

From: Private Sector Participation in the Water and Wastewater Services Industry

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The Nature of Competition in the Water and Wastewater Utilities Sector

Several network industries have achieved a certain level of private-sector competition in the production segments of their industries. In such systems, telecommunications companies or electricity generators can send their signals or their electric power over shared transmission lines, by paying regulated fees to the owners of the transmission network. However, introducing competition in production-related segments is more difficult in the water industry for several reasons. First, there are clear limits on the location of water collection and treatment facilities. Water availability is sharply limited by environmental constraints and characterized by scarcity in many parts of the world. In addition, water supplies are often subject to national laws regarding water rights and to international considerations in the case of important transboundary lakes and rivers. Quality issues also make it difficult to introduce competition in production-related water industry segments. Because water treatment standards and abilities may differ substantially between firms, a shared network of transmission pipes means that one water utility might apply high standards of treatment to its water, but its customers might not receive the same high quality product. Finally, the cost structure of water systems makes it difficult to introduce market competition. The largest component of the final cost of water is the cost of its transportation through the network. Since the water pipe infrastructure forms the network, to be jointly used by all market entrants, the highest-value section of the process is the one that is least amenable to cost savings through competition.

Despite the difficulty in introducing competition into the water and wastewater management industry, some indirect and direct competition occurs in these markets. Two indirect forms of competition—competitive bidding and yardstick competition—may introduce some market discipline into the water and wastewater industry. Competitive bidding is a form of market-based price discovery, in which firms submit bids for the rights to own or manage a water utility, or to provide related services. Bidders offer to charge consumers the lowest water price that is consistent with the performance requirements specified in the contract. In most cases, the competition ends once the contract begins, and the winner becomes the monopoly service provider. The bidding process forces firms to commit to the lowest cost, most efficient operation for which they can ensure a reasonable rate of return.

In a water utilities system characterized by yardstick competition, firms compete in terms of efficiency, with a regulator determining a rate schedule comparing the costs of monopoly providers, and devising a formula for service rates under which the most efficient water utilities maximize profits. The system provides a competitive method of determining prices so long as the different water companies face similar market circumstances, or the regulator takes inherent cost differences into account when setting prices. In the United Kingdom, for example, the water industry regulator calculates the efficiency and circumstances of each water utility, and sets rates for each company based on these calculations. The calculations include general assumptions regarding overall market conditions, such as the cost of capital and environmental regulations. All water companies are assumed to be able to address such conditions with similar levels of efficiency. In Australia, water utilities are owned by the local governments, but they operate on a commercial basis (without subsidies, so revenues must match or exceed costs).

Regulators encourage each utility to match the fee structure of the most efficient firm, pressuring all of them to increase their operating efficiency. In Chile, water service providers must reduce costs below “yardstick levels” set by regulators, which are based on the presumed efficiency of a “model enterprise.” Rates are reviewed every five years, factoring in capital

costs, service standards, investment plans, and other factors pertaining to each service provider.

To date, the United Kingdom is the only country which permits common carriage competition in its water market, allowing a water service provider to use facilities such as the pipe network or water treatment plant of another provider, as in the electric power and telecommunication industries. The Competition Act of 1998 required all British water companies to develop a code under which they will permit other companies to access their infrastructure, for the purposes of allowing competition. In July, 2002, U.K. water firms established revised codes based on guidelines published by OFWAT, the U.K. water sector regulator, in March 2002. In addition, U.K. water firms enhanced market transparency in May 2002 by publishing the prices they intended to charge for access to their facilities. As of May 2002, however, the actual extent of common carriage competition remained limited.

Although it is difficult to institute, some direct competition between private sector water firms does occur. For example, some measure of direct competition may occur when consumers have the opportunity to choose between proximate water or wastewater service networks. The most prominent form of direct competition is seen among the small-scale water vendors that deliver bulk water supplies to areas without piped water systems. In communities without access to piped water service through a utility, a large share of water is often supplied through independent, private-sector actors selling water from trucks or buckets. Sellers may have access to private water supplies, illegal connections to the local water utility's pipes, or legitimate connections to the local water utility from which they buy in bulk and then resell to users without pipe access. According to some studies, such water providers service over half of the urban population in many developing countries. These providers range from very small businesses to large enterprises. They are almost exclusively private and unregulated, although there are examples of community-based water and/or sanitation associations. In general, such water supply markets are very competitive in terms of both price and water quality. By its nature, this type of service is limited to water supply services, and does not generally include water treatment services, although customers may have the choice of several providers, and may be able to include water quality characteristics in their purchase decisions.

While it is generally assumed that the customers of such water suppliers would prefer access to piped water, and small-scale water vendors tend to be displaced as countries install piped water networks and implement other water sector reforms, that is not always the case. In one instance, a large private sector consortium charged with extending water service in parts of Buenos Aires found that customers were unwilling to hook up to the new piped service, as they were able to obtain water at better prices from neighborhood truck vendors. In that case, customer refusal to connect to the new water services led to the renegotiation of the concession contract. In other cases, however, private water service providers are granted exclusive rights of supply over their service areas, making private water vendors illegal, thus limiting the potential for competition.

Incentives for Private Sector Participation

Countries introduce private sector participation into their water and wastewater utilities sectors for a number of reasons (table 1). The introduction of a profit motive may increase efficiency as compared to public management of the water system. Private sector firms have increased the productivity of water and wastewater utilities by improving their planning and control systems, their accounting procedures, and their procurement systems. Private firms also have been noted for customer service improvements. In addition, many countries introduce private sector participation in order to build out infrastructure. This motive is particularly important for developing countries with limited funds for infrastructure

development, but can also be an important incentive for countries wishing to limit the use of tax revenues for the purpose of building or improving water and wastewater systems.

Table 1 Motives for introducing private sector participation in water and wastewater services

Goal	Method of achieving goal
Increase efficiency of water/wastewater service operations	Introduction of a profit motive often leads to lower costs, lower prices, and water conservation
Increase stock of water infrastructure	Invite private investment to increase available capital without raising taxes to unsustainable levels.
Raise revenue for government	Privatize water sector by selling off existing, government-owned water assets.
Reduce government responsibilities	Transfer ownership or management of the water services industry to the private sector.

Source: Compiled by the U.S. International Trade Commission.

The goals of increased efficiency and infrastructure development often go hand in hand. In many situations where public operation of the water system has not achieved the desired objectives, a private firm is brought in to address the situation. Contracts providing for private operation of municipal water supply and treatment systems tend to tie contractor revenues to the most efficient operation of the system, and to require the contracting firm to construct or repair a given number of water pipes or meters, to establish new water connections for a set number of households, or in other ways contribute to the extension or maintenance of the existing water infrastructure. For example, two and a half years after Aguas Argentinas (a consortium of private firms) took over management of the Buenos Aires water system, water coverage had increased by 9 percent, sewerage coverage by 7 percent, and water production capacity by 26 percent, due to increased efficiency and investment in infrastructure. In addition, Aguas Argentinas improved the drinking water quality, increased water pressure, reduced leakage, and improved both the billing system and average repair times.

In Guinea, a joint venture (SEEG, owned 51 percent by two French water companies and 49 percent by the Guinean Government) won a 10-year lease contract to operate and maintain Guinea's urban water supply facilities, and to handle the billing and collection functions. Through infrastructure development and improved management, SEEG increased water production capacity by 283 percent, to 28.7 million cubic meters annually, resulting in a 24-percent increase in the share of the population with access to safe water, and a 92-percent increase in the number of water connections between 1989 and 1996. The firm also increased the percentage of customers covered by water meters from 5 percent to 98 percent. However, private sector participation in the system coincided with a steady increase in water prices during 1989-1997, from a below-cost rate of \$0.12 per cubic meter to an above-cost rate of \$0.83 per cubic meter. The resulting increase in private water bills led to non-payment rates of almost 60 percent by 1996, and many water connections were turned off for non-payment. Due to these problems, SEEG's lease term was not renewed when it expired in 1999, and the French companies left Guinea in early 2001. The Government of Guinea is preparing a new competitive bid, but it is unclear whether it will be able to attract another private water company to the country.

Financial considerations, including revenues from the sale of assets and reductions in the direct cost of providing water services, also may motivate governments to introduce private sector participation in this industry. Under privatization, concessions, and certain other types of contracts, private water companies assume the costs of water services provision (which are typically covered by direct user charges), with government confining its role to regulation. For example, most water and wastewater utilities in the United States have been publicly owned since the nineteenth century, and more than 85 percent of water utility companies in the United States remained publicly owned in 1999. However, cost increases and reduced federal funding for infrastructure have encouraged U.S. municipalities to reconsider private

sector participation in the water and wastewater industry. In addition, legal changes at the federal level have opened up new possibilities for private sector participation in the U.S. water and wastewater services market. Specifically, until 1997, a water or wastewater facility financed through tax-exempt federal bonds could endanger the tax-exempt status of such bonds if a private firm operated that facility under a contract lasting more than five years. IRS Revenue Procedure 97-13 permits entities to establish contracts that last as long as 20 years, while maintaining the tax-exempt status of their federal bonds.

Many countries face public opposition to introducing private participation in their water and wastewater industries due to social, economic, and national security concerns. Since water is a basic human necessity, many governments attempt to provide universal access to water service for all citizens, a goal which may conflict with efforts to introduce market-based disciplines to the industry. For instance, low-income residents may not be able to afford fair market rates for treated water, and some customers may inhabit remote locations where it is not economically practical to supply water through pipe networks. Private sector participation in the industry may raise the price of water to final consumers, as certain government water subsidies are eliminated. However, it may be possible to structure contracts with private water utilities in such a way as to take these goals into account. For example, contracts might include requirements to install water pipes to provide universal service within an agreed area, or the government might provide subsidies directly to low income residents, to ensure that all users are able to pay for water services. In Chile, for example, the Government raised water and sewerage tariffs to market rates over a 4-year transition period beginning in 1989, while providing direct subsidies to low-income households.

Private sector participation in the water/wastewater industry may be an effective way to promote infrastructure investment, but it is precisely the least developed countries, with the greatest investment needs, that are the least attractive to private firms. These countries are often characterized by small markets, generally inadequate infrastructure, little regulatory capacity, and political or economic instability— all of which deter private firms from making investments that often take many years to yield a profit. The World Bank, other development banks, and a few non-governmental organizations have worked to alleviate this problem by directly financing a number of water-sector infrastructure projects in developing countries that have not attracted private sector interest, or by working with the private sector to structure contracts in ways to mitigate some of these concerns.

The sensitivity of political leaders to issues that concern domestic water and wastewater also creates additional uncertainty and potential risk for private investors that the latter do not confront in other sectors. Particularly since the events of September 11, 2001, the U.S. Government has been conscious of the dangers of disruption in water service, and concerned about security. Security considerations must address threats to the physical infrastructure of pipe networks and water treatment facilities, as well as concerns about overall water quality and health threats due to water contamination.

One final consideration is the firefighting system, which in most developed countries depends on water service to a network of fire hydrants. These fire hydrants need to operate at a high level of water pressure to be effective. It has been noted in some cases that splitting a municipal water supply network into several sub-parts in order to create a competitive environment may reduce the water pressure below the effective level, creating another hindrance to the introduction of competition into the system.