

Chapter -1

When to use this toolkit

A government that has decided to involve the private sector in the provision of water and sanitation can choose from many ways of doing so. Which are feasible, and which of these best fits local circumstances, will vary from country to country—and from city to city.

Designed for governments to use as they begin to look for a private partner, this toolkit sets out the issues that a government must work through to identify which kind of private sector arrangement best meets its needs and circumstances. To reach an initial decision, the government must ask itself some questions: What problems does it hope to solve? Which private sector options offer the best solutions to these problems? Do existing legal and regulatory arrangements support private sector involvement? Are the tariffs and subsidies required by the preferred option politically feasible—and the option therefore financially viable? Can the government win political support for the preferred option from key interest groups? If not, are there alternative paths that the government can take?

Once a government has worked through the issues in this toolkit, it should be able to make a decision about which kind of private sector arrangement to pursue. That decision is the first critical step toward

putting the arrangement in place. But much work will remain. Toolkit 2 focuses on how governments move from identifying their preferred option to implementing it. Toolkit 3 concentrates on the issues and risks that governments need to deal with in the resulting contractual arrangement.

Why Involve the private sector

Why are more and more governments turning to the private sector for help in developing and delivering water and sanitation services? They hope to take advantage of private sector skills and know-how, improve the efficiency of service delivery, and gain access to finance for new investments. Experience in countries that have entered into arrangements for private sector participation shows that, if well designed, these arrangements can bring big improvements in the quality, availability, and cost-effectiveness of services.

But private sector participation on its own is no panacea for problems in water and sanitation. It requires a partnership between government and the private sector participants, and the nature of this partnership—and the rights, responsibilities, and risks it entails for each partner—must be carefully mapped out. The first step is choosing the private sector option best suited to local circumstances. To make this choice, a government must identify the problems in service provision, evaluate how well different options address those problems, and assess its capacity to accept the roles, duties, and risks that each option imposes.

Governments seeking to involve the private sector in water and sanitation generally have one or more of the following objectives in mind:

- Bring technical and managerial expertise and new technology into the sector.
- Improve economic efficiency in the sector—in both operating performance and the use of capital investment.
- Inject large-scale investment capital into the sector or gain access to private capital markets.

- Reduce public subsidies to the sector or redirect them from the groups now served to the poor and those not now served.
- Insulate the sector from short-term political intervention in utility operations and limit opportunities for intervention by powerful interest groups.
- Make the sector more responsive to consumers' needs and preferences.

All forms of private sector participation can be designed so as to improve technical and managerial capacity. But the other objectives can only be achieved if the appropriate arrangement for private sector participation is chosen and if the government creates the necessary enabling and regulatory environment. The toolkits therefore emphasize not only choosing a contract for private participation that is well tailored to local needs but also putting a supporting regulatory environment in place.

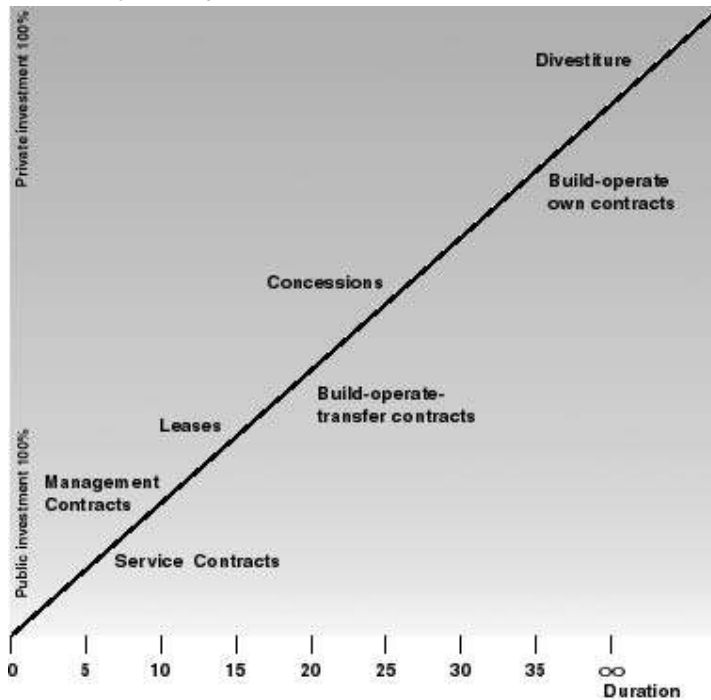
The toolkits also address other concerns that governments often have about involving the private sector in water and sanitation—such as the consequences for utility employees, loss of control of a strategic sector, and price increases and their impact on the poor. The toolkits show how to deal with these concerns through the design of the process for private participation and of the contract

What are the options?

The options for private sector participation can be ranged along a spectrum. At one end are those in which the government retains full responsibility for operations, maintenance, capital investment, financing, and commercial risk—at the other, those in which the private sector takes on much of this responsibility (figure 1). But even where the private sector takes on full responsibility for operations and financing, as in concessions and asset sales, it does so within a framework created by the government. The most important parts of this framework are regulatory arrangements to protect consumers from monopolistic pricing and enforce health and environmental standards, and subsidy regimes to ensure access to services for the disadvantaged.

Figure 1

The range of options



Increasing level of delegation, risk, irreversibility

The main options for private sector participation can be clearly distinguished by how they allocate responsibility for such functions as asset ownership and capital investment between the public and private sectors (table 1). But in practice private sector arrangements are often hybrids of these models. For example, leases often pass some responsibility for small-scale investment to the private sector, and management contracts may have revenue-sharing provisions that make them a little like leases. Options might also be used in combination—for example, a build-operate-transfer (BOT) contract for bulk water supply might be combined with a management or lease contract for operating the distribution system.

Table 1

Allocation of key responsibilities under the main private sector participation options

Option	Asset ownership	Operations and maintenance	Capital investment	Commerical risk	Duration
Service contract	Public	Public and private	Public	Public	1-2 years
Management contract	Public	Private	Public	Public	3-5 years
Lease	Public	Private	Public	Shared	8-15 years
Concession	Public	Private	Private	Private	25-30 years

SOT/BOO	Private and public	Private	Private	Private	20-30 years
Divestiture	Private or private and public	Private	Private	Private	Indefinite (may be limited by license)

Service contracts—simple, but with limited benefits

Service contracts secure private sector assistance for performing specific tasks—installing or reading meters, monitoring losses, repairing pipes, or collecting accounts. They are typically for short periods, from six months to two years. Their main benefit is that they take advantage of private sector expertise for technical tasks or open these tasks to competition. They leave the responsibility for coordinating these tasks with the public utility managers. They also leave the responsibility for investment with the public sector. (See [Table 1](#), Allocation of key responsibilities under the main private sector participation options.)

Service contracts are widely used. In India, Madras Metro Water has contracted services ranging from the provision of staff cars to the operation and maintenance of sewage pumping stations. The water utility in Santiago de Chile has contracted out services accounting for about half its operating budget, including computer services, engineering consulting services, and repair, maintenance, and rehabilitation of the network. To enhance

See [Table 1](#), Allocation of key responsibilities under the main private sector participation options.

Service contracts are at best a cost-effective way to meet special technical needs for a utility that is already well managed and commercially viable. They cannot substitute for reform in a utility plagued by inefficient management and poor cost recovery.

competition, the Santiago utility has at least two service contracts for each kind of task.

Although relatively simple, service contracts must be carefully specified and monitored. If a utility is poorly managed, its service contracts probably will be too. Service contracts are at best a cost-effective way to meet special technical needs for a utility that is already well managed and commercially viable. They cannot substitute for reform in a utility plagued by inefficient management and poor cost recovery.

Management Contracts—a good first step

Management contracts transfer responsibility for the operation and maintenance of government-owned businesses to the private sector. These contracts are generally for three to five years. The simplest involve paying a private firm a fixed fee for performing managerial tasks. More sophisticated management contracts can introduce greater incentives for efficiency, by defining performance targets and basing remuneration at least in part on their fulfillment. To be worthwhile, these more complex management contracts must produce efficiency gains large enough to offset the regulatory costs of establishing targets and monitoring performance against them. (See Table 1, Allocation of key responsibilities under the main private sector participation options.)

See **Table 1**, Allocation of key responsibilities under the main private sector participation options.

Management contracts are most likely to be useful where the main objective is to rapidly enhance a utility's technical capacity and its efficiency in performing specific tasks, or to prepare for greater private involvement.

Specifying clear and indisputable targets is often difficult, especially when information about a system's current performance is limited. Some targets may be beyond the private sector partner's power to achieve. For example, unaccounted-for water is a good indicator of a system's efficiency, but it can be hard to measure—especially if metering is inadequate—making it difficult to establish a meaningful base for evaluating the operator's performance. And the operator's ability to reduce unaccounted-for water may depend not only on its efforts to reduce leaks but also on the resources that the government makes available for rehabilitating pipelines. There is often a fine dividing line between operations and maintenance expenditures, for which the private operator is responsible, and capital investment, for which the government is responsible—and both will affect the operator's performance.

Because management contracts leave all responsibility for investment with the government, they are not a good option if a government has as one of its main objectives accessing private finance for new investments. And because they do not necessarily transfer any of the commercial risk to the management contractor, they draw little on private sector incentives to reduce costs and improve the quality of services.

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utility's technical capacity and its efficiency in performing specific tasks, or to prepare for greater private involvement.

Management contracts—a step toward greater private sector participation

Management contracts can be a good first step toward more full-fledged private sector involvement where conditions make it difficult for the government to commit to a long-term arrangement or to induce the private sector to undertake capital investment or accept commercial or political risk. A management contract might be chosen, for example, where:

- Tariffs are too low to support a commercial operation, and the government needs time to increase tariffs or develop a system of public subsidies compatible with private sector participation.
- The regulatory framework has defects that need to be remedied before a long-term private sector arrangement can be secured.
- The country lacks a good track record in public-private partnerships.
- The government faces difficulties in getting key stakeholders to agree to long-term involvement of the private sector.

In such conditions a management contract can provide a window of opportunity for developing trust between the public and private sectors and for the government to create an environment more conducive to private sector risk-taking. This was the approach adopted in Mexico City and in Trinidad and Tobago.

Where lack of information about the system is a problem, a requirement to collect and disseminate this information can be included in the management contract. But making the contract holder responsible for gathering information could give it an advantage in bidding for a longer-term lease or concession. Appointing an independent engineer or auditor can help ensure equitable access to the information produced by the management contractor.

Stepwise approaches beginning with a management contract are a good way to secure at least some private sector involvement in risky countries, but there is no guarantee that they will go beyond the first step. Because decisions about involving private companies in the water sector can be politically costly, governments may be unwilling to move beyond a management contract, especially if they have not raised tariffs to cost recovery levels. Governments may also be lulled into a false sense of security if a management contract provides just enough gains to keep voters happy—even if many people still lack adequate services. Management contracts can be good at improving services for those who already have water and sewerage connections, but they typically do little for those lacking connections, who often have less political power. So, when management contracts are meant to be transitional, they should include incentives for the next steps, such as triggers for reallocating risks

approach to a water
concession in Trinidad and
Tobago([create a link here](#))

and responsibilities once specified conditions have been met.

Leases—a way to pass on commercial risk



Under a lease arrangement a private firm leases the assets of a utility from the government and takes on the responsibility for operating and maintaining them. Because the lessor effectively buys the rights to the income stream from the utility's operations (minus the lease payment), it assumes much of the commercial risk of the operations. Under a well-structured contract the lessor's profitability will depend on how much it can reduce costs (while still meeting the quality standards in the lease contract), so it has incentives to improve operating efficiency. (See Table 1, Allocation of key responsibilities under the main private sector participation options.)

See Table-1-Allocation of key responsibilities under the main private sector participation options.

Leases have been widely used in France and Spain and are currently in place in the Czech Republic, Guinea, and Senegal. They were also used in Côte d'Ivoire until replaced by a concession.

Leases leave the responsibility for financing and planning investments with the government. So if

The Guinea Water Lease--Five years on

major new investments are needed, the government must raise the finance and coordinate its investment program with the operator's operational and

commercial program.

Leases are most appropriate where there is scope for big gains in operating efficiency but only limited need or scope for new investments. Leases have also sometimes been advocated as stepping stones toward more full-fledged private sector involvement through concessions. But their administrative complexity and the demands they place on governments for commitment are nearly as great as those of concessions, so a lease is a much bigger first step than a management contract.

"Pure" leases are rare, however. Most place some responsibility for investment on the private partner, if only for rehabilitation works. These contracts operate as a hybrid between a lease and a concession contract.

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Concessions—a route to full-fledged private participation

A concession gives the private partner responsibility not only for the operation and maintenance of a utility's assets but also for investments. Asset ownership remains with the government, however, and full use rights to all the assets, including those created by the private partner, revert to the government when the contract ends—usually after

25 to 30 years. Concessions are often bid by price: the bidder that proposes to operate the utility and meet the investment targets for the lowest tariff wins the concession. The concession is governed by a contract that sets out such conditions as the main performance targets (coverage, quality), performance standards, arrangements for capital investment, mechanisms for adjusting tariffs, and arrangements for arbitrating disputes. (See Table 1, Allocation of key responsibilities under the main private sector participation options.)

Concessions have a long history of use in infrastructure in France. And recently they have spread to the developing world, where they have been used for water and sanitation in Buenos Aires, for water in Macao, and for sewerage in Malaysia.

The main advantage of a concession is that it passes full responsibility for operations and investment to the private sector and so brings to bear incentives for efficiency in all the utility's activities. The concession is therefore an attractive option where large investments are needed to expand the coverage or improve the quality of services.

On the government's side, administering a concession is a complex business, however, because it confers a long-term monopoly on the concessionaire. The quality of regulation is therefore important in determining the success of the concession, particularly the distribution of its benefits between the concessionaire (in profits) and

consumers (in lower prices and better service).

Joint venture leases and concessions

In such countries as Spain it has become common for governments—national, regional, and local—to establish joint ventures with the private sector to run leases and concessions. A typical joint venture creates a new company, with the state entity holding 51 percent of the equity and the private operator or a financial institution (or both) holding the remaining shares. By limiting the private sector's control, these joint ventures can help secure stakeholders' agreement to private sector participation. And by demonstrating public commitment to the venture, they can reduce the private sector's perception of risk. But they can create conflicts of interest if the same government entity is both the regulator of the utility company and its part owner.

Another issue is the extent to which the private firm can exercise management control, especially if it has only a minority shareholding in the joint venture. Without such control the private firm may not feel that its interests are protected and may not be able to produce the efficiency gains expected from private involvement. Most joint ventures address control issues through detailed clauses in the company's by-laws allowing both parties to vet key managerial appointments. These clauses may foster partnership, but they can also complicate the utility's governance.

Build-operate-transfer contracts—a solution for bulk supply and treatment problems



Build-operate-transfer (BOT) arrangements resemble concessions for providing bulk services but are normally used for greenfield projects, such as a water or wastewater treatment plant. In a typical BOT arrangement a private firm might undertake to construct a new dam and water treatment plant, operate them for a number of years, and at the end of the contract relinquish all rights to them to the public utility. The government or the distribution utility would pay the BOT partner for water from the project, at a price calculated over the life of the contract to cover its construction and operating costs and provide a reasonable return. The contract between the BOT concessionaire and the utility is usually on a take-or-pay basis, obligating the utility to pay for a specified quantity of water whether or not that quantity is consumed. This places all demand risk on the utility. Alternatively, the utility might pay a capacity charge and a consumption charge, an arrangement that shares the demand risk between the utility and the BOT concessionaire. (See Table 1, Allocation of key responsibilities under the main private sector participation options.)

BOTs have been used for water treatment in such countries as Australia and Malaysia and for sewage

BOTs tend to work well if the main problem a utility faces relates to water supply or wastewater treatment. But if the problem is a faulty distribution system or poor collections performance, a BOT is unlikely to remedy it—and may even aggravate it.

Sydney's Water—A Suitable Case for Private Treatment?

treatment in Chile and New Zealand.

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Where private sector participation is needed both to provide new bulk services (a reservoir or a water or wastewater treatment plant) and to improve the performance of or expand distribution systems, separating these tasks under different contracts and bidding processes may have advantages.

Separating the tasks maximizes the potential efficiency gains from competitive bidding and reduces the monopoly power given to a single company.

There are many possible variations on the BOT model, including build-operate-own (BOO) arrangements, in which the assets remain indefinitely with the private partner, and design-build-operate (DBO) arrangements, in which the public and private sectors share responsibility for capital investments. BOTs may also be used for plants that need extensive overhauls—in arrangements sometimes referred to as ROTs (rehabilitate-operate-transfer).

Full or partial divestiture—another route to full-fledged private participation



Divestiture of water and sewerage assets—through a sale of assets or shares or through a management buyout—can be partial or complete. A complete divestiture, like a concession, gives the private sector full responsibility for operations, maintenance, and investment. But unlike a concession, a divestiture transfers ownership of the assets to the private sector, so the nature of the public-private partnership differs slightly. A concession assigns the government two primary tasks: to ensure that the utility's assets—which the government continues to own—are used well and returned in good condition at the end of the concession and, through regulation, to protect consumers from monopolistic pricing and poor service. A divestiture leaves the government only the task of regulation, since, in theory, the private company should be concerned about maintaining its asset base. (See **Table 1**, Allocation of key responsibilities under the main private sector participation options.)

**Water Privatization
and Regulation in
England and Wales**

But private companies may not always take the long view. Even with an asset sale, the regulator may need to scrutinize the utility's plans for renovating or enhancing its assets. In England and Wales the regulator requires utilities to report the serviceability

of their assets.

Although widely used in other infrastructure sectors, divestitures in the water and sanitation sector have been limited to England and Wales. (Private water companies have also long operated in the United States.) Given the national economic importance of infrastructure services, governments are generally unwilling to divest water and sanitation assets without introducing safeguards. The U.K. government retains "safety net" powers to appoint another operator in case a water company fails. It also limits the length of the licenses under which water companies operate.

Even though governments may find divestiture ideologically or even constitutionally difficult to contemplate, they should not dismiss it without evaluation. In some circumstances divestiture may be more appropriate than a concession. Where the public sector utility is technically capable, for example, divestiture by sale of shares or management buyout may produce the required efficiency gains without involving the foreign water conglomerates that typically dominate bids for concessions.

It could also help develop local private firms capable of working in water and sanitation. (This strategy is most likely to be effective where local financial institutions are well developed.)

Table 2

Some private sector contracts in place in water and

sanitation

Option	Water	Sanitation	Water and sanitation
Management or service contract	Columbia Gaza Malasia Turkey	United States	Puerto Rico Trinidad and Tobago
Lease	France Guinea Italy Senegal Spain		Czech Republic France Poland
Concession	Côte d'Ivoire France Macao Malaysia Spain	Malaysia	Argentina France
BOT	Australia China Malaysia Thailand	Chile Mexico New Zealand	
Divestiture	England and Wales		England and Wales

What Is Special about Water and Sanitation?



In many ways decisions about how to involve the private sector in water and sanitation resemble decisions about privatization in any other utility sector. But water and sanitation have special features that governments must take into account in choosing and designing a contract and in designing a supporting policy framework, if private sector participation is to succeed:

- Systems for allocating scarce raw water resources among alternative uses—urban consumption, irrigation, industry—are often underdeveloped or incompatible with efficient use

of these resources.

- Water and sanitation systems are characterized by a high degree of "natural" monopoly.
- Water is essential to life, and access to it needs to be ensured for all, with special attention to the poor.
- Water and sanitation are naturally well suited to local management, and in many countries responsibility for service provision is decentralized to the provincial or municipal level.
- Broad access to water and sanitation yields important public health and environmental benefits.
- Water and sanitation are critical to economic and urban development.
- Many water and sanitation system assets are buried underground, so that obtaining accurate information about them is costly.

None of these issues is a barrier to private sector participation—all arise under both public and private provision. But governments often consistently confront these issues only when they begin to contemplate private sector involvement in water and sanitation. The success of a private sector arrangement will depend in large part on the quality of the policy framework that the government builds in response to these issues. Failure to adequately address them will increase the risk that the government will be unable to find a partner for its preferred form of private sector participation or that a private sector arrangement will fall short of the government's broad policy objectives.

**The complexities of managing water
resources**



Water resources exist in interconnected hydrological systems in which what one user does can affect all other users. Whether sufficient raw water is available for urban use will depend on the overall availability of raw water and on prior use rights established by other users—such as farmers and hydropower companies. And the level and quality of sewage treatment by an urban utility will affect the availability and quality of water for downstream users—whether industries, farmers, or other towns.

How governments structure regimes for allocating water resources among these competing users and how they design policies to control the quality of the available water can determine how well urban utilities can do their job—and the feasibility and cost of different options for private sector participation.

Any prospective private partner will need assurance about future access to raw water supplies and about the quality of such supplies, which will affect water treatment costs. And other water users will require protection from the effects of utility operations, such as the depletion of groundwater or rivers, and the pollution of surface water or groundwater by untreated or partially treated sewage.

Where water law and regulatory or market mechanisms for allocating water use rights fail to manage these effects, to allocate resources in a way that is efficient and politically acceptable, or to provide secure access to water resources, long-

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term arrangements such as concessions may be infeasible or require substantial government guarantees. But short-term management contracts could be used as a stopgap, providing enough time to create an acceptable water resource management regime.

The persistence of monopoly

Any form of private sector participation can improve performance if the private partner has strong technological management skills. But sustaining the improvements in performance depends on more than the characteristics of the company that runs the utility—it requires competitive pressure on the utility.

Competition comes naturally to few areas of the water and sanitation business, however. Monopoly is reinforced by the fact that there are no substitutes for water in many of the purposes for which it is used.

Monopolies, whether public or private, often yield lower productive and allocative efficiency than competitive firms. Their output, service standards, and investment in capacity all tend to be lower than under competitive conditions, while their prices tend to be higher.

For governments to achieve the efficiency and investment goals that they typically have in mind in



For more about monopolies, link to [**Annex 1**](#) in this Kit.

Monopoly occurs where consumers of a service can buy it from only one supplier. Natural monopoly occurs where it is only feasible for one supplier to exist in the market—because the more services provided, the lower the costs of providing each additional unit of service. This means that if a new entrant tries to compete with the existing supplier, it can do so only at a higher cost.

attention first of all to maximizing competitive pressures on the utility. Then they need to devise a regulatory regime that provides incentives for a monopoly utility to act as though it were operating in a competitive market.

Although competition tends to be scarce in the water and sanitation business, careful design of a sector reform and private sector participation option can introduce the potential for competition—while reducing the need for regulatory intervention. Four main kinds of competitive pressure are possible in water and sanitation provision:

- Direct competition in the supply of services, sometimes referred to as "competition in the market."
- Competition for the right to supply water and sanitation services through concession or other contracts, often called "competition for the market."
- Competitive pressures deriving from markets for the capital with which new investments are financed.
- Comparative, or "yardstick," competition, in which the performance of suppliers in different cities is compared.

For governments to achieve the efficiency and investment goals that they typically have in mind in seeking private sector participation, they need to pay attention first of all to maximizing competitive pressures on the utility. Then they need to devise a regulatory regime that provides incentives for a monopoly utility to act as though it were operating in a competitive market.

Table 3
Competition and monopoly in water and sanitation

Activity	Characteristics of competition
Allocation of water resources and regulation of use	Natural monopoly in each hydrogeographical unit (such as a river basin)
Capacity construction (including storage and water and sewage treatment)	Competitive (but may depend on access to water resources)
Bulk supply generation	Small number of possible suppliers (often only one)
Water treatment	Local monopoly
Local distribution	Local monopoly

Local sewerage network and interconnected storm water network	Local monopoly
Sewage treatment	Local monopoly
Equipment and appliance sales, plumbing services	Competitive

For more detail about these issues, link to **Annex 1** in this Kit.

Which forms of competition are available and how effective each is will depend on how the sector is structured (are all activities concentrated in one business, or spread across several businesses?) and on the form of private sector participation chosen. These issues are covered in detail in annex 1.

Water as a social concern



A primary concern of governments is to ensure that water is available to all citizens—at a price they are willing and able to pay. For many governments it is this concern that motivates them to involve the private sector, as the agent best able to expand services cost-effectively. In many developing country cities where the public sector continues to run the water and sanitation utility, the very poor lack connections to the utility's supply system and must instead buy water from tankers or other sources for very high prices—often 10 to 40 times the utility's price.

Even with the expectation of efficiency gains from private sector involvement, a government may still

be concerned that prices will be beyond reach for the poorest citizens. This concern needs to be tested, through willingness-to-pay surveys. If it is found to be valid, the government will need to establish a policy framework to ensure access to water and sanitation for low-income groups.

(Developing such a policy framework is, of course, desirable with or without private sector participation.)

If most low-income households have connections and the government can afford to offer subsidies, one option would be to introduce targeted subsidies, as Chile has done (see the box on Chile's scheme). But if many of the poor lack connections and the government's capacity to offer subsidies is limited, alternative technologies and delivery mechanisms, such as the condominial sewerage systems developed in Brazilian slums, may be more effective in meeting the needs of low-income households.

Expanding service for the urban poor

Most developing countries have large and growing informal settlements in their urban areas. The poor families living in these settlements often have no access to means for sewage removal and rely on expensive or inconvenient sources of water—such as water tankers or sparse, often poorly functioning communal standpipes.

Extending better water and sanitation services to the people in these settlements within the context

Price Structures, Cross subsidies and competition in infrastructure (create a link here)

of a move to private sector participation poses major challenges. Innovative schemes have been devised for involving informal communities in decisions about service provision and in the development of community-based water and sanitation services. But conventional water and sanitation utilities—both public and private—historically have not had to work with communities, either in making decisions about expanding traditional water and sanitation services or, where traditional solutions are far too costly for households, in finding alternatives. A major challenge ahead is to design arrangements for private sector participation that respond better to informal communities, finding innovative ways of meeting their water and sanitation needs at reasonable cost.

Subsidizing low-income households in Chile

In the early 1990s Chile introduced a comprehensive subsidy scheme to help low-income households purchase a range of public services. These direct, targeted subsidies replaced a system of cross-subsidies that had proved ineffective in meeting the service needs of the poor. Water and sanitation subsidies amount to \$12 million to \$13 million a year, excluding administrative costs. The program is financed by the central government, but administered through

the municipalities, which pay the subsidies directly to the public service operator.

The goal of the scheme is to ensure that water and sanitation services take up no more than 5 percent of household income. The water subsidy covers 40 to 85 percent of the charges for the first 20 cubic meters of consumption for eligible families. Eligibility is determined by such criteria as region, family size, average cost of water, and household income and wealth and is reassessed every three years. Households that fail to pay their share of the bill have their subsidy suspended.

Initially, households were required to apply for this subsidy and to prove their eligibility. But low participation rates prompted the government to seek the collaboration of the water utilities in identifying needy customers by examining payment records. The scheme is now believed to cover all eligible households in urban areas—some 20 percent of the population.

The trend toward decentralization



Two features of water make its supply a "local" service that can be administered in a decentralized way: water is expensive to transport over long distances, and it is cheap to store. Except in dry

countries, there are few extensive water transmission systems. In many countries the provision of water and sanitation services is the responsibility of local governments. And in the past decade a growing number of national governments have decentralized water and sanitation, shifting management of services to the lowest feasible level—sometimes the province, more often the municipality. The size of a utility's jurisdiction may range from a few hundred consumers to many millions.

This predominantly local responsibility has two important sets of consequences for designing private sector arrangements for water and sanitation. The first set relates to scale. Except in a few major cities, in most countries the great majority of water and sanitation utilities are quite small. Because these small utilities do not offer opportunities for exploiting economies of scale, they are generally unattractive to the private sector, at least individually. And they typically lack the skills and resources to act as strong partners in introducing private sector participation.

The second set of consequences relates to the likely involvement of more than one level of government in decisions about private sector participation and its implementation. National governments will probably take an interest in the decisions of lower levels of government, and they have the capacity to make or break local deals

through the broad regulatory environment they create. Private investors in local projects may look to national governments for guarantees against some project risks. And more than one local government may be involved. In metropolitan systems several municipalities may have to "pool" their rights into a joint body able to function as a counterpart to a private contractor. Successful private sector participation reforms require careful resolution of a range of interjurisdictional issues.

The public benefits of water and sanitation

Water and sanitation services yield public benefits, both reducing the incidence of waterborne disease and improving the general environment. These public benefits are in addition to the benefits for the individual consumers of water and sanitation services and are particularly marked for sewerage services.

Before embarking on an arrangement for private sector participation, a government needs to make crucial decisions about who is to be responsible for providing and funding desired health and environmental benefits. (The demand of low-income households for health- and environment-improving water and sewerage services should not be underestimated.) Private operators will need to be safeguarded against unrealistic demands to provide goods and services for which neither the government nor the customers are willing to pay. But an arrangement for private sector participation

is unlikely to be politically acceptable unless it protects essential social interests.

A critical role in urban and economic development



Water infrastructure plays a crucial role in urban and economic development. So, where the private sector is responsible for new investment to extend the system, governments have a legitimate interest in ensuring that such investments reflect public priorities. Where built-up areas are unserved, clear targets for coverage can be specified in the concession contracts. But these targets need to be realistic, taking into account the concessionaire's financial capacity and customers' ability to afford connections to the system.

Matters are more problematic where services need to be extended for predicted urban development and flexibility is required in the timing of these investments. Concession holders will undertake such investments only if the unexpired concession period is long enough for them to make acceptable returns, and if the concession contract contains incentives for continuing investment over the life of the contract. Concession contracts are commonly revised or renegotiated when new extensions are required. But without the pressure of competition

there is no guarantee that revision will result in least-cost provision. So, when new extensions are likely to be needed, the original contract should explicitly establish criteria for revisions, possibly allowing for retendering, or at least market testing, for system extensions.

The information problems of buried assets

Contracting with the private sector for the provision of water and sanitation services—or monitoring the provision of these services by the public sector—is complicated by the fact that information about water and sanitation systems can be difficult and costly to come by. A large share of water and sanitation assets are hidden from view—literally buried underground—making it difficult to assess their condition and value. So, in many countries accurate information on asset conditions is lacking. This may affect the choice of an arrangement for private sector participation and can certainly complicate contract specification and the subsequent monitoring of the private company's performance.

Lack of good data is a particular concern for concessions. An independent audit and valuation of the assets before entering into a contract is desirable not only to give bidders better information on the value of the assets but also to establish a baseline from which to monitor the concessionaire's care of the assets. In addition, it will be necessary to clearly specify in the contract what valuation criteria and auditing mechanisms will be used at the end of

the concession period. Where data are very poor and there is a desire for speedy adoption of a private sector arrangement, governments should consider using a short-term management contract, during which independent audits and valuations of the assets and asset management planning can be undertaken.

What to Consider before Choosing a Private Sector Arrangement



The options for involving the private sector can be implemented on different scales, with different combinations of functional responsibilities and with different forms of regulation. To have some assurance that the option a government chooses has a good chance of meeting its objectives and that it will be feasible in local circumstances, the government needs to undertake careful analysis of a range of technical, regulatory, political, and financial factors.

This precontract analysis has two distinct stages. In the first, the government needs to clarify its objectives for the sector and determine whether private sector participation is appropriate and affordable. It will need to carry out a rough financial feasibility analysis to obtain an order-of-magnitude estimate of the tariff changes or subsidies required

Governments often worry that detailed preparations will take too much time and cause them to miss a window of opportunity to enter into a private sector arrangement. But private participation is not the object of the exercise. Rather, private participation is a means to the end of improving performance in water and sanitation, and proper preparation is essential to ensure that this end is achieved and sustained. When a need for urgent action rules out sufficient preparation, adopting a short-term private sector arrangement may be wisest.

to involve the private sector. It will need to do a preliminary analysis of the political support for and opposition to private sector participation. And it should use informal market soundings to assess which forms of private sector participation are likely to attract bidders.

Once a government has determined that private sector participation appears financially and politically feasible, it needs to move on to the second, more in-depth stage of analysis, focusing on the following questions:

- What is the state of the existing utility?
- How compatible is the regulatory regime with private sector participation?
- How committed—or opposed—to private sector participation are key stakeholders?
- What are the main risks that need to be allocated or mitigated to ensure that private sector participation can succeed?

This section briefly introduces these analyses, signaling the issues that a government should at least have thought about before forming a first opinion on its preferred option for private sector participation. Toolkit 2 discusses these issues at the more detailed level governments will need when refining and implementing a private sector contract. Governments often worry that detailed preparations will take too much time and cause them to miss a window of opportunity to enter into a private sector arrangement. But private participation is not the object of the exercise. Rather, private participation is a means to the end of improving performance in

water and sanitation, and proper preparation is essential to ensure that this end is achieved and sustained. When a need for urgent action rules out sufficient preparation, adopting a short-term private sector arrangement may be wisest.

Precontract analysis is vital not only in deciding on the form and timing of private sector involvement, but also in designing the contract and the accompanying regulatory regime. Without such analysis the package offered may contain too much risk to be attractive to the private sector, and considerable effort and resources will have been expended for no gain. Or a contract may be secured, but only by offering big concessions to the private sector and leaving much risk with the public sector. Time spent before entering into a contract—in testing and refining the preferred private sector option, working through alternative risk management mechanisms, and developing a supportive regulatory framework—is a good investment for other reasons: it can reduce the time spent in postbid negotiations, and it lessens the risk that the resulting private sector arrangement will diverge widely from what was originally intended.

What is the state of the utility?



In this initial evaluation of the water and sanitation utility, the government needs to assess its current

performance, the quality and quantity of information available about the utility, and the feasibility of changing the factors that would make the utility unattractive to potential private sector partners. The government will need to gather—or identify as unavailable—information on such matters as:

- The utility's current and proposed service area.
- The current characteristics of service (quantities supplied, metered, and paid for).
- A basic inventory of the assets and their condition and serviceability.
- Current performance standards and the record of achievement (relating to quality, pressure, supply security, interruptions, sewer flooding, sewer collapse, and the like).
- Human resources (numbers, skills, wage rates, conditions of service, pension arrangements).
- Tariffs (level and structure, subsidy arrangements, disconnection arrangements).
- Financial performance.

At this stage the government should also assess consumers' ability and willingness to pay for services. Often governments proceed with private sector participation without knowing what level of services consumers receive and at what price, or the service level they are willing to pay for. Market or survey research can give a clearer understanding of consumer preferences.

During the initial stages of preparing for private sector participation, the baseline data collected in this evaluation will:

- Inform an assessment of the costs of improving services, of possible efficiency gains, and of the viability of different options for private sector participation.
- Form a basis for negotiations with key stakeholders, who may require safeguards before accepting private sector

participation.

- Inform discussions about realistic performance standards, asset rehabilitation plans, and service enhancement programs—all of which need to be specified in the contract.
- Inform discussions with the treasury or finance department (or the finance department of the local authority) about possible needs for continued government subsidies (for example, to extend basic service to low-income areas).
- Identify areas where data are lacking or may be inaccurate. The advisers that the government hires to assist in preparing a private sector option should rectify these data deficiencies where possible.
- Establish whether data inadequacies rule out some private sector options from immediate consideration. In some cases very simple management contracts combined with basic data collection may be a necessary precursor to longer-term contracts.

These data, supplemented by data collected by hired consultants, will later be made available in an information room set up to make sure that all potential bidders have basic information about what they are bidding for. Still later, the data can provide the regulator of the contract with baseline information for assessing the contractor's performance.

Is the regulatory framework conducive to private sector participation?



Regulating water companies (create a link here)

Planning a private sector arrangement is not simply a matter of choosing the type of private involvement and the area that it will cover. The effectiveness and consequences of a private sector arrangement depend on the regulatory mechanisms used to

influence private sector decisionmaking and on how they are implemented. But the regulatory controls available depend in turn on the type of private sector arrangement—and private partners' response to regulation depends critically on industry structure.

Because decisions about the private sector option, industry structure, and regulatory frameworks are closely linked, consideration of regulatory matters should not be left until after decisions have been made on the private sector option and the area of coverage. Doing so can increase the burden and cost of regulation, reduce its effectiveness by restricting the range of regulatory tools, and risk failing to match the need for public regulation with regulatory capacity.

Governments do not need to undertake detailed design of the regulatory framework when they are first considering private sector participation. But they should take regulatory needs and costs—and their regulatory capacity—into account when making choices about private sector participation. And when embarking on the first private sector venture in water and sanitation, it is important to consider whether the regulatory system proposed for this first transaction will preclude the regulatory options that might be most appropriate as private sector arrangements become more common. A government that fails to get the structural and regulatory package right in the first place can face

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an immensely costly, time-consuming, and acrimonious process to rectify matters later on.

One of the most important factors in a government's ability to regulate well is the availability of good information on operating practices and investments—ideally, from sources other than the utility operators. In Britain and Chile the regulator's ability to compare operators' performance with industry benchmarks has proved vital in promoting and sustaining improvements in performance. To be effective, comparative regulation requires a large number of comparators. These comparators can be taken from both the public and the private sectors, however, so the regulatory system need not be devised exclusively for private sector arrangements. A system able to compare public and private performance can provide efficiency incentives for both sectors.

The precontract analysis of regulatory issues has four main purposes:

- To identify elements in the broad framework of laws, constitutional requirements, and regulatory activities that could impede private sector participation or affect the viability of different options for industry structure and private participation, and assess the possibility of remedying any deficiencies before bidding the contract.
- To consider the potential for restructuring the water and sanitation sector to make it more conducive to regulation by competition.
- To design the sector-specific regulation that will make private sector participation possible, specify the powers that will remain in the public sector, identify who will exercise these powers and at what level of government, and create new regulatory arrangements as needed.
- To decide which elements of regulation should be incorporated into the private sector contracts, how much the

contracts limit the discretion of any public sector regulators, and what safeguards the contracts should contain against regulatory and political risk.

These four purposes are closely related. For example, if there are elements in the framework of laws that could inhibit private sector participation, it may be possible to reduce their impact through the design of sector-specific regulation or the terms of the contract. And if restructuring the sector to facilitate competition is feasible, this fact will affect sector regulation and the terms of the contract.

Assessing the broad regulatory framework



In assessing how the broad regulatory framework will affect the choice and design of a private sector arrangement and the attractiveness of that arrangement to the private sector, governments need to consider a wide range of laws, constitutional rules, and activities of government agencies:

- The constitutional and legislative division of responsibility for service among national, regional, and local governments.
- Interjurisdictional arrangements, if service responsibilities are decentralized and the system covers several jurisdictions.
- General legislation allowing or restricting private sector involvement, including by foreign companies.
- Water resource management law.
- Environmental laws.
- Contract law.

- Competition law, and competition or antitrust enforcement agencies.
- Employment law.
- Tax liability.
- Procurement rules.
- Currency control rules.
- Public sector borrowing rules.
- Access and right-of-way rules and compulsory purchase arrangements relating to the installation of infrastructure.
- Health and safety regulation.
- Social policy (for example, subsidies, and disconnection rights for nonpayment of bills).

Clearly, some elements of this framework cannot be changed or may take time to change. In some cases that may rule out the preferred option for private sector participation. If it does, it is best to recognize this early—and to adopt a stepwise approach to private sector participation that allows time to improve the general legal and regulatory framework.

In many countries the broad regulatory framework may not adequately support a private sector arrangement. But governments can still make private sector participation work, by taking one or more of the following actions:

- Choose a private sector arrangement that reduces the risks associated with deficiencies in the regulatory framework—for example, use a fee-based management contract for distribution (and possibly BOTs for bulk supply) if collection performance or requirements for providing subsidized services pose unacceptable revenue risks for the private partner.
- Choose a private partner in a good position to manage risks associated with deficiencies in the regulatory framework—for example, if there are adverse foreign exchange, currency convertibility, and profit repatriation rules, explore the potential for contracting with local companies, including

companies created through management buyout or share sales.

- Incorporate explicit safeguards in the contract—such as provisions allowing access for essential work, protection from liability for third-party actions, specified compensation or price adjustments for changes in service standards, and minimum revenue guarantees. Some safeguards for the public sector are also likely to be necessary—for example, requirements for market testing when the private contractor purchases raw materials or services.
- Develop appropriate regulatory capacities—for example, if the constitution gives responsibility for asset ownership and service provision to a level of government that has limited capacity to regulate or is vulnerable to short-term political interests, consider separating ownership from monitoring and locating regulation at a higher level of government.

Designing new regulatory arrangements



Experience suggests that many of the efficiency benefits from involving the private sector stem from competitive pressures, not just the presence of a private owner. Competitive pressures also affect the amount and appropriate form of sector regulation needed: the more competitive pressures brought to bear on a utility, the less regulation may be required. So governments—especially those with limited regulatory capacity—stand to gain a great deal from introducing as much competition as possible. The main options:

- Competition at different levels of the water and sanitation business, introduced, for example, by separating bulk treatment and supply from distribution and allowing competition among suppliers.
- Competition between utilities along their mutual boundaries.

Regulation is a critical part of any private sector arrangement. Basic decisions about the regulatory framework need to be made early. Regulatory capacity can determine which private sector option is most appropriate in a country. And the regulatory system chosen can affect the willingness of the private sector to participate and the cost of its participation.

- Competition for the market (through the tendering of concession, lease, BOT, and management contracts).
- Competition among utilities and other businesses for finance on the capital market.
- Comparative, or yardstick, competition.

Even if all these forms of competition are used to regulate the sector, some monopoly power will inevitably remain. To offset that power, governments will need to introduce safeguards against its improper use, provide incentives for the private sector to operate efficiently, and monitor performance against contractual requirements. Competition cannot do away with the need for regulation. And, of course, the social, public health, and environmental aspects of water use and waste removal call for continued public scrutiny of operations under the private sector. In designing a regulatory system to protect customers and the general public interest, governments need to keep several broad principles in mind. First, it is important to be realistic: a balance must be struck between what is ideal and what is achievable. Second, regulation should not be too restrictive or controlling. Overly restrictive regulation could deter private companies from entering private sector arrangements or limit their ability to introduce innovative and efficient operating practices. And regulation that seeks to control in detail how the private contractor runs its business risks defeating the central purpose of private sector participation—improving service delivery. Third, a regulatory system must be consistent with the capacity and resources of the regulators. These issues are discussed in detail in annex 2.

Designing a regulatory system to accommodate private sector participation can be broken down into six basic steps:

For more detail about these issues, link to **Annex 2** in this Kit.

**Utility Regulators—
The Independence
Debate**

Utility Regulators—

Which stakeholders support private participation—and which oppose it?



A range of stakeholders have a legitimate interest in the performance of the water and sanitation sector. Governments need to identify the key groups of stakeholders and assess their potential support for or opposition to private sector participation, because in some cases opposition will limit the range of feasible options for private participation.

Stakeholders might oppose concessions or divestiture, for example, but accept management contracts or BOTs, which give the private sector a more limited role. Or stakeholders might oppose any arrangement that has the private sector acting alone, but support joint ventures with the public sector.

Who are generally the key stakeholders?

- The national government (ministries with some jurisdiction over water-related matters, such as the ministries of health, environment, and urban and economic development).
- Provincial and local governments that will act (or may act) as grantors of private sector contracts, regulators, partners, or financiers of the utility.
- Regional or local planning departments, which coordinate land use and infrastructure planning.
- Other established regulatory entities (such as water commissions, environmental agencies, and competition and fair trade commissions).
- Political parties and individual politicians.
- Labor unions.

- The utility management.
- Suppliers of goods and services to the sector.
- Consumer organizations (formal and informal, including nongovernmental organizations concerned with service quality and prices and with protecting the poor).

Once a government has identified the key stakeholders and assessed their stance toward private sector participation, it needs to evaluate where safeguards for specific interest groups will be needed to win support or diffuse opposition. Identifying necessary safeguards will require consultations with such key groups as labor unions, which should be held before policy decisions are made about the private sector package. Five kinds of safeguard might be needed:

- Protection for labor and management (redundancy and superannuation packages, worker share allocations, minimum wages and working conditions, health and safety measures).
- Protection for contractors or suppliers (regulatory rules to ensure competition in subcontracting and procurement).
- Protection for customers (tariff adjustment rules, subsidy policies, complaint mechanisms).
- General health and environmental protection (regulation of service standards, penalties for default).
- Protection for other government agencies (a regulatory role to compensate for loss of direct control, rules allowing the local authority's labor force to bid for contracting tasks).

While such safeguards can secure sufficient support to allow private sector participation to proceed and to ensure that it benefits users, they all involve costs. These costs need to be broadly estimated, and consultations held about who will pay them. Although such costs as redundancy payments could be allocated to the private sector partner,

governments need to keep in mind that passing on such costs to the private partner will increase the price that the grantor will have to pay to secure its involvement.

Which options are financially viable?



A critical step in selecting among possible options for private sector participation is to test their financial viability. If the private sector partner is expected to invest in rehabilitating the system or expanding coverage, how will that affect the tariff? Will the current tariff cover costs after allowing for expected efficiency gains? If the projected tariff exceeds what some households are willing to pay, can the government afford to subsidize these households? If not, could investment programs that are more financially realistic be devised?

In the rush to expand services, governments often do not take into account the private sector's objectives for investment returns. As a result, they can waste time and resources designing private sector arrangements that are not financially feasible or are not affordable to users.

Preparing a private sector arrangement requires detailed financial work—assessing the financial status of the water and sanitation utility, testing the financial and tariff implications of hoped-for service

To make a preliminary decision about what kinds of private sector participation are likely to be feasible before beginning detailed project development, it is a good idea for governments to do a rough "first-cut" financial analysis, focusing on the financial and tariff implications of the proposed project. While this analysis will need to be deepened and revised as preparation proceeds, this first cut can give governments a general idea of the private sector options likely to be sustainable in local circumstances.

expansions and efficiency gains (and the implications for the subsidies needed), and preparing the financial specifications for the final bidding documents.

To make a preliminary decision about what kinds of private sector participation are likely to be feasible before beginning detailed project development, it is a good idea for governments to do a rough "first-cut" financial analysis, focusing on the financial and tariff implications of the proposed project. While this analysis will need to be deepened and revised as preparation proceeds, this first cut can give governments a general idea of the private sector options likely to be sustainable in local circumstances.

This first-cut analysis, by determining the tariff levels required to cover proposed service improvements, will give a rough idea of the financial viability of private sector options. The key variables to consider:

- The utility's current operating and maintenance cost for water supply, treatment, and distribution and for sewage collection and treatment.
- The current tariff (price per cubic meter).
- The current water consumption by the service area population and the projected consumption over the next 10 years or so.
- The cost of capital improvements to the water supply, distribution, and sewerage systems, and annual expenditures necessary to achieve intended service levels.
- The annual government or private funds (or both) expected for financing service improvements (grants, equity, and loans).
- The additional annual operating costs of the capital

improvements, net of the efficiency gains that private operation might reasonably achieve.

What are the risks—and how can they be managed?

At the precontract stage a preliminary review of risks is also advisable. It is important for governments to recognize risks, consider how they might best be allocated between the public and private sectors, and develop a clear risk management strategy. Early thinking about the risks associated with private sector participation can save time in postbid negotiations and help ensure that the resulting private sector arrangement comes close to what was originally intended.

Different risks are associated with different options for private sector participation (see the box on precontract risk analysis, below).

Precontract risk analysis for different private sector options

Management contract

The most significant risk under a management contract is that operating performance will fall short of expectations. To address this risk, during the precontract phase the government should analyze its capacity to monitor the contractor's



The risks for each option are discussed in more detail in Toolkit-3

performance, and ensure that water quality and other standards that it wants to identify in the contract can in fact be enforced. If adequate staff are not available to monitor performance, the government might consider contracting with a third party for this task.

Lease, concession, and BOT

In these options for private sector participation the contractor retains the tariff revenue it collects from customers in exchange for operating—and, under a concession or BOT, investing in—the water and sanitation system. This arrangement provides an incentive for the contractor to improve the efficiency of operations and investments. But in the presence of monopoly power, it also creates a risk that the contractor will reap windfall profits by charging excessive tariffs or reducing service quality. These risks are best managed through the careful design of a monitoring and regulatory system (see the section above on the regulatory framework).

The special problems in smaller towns



Private sector participation generally occurs earliest in a country's large metropolitan areas, those with populations of at least half a million. Yet smaller municipalities have just as much need for better

water and sanitation services and can also benefit from private participation. But their financial, economic, institutional, and technical conditions present difficult problems.

A private contractor will often find it harder to make sufficient returns on its investments in small networks unless it operates many in the same region. The generally lower average household income in smaller towns makes it more difficult for families to pay tariffs that cover costs and yield a reasonable return. And smaller systems offer fewer opportunities to exploit economies of scale, making it harder for the private sector to reduce operating costs and achieve operating efficiencies.

The relatively limited administrative skills and institutional capacity in many smaller municipalities also pose a problem for private sector participation. Small municipalities generally lack the personnel to bid, award, and negotiate contracts for private sector participation and to supervise them after they are awarded. Local officials and their staff will need assistance from higher-level government agencies in preparing for a private sector project.

There are several ways to tackle these problems. Several smaller towns can be grouped into a single service area large enough to provide the economies necessary to attract private investment while keeping tariffs affordable (see the section above on financial viability). Officials from neighboring towns can collaborate on a private sector project and

create a single administrative entity responsible for implementing a contract. The national government can help smaller cities by supplying standardized advisory services, financial models, and contractual documents—an approach most likely to be feasible if private sector participation has already been implemented in one or more larger cities. The documents should serve as aids rather than inflexible guidelines, able to be tailored to meet the needs of each locality.

Choosing an Option



Once a government has worked through this toolkit—considering general water and sanitation issues and analyzing local technical, regulatory, political, and financial conditions—it is ready to come to a preliminary conclusion about the kind of private sector arrangement that is likely to work in local circumstances and respond to local problems. To reach this preliminary conclusion, governments need to ask the following questions:

What problem are we trying to solve?

- Is it primarily a problem of operational efficiency, or are substantial increases in service coverage and improvements in quality needed?
- If the second, is investment efficiency a problem?

What are the implications of the increases in coverage and quality for the tariffs that consumers

will be expected to pay?

- Do current tariffs cover costs?
- Can the private sector reasonably be expected to boost efficiency enough to meet the proposed service objectives without increasing tariffs?
- If not, will consumers be willing to pay higher tariffs?
- If not, can grant finance (or subsidies to needy households) support service improvements?

Does the existing regulatory framework provide sufficient support for the private sector so that it will willingly take on commercial risk?

- If not, can the necessary changes be made fairly easily?
- If not, can parts of the regulatory function be simplified or contracted out in the short term?

Do key stakeholders (such as employees, consumers, and environmentalists) support or at least not oppose private sector involvement?

- Can processes and policies be put in place to meet stakeholder concerns?
- Can the risk of political interference be minimized?

Is information about the utility's assets good enough to serve as a base for long-term contracts?

- If not, can better information be produced rapidly?

The answers to these questions will point governments to different choices on arrangements for private sector participation. Tables 4 and 5 encapsulate the issues raised by the questions and are designed to help guide those choices. Although they necessarily simplify and compress many complex issues, thoughtful consideration of those issues is essential early on. However rigorous a government's initial analysis of the private sector arrangement most likely to meet local needs, the

arrangement is likely to be modified during the detailed preparation that follows. But much time—and political anguish—can be avoided through careful early analysis.

Table 4 shows the responsiveness of different private sector options to common government objectives in involving the private sector. A government seeking improvements in operating efficiency and responsiveness to consumers, for example, will prefer a management contract with performance incentives or a lease to either a service contract or a concession. A government seeking greater efficiency and new investment will prefer a concession or divestiture—or, for investment in bulk services, a BOT.

Table 4

What do governments want—and which private sector options deliver it?

Option	Objective							
	Technical expertise	Managerial expertise	Operating efficiency	Investment efficiency	Investment in bulk capacity	Investment in distribution system	Responsiveness to customers	Insulation from political intervention
Service Contract	●	○	○	○	○	○	○	○
Management contract with fixed fee	●	●	◐	○	○	○	◐	◐
Management contract with performance incentives	●	●	●	○	○	○	◐	◐
Lease	●	●	●	○	○	○	●	●
BOT	●	● ^B	● ^B	● ^B	●	○	○	● ^B
Concession	●	●	●	●	●	●	●	●
Divestiture	●	●	●	●	●	●	●	●

- Objective can be satisfied
- ◐ Objective can be partially satisfied
- Objective cannot be satisfied.
- ^B For bulk services.

But a government's preferred option may not be attractive to the private sector. Where regulatory capacity is weak and political commitment is low, a concession will be difficult to implement. The most direct way to tackle this problem is to build political commitment and regulatory capacity. In the meantime the government could implement a simpler arrangement, such as a management contract. Table 5 can serve as a guide to what is immediately possible, or as a guide to what must be done to get the preferred contract at reasonable cost.

Table 5

How much do governments have to offer to get what they want?

Option	Requirement				Good country financial rating
	Stakeholder support and political commitment	Cost-recovering tariffs	Good information about the system	Developed regulatory framework	
Service Contract	Unimportant	Not necessary in the short term	Possible to proceed with only limited information	Minimal monitoring capacity needed	Not necessary
Management contract with fixed fee	Low to moderate levels needed	Preferred but not necessary in the short term	Possible to proceed with only limited information	Minimal monitoring capacity needed	Not necessary
Management contract with performance incentives	Low to moderate levels needed	Preferred but not necessary in the short term	Sufficient information required to set incentives	Moderate monitoring capacity needed	Not necessary
Lease	Moderate to high levels needed	Necessary	Good system information required	Strong capacity for regulation and coordination needed	Not necessary
BOT	Moderate to high levels needed	Preferred	Good system information required	Strong capacity for regulation and coordination needed	Higher rating will reduce costs
Concession	High levels needed	Necessary	Good system information required	Strong regulatory capacity needed	Higher rating will reduce costs
Divestiture	High levels needed	Necessary	Good system information required	Strong regulatory capacity needed	Higher rating will reduce costs

Annex 1
Options for Promoting Competition in Water and Sanitation



For many aspects of water and sanitation provision,

competition does not come naturally. But careful design of a sector reform and private sector participation option can introduce the potential for competition—and therefore reduce the need for regulatory intervention.

This annex covers the kinds of competition that can be introduced in water and sanitation and explains how industry restructuring can increase the potential for competition.

The Options

Four kinds of competitive pressure are possible in water and sanitation provision:

- Direct competition in the supply of services, sometimes referred to as "competition in the market."
- Competition for the right to supply water and sanitation services (through concession or other contracts), often referred to as "competition for the market."
- Competitive pressures deriving from markets for the capital with which new investments are financed.
- Comparative, or "yardstick," competition, in which the performance of suppliers in different cities is compared.

Where these different forms of competition can be introduced depends in large part on the form of private sector participation in place ([table A1.1](#)).

Competition in the market

Injecting competition into the market is not easy in

Table A1.1
The forms of competition possible under different private sector options.



Competitive forces can be introduced by restructuring the

water and sanitation, except in the business segments concerned with constructing capacity or providing plumbing services to end consumers. But some competitive forces can be introduced by restructuring the industry before involving the private sector and by choosing more competitive forms of private sector participation. In particular, competition may be allowed on the boundaries of a utility's jurisdiction (boundary competition) and to supply wholly new developments (inset competition). In addition, mechanisms can be put in place to prevent vertically integrated water businesses—those responsible for everything from bulk water treatment to sewage collection and treatment—from monopolizing water sectors in which "competition in the market" is possible. For example, if a concession holder has exclusive rights to construct new facilities, market testing requirements can be introduced to ensure that these facilities are built at least cost.

Competition becomes increasingly likely as an industry becomes more disaggregated. Disaggregation can be vertical (with different firms responsible for bulk supply, distribution, and bulk sewage treatment) or horizontal (with many companies, each with a relatively small service area). Vertical disaggregation makes it conceivable that a company serving one function in an area could bid to take over other functions for particular customers if the incumbent supplier is making excessive profits on the functions or operating

industry before involving the private sector and by choosing more competitive forms of private sector participation.

inefficiently. Horizontal disaggregation could increase the number of companies with the geographic proximity necessary to offer water supply or sewage disposal services. But this possibility must be balanced with economies of scale in network management. (U.K. experience suggests that a service area of less than about 500,000 customers leads to suboptimal operation.)

The more the system can be structured to allow entry at different levels, the more competitive pressure can be introduced. And the more competitive pressure there is, the less the need for regulation—of critical importance in countries or cities with limited regulatory capacity.

Table A1.1
The forms of competition possible under different private sector options

Form of competition	Management contract	Concession	BOT	Divestiture
In the market	No	No	No	Yes <input type="radio"/>
For the market	Yes	Yes (but limited by contract length)	Yes	No
Capital Market	No	Yes	Yes	Yes
Comparative by the regulator	Yes <input type="radio"/>	Yes <input type="radio"/>	Yes <input type="radio"/>	Yes <input type="radio"/>
Comparative by independent companies	Yes <input checked="" type="radio"/>	Yes <input checked="" type="radio"/>	Yes <input checked="" type="radio"/>	Yes <input checked="" type="radio"/>

If common carriage rules exist, and entry is allowed. Common carriage occurs when the owner of a distribution line or network is required to allow other suppliers to use the system, for a fee determined to be fair and reasonable.

If several companies are operating in the country.

If the industry is vertically disaggregated.

Competition for the market



Competition for the market occurs when potential contractual partners bid competitively for a concession, lease, or management contract. The benefits of such competition are likely to be greatest if the contracts are rebid frequently. For simple service contracts, it may be feasible to hold annual bidding rounds. But for management and lease contracts, which require the private partner to operate an entire enterprise, longer contract periods are necessary.

Frequent rebidding is less feasible where the private sector is required to provide the bulk of investment capital. Rebidding concession-type contracts requires highly detailed provisions for the transfer of, and compensation for, assets funded by the incumbent concessionaire. But even in this case competition for the market can reduce the potential for abuse of monopoly power if many different private sector participation contracts are operating in a country or region. Companies will then need to consider their reputations, as their ability to win a bidding competition in one city will depend in part on their performance in other cities. Such reputational effects will work best where there are provisions for publishing consistent information about company performance.

One potentially important constraint on effective competition for the market is that only a small group of major companies are currently involved in the international water and sanitation business. Difficulties in generating active competition can be compounded by overly stringent prequalification criteria, requiring long experience in the water sector or substantial financial resources. Many elements of the water and sanitation business are not technically difficult (and technical expertise can, in any event, be hired). What is important is that a company has relevant experience in handling an infrastructure enterprise with a large and diverse customer base. One way to generate more competitive bidding—and to support local

enterprise—is to broaden the set of potential private partners, including through management buyouts or partial share sales.

Capital market competition

Capital market competition is relevant for both divestitures and concessions. It operates through the possibility that an underperforming company will be taken over by new investors who think that they can improve efficiency. This possibility is sharpened because inefficient management tends to bring share prices down. It also makes borrowing for further investment more expensive. In extreme cases underperformance can bring the risk of bankruptcy, a powerful force for efficiency. In many developing countries, however, capital market competition is underdeveloped, and its effectiveness as a force for managerial efficiency therefore limited.

Comparative competition

The objective of comparative competition is to create a flow of information about utilities' performance to consumers, regulators, and the utility managers. Used in combination with a price control regime, comparative competition can help ensure that reasonable efficiency targets are incorporated in allowable price increases (see annex 2). It can help customers better judge the standard and value for money of the service they are receiving—which can lead to better-informed pressures on the private sector partner to improve

performance. Finally, it can provide utility managers with valuable information on how well they are doing.

Clearly, the more similar the circumstances of the utilities being compared, the easier it is to introduce comparative competition. But careful choice of comparators can help alleviate the problem of differences among utilities. The comparators need to be carefully selected, too, because utilities inevitably skew their attention to doing well against the measured targets. And in any yardstick regime there will be trade-offs between avoiding costly and intrusive regulation (for example, by minimizing data requirements) and ensuring the accuracy and comprehensiveness of comparisons.

Annex 2 **Options for Regulating Water and Sanitation**



Even with careful structuring of the water and sanitation sector to bring competitive pressures to bear, some monopoly power will remain. There will thus always be a need for some public oversight of the activities of water and sanitation companies, though regulatory tasks will vary depending on the private sector option (table A2.1). Clearly, the continued need for public regulation is least for a very simple operations and maintenance contract:

Regulating Water
companies([create a link here](#))

the operator receives a fixed fee for a specified service, and the contract can be competitively rebid frequently. Divestitures and long-term concessions will require a more comprehensive system of public scrutiny.

Some regulatory tasks may already be adequately provided for in existing laws (for example, fair trading laws). Those that are not must be specifically provided for through:

- Sector laws relating to private sector participation.
- The contracts for private sector participation.
- The legally specified duties of the chosen regulatory authority or authorities.

Commonly, general and sector-specific laws establish the broad principles of regulatory policy and set national service standards, such as minimum drinking water quality, while contracts cover the commercial details for the locality to be served. Between the broad principles and the local specifics, there inevitably exists a gray area. Here it is necessary to decide which legal instrument to employ (contract, law, or regulatory decision) and to establish where regulatory authority should lie. Often a private sector contract contains many or most of the provisions governing regulation of the private sector partner to the contract. In decisions on how much the contract should cover, two questions arise:

- Is it possible to encompass all the necessary regulatory provisions within the contract?
- If so, would that be desirable, or is some degree of regulatory discretion to be preferred?

Though it is sometimes argued that a tightly specified contract can remove all the need for direct regulation, this is rarely the case. Even for a short-term management contract, someone needs to be able to monitor performance against the contract, have the authority to allow minor variations in contract specifications, and arbitrate disputes between the company and its customers and between the government and the contractor. And for longer-term concession and BOT contracts, it is usually neither possible nor desirable to have highly specified contracts, especially in countries undergoing rapid social, political, economic, or demographic change.

Detailed, rigid, and very specific contract conditions do have advantages. In particular, they help protect the private company from politically motivated, and frequent, changes in service requirements. By reducing revenue risk, such protection may help attract more bidders for the contract, reduce the cost of capital, and help the government strike a more advantageous bargain.

But rigid contract specification also has important disadvantages. Most obviously, it limits easy responses to changing social, economic, and technical conditions. It makes it difficult to fine-tune or improve on the original arrangements—an important constraint, because it is rarely possible to get everything right at the outset, particularly where information on the system is limited. In addition, highly specific contracts normally lead to a need for frequent renegotiation, where the contract holder

typically has a strong bargaining position—and always has better information about the state of its business.

Table A2.1

Regulatory tasks required under different options for private sector participation

Regulatory task	Management contract	Lease	Concession	BOT	Divestiture
Regulate prices	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Promote operating efficiency	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Specify and monitor service standards	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Control externalities	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Maintain public good functions	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ensure asset serviceability	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ensure development of essential infrastructure	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>
Prevent manipulation of land values	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>
Prevent unfair trading practices	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Promote efficient water use	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Possibly	<input checked="" type="checkbox"/>
Ensure responsiveness to final customer needs	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>

So a delicate balance needs to be struck between highly specified contracts, which reduce the regulator's role to monitoring compliance, and more flexible arrangements, which allow regulatory discretion.



In designing a regulatory system, a government needs to answer five basic questions:

- What duties should regulators have?
- How decentralized should regulation be?
- How much discretion should regulators have?
- How independent should regulators be?
- How can regulators be made accountable?

What are the regulatory duties?

The duties of the regulator will depend on the kind of private sector arrangement adopted, the degree to which service conditions and price adjustment rules are specified in law or contract, and the existence of other sector regulators (for example, competition and fair trading authorities, catchment authorities, pollution control agencies, drinking water inspectorates, and health and safety inspectorates).

Commonly, some regulatory authority will be required to:

- Determine allowable increases in water and sewerage prices.
- Determine (or advise policymakers on) appropriate service standards.
- Monitor company performance and contractual compliance.
- Receive complaints and arbitrate disputes between the utility and its customers.
- Impose sanctions for failure to meet agreed standards.

These tasks need not be undertaken by a single body, and some may be incorporated into the contract. For example, the service standards, the formulas for price increases, and the sanctions for nonperformance could all be covered in the

Options for regulating prices

Rate-of-return or profit control

Regulators place limits on the returns earned on invested capital and may also place restrictions on dividends payable to shareholders and on accumulated capital reserves.

Price control

Regulators peg allowable price increases to an independent measure such as the retail price index, possibly adjusted for expected efficiency gains.

contract.

The monopoly character of water and sanitation network services means that price regulation (and preventing hidden price rises through reduced standards of service) is a critical regulatory task for all but very short-term management contracts.

There are several types of price regulation, with the key difference in the incentives they provide for efficient performance by the utility operator, and they can be implemented in different ways (see the box on price regulation).

Rate-of-return regulation is used where there is capital investment. After determining an appropriate return on this investment, the regulatory agency sets the maximum rate of return that the utility may earn on its assets for a specific period, to reduce its incentives to raise prices in order to earn monopoly profits. The advantage of this approach in theory is that it reduces the extent to which prices depart from competitive levels. It also gives comfort to investors that they will be able to earn a return on their investments—which may lower the cost of capital. In principle, it is possible to fix the rate of return for the life of even very long contracts, reducing the need for periodic renegotiation.

But there are several problems with this approach in practice. It can reduce the incentives of regulated utilities to lower costs and encourage them to overinvest in capital. If the allowed rate of return is greater than a utility's cost of capital, the utility will be inclined to maximize its profits by substituting

capital investment for other inputs to its production (such as labor). And if the allowed rate of return is less than the cost of capital, the utility may have an incentive to use a less capital-intensive method of production than it otherwise would. In both cases the result will be higher production costs. Rate-of-return regulation can also impose high information costs on both the regulator and the regulated utilities.

Where responsibility for capital investment remains with the public sector, rate-of-return regulation reduces to cost-of-service regulation, with allowable price increases fixed according to the legitimate operating cost of the contract holder. But what does legitimate mean? In some cases costs are established on the basis of the actual expenditures of the contract holder, but this approach reduces incentives for efficient operation. More often, allowable price increases are calculated by applying a formula, which uses national inflation indexes for each cost component, to the cost structure of the contract holder. This approach makes regulation relatively simple, but there is no guarantee of the efficiency of the contract holder's cost structure.

Under pure price control, regulation involves setting a general "cap" on prices. This cap is usually defined by reference to the inflation rate and to an assessment of the potential for efficiency improvements by the regulated utility. The main advantage of this approach is that it provides utilities with an incentive to reduce costs and

operate efficiently, because they keep any profits generated by increasing productivity more than required to. The approach also has several drawbacks. If the price is set too high, the business will earn high profits, which may be unacceptable to the public. If the price is set too low, the level and quality of services may fall as the utility finds it impossible to earn a reasonable rate of return; investors are then placed at risk, and the cost of capital may increase accordingly. Expected productivity gains may also be set too high, a risk the investor must confront each time the cap is renegotiated (which may be as many as five or six times over the life of a concession contract). Price caps may not be attractive if the primary concern is to promote new investments by the regulated utilities.

Price cap regulation was expected to be easier to administer than rate-of-return regulation, which is highly information intensive. But under a price cap regime regulators must still (if only implicitly) determine an appropriate rate of return in order to set required productivity gains at a sustainable level—and so will have information requirements similar to those in rate-of-return regulation.

How decentralized should regulation be?



As utilities are decentralized, more governments are considering decentralizing regulation. Decentralized regulation may be more responsive to local needs and conditions, ease monitoring, and ensure better access to information. But decentralization can increase regulatory costs (through replication of regulatory agencies), reduce regulatory effectiveness (because of lack of capacity), increase the danger of "capture" by the private sector operator, and allow local interests to neglect the external costs of their actions (for example, pass the pollution costs from untreated sewage to downstream municipalities). Decentralized regulation can also reduce the potential for comparative competition.

Where regulatory functions are decentralized national governments can still put in place arrangements to support effective and consistent regulatory decisions. Options include:

- Providing national or regional training facilities for regulatory staff.
- Publishing national performance indicators.
- Creating a central or regional agency with auditing functions to monitor the effectiveness of local regulators and reduce the risk of capture.
- Requiring local regulators to publish the results of their monitoring activities and regulatory decisions.
- Providing reporting and monitoring guidelines to help ensure that utility performance is measured consistently and in a way that eases comparisons.
- Providing or funding, or requiring local regulators to employ, professional, independent system monitors (these could be private firms).

All these measures leave regulatory authority at the

Utility Regulators- The independence debate

local level but attempt to ensure that a higher level of government has a role in monitoring the performance of utilities and local regulators.

How much discretion should regulators have?

Because contracts that will guide a relationship of 10, 25, or 30 years cannot be fully specified in advance—and should not be, if flexibility is to be preserved—some regulatory discretion is desirable. But a regulatory system that involves significant discretion may deter private sector participation, because it increases risk. To avoid this outcome, it is necessary to ensure that:

- Clear limits to discretion are specified in the law and the contract.
- The criteria and processes to be employed by the regulator are established in law.
- Adequate arrangements are in place for appeal of the regulator's decisions.
- The regulator is trusted to be impartial (a condition that may be difficult to satisfy in countries that lack a tradition of an independent civil service and judiciary).

More generally, the design of the regulatory agency should provide assurance to:

- *Investors* that regulatory discretion will be exercised in a way that protects their legitimate interests and will not be subject to undue political influence.
- *Consumers* that regulatory discretion will be exercised in a way that protects their legitimate interests and will not be subject to undue influence by the regulated industry.
- *All stakeholders* that sufficient skill, expertise, and resources will be devoted to what is often a technically challenging regulatory task.
- *Elected officials* that the regulatory agency will remain true to its mandate and accountable for its performance.

How independent should regulators be?

To be effective, regulators must operate

independently from both short-term political pressures and the regulated companies. If regulatory authority lies within the political sphere of government, there is always a danger that prices, service standards, and investment priorities will be manipulated to serve short-term electoral interests. With a more independent regulator, there is a greater chance that the sector can be managed to meet long-term service and efficiency goals. But achieving independence is not easy:

- Regulatory appointments must be made on professional criteria.
- Tenure must be for a fixed period (that is, regulators must be protected from arbitrary removal from office).
- The regulatory body must be funded out of direct levies on utilities or customers, not from ministerial budgets.
- Pay must be competitive with private sector salaries, to minimize the risk of corruption and to attract competent staff.
- Regulators must be barred from political activity and from having financial interests in water and sanitation and related sectors (such as construction or land holdings).

Several strategies could be used to reduce the danger of capture by the regulated firms or by political interests—and to economize on generally scarce regulatory skills:

- Establish a multisectoral regulatory commission—for example, one covering telecommunications, electricity, and water and sanitation.
- Contract out some elements of regulation to reputable, technically competent private sector firms—such as financial auditing or monitoring service standards or asset condition.
- Use an existing regulatory body with a reputation for independence and honesty—such as a fair trading or antitrust agency or the courts.

How can regulators be made accountable?

While regulators ought to have a high degree of independence from democratically elected bodies, there is still a need to ensure their accountability.



Ways to do that include:

- Specifying the regulator's duties clearly in law. If there are multiple goals, primary and secondary objectives should be differentiated.
- Prescribing transparent decisionmaking processes, including requiring regulators to allow interested parties to make submissions and to publish decisions and the reasons for those decisions.
- Making decisions subject to review before the courts or some other independent forum.
- Requiring regulatory authorities to present annual reports on their activities and to be subject to independent audits.🌐

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Chapter-2

Why involve the private sector?



Why are more and more governments turning to the private sector for help in developing and delivering water and sanitation services? They hope to take advantage of private sector skills and know-how, improve the efficiency of service delivery, and gain access to finance for new investments. Experience in countries that have entered into arrangements for private sector participation shows that, if well designed, these arrangements can bring big improvements in the quality, availability, and cost-effectiveness of services.

But private sector participation on its own is no panacea for problems in water and sanitation. It requires a partnership between government and the private sector participants, and the nature of this partnership—and the rights, responsibilities, and risks it entails for each partner—must be carefully mapped out. The first step is choosing the private

sector option best suited to local circumstances. To make this choice, a government must identify the problems in service provision, evaluate how well different options address those problems, and assess its capacity to accept the roles, duties, and risks that each option imposes.

Governments seeking to involve the private sector in water and sanitation generally have one or more of the following objectives in mind:

- Bring technical and managerial expertise and new technology into the sector.
- Improve economic efficiency in the sector—in both operating performance and the use of capital investment.
- Inject large-scale investment capital into the sector or gain access to private capital markets.
- Reduce public subsidies to the sector or redirect them from the groups now served to the poor and those not now served.
- Insulate the sector from short-term political intervention in utility operations and limit opportunities for intervention by powerful interest groups.
- Make the sector more responsive to consumers' needs and preferences.

All forms of private sector participation can be designed so as to improve technical and managerial capacity. But the other objectives can only be achieved if the appropriate arrangement for private sector participation is chosen and if the government creates the necessary enabling and regulatory environment. The toolkits therefore emphasize not only choosing a contract for private participation that is well tailored to local needs but also putting a supporting regulatory environment in place. The toolkits also address other concerns that

governments often have about involving the private sector in water and sanitation—such as the consequences for utility employees, loss of control of a strategic sector, and price increases and their impact on the poor. The toolkits show how to deal with these concerns through the design of the process for private participation and of the contract

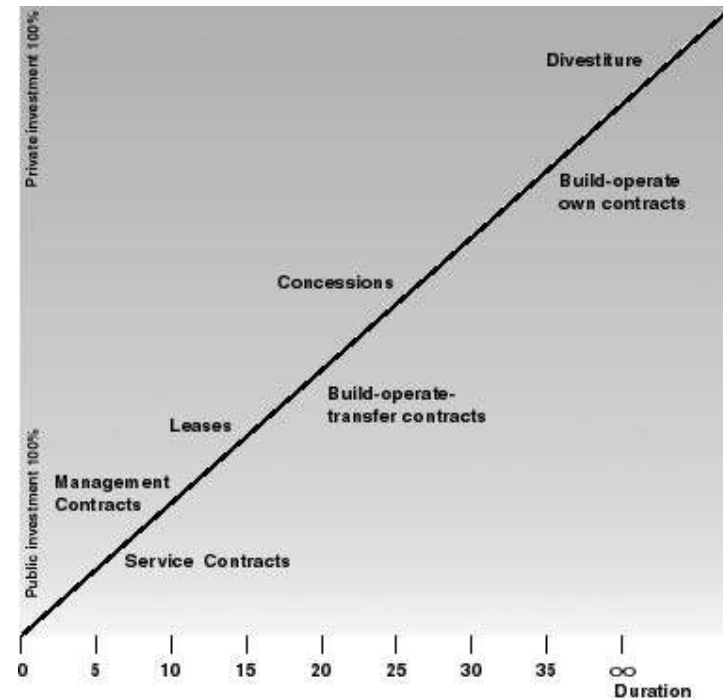
What are the options?



The options for private sector participation can be ranged along a spectrum. At one end are those in which the government retains full responsibility for operations, maintenance, capital investment, financing, and commercial risk—at the other, those in which the private sector takes on much of this responsibility (figure 1). But even where the private sector takes on full responsibility for operations and financing, as in concessions and asset sales, it does so within a framework created by the government. The most important parts of this framework are regulatory arrangements to protect consumers from monopolistic pricing and enforce health and environmental standards, and subsidy regimes to ensure access to services for the disadvantaged.

Figure 1

The range of options



Increasing level of delegation, risk, irreversibility

The main options for private sector participation can be clearly distinguished by how they allocate responsibility for such functions as asset ownership and capital investment between the public and private sectors (table 1). But in practice private sector arrangements are often hybrids of these models. For example, leases often pass some responsibility for small-scale investment to the private sector, and management contracts may have revenue-sharing provisions that make them a little like leases. Options might also be used in combination—for example, a build-operate-transfer (BOT) contract for bulk water supply might be combined with a management or lease contract for operating the distribution system.

Table 1

Allocation of key responsibilities under the main private sector participation options

Option	Asset ownership	Operations and maintenance	Capital investment	Commerical risk	Duration
Service contract	Public	Public and private	Public	Public	1-2 years
Management contract	Public	Private	Public	Public	3-5 years
Lease	Public	Private	Public	Shared	8-15 years
Concession	Public	Private	Private	Private	25-30 years
SOT/BOO	Private and public	Private	Private	Private	20-30 years
Divestiture	Private or private and public	Private	Private	Private	Indefinite (may be limited by license)

Service contracts—simple, but with limited benefits



Service contracts secure private sector assistance for performing specific tasks—installing or reading meters, monitoring losses, repairing pipes, or collecting accounts. They are typically for short periods, from six months to two years. Their main benefit is that they take advantage of private sector expertise for technical tasks or open these tasks to competition. They leave the responsibility for coordinating these tasks with the public utility managers. They also leave the responsibility for investment with the public sector. (See [Table 1](#), Allocation of key responsibilities under the main private sector participation options.)

Service contracts are widely used. In India, Madras Metro Water has contracted services ranging from the provision of staff cars to the operation and

See [Table 1](#), Allocation of key responsibilities under the main private sector participation options.

Service contracts are at best a cost-effective way to meet special technical needs for a utility that is already well managed and commercially viable. They cannot substitute for reform in a utility plagued by inefficient management and poor cost recovery.

maintenance of sewage pumping stations. The water utility in Santiago de Chile has contracted out services accounting for about half its operating budget, including computer services, engineering consulting services, and repair, maintenance, and rehabilitation of the network. To enhance competition, the Santiago utility has at least two service contracts for each kind of task.

Although relatively simple, service contracts must be carefully specified and monitored. If a utility is poorly managed, its service contracts probably will be too. Service contracts are at best a cost-effective way to meet special technical needs for a utility that is already well managed and commercially viable. They cannot substitute for reform in a utility plagued by inefficient management and poor cost recovery.

Management contracts—a good first step



Management contracts transfer responsibility for the operation and maintenance of government-owned businesses to the private sector. These contracts are generally for three to five years. The simplest involve paying a private firm a fixed fee for performing managerial tasks. More sophisticated management contracts can introduce greater incentives for efficiency, by defining performance targets and basing remuneration at least in part on

See **Table 1**, Allocation of key responsibilities under the main private sector participation options.

their fulfillment. To be worthwhile, these more complex management contracts must produce efficiency gains large enough to offset the regulatory costs of establishing targets and monitoring performance against them. (See Table 1, Allocation of key responsibilities under the main private sector participation options.)

Management contracts are most likely to be useful where the main objective is to rapidly enhance a utility's technical capacity and its efficiency in performing specific tasks, or to prepare for greater private involvement.

Specifying clear and indisputable targets is often difficult, especially when information about a system's current performance is limited. Some targets may be beyond the private sector partner's power to achieve. For example, unaccounted-for water is a good indicator of a system's efficiency, but it can be hard to measure—especially if metering is inadequate—making it difficult to establish a meaningful base for evaluating the operator's performance. And the operator's ability to reduce unaccounted-for water may depend not only on its efforts to reduce leaks but also on the resources that the government makes available for rehabilitating pipelines. There is often a fine dividing line between operations and maintenance expenditures, for which the private operator is responsible, and capital investment, for which the government is responsible—and both will affect the operator's performance.

Because management contracts leave all responsibility for investment with the government, they are not a good option if a government has as one of its main objectives accessing private finance

for new investments. And because they do not necessarily transfer any of the commercial risk to the management contractor, they draw little on private sector incentives to reduce costs and improve the quality of services.

Management contracts are most likely to be useful where the main objective is to rapidly enhance a utility's technical capacity and its efficiency in performing specific tasks, or to prepare for greater private involvement.

Management contracts—a step toward greater private sector participation

Management contracts can be a good first step toward more full-fledged private sector involvement where conditions make it difficult for the government to commit to a long-term arrangement or to induce the private sector to undertake capital investment or accept commercial or political risk. A management contract might be chosen, for example, where:

- Tariffs are too low to support a commercial operation, and the government needs time to increase tariffs or develop a system of public subsidies compatible with private sector participation.
- The regulatory framework has defects that need to be remedied before a long-term private sector arrangement can be secured.
- The country lacks a good track record in public-private partnerships.
- The government faces difficulties in getting key stakeholders to agree to long-term involvement of the

private sector.

In such conditions a management contract can provide a window of opportunity for developing trust between the public and private sectors and for the government to create an environment more conducive to private sector risk-taking. This was the approach adopted in Mexico City and in Trinidad and Tobago.

Where lack of information about the system is a problem, a requirement to collect and disseminate this information can be included in the management contract. But making the contract holder responsible for gathering information could give it an advantage in bidding for a longer-term lease or concession. Appointing an independent engineer or auditor can help ensure equitable access to the information produced by the management contractor.

Stepwise approaches beginning with a management contract are a good way to secure at least some private sector involvement in risky countries, but there is no guarantee that they will go beyond the first step. Because decisions about involving private companies in the water sector can be politically costly, governments may be unwilling to move beyond a management contract, especially if they have not raised tariffs to cost recovery levels. Governments may also be lulled into a false sense of security if a management contract provides just enough gains to keep voters happy—even if many people still lack adequate

services. Management contracts can be good at improving services for those who already have water and sewerage connections, but they typically do little for those lacking connections, who often have less political power. So, when management contracts are meant to be transitional, they should include incentives for the next steps, such as triggers for reallocating risks and responsibilities once specified conditions have been met.

Leases—a way to pass on commercial risk



Under a lease arrangement a private firm leases the assets of a utility from the government and takes on the responsibility for operating and maintaining them. Because the lessor effectively buys the rights to the income stream from the utility's operations (minus the lease payment), it assumes much of the commercial risk of the operations. Under a well-structured contract the lessor's profitability will depend on how much it can reduce costs (while still meeting the quality standards in the lease contract), so it has incentives to improve operating efficiency. (See Table 1, Allocation of key responsibilities under the main private sector participation options.)

Leases have been widely used in France and Spain and are currently in place in the Czech Republic, Guinea, and Senegal. They were also used in Côte d'Ivoire until replaced by a concession.

Leases leave the responsibility for financing and planning investments with the government. So if major new investments are needed, the government must raise the finance and coordinate its investment program with the operator's operational and commercial program.

Leases are most appropriate where there is scope for big gains in operating efficiency but only limited need or scope for new investments. Leases have also sometimes been advocated as stepping stones toward more full-fledged private sector involvement through concessions. But their administrative complexity and the demands they place on

See **Table 1**, Allocation of key responsibilities under the main private sector participation options.

The Guinea Water Lease—Five Years On

Leases are most appropriate where there is scope for big gains in operating efficiency but only limited need or scope for new investments.

governments for commitment are nearly as great as those of concessions, so a lease is a much bigger first step than a management contract.

"Pure" leases are rare, however. Most place some responsibility for investment on the private partner, if only for rehabilitation works. These contracts operate as a hybrid between a lease and a concession contract.

Concessions—a route to full-fledged private participation



A concession gives the private partner responsibility not only for the operation and maintenance of a utility's assets but also for investments. Asset ownership remains with the government, however, and full use rights to all the assets, including those created by the private partner, revert to the government when the contract ends—usually after 25 to 30 years. Concessions are often bid by price: the bidder that proposes to operate the utility and meet the investment targets for the lowest tariff wins the concession. The concession is governed by a contract that sets out such conditions as the main performance targets (coverage, quality), performance standards, arrangements for capital investment, mechanisms for adjusting tariffs, and arrangements for arbitrating disputes. (See [Table 1](#),

Allocation of key responsibilities under the main private sector participation options.)

Concessions have a long history of use in infrastructure in France. And recently they have spread to the developing world, where they have been used for water and sanitation in Buenos Aires, for water in Macao, and for sewerage in Malaysia.

The main advantage of a concession is that it passes full responsibility for operations and investment to the private sector and so brings to bear incentives for efficiency in all the utility's activities. The concession is therefore an attractive option where large investments are needed to expand the coverage or improve the quality of services.

On the government's side, administering a concession is a complex business, however, because it confers a long-term monopoly on the concessionaire. The quality of regulation is therefore important in determining the success of the concession, particularly the distribution of its benefits between the concessionaire (in profits) and consumers (in lower prices and better service).

Joint venture leases and concessions

In such countries as Spain it has become common for governments—national, regional, and local—to establish joint ventures with the private sector to run leases and concessions. A typical joint venture creates a new company, with the state entity

holding 51 percent of the equity and the private operator or a financial institution (or both) holding the remaining shares. By limiting the private sector's control, these joint ventures can help secure stakeholders' agreement to private sector participation. And by demonstrating public commitment to the venture, they can reduce the private sector's perception of risk. But they can create conflicts of interest if the same government entity is both the regulator of the utility company and its part owner.

Another issue is the extent to which the private firm can exercise management control, especially if it has only a minority shareholding in the joint venture. Without such control the private firm may not feel that its interests are protected and may not be able to produce the efficiency gains expected from private involvement. Most joint ventures address control issues through detailed clauses in the company's by-laws allowing both parties to vet key managerial appointments. These clauses may foster partnership, but they can also complicate the utility's governance.

Build-operate-transfer contracts—a solution for bulk supply and treatment problems

Build-operate-transfer (BOT) arrangements resemble concessions for providing bulk services



BOTs tend to work well if the main problem a utility faces relates to water supply or wastewater treatment. But if the problem is a

but are normally used for greenfield projects, such as a water or wastewater treatment plant. In a typical BOT arrangement a private firm might undertake to construct a new dam and water treatment plant, operate them for a number of years, and at the end of the contract relinquish all rights to them to the public utility. The government or the distribution utility would pay the BOT partner for water from the project, at a price calculated over the life of the contract to cover its construction and operating costs and provide a reasonable return. The contract between the BOT concessionaire and the utility is usually on a take-or-pay basis, obligating the utility to pay for a specified quantity of water whether or not that quantity is consumed. This places all demand risk on the utility. Alternatively, the utility might pay a capacity charge and a consumption charge, an arrangement that shares the demand risk between the utility and the BOT concessionaire. (See Table 1, Allocation of key responsibilities under the main private sector participation options.)

BOTs have been used for water treatment in such countries as Australia and Malaysia and for sewage treatment in Chile and New Zealand.

BOTs tend to work well if the main problem a utility faces relates to water supply or wastewater treatment. But if the problem is a faulty distribution system or poor collections performance, a BOT is unlikely to remedy it—and may even aggravate it.

faulty distribution system or poor collections performance, a BOT is unlikely to remedy it—and may even aggravate it.

Where private sector participation is needed both to provide new bulk services (a reservoir or a water or wastewater treatment plant) and to improve the performance of or expand distribution systems, separating these tasks under different contracts and bidding processes may have advantages.

Separating the tasks maximizes the potential efficiency gains from competitive bidding and reduces the monopoly power given to a single company.

There are many possible variations on the BOT model, including build-operate-own (BOO) arrangements, in which the assets remain indefinitely with the private partner, and design-build-operate (DBO) arrangements, in which the public and private sectors share responsibility for capital investments. BOTs may also be used for plants that need extensive overhauls—in arrangements sometimes referred to as ROTs (rehabilitate-operate-transfer).

Full or partial divestiture—another route to full-fledged private participation



Divestiture of water and sewerage assets—through a sale of assets or shares or through a management buyout—can be partial or complete. A complete divestiture, like a concession, gives the private sector full responsibility for operations, maintenance, and investment. But unlike a concession, a divestiture transfers ownership of the assets to the private sector, so the nature of the public-private partnership differs slightly. A concession assigns the government two primary tasks: to ensure that the utility's assets—which the government continues to own—are used well and returned in good condition at the end of the concession and, through regulation, to protect consumers from monopolistic pricing and poor service. A divestiture leaves the government only the task of regulation, since, in theory, the private company should be concerned about maintaining its asset base. (See **Table 1**, Allocation of key responsibilities under the main private sector participation options.)

**Water Privatization
and Regulation in
England and Wales**

But private companies may not always take the long view. Even with an asset sale, the regulator may need to scrutinize the utility's plans for renovating or enhancing its assets. In England and Wales the regulator requires utilities to report the serviceability

of their assets.

Although widely used in other infrastructure sectors, divestitures in the water and sanitation sector have been limited to England and Wales. (Private water companies have also long operated in the United States.) Given the national economic importance of infrastructure services, governments are generally unwilling to divest water and sanitation assets without introducing safeguards. The U.K. government retains "safety net" powers to appoint another operator in case a water company fails. It also limits the length of the licenses under which water companies operate.

Even though governments may find divestiture ideologically or even constitutionally difficult to contemplate, they should not dismiss it without evaluation. In some circumstances divestiture may be more appropriate than a concession. Where the public sector utility is technically capable, for example, divestiture by sale of shares or management buyout may produce the required efficiency gains without involving the foreign water conglomerates that typically dominate bids for concessions.

It could also help develop local private firms capable of working in water and sanitation. (This strategy is most likely to be effective where local financial institutions are well developed.)

Table 2

Some private sector contracts in place in water and

sanitation

Option	Water	Sanitation	Water and sanitation
Management or service contract	Columbia Gaza Malasia Turkey	United States	Puerto Rico Trinidad and Tobago
Lease	France Guinea Italy Senegal Spain		Czech Republic France Poland
Concession	Côte d'Ivoire France Macao Malaysia Spain	Malaysia	Argentina France
BOT	Australia China Malaysia Thailand	Chile Mexico New Zealand	
Divestiture	England and Wales		England and Wales

What Is Special about Water and Sanitation?



In many ways decisions about how to involve the private sector in water and sanitation resemble decisions about privatization in any other utility sector. But water and sanitation have special features that governments must take into account in choosing and designing a contract and in designing a supporting policy framework, if private sector participation is to succeed:

- Systems for allocating scarce raw water resources among alternative uses—urban consumption, irrigation, industry—are often underdeveloped or incompatible with efficient use of these resources.

- Water and sanitation systems are characterized by a high degree of "natural" monopoly.
- Water is essential to life, and access to it needs to be ensured for all, with special attention to the poor.
- Water and sanitation are naturally well suited to local management, and in many countries responsibility for service provision is decentralized to the provincial or municipal level.
- Broad access to water and sanitation yields important public health and environmental benefits.
- Water and sanitation are critical to economic and urban development.
- Many water and sanitation system assets are buried underground, so that obtaining accurate information about them is costly.

None of these issues is a barrier to private sector participation—all arise under both public and private provision. But governments often consistently confront these issues only when they begin to contemplate private sector involvement in water and sanitation. The success of a private sector arrangement will depend in large part on the quality of the policy framework that the government builds in response to these issues. Failure to adequately address them will increase the risk that the government will be unable to find a partner for its preferred form of private sector participation or that a private sector arrangement will fall short of the government's broad policy objectives.

**The complexities of managing water
resources**



Water resources exist in interconnected hydrological systems in which what one user does can affect all other users. Whether sufficient raw water is available for urban use will depend on the overall availability of raw water and on prior use rights established by other users—such as farmers and hydropower companies. And the level and quality of sewage treatment by an urban utility will affect the availability and quality of water for downstream users—whether industries, farmers, or other towns.

How governments structure regimes for allocating water resources among these competing users and how they design policies to control the quality of the available water can determine how well urban utilities can do their job—and the feasibility and cost of different options for private sector participation.

Any prospective private partner will need assurance about future access to raw water supplies and about the quality of such supplies, which will affect water treatment costs. And other water users will require protection from the effects of utility operations, such as the depletion of groundwater or rivers, and the pollution of surface water or groundwater by untreated or partially treated sewage.

Where water law and regulatory or market mechanisms for allocating water use rights fail to manage these effects, to allocate resources in a way that is efficient and politically acceptable, or to provide secure access to water resources, long-

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term arrangements such as concessions may be infeasible or require substantial government guarantees. But short-term management contracts could be used as a stopgap, providing enough time to create an acceptable water resource management regime.

The persistence of monopoly

Any form of private sector participation can improve performance if the private partner has strong technological management skills. But sustaining the improvements in performance depends on more than the characteristics of the company that runs the utility—it requires competitive pressure on the utility.

Competition comes naturally to few areas of the water and sanitation business, however. Monopoly is reinforced by the fact that there are no substitutes for water in many of the purposes for which it is used.

Monopolies, whether public or private, often yield lower productive and allocative efficiency than competitive firms. Their output, service standards, and investment in capacity all tend to be lower than under competitive conditions, while their prices tend to be higher.

For governments to achieve the efficiency and



For more about monopolies, link to [Annex 1](#) in this Kit.

Monopoly occurs where consumers of a service can buy it from only one supplier. Natural monopoly occurs where it is only feasible for one supplier to exist in the market—because the more services provided, the lower the costs of providing each additional unit of service. This means that if a new entrant tries to compete with the existing supplier, it can do so only at a higher cost.

seeking private sector participation, they need to pay attention first of all to maximizing competitive pressures on the utility. Then they need to devise a regulatory regime that provides incentives for a monopoly utility to act as though it were operating in a competitive market.

Although competition tends to be scarce in the water and sanitation business, careful design of a sector reform and private sector participation option can introduce the potential for competition—while reducing the need for regulatory intervention. Four main kinds of competitive pressure are possible in water and sanitation provision:

- Direct competition in the supply of services, sometimes referred to as "competition in the market."
- Competition for the right to supply water and sanitation services through concession or other contracts, often called "competition for the market."
- Competitive pressures deriving from markets for the capital with which new investments are financed.
- Comparative, or "yardstick," competition, in which the performance of suppliers in different cities is compared.

For governments to achieve the efficiency and investment goals that they typically have in mind in seeking private sector participation, they need to pay attention first of all to maximizing competitive pressures on the utility. Then they need to devise a regulatory regime that provides incentives for a monopoly utility to act as though it were operating in a competitive market.

Table 3

Competition and monopoly in water and sanitation

Activity	Characteristics of competition
Allocation of water resources and regulation of use	Natural monopoly in each hydrogeographical unit (such as a river basin)
Capacity construction (including storage and water and sewage treatment)	Competitive (but may depend on access to water resources)
Bulk supply generation	Small number of possible suppliers (often only one)
Water treatment	Local monopoly

Local distribution	Local monopoly
Local sewerage network and interconnected storm water network	Local monopoly
Sewage treatment	Local monopoly
Equipment and appliance sales, plumbing services	Competitive

For more detail about these issues, link to [Annex 1](#) in this Kit.

Which forms of competition are available and how effective each is will depend on how the sector is structured (are all activities concentrated in one business, or spread across several businesses?) and on the form of private sector participation chosen. These issues are covered in detail in annex 1.

Water as a social concern



A primary concern of governments is to ensure that water is available to all citizens—at a price they are willing and able to pay. For many governments it is this concern that motivates them to involve the private sector, as the agent best able to expand services cost-effectively. In many developing country cities where the public sector continues to run the water and sanitation utility, the very poor lack connections to the utility's supply system and must instead buy water from tankers or other sources for very high prices—often 10 to 40 times the utility's price.

Even with the expectation of efficiency gains from private sector involvement, a government may still be concerned that prices will be beyond reach for the poorest citizens. This concern needs to be tested, through willingness-to-pay surveys. If it is found to be valid, the government will need to establish a policy framework to ensure access to water and sanitation for low-income groups.

(Developing such a policy framework is, of course, desirable with or without private sector participation.)

If most low-income households have connections and the government can afford to offer subsidies, one option would be to introduce targeted subsidies, as Chile has done (see the box on Chile's scheme). But if many of the poor lack connections and the government's capacity to offer subsidies is limited, alternative technologies and delivery mechanisms, such as the condominial sewerage systems developed in Brazilian slums, may be more effective in meeting the needs of low-income households.

Price structures, Cross subsidies, and competition in infrastructure

Expanding service for the urban poor

Most developing countries have large and growing informal settlements in their urban areas. The poor families living in these settlements often have no access to means for sewage removal and rely on expensive or inconvenient sources of water—such as water tankers or sparse, often poorly functioning communal standpipes.

Extending better water and sanitation services to the people in these settlements within the context of a move to private sector participation poses major challenges. Innovative schemes have been devised for involving informal communities in decisions about service provision and in the development of community-based water and sanitation services. But conventional water and sanitation utilities—both public and private—historically have not had to work with communities, either in making decisions about expanding traditional water and sanitation services or, where traditional solutions are far too costly for households, in finding alternatives. A major challenge ahead is to design arrangements for private sector participation that respond better to informal communities, finding innovative ways of meeting their water and sanitation needs at reasonable cost.

Subsidizing low-income households in Chile

In the early 1990s Chile introduced a comprehensive subsidy scheme to help low-income households purchase a range of public services. These direct, targeted subsidies replaced a system of cross-subsidies that had proved ineffective in meeting the service needs of the poor. Water and sanitation subsidies amount

to \$12 million to \$13 million a year, excluding administrative costs. The program is financed by the central government, but administered through the municipalities, which pay the subsidies directly to the public service operator.

The goal of the scheme is to ensure that water and sanitation services take up no more than 5 percent of household income. The water subsidy covers 40 to 85 percent of the charges for the first 20 cubic meters of consumption for eligible families. Eligibility is determined by such criteria as region, family size, average cost of water, and household income and wealth and is reassessed every three years. Households that fail to pay their share of the bill have their subsidy suspended.

Initially, households were required to apply for this subsidy and to prove their eligibility. But low participation rates prompted the government to seek the collaboration of the water utilities in identifying needy customers by examining payment records. The scheme is now believed to cover all eligible households in urban areas—some 20 percent of the population.

The trend toward decentralization



Two features of water make its supply a "local"

service that can be administered in a decentralized way: water is expensive to transport over long distances, and it is cheap to store. Except in dry countries, there are few extensive water transmission systems. In many countries the provision of water and sanitation services is the responsibility of local governments. And in the past decade a growing number of national governments have decentralized water and sanitation, shifting management of services to the lowest feasible level—sometimes the province, more often the municipality. The size of a utility's jurisdiction may range from a few hundred consumers to many millions.

This predominantly local responsibility has two important sets of consequences for designing private sector arrangements for water and sanitation. The first set relates to scale. Except in a few major cities, in most countries the great majority of water and sanitation utilities are quite small. Because these small utilities do not offer opportunities for exploiting economies of scale, they are generally unattractive to the private sector, at least individually. And they typically lack the skills and resources to act as strong partners in introducing private sector participation.

The second set of consequences relates to the likely involvement of more than one level of government in decisions about private sector participation and its implementation. National

governments will probably take an interest in the decisions of lower levels of government, and they have the capacity to make or break local deals through the broad regulatory environment they create. Private investors in local projects may look to national governments for guarantees against some project risks. And more than one local government may be involved. In metropolitan systems several municipalities may have to "pool" their rights into a joint body able to function as a counterpart to a private contractor. Successful private sector participation reforms require careful resolution of a range of interjurisdictional issues.

The public benefits of water and sanitation

Water and sanitation services yield public benefits, both reducing the incidence of waterborne disease and improving the general environment. These public benefits are in addition to the benefits for the individual consumers of water and sanitation services and are particularly marked for sewerage services.

Before embarking on an arrangement for private sector participation, a government needs to make crucial decisions about who is to be responsible for providing and funding desired health and environmental benefits. (The demand of low-income households for health- and environment-improving water and sewerage services should not be underestimated.) Private operators will need to be safeguarded against unrealistic demands to provide

goods and services for which neither the government nor the customers are willing to pay. But an arrangement for private sector participation is unlikely to be politically acceptable unless it protects essential social interests.

A critical role in urban and economic development



Water infrastructure plays a crucial role in urban and economic development. So, where the private sector is responsible for new investment to extend the system, governments have a legitimate interest in ensuring that such investments reflect public priorities. Where built-up areas are unserved, clear targets for coverage can be specified in the concession contracts. But these targets need to be realistic, taking into account the concessionaire's financial capacity and customers' ability to afford connections to the system.

Matters are more problematic where services need to be extended for predicted urban development and flexibility is required in the timing of these investments. Concession holders will undertake such investments only if the unexpired concession period is long enough for them to make acceptable returns, and if the concession contract contains incentives for continuing investment over the life of

the contract. Concession contracts are commonly revised or renegotiated when new extensions are required. But without the pressure of competition there is no guarantee that revision will result in least-cost provision. So, when new extensions are likely to be needed, the original contract should explicitly establish criteria for revisions, possibly allowing for retendering, or at least market testing, for system extensions.

The information problems of buried assets

Contracting with the private sector for the provision of water and sanitation services—or monitoring the provision of these services by the public sector—is complicated by the fact that information about water and sanitation systems can be difficult and costly to come by. A large share of water and sanitation assets are hidden from view—literally buried underground—making it difficult to assess their condition and value. So, in many countries accurate information on asset conditions is lacking. This may affect the choice of an arrangement for private sector participation and can certainly complicate contract specification and the subsequent monitoring of the private company's performance.

Lack of good data is a particular concern for concessions. An independent audit and valuation of the assets before entering into a contract is desirable not only to give bidders better information on the value of the assets but also to establish a baseline from which to monitor the concessionaire's

care of the assets. In addition, it will be necessary to clearly specify in the contract what valuation criteria and auditing mechanisms will be used at the end of the concession period. Where data are very poor and there is a desire for speedy adoption of a private sector arrangement, governments should consider using a short-term management contract, during which independent audits and valuations of the assets and asset management planning can be undertaken.

What to Consider before Choosing a Private Sector Arrangement



The options for involving the private sector can be implemented on different scales, with different combinations of functional responsibilities and with different forms of regulation. To have some assurance that the option a government chooses has a good chance of meeting its objectives and that it will be feasible in local circumstances, the government needs to undertake careful analysis of a range of technical, regulatory, political, and financial factors.

This precontract analysis has two distinct stages. In the first, the government needs to clarify its objectives for the sector and determine whether private sector participation is appropriate and

Governments often worry that detailed preparations will take too much time and cause them to miss a window of opportunity to enter into a private sector arrangement. But private participation is not the object of the exercise. Rather, private participation is a means to the end of improving performance in water and sanitation, and proper preparation is essential to ensure that this end is achieved and sustained. When a need for urgent action rules out sufficient preparation, adopting a short-term private sector arrangement may be wisest.

affordable. It will need to carry out a rough financial feasibility analysis to obtain an order-of-magnitude estimate of the tariff changes or subsidies required to involve the private sector. It will need to do a preliminary analysis of the political support for and opposition to private sector participation. And it should use informal market soundings to assess which forms of private sector participation are likely to attract bidders.

Once a government has determined that private sector participation appears financially and politically feasible, it needs to move on to the second, more in-depth stage of analysis, focusing on the following questions:

- What is the state of the existing utility?
- How compatible is the regulatory regime with private sector participation?
- How committed—or opposed—to private sector participation are key stakeholders?
- What are the main risks that need to be allocated or mitigated to ensure that private sector participation can succeed?

This section briefly introduces these analyses, signaling the issues that a government should at least have thought about before forming a first opinion on its preferred option for private sector participation. Toolkit 2 discusses these issues at the more detailed level governments will need when refining and implementing a private sector contract. Governments often worry that detailed preparations will take too much time and cause them to miss a window of opportunity to enter into a private sector

arrangement. But private participation is not the object of the exercise. Rather, private participation is a means to the end of improving performance in water and sanitation, and proper preparation is essential to ensure that this end is achieved and sustained. When a need for urgent action rules out sufficient preparation, adopting a short-term private sector arrangement may be wisest.

Precontract analysis is vital not only in deciding on the form and timing of private sector involvement, but also in designing the contract and the accompanying regulatory regime. Without such analysis the package offered may contain too much risk to be attractive to the private sector, and considerable effort and resources will have been expended for no gain. Or a contract may be secured, but only by offering big concessions to the private sector and leaving much risk with the public sector. Time spent before entering into a contract—in testing and refining the preferred private sector option, working through alternative risk management mechanisms, and developing a supportive regulatory framework—is a good investment for other reasons: it can reduce the time spent in postbid negotiations, and it lessens the risk that the resulting private sector arrangement will diverge widely from what was originally intended.

What is the state of the utility?



In this initial evaluation of the water and sanitation utility, the government needs to assess its current performance, the quality and quantity of information available about the utility, and the feasibility of changing the factors that would make the utility unattractive to potential private sector partners. The government will need to gather—or identify as unavailable—information on such matters as:

- The utility's current and proposed service area.
- The current characteristics of service (quantities supplied, metered, and paid for).
- A basic inventory of the assets and their condition and serviceability.
- Current performance standards and the record of achievement (relating to quality, pressure, supply security, interruptions, sewer flooding, sewer collapse, and the like).
- Human resources (numbers, skills, wage rates, conditions of service, pension arrangements).
- Tariffs (level and structure, subsidy arrangements, disconnection arrangements).
- Financial performance.

At this stage the government should also assess consumers' ability and willingness to pay for services. Often governments proceed with private sector participation without knowing what level of services consumers receive and at what price, or the service level they are willing to pay for. Market or survey research can give a clearer understanding of consumer preferences.

During the initial stages of preparing for private sector participation, the baseline data collected in this evaluation will:

- Inform an assessment of the costs of improving services, of possible efficiency gains, and of the viability of different

options for private sector participation.

- Form a basis for negotiations with key stakeholders, who may require safeguards before accepting private sector participation.
- Inform discussions about realistic performance standards, asset rehabilitation plans, and service enhancement programs—all of which need to be specified in the contract.
- Inform discussions with the treasury or finance department (or the finance department of the local authority) about possible needs for continued government subsidies (for example, to extend basic service to low-income areas).
- Identify areas where data are lacking or may be inaccurate. The advisers that the government hires to assist in preparing a private sector option should rectify these data deficiencies where possible.
- Establish whether data inadequacies rule out some private sector options from immediate consideration. In some cases very simple management contracts combined with basic data collection may be a necessary precursor to longer-term contracts.

These data, supplemented by data collected by hired consultants, will later be made available in an information room set up to make sure that all potential bidders have basic information about what they are bidding for. Still later, the data can provide the regulator of the contract with baseline information for assessing the contractor's performance.

Is the regulatory framework conducive to private sector participation?



Planning a private sector arrangement is not simply a matter of choosing the type of private involvement and the area that it will cover. The effectiveness and consequences of a private sector arrangement depend on the regulatory mechanisms used to influence private sector decisionmaking and on how they are implemented. But the regulatory controls available depend in turn on the type of private sector arrangement—and private partners' response to regulation depends critically on industry structure.

Because decisions about the private sector option, industry structure, and regulatory frameworks are closely linked, consideration of regulatory matters should not be left until after decisions have been made on the private sector option and the area of coverage. Doing so can increase the burden and cost of regulation, reduce its effectiveness by restricting the range of regulatory tools, and risk failing to match the need for public regulation with regulatory capacity.

Governments do not need to undertake detailed design of the regulatory framework when they are first considering private sector participation. But they should take regulatory needs and costs—and their regulatory capacity—into account when making choices about private sector participation. And when embarking on the first private sector venture in water and sanitation, it is important to consider whether the regulatory system proposed

Regulating Water Companies

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for this first transaction will preclude the regulatory options that might be most appropriate as private sector arrangements become more common. A government that fails to get the structural and regulatory package right in the first place can face an immensely costly, time-consuming, and acrimonious process to rectify matters later on.

One of the most important factors in a government's ability to regulate well is the availability of good information on operating practices and investments—ideally, from sources other than the utility operators. In Britain and Chile the regulator's ability to compare operators' performance with industry benchmarks has proved vital in promoting and sustaining improvements in performance. To be effective, comparative regulation requires a large number of comparators. These comparators can be taken from both the public and the private sectors, however, so the regulatory system need not be devised exclusively for private sector arrangements. A system able to compare public and private performance can provide efficiency incentives for both sectors.

The precontract analysis of regulatory issues has four main purposes:

- To identify elements in the broad framework of laws, constitutional requirements, and regulatory activities that could impede private sector participation or affect the viability of different options for industry structure and private participation, and assess the possibility of remedying any deficiencies before bidding the contract.
- To consider the potential for restructuring the water and sanitation sector to make it more conducive to regulation by

competition.

- To design the sector-specific regulation that will make private sector participation possible, specify the powers that will remain in the public sector, identify who will exercise these powers and at what level of government, and create new regulatory arrangements as needed.
- To decide which elements of regulation should be incorporated into the private sector contracts, how much the contracts limit the discretion of any public sector regulators, and what safeguards the contracts should contain against regulatory and political risk.

These four purposes are closely related. For example, if there are elements in the framework of laws that could inhibit private sector participation, it may be possible to reduce their impact through the design of sector-specific regulation or the terms of the contract. And if restructuring the sector to facilitate competition is feasible, this fact will affect sector regulation and the terms of the contract.

Assessing the broad regulatory framework



In assessing how the broad regulatory framework will affect the choice and design of a private sector arrangement and the attractiveness of that arrangement to the private sector, governments need to consider a wide range of laws, constitutional rules, and activities of government agencies:

- The constitutional and legislative division of responsibility for service among national, regional, and local governments.
- Interjurisdictional arrangements, if service responsibilities are decentralized and the system covers several

jurisdictions.

- General legislation allowing or restricting private sector involvement, including by foreign companies.
- Water resource management law.
- Environmental laws.
- Contract law.
- Competition law, and competition or antitrust enforcement agencies.
- Employment law.
- Tax liability.
- Procurement rules.
- Currency control rules.
- Public sector borrowing rules.
- Access and right-of-way rules and compulsory purchase arrangements relating to the installation of infrastructure.
- Health and safety regulation.
- Social policy (for example, subsidies, and disconnection rights for nonpayment of bills).

Clearly, some elements of this framework cannot be changed or may take time to change. In some cases that may rule out the preferred option for private sector participation. If it does, it is best to recognize this early—and to adopt a stepwise approach to private sector participation that allows time to improve the general legal and regulatory framework.

In many countries the broad regulatory framework may not adequately support a private sector arrangement. But governments can still make private sector participation work, by taking one or more of the following actions:

- Choose a private sector arrangement that reduces the risks associated with deficiencies in the regulatory framework—for example, use a fee-based management contract for

distribution (and possibly BOTs for bulk supply) if collection performance or requirements for providing subsidized services pose unacceptable revenue risks for the private partner.

- Choose a private partner in a good position to manage risks associated with deficiencies in the regulatory framework—for example, if there are adverse foreign exchange, currency convertibility, and profit repatriation rules, explore the potential for contracting with local companies, including companies created through management buyout or share sales.
- Incorporate explicit safeguards in the contract—such as provisions allowing access for essential work, protection from liability for third-party actions, specified compensation or price adjustments for changes in service standards, and minimum revenue guarantees. Some safeguards for the public sector are also likely to be necessary—for example, requirements for market testing when the private contractor purchases raw materials or services.
- Develop appropriate regulatory capacities—for example, if the constitution gives responsibility for asset ownership and service provision to a level of government that has limited capacity to regulate or is vulnerable to short-term political interests, consider separating ownership from monitoring and locating regulation at a higher level of government.

Designing new regulatory arrangements



Experience suggests that many of the efficiency benefits from involving the private sector stem from competitive pressures, not just the presence of a private owner. Competitive pressures also affect the amount and appropriate form of sector regulation needed: the more competitive pressures brought to bear on a utility, the less regulation may be required. So governments—especially those with limited regulatory capacity—stand to gain a great deal from introducing as much competition as

possible. The main options:

- Competition at different levels of the water and sanitation business, introduced, for example, by separating bulk treatment and supply from distribution and allowing competition among suppliers.
- Competition between utilities along their mutual boundaries.
- Competition for the market (through the tendering of concession, lease, BOT, and management contracts).
- Competition among utilities and other businesses for finance on the capital market.
- Comparative, or yardstick, competition.

Even if all these forms of competition are used to regulate the sector, some monopoly power will inevitably remain. To offset that power, governments will need to introduce safeguards against its improper use, provide incentives for the private sector to operate efficiently, and monitor performance against contractual requirements. Competition cannot do away with the need for regulation. And, of course, the social, public health, and environmental aspects of water use and waste removal call for continued public scrutiny of operations under the private sector. In designing a regulatory system to protect customers and the general public interest, governments need to keep several broad principles in mind. First, it is important to be realistic: a balance must be struck between what is ideal and what is achievable. Second, regulation should not be too restrictive or controlling. Overly restrictive regulation could deter private companies from entering private sector arrangements or limit their ability to introduce innovative and efficient operating practices. And

Regulation is a critical part of any private sector arrangement. Basic decisions about the regulatory framework need to be made early. Regulatory capacity can determine which private sector option is most appropriate in a country. And the regulatory system chosen can affect the willingness of the private sector to participate and the cost of its participation.

regulation that seeks to control in detail how the private contractor runs its business risks defeating the central purpose of private sector participation—improving service delivery. Third, a regulatory system must be consistent with the capacity and resources of the regulators. These issues are discussed in detail in annex 2.

For more detail about these issues, link to Annex 2 in this kit.

Designing a regulatory system to accommodate private sector participation can be broken down into six basic steps:

Utility Regulators-the independence debate(create a link here)
\\

- Specify the essential regulatory tasks—these vary with the option for private sector participation and with the industry structure.
- Determine how far existing laws go toward assigning these tasks.
- Determine who is best able to carry out the remaining tasks—and at what level of government.
- Consider how much regulatory discretion should be allowed.
- Consider what regulatory tools and mechanisms will be used.
- Incorporate regulatory details into laws and private sector contracts.

Utility Regulators-Roles and responsibilities(create a link here)

Utility Regulators-decision making structures, Resources and start up strategy (Create a link here)

The regulatory tasks are least for service contracts and simple management contracts. For these contracts regulation could be limited to ensuring that the private contractors fulfill their contractual obligations. But this monitoring role remains important in ensuring that adequate service standards are achieved and maintained. There is always a danger that companies will enter bids with a small profit margin to win a contract and then try to increase profits by cutting costs in ways that affect performance.

For longer-term contracts—leases and concessions—and for divestitures, more attention must be paid to ensuring that companies have incentives to act efficiently and that regulators can respond adequately to the inevitable changes that occur over the life of a contract or license. These issues require important decisions about where regulatory power should lie: for example, should it be decentralized to the local level, incorporated into new, sector-specific agencies at a national or regional level, or given to a multisectoral regulatory agency? There are no correct answers; all options have advantages and disadvantages, and what works best will vary across countries. But in deciding these questions, the reasons for involving the private sector must be kept in mind. For example, if private participation is needed to insulate the sector from political intervention and to reduce public subsidies, there are clear dangers in giving regulatory authority to bodies dominated by short-term political or electoral interests.

Another key question is how much discretion to give regulators. Discretion helps regulators respond flexibly to changing conditions, but it also creates regulatory risks for private sector partners and may therefore discourage their participation or raise the price of their involvement. A delicate balance needs to be struck between allowing regulatory discretion and developing very tightly specified contracts that will have to be renegotiated when unexpected changes occur.

Regulation is a critical part of any private sector arrangement. Basic decisions about the regulatory framework need to be made early. Regulatory capacity can determine which private sector option is most appropriate in a country. And the regulatory system chosen can affect the willingness of the private sector to participate and the cost of its participation.

Which stakeholders support private participation—and which oppose it?



A range of stakeholders have a legitimate interest in the performance of the water and sanitation sector. Governments need to identify the key groups of stakeholders and assess their potential support for or opposition to private sector participation, because in some cases opposition will limit the range of feasible options for private participation. Stakeholders might oppose concessions or divestiture, for example, but accept management contracts or BOTs, which give the private sector a more limited role. Or stakeholders might oppose any arrangement that has the private sector acting alone, but support joint ventures with the public sector.

Who are generally the key stakeholders?

- The national government (ministries with some jurisdiction over water-related matters, such as the ministries of health, environment, and urban and economic development).
- Provincial and local governments that will act (or may act) as grantors of private sector contracts, regulators, partners, or financiers of the utility.
- Regional or local planning departments, which coordinate land use and infrastructure planning.
- Other established regulatory entities (such as water commissions, environmental agencies, and competition and fair trade commissions).
- Political parties and individual politicians.
- Labor unions.
- The utility management.
- Suppliers of goods and services to the sector.
- Consumer organizations (formal and informal, including nongovernmental organizations concerned with service quality and prices and with protecting the poor).

Once a government has identified the key stakeholders and assessed their stance toward private sector participation, it needs to evaluate where safeguards for specific interest groups will be needed to win support or diffuse opposition. Identifying necessary safeguards will require consultations with such key groups as labor unions, which should be held before policy decisions are made about the private sector package. Five kinds of safeguard might be needed:

- Protection for labor and management (redundancy and superannuation packages, worker share allocations, minimum wages and working conditions, health and safety measures).
- Protection for contractors or suppliers (regulatory rules to ensure competition in subcontracting and procurement).
- Protection for customers (tariff adjustment rules, subsidy policies, complaint mechanisms).
- General health and environmental protection (regulation of

service standards, penalties for default).

- Protection for other government agencies (a regulatory role to compensate for loss of direct control, rules allowing the local authority's labor force to bid for contracting tasks).

While such safeguards can secure sufficient support to allow private sector participation to proceed and to ensure that it benefits users, they all involve costs. These costs need to be broadly estimated, and consultations held about who will pay them. Although such costs as redundancy payments could be allocated to the private sector partner, governments need to keep in mind that passing on such costs to the private partner will increase the price that the grantor will have to pay to secure its involvement.

Which options are financially viable?

A critical step in selecting among possible options for private sector participation is to test their financial viability. If the private sector partner is expected to invest in rehabilitating the system or expanding coverage, how will that affect the tariff? Will the current tariff cover costs after allowing for expected efficiency gains? If the projected tariff exceeds what some households are willing to pay, can the government afford to subsidize these households? If not, could investment programs that are more financially realistic be devised?

In the rush to expand services, governments often



To make a preliminary decision about what kinds of private sector participation are likely to be feasible before beginning detailed project development, it is a good idea for governments to do a rough "first-cut" financial analysis, focusing on the financial and tariff implications of the proposed project. While this analysis will need to be deepened and revised as preparation proceeds, this first cut can give governments a

do not take into account the private sector's objectives for investment returns. As a result, they can waste time and resources designing private sector arrangements that are not financially feasible or are not affordable to users.

general idea of the private sector options likely to be sustainable in local circumstances.

Preparing a private sector arrangement requires detailed financial work—assessing the financial status of the water and sanitation utility, testing the financial and tariff implications of hoped-for service expansions and efficiency gains (and the implications for the subsidies needed), and preparing the financial specifications for the final bidding documents.

To make a preliminary decision about what kinds of private sector participation are likely to be feasible before beginning detailed project development, it is a good idea for governments to do a rough "first-cut" financial analysis, focusing on the financial and tariff implications of the proposed project. While this analysis will need to be deepened and revised as preparation proceeds, this first cut can give governments a general idea of the private sector options likely to be sustainable in local circumstances.

This first-cut analysis, by determining the tariff levels required to cover proposed service improvements, will give a rough idea of the financial viability of private sector options. The key variables to consider:

- The utility's current operating and maintenance cost for

water supply, treatment, and distribution and for sewage collection and treatment.

- The current tariff (price per cubic meter).
- The current water consumption by the service area population and the projected consumption over the next 10 years or so.
- The cost of capital improvements to the water supply, distribution, and sewerage systems, and annual expenditures necessary to achieve intended service levels.
- The annual government or private funds (or both) expected for financing service improvements (grants, equity, and loans).
- The additional annual operating costs of the capital improvements, net of the efficiency gains that private operation might reasonably achieve.

What are the risks—and how can they be managed?



At the precontract stage a preliminary review of risks is also advisable. It is important for governments to recognize risks, consider how they might best be allocated between the public and private sectors, and develop a clear risk management strategy. Early thinking about the risks associated with private sector participation can save time in postbid negotiations and help ensure that the resulting private sector arrangement comes close to what was originally intended.

The risks for each option are discussed in more detail in toolkit 3

Different risks are associated with different options for private sector participation (see the box on precontract risk analysis, below).

Precontract risk analysis for different private sector options

Management contract

The most significant risk under a management contract is that operating performance will fall short of expectations. To address this risk, during the precontract phase the government should analyze its capacity to monitor the contractor's performance, and ensure that water quality and other standards that it wants to identify in the contract can in fact be enforced. If adequate staff are not available to monitor performance, the government might consider contracting with a third party for this task.

Lease, concession, and BOT

In these options for private sector participation the contractor retains the tariff revenue it collects from customers in exchange for operating—and, under a concession or BOT, investing in—the water and sanitation system. This arrangement provides an incentive for the contractor to improve the efficiency of operations and investments. But in the presence of monopoly power, it also creates a risk that the contractor will reap windfall profits by charging excessive tariffs or reducing service quality. These risks are best managed through the careful design of a monitoring and regulatory system (see the section above on the regulatory framework).

The special problems in smaller towns



Private sector participation generally occurs earliest in a country's large metropolitan areas, those with populations of at least half a million. Yet smaller municipalities have just as much need for better water and sanitation services and can also benefit from private participation. But their financial, economic, institutional, and technical conditions present difficult problems.

A private contractor will often find it harder to make sufficient returns on its investments in small networks unless it operates many in the same region. The generally lower average household income in smaller towns makes it more difficult for families to pay tariffs that cover costs and yield a reasonable return. And smaller systems offer fewer opportunities to exploit economies of scale, making it harder for the private sector to reduce operating costs and achieve operating efficiencies.

The relatively limited administrative skills and institutional capacity in many smaller municipalities also pose a problem for private sector participation. Small municipalities generally lack the personnel to bid, award, and negotiate contracts for private sector participation and to supervise them after they are awarded. Local officials and their staff will need assistance from higher-level government agencies in preparing for a private sector project.

There are several ways to tackle these problems. Several smaller towns can be grouped into a single service area large enough to provide the economies necessary to attract private investment while keeping tariffs affordable (see the section above on financial viability). Officials from neighboring towns can collaborate on a private sector project and create a single administrative entity responsible for implementing a contract. The national government can help smaller cities by supplying standardized advisory services, financial models, and contractual documents—an approach most likely to be feasible if private sector participation has already been implemented in one or more larger cities. The documents should serve as aids rather than inflexible guidelines, able to be tailored to meet the needs of each locality.

Choosing an Option



Once a government has worked through this toolkit—considering general water and sanitation issues and analyzing local technical, regulatory, political, and financial conditions—it is ready to come to a preliminary conclusion about the kind of private sector arrangement that is likely to work in local circumstances and respond to local problems. To reach this preliminary conclusion, governments

need to ask the following questions:

What problem are we trying to solve?

- Is it primarily a problem of operational efficiency, or are substantial increases in service coverage and improvements in quality needed?
- If the second, is investment efficiency a problem?

What are the implications of the increases in coverage and quality for the tariffs that consumers will be expected to pay?

- Do current tariffs cover costs?
- Can the private sector reasonably be expected to boost efficiency enough to meet the proposed service objectives without increasing tariffs?
- If not, will consumers be willing to pay higher tariffs?
- If not, can grant finance (or subsidies to needy households) support service improvements?

Does the existing regulatory framework provide sufficient support for the private sector so that it will willingly take on commercial risk?

- If not, can the necessary changes be made fairly easily?
- If not, can parts of the regulatory function be simplified or contracted out in the short term?

Do key stakeholders (such as employees, consumers, and environmentalists) support or at least not oppose private sector involvement?

- Can processes and policies be put in place to meet stakeholder concerns?
- Can the risk of political interference be minimized?

Is information about the utility's assets good enough to serve as a base for long-term contracts?

- If not, can better information be produced rapidly?

The answers to these questions will point governments to different choices on arrangements

for private sector participation. Tables 4 and 5 encapsulate the issues raised by the questions and are designed to help guide those choices. Although they necessarily simplify and compress many complex issues, thoughtful consideration of those issues is essential early on. However rigorous a government's initial analysis of the private sector arrangement most likely to meet local needs, the arrangement is likely to be modified during the detailed preparation that follows. But much time—and political anguish—can be avoided through careful early analysis.

Table 4 shows the responsiveness of different private sector options to common government objectives in involving the private sector. A government seeking improvements in operating efficiency and responsiveness to consumers, for example, will prefer a management contract with performance incentives or a lease to either a service contract or a concession. A government seeking greater efficiency and new investment will prefer a concession or divestiture—or, for investment in bulk services, a BOT.

Table 4
What do governments want—and which private sector options deliver it?

Option	Objective							
	Technical expertise	Managerial expertise	Operating efficiency	Investment efficiency	Investment in bulk capacity	Investment in distribution system	Responsiveness to customers	Insulation from political intervention
Service Contract	●	○	○	○	○	○	○	○
Management contract with fixed fee	●	●	◐	○	○	○	◐	◐
Management contract with performance incentives	●	●	●	○	○	○	◐	◐
Lease	●	●	●	○	○	○	●	●

BOT	●	● B	● B	● B	●	○	○	● B
Concession	●	●	●	●	●	●	●	●
Divestiture	●	●	●	●	●	●	●	●

- Objective can be satisfied
- ◐ Objective can be partially satisfied
- Objective cannot be satisfied.
- B For bulk services.

But a government's preferred option may not be attractive to the private sector. Where regulatory capacity is weak and political commitment is low, a concession will be difficult to implement. The most direct way to tackle this problem is to build political commitment and regulatory capacity. In the meantime the government could implement a simpler arrangement, such as a management contract. Table 5 can serve as a guide to what is immediately possible, or as a guide to what must be done to get the preferred contract at reasonable cost.

Table 5
How much do governments have to offer to get what they want?

Requirement					
Option	Stakeholder support and political commitment	Cost-recovering tariffs	Good information about the system	Developed regulatory framework	Good country financial rating
Service Contract	Unimportant	Not necessary in the short term	Possible to proceed with only limited information	Minimal monitoring capacity needed	Not necessary
Management contract with fixed fee	Low to moderate levels needed	Preferred but not necessary in the short term	Possible to proceed with only limited information	Minimal monitoring capacity needed	Not necessary
Management contract with performance incentives	Low to moderate levels needed	Preferred but not necessary in the short term	Sufficient information required to set incentives	Moderate monitoring capacity needed	Not necessary
Lease	Moderate to high levels needed	Necessary	Good system information required	Strong capacity for regulation and coordination needed	Not necessary
BOT	Moderate to high levels needed	Preferred	Good system information required	Strong capacity for regulation and coordination needed	Higher rating will reduce costs

Concession	High levels needed	Necessary	Good system information required	Strong regulatory capacity needed	Higher rating will reduce costs
Divestiture	High levels needed	Necessary	Good system information required	Strong regulatory capacity needed	Higher rating will reduce costs

Annex 1 Options for Promoting Competition in Water and Sanitation



For many aspects of water and sanitation provision, competition does not come naturally. But careful design of a sector reform and private sector participation option can introduce the potential for competition—and therefore reduce the need for regulatory intervention.

This annex covers the kinds of competition that can be introduced in water and sanitation and explains how industry restructuring can increase the potential for competition.

The Options

Four kinds of competitive pressure are possible in water and sanitation provision:

- Direct competition in the supply of services, sometimes referred to as "competition in the market."
- Competition for the right to supply water and sanitation services (through concession or other contracts), often referred to as "competition for the market."
- Competitive pressures deriving from markets for the capital with which new investments are financed.
- Comparative, or "yardstick," competition, in which the

Table A1.1
The forms of competition possible under different private sector options.

performance of suppliers in different cities is compared.

Where these different forms of competition can be introduced depends in large part on the form of private sector participation in place (table A1.1).

Competition in the market



Injecting competition into the market is not easy in water and sanitation, except in the business segments concerned with constructing capacity or providing plumbing services to end consumers. But some competitive forces can be introduced by restructuring the industry before involving the private sector and by choosing more competitive forms of private sector participation. In particular, competition may be allowed on the boundaries of a utility's jurisdiction (boundary competition) and to supply wholly new developments (inset competition). In addition, mechanisms can be put in place to prevent vertically integrated water businesses—those responsible for everything from bulk water treatment to sewage collection and treatment—from monopolizing water sectors in which "competition in the market" is possible. For example, if a concession holder has exclusive rights to construct new facilities, market testing requirements can be introduced to ensure that

Competitive forces can be introduced by restructuring the industry before involving the private sector and by choosing more competitive forms of private sector participation.

these facilities are built at least cost.

Competition becomes increasingly likely as an industry becomes more disaggregated.

Disaggregation can be vertical (with different firms responsible for bulk supply, distribution, and bulk sewage treatment) or horizontal (with many companies, each with a relatively small service area). Vertical disaggregation makes it conceivable that a company serving one function in an area could bid to take over other functions for particular customers if the incumbent supplier is making excessive profits on the functions or operating inefficiently. Horizontal disaggregation could increase the number of companies with the geographic proximity necessary to offer water supply or sewage disposal services. But this possibility must be balanced with economies of scale in network management. (U.K. experience suggests that a service area of less than about 500,000 customers leads to suboptimal operation.)

The more the system can be structured to allow entry at different levels, the more competitive pressure can be introduced. And the more competitive pressure there is, the less the need for regulation—of critical importance in countries or cities with limited regulatory capacity.

Table A1.1
The forms of competition possible under different private sector options

Form of competition	Management contract	Concession	BOT	Divestiture
In the market	No	No	No	Yes <input type="radio"/>

For the market	Yes	Yes (but limited by contract length)	Yes	No
Capital Market	No	Yes	Yes	Yes
Comparative by the regulator	Yes <input type="radio"/>	Yes <input type="radio"/>	Yes <input type="radio"/>	Yes <input type="radio"/>
Comparative by independent companies	Yes <input checked="" type="radio"/>	Yes <input checked="" type="radio"/>	Yes <input checked="" type="radio"/>	Yes <input checked="" type="radio"/>

- If common carriage rules exist, and entry is allowed. Common carriage occurs when the owner of a distribution line or network is required to allow other suppliers to use the system, for a fee determined to be fair and reasonable.
- If several companies are operating in the country.
- If the industry is vertically disaggregated.

Competition for the market



Competition for the market occurs when potential contractual partners bid competitively for a concession, lease, or management contract. The benefits of such competition are likely to be greatest if the contracts are rebid frequently. For simple service contracts, it may be feasible to hold annual bidding rounds. But for management and lease contracts, which require the private partner to operate an entire enterprise, longer contract periods are necessary.

Frequent rebidding is less feasible where the private sector is required to provide the bulk of investment

capital. Rebidding concession-type contracts requires highly detailed provisions for the transfer of, and compensation for, assets funded by the incumbent concessionaire. But even in this case competition for the market can reduce the potential for abuse of monopoly power if many different private sector participation contracts are operating in a country or region. Companies will then need to consider their reputations, as their ability to win a bidding competition in one city will depend in part on their performance in other cities. Such reputational effects will work best where there are provisions for publishing consistent information about company performance.

One potentially important constraint on effective competition for the market is that only a small group of major companies are currently involved in the international water and sanitation business. Difficulties in generating active competition can be compounded by overly stringent prequalification criteria, requiring long experience in the water sector or substantial financial resources. Many elements of the water and sanitation business are not technically difficult (and technical expertise can, in any event, be hired). What is important is that a company has relevant experience in handling an infrastructure enterprise with a large and diverse customer base. One way to generate more competitive bidding—and to support local enterprise—is to broaden the set of potential private partners, including through management buyouts or

partial share sales.

Capital market competition

Capital market competition is relevant for both divestitures and concessions. It operates through the possibility that an underperforming company will be taken over by new investors who think that they can improve efficiency. This possibility is sharpened because inefficient management tends to bring share prices down. It also makes borrowing for further investment more expensive. In extreme cases underperformance can bring the risk of bankruptcy, a powerful force for efficiency. In many developing countries, however, capital market competition is underdeveloped, and its effectiveness as a force for managerial efficiency therefore limited.

Comparative competition

The objective of comparative competition is to create a flow of information about utilities' performance to consumers, regulators, and the utility managers. Used in combination with a price control regime, comparative competition can help ensure that reasonable efficiency targets are incorporated in allowable price increases (see annex 2). It can help customers better judge the standard and value for money of the service they are receiving—which can lead to better-informed pressures on the private sector partner to improve performance. Finally, it can provide utility managers with valuable information on how well they are

doing.

Clearly, the more similar the circumstances of the utilities being compared, the easier it is to introduce comparative competition. But careful choice of comparators can help alleviate the problem of differences among utilities. The comparators need to be carefully selected, too, because utilities inevitably skew their attention to doing well against the measured targets. And in any yardstick regime there will be trade-offs between avoiding costly and intrusive regulation (for example, by minimizing data requirements) and ensuring the accuracy and comprehensiveness of comparisons.

Annex 2 Options for Regulating Water and Sanitation



Even with careful structuring of the water and sanitation sector to bring competitive pressures to bear, some monopoly power will remain. There will thus always be a need for some public oversight of the activities of water and sanitation companies, though regulatory tasks will vary depending on the private sector option ([table A2.1](#)). Clearly, the continued need for public regulation is least for a very simple operations and maintenance contract: the operator receives a fixed fee for a specified service, and the contract can be competitively rebid

frequently. Divestitures and long-term concessions will require a more comprehensive system of public scrutiny.

Some regulatory tasks may already be adequately provided for in existing laws (for example, fair trading laws). Those that are not must be specifically provided for through:

- Sector laws relating to private sector participation.
- The contracts for private sector participation.
- The legally specified duties of the chosen regulatory authority or authorities.

Commonly, general and sector-specific laws establish the broad principles of regulatory policy and set national service standards, such as minimum drinking water quality, while contracts cover the commercial details for the locality to be served. Between the broad principles and the local specifics, there inevitably exists a gray area. Here it is necessary to decide which legal instrument to employ (contract, law, or regulatory decision) and to establish where regulatory authority should lie.

Often a private sector contract contains many or most of the provisions governing regulation of the private sector partner to the contract. In decisions on how much the contract should cover, two questions arise:

- Is it possible to encompass all the necessary regulatory provisions within the contract?
- If so, would that be desirable, or is some degree of regulatory discretion to be preferred?

Though it is sometimes argued that a tightly specified contract can remove all the need for direct

regulation, this is rarely the case. Even for a short-term management contract, someone needs to be able to monitor performance against the contract, have the authority to allow minor variations in contract specifications, and arbitrate disputes between the company and its customers and between the government and the contractor. And for longer-term concession and BOT contracts, it is usually neither possible nor desirable to have highly specified contracts, especially in countries undergoing rapid social, political, economic, or demographic change.

Detailed, rigid, and very specific contract conditions do have advantages. In particular, they help protect the private company from politically motivated, and frequent, changes in service requirements. By reducing revenue risk, such protection may help attract more bidders for the contract, reduce the cost of capital, and help the government strike a more advantageous bargain.

But rigid contract specification also has important disadvantages. Most obviously, it limits easy responses to changing social, economic, and technical conditions. It makes it difficult to fine-tune or improve on the original arrangements—an important constraint, because it is rarely possible to get everything right at the outset, particularly where information on the system is limited. In addition, highly specific contracts normally lead to a need for frequent renegotiation, where the contract holder typically has a strong bargaining position—and always has better information about the state of its

Regulating water
companies(create a link
here)

business.

Table A2.1

Regulatory tasks required under different options for private sector participation

Regulatory task	Management contract	Lease	Concession	BOT	Divestiture
Regulate prices	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Promote operating efficiency	<input type="radio"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Specify and monitor service standards	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Control externalities	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Maintain public good functions	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ensure asset serviceability	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Ensure development of essential infrastructure	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>
Prevent manipulation of land values	<input type="radio"/>	<input type="radio"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>
Prevent unfair trading practices	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Promote efficient water use	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Possibly	<input checked="" type="checkbox"/>
Ensure responsiveness to final customer needs	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="radio"/>	<input checked="" type="checkbox"/>

So a delicate balance needs to be struck between highly specified contracts, which reduce the regulator's role to monitoring compliance, and more flexible arrangements, which allow regulatory discretion.



In designing a regulatory system, a government needs to answer five basic questions:

- What duties should regulators have?
- How decentralized should regulation be?
- How much discretion should regulators have?
- How independent should regulators be?
- How can regulators be made accountable?

What are the regulatory duties?

The duties of the regulator will depend on the kind of private sector arrangement adopted, the degree to which service conditions and price adjustment rules are specified in law or contract, and the existence of other sector regulators (for example, competition and fair trading authorities, catchment authorities, pollution control agencies, drinking water inspectorates, and health and safety inspectorates).

Commonly, some regulatory authority will be required to:

- Determine allowable increases in water and sewerage prices.
- Determine (or advise policymakers on) appropriate service standards.
- Monitor company performance and contractual compliance.
- Receive complaints and arbitrate disputes between the utility and its customers.
- Impose sanctions for failure to meet agreed standards.

These tasks need not be undertaken by a single body, and some may be incorporated into the contract. For example, the service standards, the formulas for price increases, and the sanctions for nonperformance could all be covered in the

contract.

The monopoly character of water and sanitation network services means that price regulation (and preventing hidden price rises through reduced standards of service) is a critical regulatory task for all but very short-term management contracts.

There are several types of price regulation, with the key difference in the incentives they provide for efficient performance by the utility operator, and they can be implemented in different ways (see the box on price regulation).

Rate-of-return regulation is used where there is capital investment. After determining an appropriate return on this investment, the regulatory agency sets the maximum rate of return that the utility may earn on its assets for a specific period, to reduce its incentives to raise prices in order to earn monopoly profits. The advantage of this approach in theory is that it reduces the extent to which prices depart from competitive levels. It also gives comfort to investors that they will be able to earn a return on their investments—which may lower the cost of capital. In principle, it is possible to fix the rate of return for the life of even very long contracts, reducing the need for periodic renegotiation. But there are several problems with this approach in practice. It can reduce the incentives of regulated utilities to lower costs and encourage them to overinvest in capital. If the allowed rate of return is greater than a utility's cost of capital, the utility will be inclined to maximize its profits by substituting

Options for regulating prices

Rate-of-return or profit control

Regulators place limits on the returns earned on invested capital and may also place restrictions on dividends payable to shareholders and on accumulated capital reserves.

Price control

Regulators peg allowable price increases to an independent measure such as the retail price index, possibly adjusted for expected efficiency gains.

capital investment for other inputs to its production (such as labor). And if the allowed rate of return is less than the cost of capital, the utility may have an incentive to use a less capital-intensive method of production than it otherwise would. In both cases the result will be higher production costs. Rate-of-return regulation can also impose high information costs on both the regulator and the regulated utilities.

Where responsibility for capital investment remains with the public sector, rate-of-return regulation reduces to cost-of-service regulation, with allowable price increases fixed according to the legitimate operating cost of the contract holder. But what does legitimate mean? In some cases costs are established on the basis of the actual expenditures of the contract holder, but this approach reduces incentives for efficient operation. More often, allowable price increases are calculated by applying a formula, which uses national inflation indexes for each cost component, to the cost structure of the contract holder. This approach makes regulation relatively simple, but there is no guarantee of the efficiency of the contract holder's cost structure. Under pure price control, regulation involves setting a general "cap" on prices. This cap is usually defined by reference to the inflation rate and to an assessment of the potential for efficiency improvements by the regulated utility. The main advantage of this approach is that it provides utilities with an incentive to reduce costs and

operate efficiently, because they keep any profits generated by increasing productivity more than required to. The approach also has several drawbacks. If the price is set too high, the business will earn high profits, which may be unacceptable to the public. If the price is set too low, the level and quality of services may fall as the utility finds it impossible to earn a reasonable rate of return; investors are then placed at risk, and the cost of capital may increase accordingly. Expected productivity gains may also be set too high, a risk the investor must confront each time the cap is renegotiated (which may be as many as five or six times over the life of a concession contract). Price caps may not be attractive if the primary concern is to promote new investments by the regulated utilities.

Price cap regulation was expected to be easier to administer than rate-of-return regulation, which is highly information intensive. But under a price cap regime regulators must still (if only implicitly) determine an appropriate rate of return in order to set required productivity gains at a sustainable level—and so will have information requirements similar to those in rate-of-return regulation.

How decentralized should regulation be?



As utilities are decentralized, more governments are considering decentralizing regulation. Decentralized regulation may be more responsive to local needs and conditions, ease monitoring, and ensure better access to information. But decentralization can increase regulatory costs (through replication of regulatory agencies), reduce regulatory effectiveness (because of lack of capacity), increase the danger of "capture" by the private sector operator, and allow local interests to neglect the external costs of their actions (for example, pass the pollution costs from untreated sewage to downstream municipalities). Decentralized regulation can also reduce the potential for comparative competition.

Where regulatory functions are decentralized national governments can still put in place arrangements to support effective and consistent regulatory decisions. Options include:

- Providing national or regional training facilities for regulatory staff.
- Publishing national performance indicators.
- Creating a central or regional agency with auditing functions to monitor the effectiveness of local regulators and reduce the risk of capture.
- Requiring local regulators to publish the results of their monitoring activities and regulatory decisions.
- Providing reporting and monitoring guidelines to help ensure that utility performance is measured consistently and in a way that eases comparisons.
- Providing or funding, or requiring local regulators to employ, professional, independent system monitors (these could be private firms).

All these measures leave regulatory authority at the

local level but attempt to ensure that a higher level of government has a role in monitoring the performance of utilities and local regulators.

How much discretion should regulators have?

Because contracts that will guide a relationship of 10, 25, or 30 years cannot be fully specified in advance—and should not be, if flexibility is to be preserved—some regulatory discretion is desirable. But a regulatory system that involves significant discretion may deter private sector participation, because it increases risk. To avoid this outcome, it is necessary to ensure that:

- Clear limits to discretion are specified in the law and the contract.
- The criteria and processes to be employed by the regulator are established in law.
- Adequate arrangements are in place for appeal of the regulator's decisions.
- The regulator is trusted to be impartial (a condition that may be difficult to satisfy in countries that lack a tradition of an independent civil service and judiciary).

More generally, the design of the regulatory agency should provide assurance to:

- *Investors* that regulatory discretion will be exercised in a way that protects their legitimate interests and will not be subject to undue political influence.
- *Consumers* that regulatory discretion will be exercised in a way that protects their legitimate interests and will not be subject to undue influence by the regulated industry.
- *All stakeholders* that sufficient skill, expertise, and resources will be devoted to what is often a technically challenging regulatory task.
- *Elected officials* that the regulatory agency will remain true to its mandate and accountable for its performance.

How independent should regulators be?

To be effective, regulators must operate

Utility regulators-Roles and responsibilities(create a link here)

Utility Regulators-The independence debate(create a link here)

independently from both short-term political pressures and the regulated companies. If regulatory authority lies within the political sphere of government, there is always a danger that prices, service standards, and investment priorities will be manipulated to serve short-term electoral interests. With a more independent regulator, there is a greater chance that the sector can be managed to meet long-term service and efficiency goals. But achieving independence is not easy:

- Regulatory appointments must be made on professional criteria.
- Tenure must be for a fixed period (that is, regulators must be protected from arbitrary removal from office).
- The regulatory body must be funded out of direct levies on utilities or customers, not from ministerial budgets.
- Pay must be competitive with private sector salaries, to minimize the risk of corruption and to attract competent staff.
- Regulators must be barred from political activity and from having financial interests in water and sanitation and related sectors (such as construction or land holdings).

Several strategies could be used to reduce the danger of capture by the regulated firms or by political interests—and to economize on generally scarce regulatory skills:

- Establish a multisectoral regulatory commission—for example, one covering telecommunications, electricity, and water and sanitation.
- Contract out some elements of regulation to reputable, technically competent private sector firms—such as financial auditing or monitoring service standards or asset condition.
- Use an existing regulatory body with a reputation for independence and honesty—such as a fair trading or antitrust agency or the courts.

How can regulators be made accountable?

While regulators ought to have a high degree of independence from democratically elected bodies, there is still a need to ensure their accountability.

Ways to do that include:

- Specifying the regulator's duties clearly in law. If there are multiple goals, primary and secondary objectives should be differentiated.
- Prescribing transparent decisionmaking processes, including requiring regulators to allow interested parties to make submissions and to publish decisions and the reasons for those decisions.
- Making decisions subject to review before the courts or some other independent forum.
- Requiring regulatory authorities to present annual reports on their activities and to be subject to independent audits.🌐

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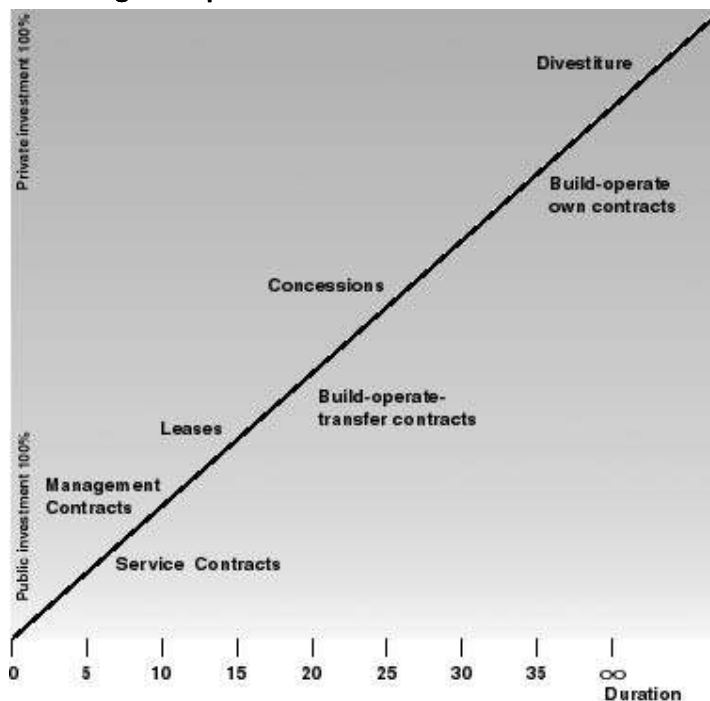
Chapter 3

What are the options

The options for private sector participation can be ranged along a spectrum. At one end are those in which the government retains full responsibility for operations, maintenance, capital investment, financing, and commercial risk— at the other, those in which the private sector takes on much of this responsibility (figure 1). But even where the private sector takes on full responsibility for operations and financing, as in concessions and asset sales, it does so within a framework created by the government. The most important parts of this framework are regulatory arrangements to protect consumers from monopolistic pricing and enforce health and environmental standards, and subsidy regimes to ensure access to services for the disadvantaged.

Figure 1

The range of options



Increasing level of delegation, risk, irreversibility

The main options for private sector participation can be clearly distinguished by how they allocate responsibility for such functions as asset ownership and capital investment between the public and private sectors (table 1). But in practice private sector arrangements are often hybrids of these models. For example, leases often pass some responsibility for small-scale investment to the private sector, and management contracts may have revenue-sharing provisions that make them a little like leases. Options might also be used in combination—for example, a build-operate-transfer (BOT) contract for bulk water supply might be combined with a management or lease contract for operating the distribution system.

Table 1

Allocation of key responsibilities under the main private sector participation options

Option	Asset ownership	Operations and maintenance	Capital investment	Commerical risk	Duration
Service contract	Public	Public and private	Public	Public	1-2 years
Management contract	Public	Private	Public	Public	3-5 years
Lease	Public	Private	Public	Shared	8-15 years
Concession	Public	Private	Private	Private	25-30 years
SOT/BOO	Private and public	Private	Private	Private	20-30 years
Divestiture	Private or private and public	Private	Private	Private	Indefinite (may be limited by license)