

Viewpoint

Note No. 151

September 1998

Financing Water and Sanitation Projects— The Unique Risks

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A project finance structure allows water projects with attractive cash flows and risk profiles to secure long-term private capital. This structure provides a direct link between a project's cash flow and its funding to give project sponsors, investors, and lenders strong incentives to ensure that projects are structured and operated to generate stable revenue streams. But even in industrial countries the credit strength of off-taking municipal governments and the sector's traditional monopoly structure expose lenders to potentially significant credit, regulatory, and political risks. These risks, combined with the sunk, highly specific, and non-redeployable nature of water investments, mean that lenders and investors are vulnerable to government opportunism and expropriation. Reviewing some recent innovative projects, this Note shows that private participation on a limited recourse or nonrecourse basis has required support from multilaterals and federal government agencies to absorb noncommercial risks.

Private sector participation in water and sanitation has often taken the form of special-purpose build-operate-transfer (BOT) projects following the project finance or limited recourse model. These are self-contained projects that address the need for more water and sanitation. Although these bulk suppliers can alleviate immediate shortages, they have virtually no effect on systemwide revenue problems (for example, leakage and tax collection) or labor cost problems. These long-term problems are sometimes tackled incrementally through leases and management contracts. An increasing number of countries have gone further by awarding operating concessions for entire systems, which require investment commitments from the concessionaire. Beyond such concessions lies full privatization of assets, which facilitates financing by creating collateral.

The promise of steady—if not growing—long-term future cash flows is the basis of the private sector's interest in financing these ven-

tures. As one of the last monopoly utility sectors, water and sanitation can be especially attractive to long-term private investors. But financing water and sanitation projects has been a special challenge because of their unique risks:

- Expensive to transport but cheap to store, water is essentially a local service and subject to control by local government, which can be more politicized and have weaker credit than state or federal government.
- With most of the assets underground, their condition is hard to assess. That makes investment planning difficult, posing risks for contract renegotiations.
- Inadequate provision is associated with health and environmental risks, so government has a strong interest in extending access to service, regardless of ability to pay.
- Significant currency risk arises because customers pay in domestic currency that does not match the currency of international debt and equity financing.





- There has so far been little scope to introduce direct competition in treatment, transmission, and distribution.

The risk profile of a project is also influenced by its type and by its stage of development. Greenfield projects with a build-operate-transfer or build-own-operate (BOO) structure, because they involve a period of construction before revenues are generated, generally expose lenders to greater credit, political, and regulatory risks than concessions for infrastructure services that are up and running. Similarly, older and more efficiently run systems with longer operating histories tend to have more secure and predictable cash flows and mature investment profiles, and thus expose lenders and investors to fewer risks.

The water and sanitation sector's exposure to risks that are often difficult and costly to cover has two important ramifications:

- Fewer projects have been successfully financed with private capital than in other infrastructure sectors, such as power and telecommunications.
- Projects financed with private capital have tended to involve direct financial or credit support from government or third parties such as bilateral, multilateral, and export credit agencies.

Case studies in finance

The experience of six water and sanitation projects and one set of utilities in accessing and structuring private finance illustrates the level of government or third-party support (table 1). All the projects follow the standard project finance structure except for the more mature English and Welsh water companies, which rely on corporate finance.

Only the BOT project in Johor, Malaysia, was financed on a nonrecourse basis with no sponsor or third-party support to cover risk of nonpayment. All other projects were financed on a limited recourse basis. The recourse was generally provided by payment guarantees to the parties off-taking the service (buying bulk water or wastewater services), such as a local government

entity in a BOT or BOO project. For the BOT in Chihuahua, Mexico, for example, Banobras, the domestic development bank, provided credit support to the local government entity. In Izmit the Turkish government stands behind the local government's water purchase agreement. In Sydney the state government guarantees the payment of the city water utility (Sydney Water Corp.) to the private project company even though the utility's debt is rated AAA by Standard & Poor's. In Buenos Aires the Argentine government's guarantee to pay compensation if the concession is terminated early provides the chief form of security for lenders.

Sources of debt

In countries with weak sovereign credit ratings financing has been provided by multilateral and export credit agencies. These agencies are generally in the best position to shoulder political and regulatory risk and thus provide long-term finance at reasonable rates. The US\$9 million Chase Manhattan Bank loan to the Chihuahua BOT project, which received no multilateral or bilateral funding but did receive grant and credit support from Banobras, is a rare case of commercial bank participation. In a similar BOT project in Puerto Vallarta, Mexico, the International Finance Corporation provided debt finance backed by a revolving and irrevocable letter of credit from Banobras.

In countries with high sovereign credit ratings projects have been financed by domestic commercial bank loans. The BOT project in Johor, Malaysia, and the BOO project in Sydney, Australia, were financed by commercial debt. As a result of the project structure (existing cash flows) and Malaysia's highly developed capital market and relatively low interest rates, the Johor project was financed entirely with local debt. The Sydney project had both local and offshore financing.

The limited capital market financing of water and sanitation indicates that individual investors are not in a position to accurately evaluate and mitigate the risks. But as the experience of the English and Welsh water companies shows,

TABLE 1 FUNDING FOR SELECTED WATER AND SANITATION PROJECTS

| Project site, type, and date | Project cost | Debt/ equity | Country rating | Source and maturity of debt |
|------------------------------------------------|----------------------------------------------------------------|-----------------------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Malaysia Concession (1993) | US\$2.4 billion (about US\$500 million in first 2 years) | 75/25 | A+ | Government soft loans due to severe tariff collection problems |
| Buenos Aires, Argentina Concession (1993) | US\$4 billion (US\$300 million in first 2 years) | 60/40 | BB- | 10-year IFC A-loan, 12-year IFC B-loan (recourse to Argentine government in event of early termination) |
| Izmit, Turkey BOT (1995) | US\$800 million | 85/15 | B | 13-year export credit agency loans, 7-year MITI ^a loan, 7-year commercial bank loan (recourse to Turkish government) |
| Chihuahua, Mexico BOT (1994) | US\$17 million | 53/15/32 ^b | BB | 8.5-year commercial bank loan with limited recourse to Banobras |
| Johor, Malaysia BOT (1992) | US\$284 million | 50/50 | A+ | 10-year project finance loan from Public Bank Bhd (nonrecourse) |
| Sydney, Australia BOO (1993) | A\$230 million | 80/20 | AAA | 15-year commercial loans (State government stands behind Sydney Water Corp. payment.) |
| England and Wales Full privatization (1989) | US\$5.24 billion | 25/75 | AAA | Capital markets, corporate finance, European Investment Bank, and other sources |

a. Ministry of International Trade and Industry of Japan.

b. Debt/equity/grant.

Source: Haarmeyer and Mody 1998.

projects can be expected to access capital markets as their cash flows to support debt service become more stable and certain and independent regulatory agencies are established.

The English and Welsh companies have drawn on a variety of financing sources, including the bond markets. Anglian Water, one of the ten privatized water companies, reflects the low risk profile of more mature water utilities. In 1990 the company floated a twenty-four-year bond

issue priced at just fifty-three basis points over U.K. Treasury gilts due November 2006. Standard & Poor's based its AA rating of the £150 million Eurobond on Anglian's "robust financial profile and stable operating environment," which "should provide the company with a fair degree of insulation from the impact of key regulatory and political risks going forward." The English and Welsh companies have also taken advantage of low-cost loans from the quasi-governmental European Investment Bank.



Equity financing

Although debt is generally cheaper than equity, a long-term equity stake by the sponsor (which is sometimes also the operator) ensures that management has a long-term interest in the project and that cash flow growth leads to capital appreciation. Equity also reduces the debt service burden on the cash flow, which can be especially important in a project's early development phase.

Equity has been provided largely by sponsors. For large projects especially, equity, like debt, is often sourced from multiple consortium members, both international developers and local investors. The Buenos Aires concession, for example, has four international shareholders and four local shareholders (including the utility's employees).

Lenders like to see sponsors achieve a reasonable return on their investment, to ensure that sponsors have adequate incentive to maintain support for the project, at least through the life of the loans. Equity holders partially shield lenders, because the lower priority of their claims on a project's revenues means that they will absorb unexpected shortfalls in revenue. In full concessions and privately owned utility companies internal cash generation can provide an important source of equity for financing investment.

Although information on the return on equity for project sponsors is not widely available, the return can be expected to vary with project risk and cash flow profiles. In two of the cases discussed here returns to investors are regulated:

- The Malaysian government has guaranteed returns of 14 to 18 percent on investment in the national sewerage project; actual returns are currently at 12 percent because the concessionaire failed to achieve a 90 percent tariff collection rate.
- For the English and Welsh water companies the returns on regulatory capital (the assets of the core business) were 11.5 percent in 1995–96 and 12 percent in 1994–95. Accord-

ing to Ofwat, the U.K. water company regulator, these returns are expected to fall as the water companies become more established and capital expenditures decline.

To compensate for the greater country and political risks, required returns in most developing country projects are likely to be significantly higher and closer to those in other infrastructure sectors. For a sample of power projects in Asia and Latin America Baughman and Buresch (1994) estimated the equity return at between 18 and 25 percent. And for privately financed toll roads Fishbein and Babbar (1996) found that investors expect annual returns to range between 15 and 30 percent.

Conclusion

The challenge for the future is in mitigating the noncommercial risks that characterize the sector and moving beyond the limited capacity of third parties. Part of the solution lies in generating better information about these risks so that they are more transparent and their costs are more fully recognized by parties that can mitigate them. Two tracks to achieve this end are independent regulatory agencies and competition—for the market and for rights to supply individual customers, as in England and Wales.

References

- Baughman, David, and Matthew Buresch. 1994. "Mobilizing Private Capital for the Power Sector: Experience in Asia and Latin America." U.S. Agency for International Development and World Bank, Washington, D.C.
- Fishbein, Gregory, and Suman Babbar. 1996. "Private Financing of Toll Roads." RMC Discussion Paper 117. World Bank, Resource Mobilization and Cofinancing Vice Presidency, Washington, D.C.
- Haarmeyer, David, and Ashoka Mody. 1998. "Tapping the Private Sector: Approaches to Managing Risk in Water and Sanitation." RMC Discussion Paper 122. World Bank, Resource Mobilization and Cofinancing Vice Presidency, Washington, D.C.

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