

PUBLIC POLICY FOR THE

Private sector

Note No. 147

August 1998

*Gisele Silva,
Nicola Tynan,
and Yesim
Yilmaz*

Private Participation in the Water and Sewerage Sector—Recent Trends

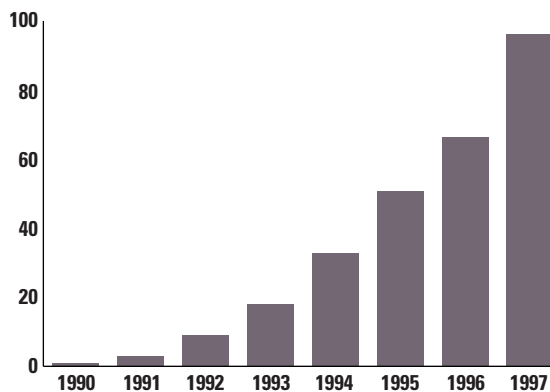
The PPI Project Database covers private participation in infrastructure in developing countries. The database records details of all projects owned or managed by private companies in 1984–97 in the water, energy, transport, and telecommunications sectors. This Note focuses on private water and sewerage projects that reached financial closure between 1990 and 1997 and surveys regional trends, type of private participation, project size, and top sponsors and operators. See box 1 for an explanation of the PPI project criteria and database terminology.

In developing countries private sector participation in water and sewerage is a relatively recent phenomenon. Before 1990 almost all developing countries relied on government provision of water supply and sewerage services; private participation in the sector was rare. The potential for gains from private sector involvement, through greater efficiency and improved access to finance for new investments, was as great in water and sewerage as in other infrastructure sectors. But governments' willingness to take the steps to secure private participation was relatively limited. In many countries water continued to be treated as a social rather than an economic commodity. There was considerable political resistance to raising tariffs to cost recovery levels, increasing the risk of long-term investment in water and sewerage assets. In addition, many national governments in recent years decentralized responsibility for water and

sewerage services to municipal or provincial governments, which often had little experience with private sector contracting and regulation and were thus relatively unlikely to initiate private transactions.

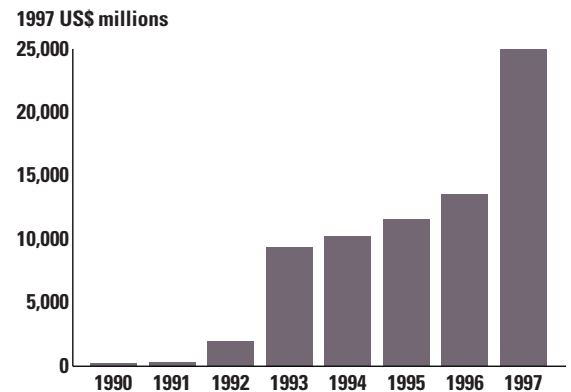
Between 1984 and 1990 developing countries awarded contracts for only eight water and sewerage projects to private companies. The private capital investment in these projects was US\$297 million.¹ Since 1990 private participation in the water sector in developing countries has accelerated (figures 1 and 2). The number of private water projects reaching financial closure increased more than tenfold between 1990 and 1997, though private involvement is still small relative to public provision in the water sector and to private participation in other infrastructure sectors (particularly energy; see the forthcoming Viewpoint for data on private participation in the energy sector).

FIGURE 1 CUMULATIVE WATER AND SEWERAGE PROJECTS WITH PRIVATE PARTICIPATION IN DEVELOPING COUNTRIES, 1990–97



Source: PPI Project Database.

FIGURE 2 CUMULATIVE NEW CAPITAL EXPENDITURE IN PRIVATE WATER AND SEWERAGE PROJECTS IN DEVELOPING COUNTRIES, 1990–97



Source: PPI Project Database.

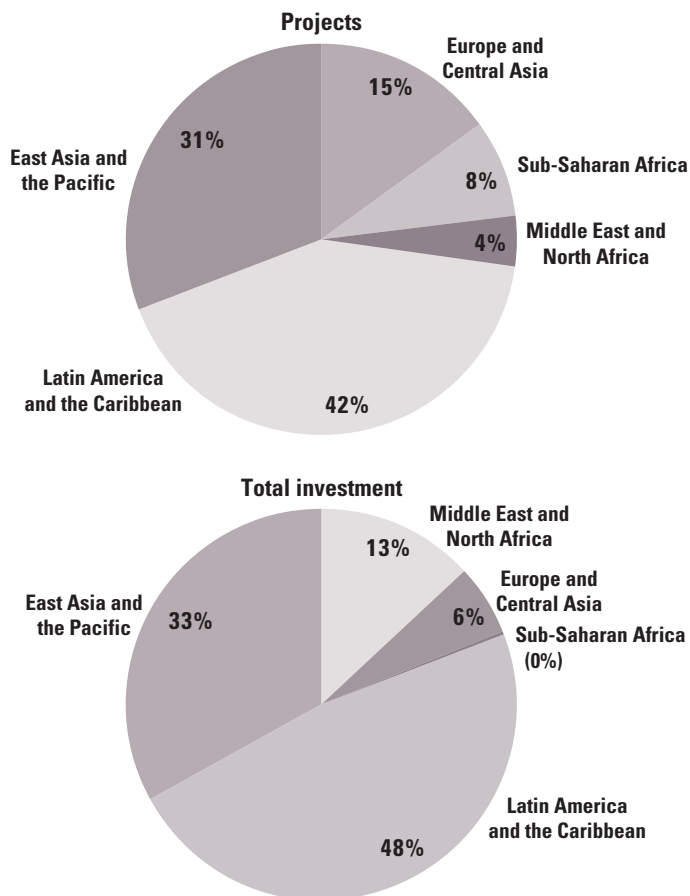


TABLE 1 PRIVATE WATER AND SEWERAGE PROJECTS IN DEVELOPING COUNTRIES, BY REGION, 1990–97

Region	Projects	Total investment in projects with private participation (1997 US\$ millions)
East Asia and the Pacific	30	11,913
Europe and Central Asia	15	1,499
Latin America and the Caribbean	40	8,225
Middle East and North Africa	4	3,275
Sub-Saharan Africa	8	37
Total	97	24,950

Note: Data may not sum to total because of rounding.
Source: PPI Project Database.

FIGURE 3 PRIVATE PARTICIPATION IN WATER AND SEWERAGE IN DEVELOPING COUNTRIES, BY REGION, 1990–97



Source: PPI Project Database.

By the end of 1997 private companies operating in developing countries had reached financial closure on US\$25 billion of investment in water and sewerage projects. In total, ninety-seven projects had been implemented in thirty-five developing countries, ranging from management contracts to leases, concessions, divestitures, and greenfield build-operate-own (BOO) or build-operate-transfer (BOT) arrangements. This Note provides an overview of patterns and trends in these projects.

Sector trends

The PPI Project Database reveals the following trends in private participation in water and sewerage:

- A regional and national concentration of private water projects, reflecting varied government efforts to create conditions for sustainable private involvement through pricing, regulatory, and institutional reforms, but also a ripple effect from growing government familiarity with private involvement in the sector.
- A dominance of concession contracts compared with divestitures, BOT contracts, leases, and management contracts.
- A few international companies sponsoring and operating most major projects. But the number of companies involved in private contracts is growing, and it remains too early to tell whether other new entrants will increase their international presence.

Latin America and East Asia dominate

A regional breakdown of private sector involvement in the water and sewerage sector shows a concentration of projects in Latin America and the Caribbean and East Asia and the Pacific (table 1 and figure 3). This regional concentration is similar to that in energy and transport. The growth of the sector in these two regions coincides with the opening of markets and, particularly in Latin America, progress toward the establishment of credible legal and regulatory institutions. Latin American countries have awarded forty private contracts, which have brought investment commitments of US\$8,225

BOX 1 PPI PROJECT DATABASE: PROJECT CRITERIA AND DATABASE TERMINOLOGY*Database coverage*

- To be included, a project must have reached financial closure and directly or indirectly serve the general public.
- Sectors covered are energy, water, transport, and telecommunications.
- The water sector includes the following subsectors and segments: potable water treatment and distribution and sewage collection and treatment.
- Moveable assets, incinerators and stand-alone solid waste projects, and small projects such as windmills are excluded.
- The period covered is 1984–97.
- The countries covered are developing countries, as defined and classified by the World Bank, in East Asia and the Pacific, Europe and Central Asia, Latin America and the Caribbean, the Middle East and North Africa, South Asia, and Sub-Saharan Africa.

Definition of private participation. The private company must assume operating risk during the operating period or assume development and operating risk during the contract period. In addition, the operator must consist of one or more corporate entities, with significant private equity participation, that are separate from any government agency.

Project types

- Operations and management contracts—The private entity takes over the management of a publicly owned enterprise for a given period. This category includes management contracts and leases.
- Operations and management contracts with major capital expenditure—These are concession contracts for existing facilities under which the private entity also assumes

significant investment risk. This category includes build-transfer-operate, build-lease-transfer, and build-rehabilitate-operate-transfer contracts as applied to existing facilities.

- Greenfield projects—A private entity or a public-private joint venture builds and operates a new facility. This category includes build-operate-transfer and build-operate-own contracts.
- Divestitures—The state sells an equity stake to private entities; this may or may not involve private management. This category includes full and partial divestitures.

Definition of financial closure. For greenfield projects and for operations and maintenance contracts with major capital expenditure financial closure is defined as the existence of a legally binding commitment of equity holders or debt financiers to provide or mobilize funding for the project. The funding must account for a significant part of the project cost, securing the construction of the facility. For operations and management projects a lease agreement or a contract authorizing the commencement of management service must exist. For divestitures the equity holders must have a legally binding commitment to acquire the assets of the facility.

Sources

- The World Wide Web.
- Commercial databases.
- Developers and sponsors.
- Regulatory agencies.

Contact. The database is maintained by the Private Participation in Infrastructure Group of the World Bank. For more information contact Mina Salehi at 202 473 7157 or msalehi@worldbank.org.

TABLE 2 TOP FIVE DEVELOPING COUNTRIES BY TOTAL INVESTMENT IN PRIVATE WATER AND SEWERAGE PROJECTS, 1990–97

Country	Total investment in projects with private participation (1997 US\$ millions)	Projects
Argentina	6,183	7
Philippines	5,820	3
Malaysia	5,030	6
Turkey	1,230	2
Mexico	597	12

Source: PPI Project Database.

TABLE 3 TOP FIVE DEVELOPING COUNTRIES BY NUMBER OF PRIVATE WATER AND SEWERAGE PROJECTS, 1990–97

Country	Total investment in projects with private participation (1997 US\$ millions)	Projects
China	503	13
Mexico	597	12
Brazil	583	8
Argentina	6,183	7
Malaysia	5,030	6 ^a

a. The Czech Republic also implemented six projects between 1990 and 1997, with total investment of US\$25 million.

Source: PPI Project Database.

million. East Asian countries have awarded thirty contracts, with investment commitments of US\$11,913 million.²

Europe and Central Asia and the Middle East and North Africa have small but growing private involvement in the water sector, and recent projects are likely to encourage imitation. For example, the Moroccan government awarded a thirty-year concession contract for a power-water-sewerage operation in the Rabat and Sale regions, following a similar project implemented in Casablanca in 1997. Sub-Saharan Africa has almost no private investment, but has eight management and lease contracts.

Despite an early start in the region, private participation in Africa is progressing slowly. In the absence of strong commitments on tariffs and credible regulatory provisions, private companies have been unwilling to take investment risk in the region. In some cases they have taken on a degree of commercial risk under lease contracts. In other cases private participation has been limited to short-term management contracts. No country in South Asia has yet awarded a water or sewerage contract to the private sector, but a number of proposals are being considered (for example, in Tiripur, India, and Karachi, Pakistan).

A few countries lead the way

Similar to the trend in power and transport, in each region a few countries have awarded the majority of the water and sewerage contracts (tables 2 and 3). In East Asia, for example, China has awarded thirteen contracts and Malaysia six, together representing 63 percent of the East Asian total of thirty projects. A similar picture emerges in Latin America, with Mexico awarding twelve contracts, Brazil eight, and Argentina seven. This pattern is largely explained by the relative ease of implementing further projects once an initial project is in place, given the development of local private participation models and a degree of local experience with private transaction processes. In Argentina, for example, the availability of model contracts and regulatory documents is assisting smaller cities and provinces in working with the private sector.

The relationship between total investment and the number of projects awarded is not strong. The total investment in any country depends on how and where the projects have been implemented. The top three countries in terms of number of projects—China, Mexico, and Brazil—have awarded small contracts, and they account for only 7 percent of investment in developing countries in the water and sewerage sector. The top three countries as ranked by investment in private projects have awarded fewer contracts but of larger scale. Argentina, the Philippines, and Malaysia have awarded 16

percent of private projects, but they account for 69 percent of all private investment in water and sewerage.

Projects differ vastly in size

Project sizes also differ within countries. In Argentina, for example, one project, Aguas Argentinas, accounts for US\$4,464 million (54 percent) of the planned private investment in Latin America, while the country as a whole accounts for US\$6,183 million. Similarly, in East Asia three Philippine projects account for half the total investment commitments.

Concessions are the most popular

One striking feature of the water and sewerage sector is the dominance of concessions compared with other forms of private participation.³ Concessions are attractive to governments because they place full operational and investment responsibilities, and associated commercial and investment risk, with the private sector, maximizing potential benefits from efficiency gains and access to private sector financing. But they also require significant government commitment, and efforts to create a credible regulatory environment for private investment. Of ninety-seven contracts with the private sector, forty-eight are concession contracts, accounting for 49 percent of all water and sewerage projects and 80 percent of all private capital investment (table 4 and figure 4). By contrast, in the energy sector most private projects are greenfield projects or divestitures.

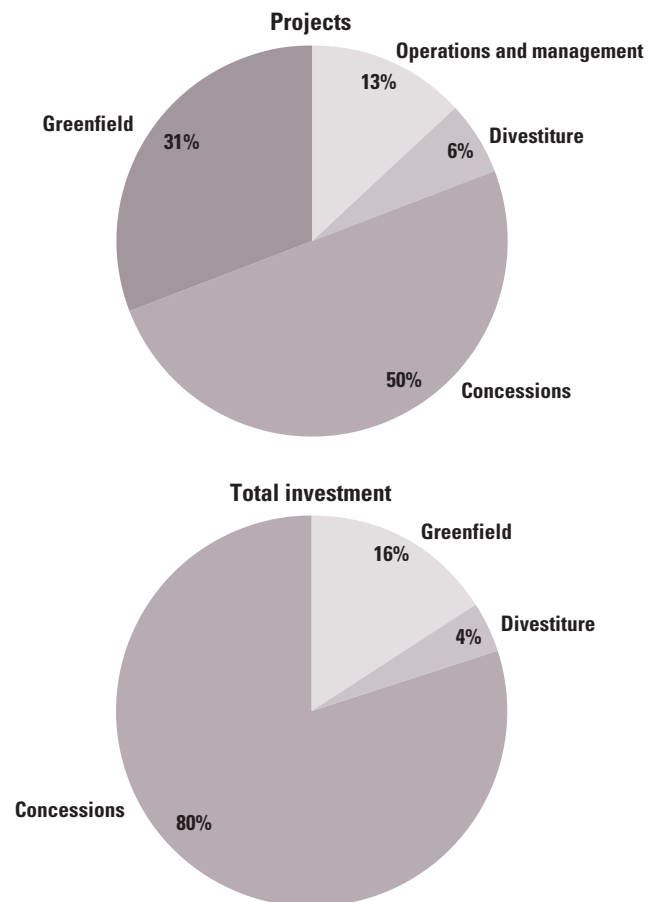
Differences in government objectives help explain differences in the contracts preferred in each sector. In the energy sector private involvement has been driven largely by an increasing demand for new capacity, requiring significant private sector investment. In the water sector most developing countries not only need to expand capacity and distribution networks, but also face high levels of unaccounted-for water and inefficient services. The creation of new capacity detached from the management of distribution networks can exacerbate system

TABLE 4 PRIVATE WATER AND SEWERAGE PROJECTS IN DEVELOPING COUNTRIES, BY TYPE, 1990–97

Type	Projects	Total investment in projects with private participation (1997 US\$ millions)
Concession	48	19,909
Greenfield	30	4,037
Operations and management	13	n.a.
Divestiture	6	997
Total	97	24,950

n.a. Not applicable.
Note: Data may not sum to total because of rounding.
Source: PPI Project Database.

FIGURE 4 PRIVATE PARTICIPATION IN WATER AND SEWERAGE IN DEVELOPING COUNTRIES, BY TYPE OF CONTRACT, 1990–97



Source: PPI Project Database.

TABLE 5 PRIVATE WATER AND SEWERAGE PROJECTS IN DEVELOPING COUNTRIES, BY SUBSECTOR, 1990–97

Subsector	Projects	Total investment in projects with private participation (1997 US\$ millions)
Water treatment	25	4,249
Full water and sewerage service	19	11,935
Water treatment and distribution	16	1,177
Sewage treatment	12	673
Water and sewerage networks	7	496
Water distribution	5	218
Sewage collection and treatment	5	2,754
Other	8	3,536
Total	97	24,950

Note: Data may not sum to total because of rounding.

Source: PPI Project Database.

inefficiencies. The construction of new water treatment plants, for example, increases the pressure of water going into the distribution network, increasing leaks. If, in addition, collections performance is poor, raising funds to meet take-or-pay commitments will be difficult. Greenfield contracts often do not give the private contractor an incentive to take these problems into account. By contrast, concessions can encourage improved management and maintenance of the whole network.

Greenfield projects typically involve bulk water sales

The thirty greenfield contracts account for 31 percent of all projects and US\$4,037 million of private investment. Almost all greenfield projects take the form of BOT contracts, with ownership reverting to the government after the initial contract period. In public-private joint ventures ownership of the assets often remains with the public partner during the contract term. Some BOT contracts also give the private sponsor responsibility for management of the distribution network, making them more like concession contracts. There are only five pro-

jects in which the private company retains ownership of the facilities. All these build-operate-own schemes are in Latin America and the Caribbean.

Most of the greenfield projects in the sector (twenty-five of thirty, with one project covering both water and sewerage) are for the construction and operation of water treatment plants in countries with an increasing demand for piped water. In these cases companies typically have a take-or-pay agreement with the municipal government for bulk water sales. All six greenfield projects in China, for example, are for water treatment plants. In the relatively high-income countries of Latin America governments have awarded greenfield contracts to meet the growing demand for sewage treatment plants.

Divestitures are rare

Divestiture of public water and sewerage assets is comparatively rare; six projects, all partial divestitures, account for 6 percent of all water projects and only 4 percent of private investments. This small share highlights the sectoral difference between water and energy in asset ownership: most water and sewerage assets remain in the public sector, and governments are resistant to giving them up. The availability of concession contracts as an alternative to divestiture has allowed governments to maintain ownership of sector assets while delegating substantial responsibility and risk to the private sector.

Management and lease contracts are less risky

Management contracts and leases are intended to improve the performance of loss-making public utilities while leaving the public sector primarily responsible for new investments. Funding for this investment often comes from development bank loans, and all investment risk is borne by the government. These types of contracts have therefore proved attractive in countries where the private sector perceives investment risk to be high. Management contracts attempt to improve efficiency through incentive pay-

TABLE 6 TOP FIVE PRIVATE SPONSORS BY NUMBER OF PROJECTS, 1990–97

Sponsor	Projects	Total investment in projects with private participation (1997 US\$ millions)
Suez Lyonnaise des Eaux	28	16,153
Vivendi (formerly CGE)	13	5,275
Aguas de Barcelona	6	9,072
Thames Water	6	1,375
SAUR International	5	38

Source: PPI Project Database.

TABLE 7 TOP FIVE PRIVATE SPONSORS, BY REGION, 1990–97
Number of projects

Sponsor	East Asia and Pacific	Europe and Central Asia	Latin America and Caribbean	Middle East and North Africa	Sub-Saharan Africa	Total
Suez Lyonnaise des Eaux	11	7	6	2	2	28
Vivendi (formerly CGE)	4	3	3	0	3	13
Aguas de Barcelona	0	0	6	0	0	6
Thames Water	4	1	1	0	0	6
SAUR International	1	1	0	0	3	5

Source: PPI Project Database.

ments based on measured performance and involve minimal transfer of risk to the private sector. Leases do transfer commercial risk to the private partner, thereby creating direct incentives to improve revenues and reduce costs. Together, management contracts and leases constitute 13 percent of all projects. Seven of the ten projects in Africa are management contracts or leases. Management and lease contracts account for all single-sector water projects in Africa; all three concessions for water services in Africa also involve electricity generation, transmission, and distribution.

Private participation is easier in water than in sewerage

A breakdown of private involvement by sub-sector (water treatment, water distribution, sewage collection, sewage treatment) highlights the greater prevalence of private sector involve-

ment in water relative to sewerage (table 5). Government priorities have generally given greater emphasis to supplying water than to removing wastewater after use. Consumers are more willing to pay for water delivery service that yields immediate and direct benefits than for services such as sewage treatment, the benefits of which are more dispersed. In Asia contracts commonly focus solely on the water sector (the national concession for sewerage services in Malaysia is an exception, as are the Manila water and sewerage concessions in the Philippines). By contrast, concessions covering water treatment, water distribution, and sewerage services, as well as BOTs for sewage treatment, are relatively common in Latin American countries. In this region a well-developed water infrastructure is more often already in place, and increasing wealth allows municipal governments to extend concessions to sewerage.

Few major players so far

A few major companies dominate private participation in the water and sewerage sector in developing countries (see table 6 for the top five sponsors by number of projects in which they are involved).⁴ The top five sponsors are involved primarily in concessions and lease or management contracts, more rarely in divestitures and greenfield projects.

The small number of major players reveals the novelty of private contracts in the water sector compared with other sectors. Many contracts are awarded to consortia made up of local companies, often operating in other industries, and one or two experienced international companies. A breakdown of the major players by region highlights even more clearly how few major international players operate in developing countries (table 7). Only one of the top five sponsors operates in all five developing regions. There are signs, however, that the growth of the sector will bring an increase in the number of international players. Water and sewerage contracts increasingly are attracting bids from consortia of multisector utility and construction companies.

Conclusion

The water sector has a long history of tariffs below costs and political resistance to raising them. Considerable government commitment is required to raise tariffs to cover costs, and to build regulatory arrangements that give private companies confidence that they can make a fair rate of return on their investments. Even relatively low-risk contracts, such as management contracts and leases, still require governments to establish their credibility as good partners for the private sector. While many governments are currently contemplating reforms that will make private participation in water and sewerage possible, only thirty-five countries in the developing world have so far succeeded in implementing private transactions in the sector.

Private participation in the water sector is very new. The small number of projects and the

dominance of a few major international players are characteristics of an industry in transition. Developing countries are opening their water and sewerage sectors to greater private participation and giving more private operators the opportunity to gain experience in the sector. As opportunities in developing countries increase, water sector projects are likely to attract companies with domestic experience, as well as new companies. (We have recently witnessed Enron's acquisition of a water company in England with the aim of expanding into the water sector overseas.) Companies already operating in developing countries are taking on additional projects as they acquire experience in the sector, but may face a constraint from managerial economies of scale. Expansion may therefore depend on new entrants to the sector.

¹ All dollar amounts are in 1997 U.S. dollars.

² Any impact of the East Asian financial crisis is likely to show in the next update of the water project database.

³ For details on concession contracts see Pierre Guislain and Michel Kerf, "Concessions—The Way to Privatize Infrastructure Sector Monopolies" (Viewpoint 59, October 1995), Claude Crampes and Antonio Estache, "Regulating Water Concessions" (Viewpoint 91, September 1996), Penelope J. Brook Cowen, "The Private Sector in Water and Sanitation—How to Get Started" (Viewpoint 126, September 1997), and Helen Nankani, "Testing the Waters—A Phased Approach to a Water Concession in Trinidad and Tobago" (Viewpoint 103, January 1997).

⁴ Sponsor companies that have a small stake in a few large projects have an inflated market share if market share is calculated according to the total investment in projects. At the other extreme, major sponsors that focus on management and lease contracts but undertake little or no capital investment are excluded from a calculation based on investment. Using the number of projects avoids this bias and highlights the major players in the sector better than the size of projects in which each company has a stake. The number of projects still is not a perfect measure, however, because it ignores the cross-ownership between some sponsor companies and therefore double counts when two affiliated companies have a stake in the same project.

*Gisele Silva, Nicola Tynan, and Yesim Yilmaz,
George Mason University and Private Participation
in Infrastructure Group*

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