmental needs and targets were central parts of the required standards of service and investment plan included in the concession agreement, but did not themselves receive a significant amount of critical attention during the privatization process. As a result, no effort was made to optimize economic and environmental considerations in the privatization framework.

Privatization process

Terms of reference for the bidding process set forth the economic and technical requirements to be met by the concessionaire, including the tariff formula to be used to charge for water and sewerage services and the levels of service to be provided (that is, potable water pressure, water quality, and reliability of flow). The tariff formula chosen was the same as that used by OSN and is based upon the square footage of the buildings served and the area of the land on which the buildings stand, without regard to the amount of water used or discharged. In addition, a 30 year investment plan requiring approximately US\$4 billion in additional capital was called for in order to connect 100% of the

population in the concession area to drinking water supplies and 90% to the sewerage collection system, as well as to provide primary and secondary treatment for 93 percent of the collected sewage.

Based upon this information, prequalified bidders were asked to specify the percentage reduction from the existing OSN tariff for which they would undertake the concession obligations. The expectation was that, assuming no major changes in the concession agreement, the tariff levels would remain the same in real terms over the 30-year period.

In an effort to make the concession even more attractive, a variety of other actions were taken by the government, including the decisions: to exclude storm sewers from the concession; to seek neither payment nor assumption of debt from the bidders; and to provide financial assistance for redundancy payments to former OSN workers.

Post-privatization regulatory structure

Substantial monitoring and reporting requirements are imposed on AA, with the creation of a new regulatory body (ETOSS) to oversee its economic and, to an increasing degree, environmental performance. In addition, AA has aggressively pursued its responsibility to monitor (but not enforce) industrial compliance with discharge requirements. Changes to fairly rigid requirements set out in the concession agreement will be made primarily through consultations between AA and ETOSS. The potential for public participation in that process is a subject of growing discussion.¹

Environmental improvements

Significant improvements in the environmental performance of the water and sewerage operations have been achieved by AA in the first two years of the concession, including those reflecting: (i) compliance with the investment plan (such as improvements in the quantity and quality of drinking water supplied); (ii) the impact of incentives to increase operating efficiencies (such as substantial reductions in chemical use); and (iii) the effects of AA's commercial incentives to meet or have good reasons for not meeting the environmental standards set out in the concession agreement (such as significant pressure on the government to take action against industrial dischargers).

As of 1996, water rates were reduced from pre-privatization levels and:

- Over 570,000 new water connections and 340,000 new sewerage connections were made;
- Water production rose by more than 27%;
- The quality of drinking water supplied improved;
- Substantially reduced amounts of water treatment chemicals are being used;
- System operations and maintenance were significantly upgraded;
- Over 24,000 water quality samples were taken along the Buenos Aires waterfront; and
- Over 400 “denunciations” of non-compliant industrial discharges were made.

General lessons for maximizing the environmental improvements resulting from future privatizations

Positive lessons

1. *Specified environmental goals are best met when a politically and financially acceptable structure is adopted.* Meeting the environmental standards set out in the concession agreement and the surrounding regulatory regime would result in a major improvement in the environmental performance of the water and sewerage system in GBA. AA's ability to start to accomplish this task has been facilitated by the lack of political controversy surrounding the privatization—largely due to the drop in rates to customers.

2. *Incentives enabled AA to understand and manage the environmental issues facing the concession in the most cost-effective manner.* The fixed price formula and the level of ETOSS oversight, combined with other factors, has provided AA with strong incentives to investigate, understand and implement or propose cost-effective methods for meeting the environmental standards imposed (such as reducing chemical usage and costs, while increasing quality of water supplied). While AA's work may lead the government into areas it had not anticipated (such as the growing need for action on industrial dischargers), it will certainly increase the level of attention paid to environmental issues.

3. *An economic regulatory authority with the resources and capacity to oversee the concessionaire's operations is key.*

While the possibility of regulatory capture always exists, and there appear to be issues as to how the three parties to ETOSS should best work together, ETOSS does have the legal authority and resources necessary for effectively overseeing AA's activities. Ensuring that that capacity is used efficiently over time will be the key to its ultimate success.

4. *The involvement of the IFC helped on the financing front and spurred improved environmental performance.* Given the need for international finance, the IFC's involvement has been and will continue to be a major benefit to AA. It should also be a benefit to ensuring that a high level of environmental improvement is achieved by the company, given the pressure the IFC itself is under to ensure that its investments meet relevant environmental standards.

5. *Mechanisms are available for public involvement in decisions concerning the operation of the concession.* While there has not been a large demand by the public for changes to the concession, it is useful to note that a variety of mechanisms are potentially available, including: the ombudsmen's offices; the possibility of public hearings before ETOSS; and AA's community outreach efforts to different parts of GBA. In addition, ETOSS might wish to consider more regular customer input in the form of a customer committee or similar structure.

Lessons from areas of actual or potential difficulty

1. *A fresh analysis of priority environmental issues and their possible solutions is desirable during the privatization process.* Much of the discussion now underway on possible changes to the investment plan for sewerage facilities could have been avoided had there been time, or had the time been taken, to undertake an independent review of the situation prior to privatization. Instead, OSN's prior analysis and planning was used as the basis for the investment plan. This was true even though a reduction in rates was sought and OSN had a reputation for overly expensive capital programs.

2. *It is best to be flexible about the means selected to meet specified environmental or investment targets.* A major reason for the reliance on the OSN investment plan was to have a consistent basis for comparing bids. Building

upon the government's analysis of priority issues, another approach to providing consistency would be for the government to: (i) specify the environmental standards (necessary to address current environmental priorities) and/or level of investment (in terms of amount to be invested over a period of time) to be achieved; and (ii) let the bidders develop and specify (particularly for the first five years or so) the particular techniques to be used. Bids could then be compared on the basis of the cost of meeting the specified goals. Technical experts retained by the government would then spend their time helping the government set the performance targets and evaluating the bidders' solutions, rather than attempting to cost out a detailed, hypothetical long-term investment plan.

3. *Tariffs charged for environmental services should encourage environmentally beneficial actions by both the customers and the service provider.* Particularly where techniques for the private funding of infrastructure are used, the "user pays" concept should include methods for reflecting the actual costs of usage in the tariffs charged. How this is accomplished, and the levels at which tariffs are set, can then be adjusted to meet a variety of fairness, development or other governmental goals.

4. *Post-privatization environmental goals and regulatory structure need to be clear.* Even where particular environmental goals are specified in the concession documents, a lack of clarity on how those goals mesh with other regulatory provisions or enforcement programs, at a minimum, diverts management attention away from improving operations. Clearly defined goals and responsibilities increase the likelihood that the goals will be met.

Notes

B. Gentry, *Privatization, Foreign Investment and the Environment*, (World Bank Discussion Paper 1996); B. Gentry, ed, *Private Capital Flows and the Environment*, (Edward Elgar, forthcoming 1998).

1. One major change to the original concession agreement is that the connection charges in poor neighborhoods have been adjusted so that there is no longer an up front capital cost to connect to the system.

Malaysian Sewerage Privatization Case Study Paper

Introduction and overview

In December 1993, the government of Malaysia awarded a 28 year concession to the Indah Water Konsortium (IWK) to operate, renovate and expand the national sewerage system previously run by 144 municipal authorities. Initial shareholders included: NorthWest Water (25%); Indah Wastewater Management (17.5%); Aims Worldwide (17.5%); and the pension funds for the Malaysian armed forces and police (20% each). Part of IWK's proposed US\$2.4 billion (1995 exchange rate) investment program is funded by a soft loan of US\$190 million from the government. Other financing is expected from shareholder equity, operating revenues and private domestic capital.

IWK faced extensive sewage pollution of surface water, affecting drinking water supplies, tourism amenities and aquatic life. In addition, prior to privatization, the federal government and local authorities had been making at best sporadic progress in improving the quality of sewerage services. As of late 1995, IWK had made only limited progress in meeting environmental improvements required by its operating license. IWK had completed the clean-out of about five percent of 675,000 septic tanks in the 94 local authority areas for which it had assumed responsibility and had decreased the amount of time taken to respond to and repair system blockages. Commercial incentives led IWK to increase sampling and monitoring of ambient water quality and sewage.

Several factors explain the slow start. First, the public strongly opposed the increase in sewerage fees. This disgruntlement was compounded by questions over the manner in which the concession was awarded and the changes in share ownership which have been proposed since the award. Second, IWK faces the herculean task of taking over many local authority operations, each requiring that local employee cultures

adjust to a single norm and that proper title to property be determined. Third, IWK delayed too long in implementing an extensive public education campaign, waiting more than a year after the first public criticisms of the new rates were aired. Finally, although a special regulatory body—the Directorate-General of Sewerage Services or “DGSS”—was created to oversee IWK, few resources were committed to enable it to conduct independent assessments of IWK's performance or to give IWK regulatory incentives to improve.

Major findings

In the late 1980s and early 1990s, the Malaysian federal government became increasingly concerned about the environmental problems caused by sewage discharges and the lack of investment by local authorities in sewage collection or treatment. At the same time, the country was moving aggressively to privatize many government operations in an effort to: reduce the size of government; increase efficiency; and increase the shareholdings of the native Malays (the “Bumiputera”).

Privatization process

In response to these concerns, IWK was formed by a number of private companies in order to offer the government a private, national solution to the sewerage problem. The Berjaya group (a large Malaysian conglomerate with close connections to the federal government) had controlling interests or strong links with both Indah Wastewater Management and Aims Worldwide. As a result, it was the driving force behind the Malaysian involvement in the IWK consortium.

Key aspects of IWK's proposal were the reduction in capital costs offered through the use of decentralized systems and the ability to have more populous areas

help underwrite the costs of providing sewage services in more rural districts.

Consistent with its practice in some other privatizations, the government rewarded this private initiative with the grant of exclusive negotiating rights for a national sewerage concession. After a more detailed study of the concept by IWK and preparation of the contractual and regulatory framework, the concession was awarded in December 1993.

Concession structure

Fees IWK charges for sewerage are to be maintained at a level which allows both the accomplishment of some or all of the capital expenditure program and an internal rate of return on IWK's costs (both capital and operating) of between 14 and 18%. This rate of return apparently was calculated, in part, by considering the returns used as benchmarks by pension fund trustees in Malaysia and then adding a risk factor.

Rate structures vary according to the type of user. For domestic users, the fee is calculated according to the assessed value of the property served and the amount of water used, subject to a minimum charge of approximately US\$0.80 per month and a maximum of approximately US\$4. For commercial users, the fee is calculated based on water usage alone (approximately US\$0.50 per cubic meter for connected services), with a minimum charge of approximately US\$4 per month and no cap on fees.

No specific mechanism for collecting these fees is set out in the concession agreement. Rather, the federal government has undertaken to provide "administrative support" if IWK is not able to implement effective collection regimes through the State Water Authorities and collections turn out to be a problem.

In addition, the 28-year investment plan identified by IWK in the pre-privatization study has been incorporated into the concession agreement. As originally envisioned, it was expected to require approximately US\$2.3 billion in additional capital in order to provide 100% of the covered population with sewerage services. In 48 urban areas, by the end of the concession agreement, 84% of the population is to be connected to networked systems, with 16% relying on independent septic systems. In the remaining 96 more rural areas, the targets are 30% connected and 70% independent.

Post-privatization regulatory structure

The newly created office of the Director-General of Sewerage Services (DGSS) is responsible for ensuring that IWK both meets the terms of the concession agreement and earns a return on investment which falls into a specified range. While the concession agreement sets specific times at which the DGSS is to review IWK's rate of return and make appropriate adjustments to the capital expenditure program or the tariff, there is scope for a broader use of the DGSS' discretionary powers to balance the tariff, the capital expenditure program and IWK's return.

Environmental issues

While the IWK concession has the potential to lead to significant environmental improvements, given the relatively short time since privatization, as well as the controversies and delays which have occurred, there had only been a few demonstrable improvements as of September 1995. These included: (i) pumping of accumulated sludge from 35,000 isolated septic tanks; (ii) clearing of some blockages in pipes which contributed to flooding; and (iii) expanded monitoring of both effluent quality and surface water conditions.

Major barriers to achieving further improvements in the environmental performance of IWK include: (i) public opposition to the new sewerage fees; (ii) the need to develop effective mechanisms for collecting those fees; (iii) the difficulties associated with taking over responsibility for upwards of 2,000 existing treatment works and multiple collection systems; (iv) the barriers to obtaining land on which to construct new systems; (v) the need for further development of the DGSS' regulatory function and capacity; (vi) determining the role of IWK in the governmental land use planning process; and (vii) hiring and training of local personnel.

Potential topics of future concern

Potential topics of future concern include (i) availability of investment capital; (ii) effect of the concession's economic structure on IWK's operating incentives; (iii) industrial discharges into the IWK system; (iv) regional water issues; (v) the terms under which public sector employees are transferred to IWK; and (vi) the future ownership and control of IWK once it is listed on the stock exchange.

General lessons for maximizing the environmental improvements resulting from future privatizations

Positive lessons

1. *A concession design process that is open to input from the potential private sector operator leads to optimal technical and financial concession terms.* While the “first come, first served model” clearly raises a variety of issues when compared to more traditional competitive tendering processes, it does have the advantage of drawing on the operator’s knowledge to design a workable package. Assuming that a qualified operating consortium is involved, such knowledge is likely to be more up-to-date than that held by the government or many of its advisors, as well as more directly linked to the actual achievement of financial and environmental performance targets. In this case, such reliance led to: a national structure; allowing cross-subsidies; which substituted decentralized facilities for more expensive, centralized systems.

2. *Aggregating multiple, smaller environmental projects into one package better attracts private investors and international experience.* One of the great difficulties facing the financing of many environmental projects, is that the projects are too small to attract financing easily. The IWK structure offers one way to go about aggregating such small projects into a financeable package.

3. *A fresh analysis of priority environmental issues and solutions improves the privatization process.* For all of the debate which has occurred over the fees and the manner of the privatization, no serious challenge to the technical or financial aspects of the investment program appears to have been made. This is true even though major changes were made to some of the previous sewerage plans developed by the public authorities. In addition to the involvement of the potential operator in the design process, the fact that a new and independent analysis of the environmental investment needs was undertaken appears to have contributed to this outcome.

Lessons from areas of actual or potential difficulty

1. *Public acceptance of user fees is critical.* In preparing its proposal for the concession, IWK conducted surveys of the public’s ability and willingness to pay for such ser-

vices. The results did not predict the outcry which arose in 1994 when the new fees were announced. Presumably, and as discussed above, the public (particularly the well organized and powerful commercial sector) were most upset about paying a new charge for a service they felt they were not receiving. Only after a decision was taken to phase-in the new fees for commercial users and IWK undertook a more extensive public outreach program did the controversy start to abate, freeing more of IWK’s resources for its main tasks. Demonstrated results in terms of improved performance will ultimately be the most important method for addressing public acceptance issues.

2. *A transparent privatization process is key to the public acceptance of user fees.* While the amounts of the new fees were the most important component of the acceptance problems, the situation was complicated still further by the lingering questions raised about the fact that such a large concession was awarded without a competitive bid. At the same time and as discussed above, the design of the concession benefited from the intense involvement of the likely future operator. Finding ways to address both the need for transparency and the desire to involve potential operators in the design process will be key. Doing so may involve experimenting with size limits, below which first come first served would always be acceptable, to announcing that the government is seeking private sector solutions to a particular problems (as the Malaysian government essentially did in connection with the recent bids for the national solid waste privatization). This second approach, however, requires that the government: (i) have strong financial and technical capacity to evaluate the different proposals received; and (ii) that it offer some inducements to potential operators to engage fully in the process (such as limiting the preparation of detailed proposals to a small number of firms or finding some way to compensate them for doing so if they are not awarded the concession).

3. *Ongoing governmental involvement with the company is needed and must include strong mechanisms for regulating the company’s performance.* In addition to the need for economic regulation to prevent the taking of monopoly profits, the structure of the IWK concession and general environmental regulatory framework calls for ongoing, active involvement by the DGSS and the

Department of the Environment in monitoring and, possibly, taking steps to improve IWK's performance. This is particularly true given the choice of a rate of return formula for IWK's profits and the anticipated adjustments to the investment plan which are likely to be made at the review periods. Adequate resources need to be made available for this responsibility to be met.

4. *Sewerage services and clean water supply must be linked.* Even though IWK intentionally only provides sewerage services, its work remains closely linked to the supply of clean water. Its fees are calculated based on the amounts of clean water used and are collected

by the State Water Authorities. Its capacity planning process depends heavily on the likely changes in clean water usage patterns. As such, it will usually make more sense to aggregate water and sewerage services on a regional basis. Even if a decision is made to separate clean and dirty water services as part of a privatization structure, mechanisms still need to be developed for addressing the areas of unavoidable overlap.

Note

B. Gentry, Privatization, *Foreign Investment and the Environment*, (World Bank Discussion Paper 1996).