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Strategies for Private Participation: Matching Vision with Performance

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When publicly owned and operated water utilities lack the resources and technical expertise to expand services and operate efficiently, governments may seek investment from the private sector through concessions or other contractual arrangements. In such instances, a credible regulatory presence can promote favorable outcomes for all stakeholders by identifying the operating efficiencies of utilities while government sets objectives that incorporate citizen preferences. In the fifth in a series of articles on regulatory governance, Sanford Berg and Lynne Holt examine the features of water utilities that make them likely to benefit from private-sector participation and address the role of independent regulatory commissions in maximizing the long-term success of private participation.

Before a government involves the private sector in initiatives for water system operations and expansion, it should identify objectives and, with citizen input, set priorities for them. It will also need to know the operating efficiencies of its water utilities -- information that can be supplied by regulatory commission staff with the technical expertise to review utility operations and tariffs. A government may ask regulatory staff to assess various options for private sector participation. Through such actions, a government is more likely to enter into a contractual arrangement that makes good use of technical and financial assistance from the private sector in addressing problems that cannot be solved unilaterally by the public sector.

Establishing Priorities

Assume that a national government was recently elected, in part because it promised to make water sector operations more efficient through expanded connections and improved water service. A law to provide a new regulatory framework for the water and sewerage sector established an independent regulatory commission (IRC) and expressly authorizes private sector participation in water and sewerage services, including concessions. The government plans to invite qualified companies to submit bids for a concession at one of its four water and sewerage utilities.

As a first step, the government has identified five objectives, which citizens are asked to prioritize using surveys or through participation in citizens' advisory committees. For example, the utilities can survey their customers while the government can attempt to elicit responses from residents without utility service. The objectives are:

(1) Public acceptability of regulatory decisions,
(2) Revenues sufficient to cover costs and provide a return on investment,
(3) Economic efficiency (price signals that promote appropriate usage),
(4) Infrastructure development (expansion of access),
(5) Better quality of service.

Let us consider a situation in which citizens perceive objectives as having equal weight. For example, they may view a 10 percent improvement in quality as being about as beneficial as a 10 percent system expansion (raising penetration rates). This is not meant to imply that determining weights is easy; indeed, differential views between groups, served and unserved, are to be expected and must be reconciled. It does illustrate the importance of determining citizen priorities in order to select policies that produce valued outcomes.

Comparison of Utilities -- Benchmarking

In addition to defining and setting priorities for objectives, the government in our example asks the IRC staff to analyze several important indicators for each of the utilities under consideration. The staff is also asked to make a preliminary recommendation as to the most suitable candidate for a concession. The table below lists the indicators relevant for a preliminary assessment. Some reflect threats to successful reform; others represent opportunities. We assume that each of the four water utilities has a million customers, which is a sufficient customer base to justify serious consideration of a concession.

TABLE: CHARACTERISTICS OF FOUR UTILITIES *

INDICATORS	UTILITY A	UTILITY B	UTILITY C	UTILITY D
Cost of Treated Water ($ per M^3)	$0.61	$0.15	$0.45	$0.20
Direct water coverage inside house and lot (% served by utility)[a]	95%	70% (mostly in urban areas)	75% (most received water less than 12 hrs. per day)	80%
Direct sewerage coverage (% served by utility)[b]	86%	58% (mostly in urban areas)	70%	38%
Water consumption -- average liters per capita per day	379	352	236	160
Unaccounted-for water (% per day)[c]	47%	45%	43%	20%
Metered connections (%)	53% (utility still assesses most customers flat fee)	1%	33%	Almost 100%
Labor productivity (# employees per 1,000 connections)	13.4	8.0	6.0	20.0
Quality of service – minimum service pressure, service cutoffs (hrs./yr.)	Low pressure; cut offs in poorer areas	Low pressure; some cutoffs	Low pressure; frequent cutoffs	Cutoffs rare; good water quality
Ratio of operating expenses to operating revenues received	90%	99%	120%. Government had to transfer money to keep utility	110%

			solvent.	
Percentage of revenues collected at year end (12 months period)	.875	.917	.75	.75; the utility has a very bad record of collecting from municipal employees and large users (25% total consumption)
Average tariff collected per m^3/yr	$.80	$.19	$.25	$.70
Average tariff (revenue billed divided by m^3 /yr.)	$.914	$.207	$.33 (includes sewerage)	$.933
Ratio of price to long-run marginal cost ; LRMC	80%; $1.14	100% $.207	70% $.476	95% $.982

a) Excludes standpipes.
b) Excludes septic tank.
c) Physical losses, such as leaks and pipe breaks, and commercial losses from illegal use or unregistered connections.

*A few of the performance outcomes in this table are derived from World Bank case studies of actual water utilities profiled in Clarke, 2001.

Conducting an Analysis

A comprehensive analysis would require detailed comparisons to determine the probability of favorable outcomes under a concession, with the political acceptability of required changes given an appropriate weight. The outcomes would then have to be linked to the objectives identified earlier. But the IRC staff's analysis would highlight the following important considerations.

Price of water: Compared to the other two utilities, ***Utility B*** and ***Utility D*** have one major advantage with respect to the initial tariff. Their tariffs are set close to long-run incremental cost. When prices are set significantly below marginal cost before a concession is implemented, rate increases are usually necessary. Moreover, in the cases of ***Utilities A*** and ***C***, the cost of treated water is higher, which compounds the need for steeper rate increases. Of course, the greater the rate increase, the greater the risk of political opposition.

Average tariff: Tariffs are often set too low because water is viewed as a "right" rather than a commodity, and a government may face political pressure to keep prices below cost. ***Utility C***, in particular, is under-pricing its services in that sewerage is also included in the average tariff. This utility requires transfers from government to remain solvent and cover the operating costs of water supply and sewerage services. ***Utility D*** may be able to reduce its tariffs because residential and small business ratepayers are currently subsidizing municipal government users and other large users. Residential tariffs are also subsidizing inefficiencies in the use of labor. ***Utility A*** may be recovering its costs fairly

efficiently, but the difference between its average tariff and the cost of treated water is sufficiently large to raise questions about its tariff design in future years.

An analysis of affordability is important because, even if tariffs are set to raise sufficient revenues, the tariff design may make the system inaccessible to poor users in the long term. This can happen when tariffs for large users are too high and they exit the system, thus shifting costs disproportionately to residential customers. The table provides limited information about ***Utility D's*** tariff structure and nothing about the tariff design of the other utilities. There could be significant cross-subsidization between customer classes in ***Utility A's*** tariffs, but further investigation would be necessary to establish the presence or extent of that subsidy.

Quality of service: As defined here, this dimension of water supply measures those features experienced by consumers (e.g., water pressure, cutoffs, water taste). Quality of service is worse for ***Utilities A***, ***B*** and ***C*** than for ***D***, whose customers may not be interested in change since there is little room for improvement in this service area. In other utility areas, political opposition to reform may be reduced if customers stand to benefit from improved quality of service.

Operating efficiency: All four utilities could benefit from reform in terms of operating efficiency, which includes unaccounted-for water (also a maintenance legacy in part), labor productivity, ratio of operating expenses to operating revenues received, and collection efficiencies (percentage of revenues collected at year end).

Unaccounted-for water: This measure represents water that has been distributed but is "lost" before reaching the customer. Once again, ***Utilities A***, ***B*** and ***C*** show greater inefficiency in this regard than ***Utility D***. For some reason, government has been unable to pressure those utilities to improve performance in this regard. However, unaccounted-for water has many problems as an indicator: the baseline measurement is notoriously inaccurate in badly metered systems (communication from Lee Travers, December 2001).

Labor productivity: Staff costs are a major component of operating costs, so reducing staff size can improve operating efficiencies. However, governments may encounter considerable employee and union resistance, a possible concern for prospective concessionaires. Although low productivity represents an opportunity for the concessionaire to enhance cash flows, it is also a threat as a signal of poor labor practices that are institutionalized.

Ratio of operating expenses to operating revenues: ***Utilities C*** and ***D*** must rely on government transfers to continue operations. ***Utility B*** is also in danger of losing financial self-sufficiency. Of particular concern to a prospective concessionaire may be ***Utility D's*** inability to compel municipal government agencies and large consumers to pay their water bills. ***Utility A*** has the best ratio of operating expenses to operating revenues received. This factor combined with its collection efficiency reveals some managerial competence.

Water volume: Water consumption in ***Utilities A*** and ***B*** is particularly high. In general, per household consumption will depend on price and household income. Per capita consumption will be lower if service penetration is low. Therefore, indicators should be defined carefully. Similarly, high consumption could reflect high physical losses, captured in the unaccounted-for water indicator. Care is needed to make data comparable.

Metering: The installation of meters is particularly justified if the long-run marginal cost of water is high (***Utilities A***, ***C*** and ***D***). In that case, metering can encourage consumers to reduce consumption. Metering can also be beneficial even when the cost of treated water is low but water consumption is high (***Utility B***) if long-term benefits outweigh costs. Metering gives consumers more control over their bills, encouraging them to fix leaks and reduce wasteful consumption. Such actions could also affect the indicator related to unaccounted-for water.

Expansion of service: Customers of ***Utility A*** appear to enjoy greater coverage of services (combined water and sewerage) than do customers of the other utilities. Customers of ***Utility D*** particularly lack direct sewerage connection, a costly proposition compared to water supply connections. A concession contract might have to consider creating benefits for customers who are already connected. (Would their rates be reduced or their quality of service improved?)

Preliminary recommendation: Although each of the four utilities would present challenges for a concessionaire, IRC staff recommend Utility A as the best candidate for a concession, noting the utility's relatively favorable ratio of operating expenses to operating revenue and its collection efficiency. Moreover, the average tariff of Utility A indicates that, while water appears to be somewhat under-priced, it is not too under-priced, as appears to be the case with Utility C. In addition, there is sufficient opportunity for improvement -- water consumption is high, quality of service is low, unaccounted-for water is high, and labor productivity is low. The concessionaire may want Utility A to eliminate any major cross-subsidies in future tariffs so that long-run marginal costs more closely approach the cost of treated water.

Consideration of Revenue Streams

The government now has access to information from two sources: (1) citizens' priorities and the weights attached to the government's identified objectives and (2) the regulatory staff's analysis of the four utilities. In our example, if residents in Utility A's service area place a high premium on service improvement but indicate less concern for expansion, a concession arrangement involving Utility A may be prudent.

When a government makes a determination on concessions, it needs to consider weighted objectives in conjunction with projected revenue streams. For example, if infrastructure development is given high priority, the associated expansion and metering programs are likely to be capital-intensive, requiring up-front investments. Because the

revenue requirements for such programs could reduce potential concessionaires' interest in tendering a bid, universal service coverage is likely to be a long-term rather than a short-term consideration.

A government may want to set expansion targets that are less ambitious in the first few years of a concession because connections are expensive, particularly in sparsely populated areas. Moreover, consumers may be unable to pay for much of the connection. If public acceptability has a large weight, the government might include a provision in the concession contract agreeing to use development funds to subsidize the connection fee. This option is especially important for sewerage since it helps the concessionaire to meet expansion targets. In contrast, quality of service outputs may be set for shorter time spans because their realization entails a quicker return.

Many of Utility A's problems in our example relate to quality of service. A concessionaire could address those issues within the first years, then use the cash generated from increased network efficiencies to install meters and expand direct water and sewerage service. To some extent, increased meter installation should reduce per-capita consumption; however, increased labor efficiencies and a major reduction in unaccounted-for water should yield savings that more than offset potential revenue losses from lower per capita consumption levels. An improved quality of service that is highly visible will promote public acceptance of the new arrangements. Governments need to clearly communicate the objectives of a given concession from the beginning and provide regular progress reports to affected stakeholders on implementation efforts toward realizing those objectives.

Conclusion

Concession contracts and other contracts involving private sector participation always require a delicate balancing act. Concession contracts are frequently renegotiated due to changing circumstances and inadequate information at the time of the initial agreement. Nonetheless, a determination of citizen priorities at the outset, coupled with good regulatory analysis and an understanding of revenue flows, may improve the durability of contracts involving private participation.

If a government's policy does not have a good probability of improving performance along dimensions that matter, it should be reconsidered. In addition, the role of public education cannot be over-emphasized. Unrealistic expectations can doom a sound program. Benchmarking, a task for the regulator, can provide a basis for grounding programs in reality. As the example above illustrates, governments face both threats and opportunities when developing strategies for private sector participation.

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