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Approaches to Private Participation in Water Services

A TOOLKIT

THE WORLD BANK

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PUBLIC-PRIVATE INFRASTRUCTURE ADVISORY FACILITY

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Foreword

About a billion people in the developing world lack good access to safe drinking water. About two billion lack access to improved sanitation facilities. Others have access, but get bad service—often receiving running water for only a few hours a day.

Improving the services these people receive is vital, and a purpose to which the development community is committed. The Millennium Development Goals include halving the proportion of people without access to safe drinking water by 2015. The goals announced in Johannesburg in 2002 call for halving the proportion of people without access to basic sanitation as well. Improving water services is accordingly a critical part of the strategy of the World Bank and the two other organizations that have funded this *Toolkit*—the Public–Private Infrastructure Advisory Facility and the Bank–Netherlands Water Partnership.

The approach of these organizations to improving water services is ambitious and broad. It includes the provision of grants and output-based aid, loans and guarantees, and advice and analysis. It aims to exploit the potential not only of the private sector, but also of local communities and the public sector. In its *Infrastructure Action Plan,* for example, the World Bank affirmed its preparedness to lend to well-performing public utilities. And, with funding from the Bank–Netherlands Water Partnership, it is undertaking complementary work for governments seeking to improve the performance of public utilities.

The present *Toolkit* forms part of the approach for exploiting and improving private provision. It supplements existing work such as the 1997 *Toolkits* on private participation in water and the extensive work funded by the Public–Private Infrastructure Advisory Facility, including *New Designs for Water and Sanitation Transactions,* the toolkit on labor issues in infrastructure reform, and the toolkit on hiring advisers to help design and implement private participation—to name just three.

The present *Toolkit* is addressed to governments—municipal, provincial, and central—whose strategy for improving water services includes using the private sector, and aims to help them design arrangements that lead to better services and greater access. It sets out the big issues they must grapple with, describes their main options, and offers a view on the advantages and disadvantages of those options. In so doing, it aims to put the governments in a position where they can make choices that, given their circumstances, do most to improve water services.

The potential benefits are great. We must hope they are achieved.

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Preface

This *Toolkit* aims to help developing country governments that are interested in using private firms to help expand access to safe water and sanitation services at reasonable cost. Specifically, it aims to help them and their advisers design arrangements that maximize the benefits for their countries, provinces, or municipalities. It is intended to complement other work being undertaken by the World Bank and others on options for improving public provision of water services.

Instead of identifying a single best approach to addressing the issues it discusses, the *Toolkit* presents options and discusses their main advantages and disadvantages. In so doing, it aims to give advisers and policy makers the information they need to make decisions, while taking account of local circumstances and the policy makers' objectives.

Private participation in water and sanitation (or "water services" for short) can take many forms. This *Toolkit* focuses on arrangements that involve a private firm in the delivery of services to households and businesses, including management contracts, leases, affermages, concessions, and divestitures. It does not consider arrangements under which private companies provide bulk water or wastewater treatment to a government-owned utility. Nor does it consider arrangements under which private companies provide selected services—such as billing and collection—to a utility that is still publicly managed.

Because of its focus on helping developing-country governments design arrangements governing private participation, the *Toolkit* does not address many issues important in other contexts, such as:

- The design of the contractual arrangements that govern the relationships among the private participants in a project (such as the firm and its lenders), except when those arrangements have implications for public policy

- Some issues just as important under public as private provision (such as tariff structure and water resource management)
- Issues important for all private firms, not just private providers of water services (such as macroeconomic stability, the laws governing employment, and the enforcement of ordinary contracts).

Despite these reservations, the *Toolkit* aims to be relevant to private participation in both water supply and sanitation services, under arrangements ranging from management contracts to divestitures, in small towns as well as large cities, and in all developing countries. Because it can't do justice to all the issues that arise in this enormous range of arrangements, the *Toolkit* focuses on the issues common to all such arrangements. Where possible, it also provides references to other documents that discuss certain issues in more detail—collected in boxes headed "More information."

The *Toolkit* comprises the following parts:

- An overview and nine chapters that set out and analyze the government's options for designing private participation
- Examples (Appendix A) illustrating the choices made by governments in sixteen cases: Amman, Cartagena, Chaumont, Cochabamba, Côte d'Ivoire, Gabon, Gdansk, La Paz–El Alto, London and Thames Valley, Manila, Santiago, San Pedro Sula, Senegal, Sofia, Trinidad and Tobago, and Tangiers
- A spreadsheet-based policy simulation model that illustrates three issues discussed in the text: stakeholder analysis (Chapter 3), the balancing of service standards, tariffs, and subsidies (Chapter 5), and the allocation of risk (Chapter 6)
- Many references, source documents, and other links (included when possible in the CD-ROM) designed to offer different perspectives and more detailed advice on certain points.

The nine chapters of text proceed as follows:

- Chapter 1 provides an overview of private participation in water services and what it can be expected to achieve.
- Chapter 2 provides an overview of the process governments typically follow when introducing private participation.
- Chapter 3 discusses ways of involving customers, potential customers, and other stakeholders in the design of arrangements and ways of distributing the benefits and costs of private participation to increase stakeholder support.

- Chapter 4 considers some of the options governments have for the water sector as a whole, such as the appropriate geographic aggregation of utilities and the allocation of responsibilities among different tiers of government.
- Chapter 5 considers the options the government has for setting targets relating to coverage and quality; the implications of those targets for the cost of service; options for supplementing tariff revenue with government subsidies; and some implications for financing.
- Chapter 6 provides advice on the allocation of risks and responsibilities among customers, the operator, and the government, including tariff-adjustment and other rules that effect the allocation of risk.
- Chapter 7 considers the choice and design of institutions—including courts, arbitral panels, independent experts, and regulatory agencies—that will interpret and apply the rules over the life of the arrangements.
- Chapter 8 considers which legal instruments (laws, regulations, and contracts) should embody the rules, recognizing that the parties will sometimes have an incentive to break the rules.
- Chapter 9 reviews the approaches governments can use to select the operator.

More information **Things the *Toolkit* doesn't address**

Build-own-transfer (BOT) and similar contracts for bulk-supply and treatment: Delmon 2001 and the World Bank 1997.

The design of contractual arrangements between private participants: Delmon 2001, Finnerty 1996, Hoffman 1998, Levy 1996, Nevitt and Fabozzi 2000, and Yescombe 2002.

Reforming public water utilities without private participation: Blokland and others 1999, World Bank 1994a, and World Bank 2004b.

Improving the investment climate for private firms generally: World Bank 2004a and World Bank 2004d.

Overview

EVERYONE NEEDS GOOD WATER SERVICES, BUT MANY DON'T GET THEM

Water services—including sanitation—are essential to life and health, economic development, and human dignity. Everyone knows this, and yet many people around the world do not have adequate, safe water services.

The table below gives a picture that many people in developing countries will recognize.

The water service people want	The water service many people in developing countries get
Adequate, safe water and sanitation for all inhabitants in the area.	Many people rely on unsafe, expensive, and inconvenient services from water vendors and on-site disposal of waste. People who do have a piped connection get water only a few hours a day and it may not be safe to drink.
A utility that is able to invest to meet new demands.	Utilities in developing countries are often on the verge of bankruptcy and cannot expand service as demand grows, so more and more people go without, and economic activity suffers.
Good management that keeps the cost of service low.	Poor management, waste, poor procurement practices, inadequate maintenance, leakage, and low labor productivity mean that costs are higher than they should be.

Continued on next page

Table—continued

Tariffs that cover costs (but no more), with a social safety net to ensure that everyone can get at least basic services.	Tariffs cover operating costs at most, because government wants to keep water affordable. Government carries some of the utility's costs by writing off debt, for example, when the utility cannot pay. But subsidies and low tariffs benefit mainly wealthier people who are connected to the existing water network. Unconnected people get no subsidy, and also cannot expect to get service, because low tariffs do not allow the utility to expand.

REFORM NEEDS TO START BY DEFINING THE PROBLEMS

To improve water services, a government first needs to understand why they are bad now. This means going beyond obvious symptoms—such as "the pipes leak because they are not maintained" or "the utility can't expand service because it has no money"—to uncover the underlying causes.

If the pipes leak, why are they not repaired? If there is no money, why can the utility not cut costs, collect the money owed to it, and if necessary get a tariff increase?

It is sometimes assumed that such problems are inevitable—that utilities in poor countries simply cannot cover the cost of service, or that poor maintenance and other problems stem from utility managers' lack of knowledge or skill.

Such assumptions can be misleading. In many places, people do not get good service even though they are willing and able to pay for it. Many utilities have good managers, but they operate under constraints that stop them from being effective. Or, if managers are not up to the job, something stops the government from replacing them.

Often the root cause of poor utility performance is the system of rules and incentives, which can cause decision makers to act against the public interest. Ministers may know that higher tariffs are necessary for good service, but refuse to allow the increase, because the political and social pain of the increase will be felt immediately, whereas it may be years before the higher revenues translate into better service. Patronage systems mean that well-connected applicants will be given managerial positions, even if they are not the best qualified for the job. The patrons may then expect contracts to be awarded to friends. Similarly, workers paid to disconnect customers may accept payment to reconnect the same customers illegally.

To fix these problems, governments need to tackle questions like the following:

- How can we create a system that selects good managers and gives them freedom to act?
- How can we make sure that the utility is efficient?
- How can we make sure that the utility has enough money—from tariffs or reliable subsidies—to cover all its costs?
- How can we make sure that new capital expenditure is wisely planned?
- How can we provide opportunities for the utility to finance service expansion when internally generated funds are insufficient?

Many governments have reformed their utilities without private participation through restructuring, technical assistance, appointment of new board members and managers, development-agency assistance, and so forth. For example, the water utility serving Phnom Penh, Cambodia, has achieved considerable success through such means. Parts of this *Toolkit,* including the approach to stakeholder consultation, setting upstream policy, and defining service standards, tariffs, and subsidies may be useful to governments contemplating reforms within the public sector.

However, there are many cases in which public-sector reforms have not achieved the desired results. Often reform fails because governments have not been able to change the systems of patronage and short-termism at the heart of the problems.

By engaging a private firm and giving it defined responsibilities for the provision of water services, governments widen their reform options.

A private operator may be able to inject a management team and management systems that have proven successful in other utilities. This can speed up improvements in a utility. But this benefit of private participation, while the most obvious, may not be the most important.

The greatest value of engaging a private firm can be in transforming decision-making and accountability by better aligning the interests of all parties, government and private, with the public interest. Engaging a private firm can:

- *Create a focus on service and commercial performance.* A well-designed arrangement will hold a private firm accountable for its contribution to service improvements, and reward it for controlling costs and introducing a businesslike approach to billing and collection. This can translate into a changed culture and attitudes, creating an organizational focus on providing service at least cost.
- *Make it easier to access finance.* Providers of finance, such as banks and the bond markets, will be more willing to put their money in a utility if they see it has a credible, commercial management approach. Having a private firm run the utility is one way to provide that credibility.
- *Boost policy clarity and sustainability.* Entering an arrangement with a private firm makes it harder to fudge issues such as how tariffs will be set, or how cost

savings will be achieved. And locking the new approach in place through a binding legal agreement can help governments commit themselves not to reverse reforms under subsequent pressure.

Just as important as what private firms can do is what they cannot do:

- *No free money.* Involving a private firm can make it easier to get finance for the water sector. But finance will be provided only when the operating cashflows of the utility are expected to provide a return on the investment. In other words, the cost of service ultimately has to be met by customers or, if the government agrees to provide subsidies, taxpayers.
- *No unlimited risk-bearing.* Private firms are able to manage many risks, such as (depending on the circumstances) billing customers properly, controlling operating costs, and expanding networks. But they are cautious about accepting major risks beyond their control, such as droughts or rapid exchange rate changes, and if asked to bear these risks will price their services accordingly. Private firms also want to know that the government will respect the rules of the game, and not create risk by changing policies in midstream.
- *Government responsibility continues.* Citizens will continue to hold government accountable for the quality of their water services. Governments do not usually escape this accountability by involving the private sector. Rather, governments need to consider whether delegating some service provision responsibilities to a private firm will make it easier to ensure that the services that people want are provided.

This *Toolkit* helps governments think about using private firms to improve water services. It sets out steps to take and issues to consider in designing an arrangement for private participation in water services. In doing this, the *Toolkit* also helps governments to see whether private participation might be part of the solution to problems in the water sector.

GOOD REFORM REQUIRES CAREFUL PLANNING

Many governments have found that asking a utility to reform itself is not effective, and so may decide that a sector ministry, planning agency, or a special reform unit should manage the process. Specialist skills are needed for reform management, so advisors may be hired.

Consultation. The next step is to consult with those affected. Different stakeholders will have different views and interests. For example:

- *Customers* already connected often benefit from low tariffs, while those not served by the utility may prefer that the utility expand coverage, even at the cost of higher tariffs.
- *Workers* want to keep their jobs, but if the labor force is bigger than it needs to be, customers have to pay more.
- *Alternative providers* such as water vendors might be threatened by utility plans to expand and take away their business.

Governments may have to work hard to understand the views of groups not always considered by decisionmakers, including women, the poor, those who live in informal settlements, and those who cannot read or write.

Governments should talk to private operators and investors early in the process, to find out what kind of improvements they might offer and the arrangements they would find attractive. Governments need to recognize the different interests of different private firms, including those that specialize in operations, and those that specialize in providing capital.

Effective consultation goes beyond information gathering and public relations. Where appropriate, stakeholders can be involved in the analysis and decisions—making for better decisions and greater acceptance of decisions once they are made.

The analytic work of water sector reform involves three stages:

- Determining upstream policy
- Deciding on service standards, tariffs, and subsidies
- Analyzing and allocating risk.

Together, these stages can allow the government to determine the structure of the sector, the services, tariffs, and subsidies required, and responsibilities to be allocated to each party.

Then government needs to put in place the machinery to implement the reforms.

- Developing institutions to manage, monitor, enforce, and adjust the arrangement over time
- Putting the arrangements into legally enforceable form
- Selecting the right operator.

Upstream policy (sector economics). Upstream policy includes decisions on which level of government should be responsible for water services (municipal, state, or national) and how many utilities there should be. Sometimes large national or municipal utilities may be split into smaller units (as in Manila); other times it may be decided to merge existing utilities into larger units (as in Guyana).

Governments will need to decide whether a single utility should be responsible for all aspects of water services—from abstraction, treatment, and distribution, through to wastewater collection, treatment, and discharge—or whether some of these functions should be performed by separate companies. Having one utility carry out all functions is most common, but splitting the functions can make sense in some cases. For example, a separate bulk water company may supply water to several distribution companies, as in parts of the Czech Republic.

The advantages of large, integrated utilities include economies of scale, easier coordination of interrelated decisions, and generally greater attractiveness to private operators. On the other hand, a system composed of smaller units can for example allow the performance of several utilities to be compared with each other.

Service standards, tariffs, and subsidies (service economics). Government then needs to decide on the water service required and how it should be paid for. This means setting service standards, including the speed with which coverage is to be expanded, the type of supply offered (for example, in-house connections or standpipes) the reliability, pressure, and quality of the water supplied, and the standard to which wastewater is treated before being discharged.

Naturally, everyone would like 100 percent coverage for piped water and sanitation, water supplied at good pressure 24 hours a day in compliance with WHO guidelines, and wastewater treated to at least tertiary level. Yet this level of service requires a lot of investment, and investment must be paid for, either by customers or taxpayers. So government needs to find the right balance between the service people would like and their willingness and ability to pay for it. This requires engineering and financial studies to come up with various consistent cost-quality options, and consultation to find out which option people prefer.

Risk allocation (economics of the arrangement). Next, government needs to decide what risks and responsibilities to transfer to a private firm. There is a range of options, including:

- *Concessions and divestitures.* At one end of the spectrum, the government might want the operator to be responsible for all aspects of the service. The operator would be legally bound to meet the specified service standards, and to make and

finance the investments necessary to improve service. In return the operator would be entitled to the tariff revenue (and perhaps also subsidies). This kind of arrangement might be embodied in a long-term concession contract (as in Manila or Sofia), or a sale of assets (as in London and Santiago).

- *Lease-affermage contracts.* These make the private operator responsible for everything except new investment (as in Guinea and Senegal). This can make sense where the risks make private finance expensive or impossible to obtain. Such risks could include a likelihood that tariffs would not yield enough revenue to pay for investments, or that subsequent governments would not stick to the rules originally agreed.
- *Management contracts.* These are usually shorter-term arrangements in which a private operator is paid a fee for providing a management team to run the public utility (as in Trinidad and Tobago). In this case, most of the risk stays with government. For example, if the utility cannot cover its costs, the government bears the loss, not the operator. The contract usually provides for bonuses in the event that the management team helps the utility to meet or exceed specified performance targets.

Designing the arrangement is not just a matter of choosing between prespecified options. A good process will:

- *Identify the key risks involved in providing the service.* Common risks include exchange rate risk (if supplies or capital are sourced from overseas), collections risk (the ability of the utility to collect the money owed to it), and policy risk (the chance that government will change the rules of the game in unexpected ways in the future).
- *Determine which party is best placed to bear each risk.* In general the party best able to control or mitigate a risk should bear it. So if a private operator can manage collections effectively, the operator should be willing to have its remuneration depend on the level of collections achieved. On the other hand, operators cannot manage policy risks, so government can gain by agreeing to compensate for any losses caused by changes in the rules of the game after the arrangement is agreed.
- *Design an arrangement that allocates risk accordingly.* This may involve starting with a standard model that is broadly appropriate, and tailoring it to the particular circumstances. For example, if an operator is willing to bear most of the operating risks of the business, but unwilling to risk its capital because of policy risk, a lease-affermage model would be a good starting point.

Set up systems to manage the arrangements after they are implemented. An arrangement needs to be managed and maintained. At a minimum, the performance of both parties needs to be monitored, contractual obligations need to be enforced, and disputes resolved. On the government side, monitoring and management of the contract may be done by an existing body such as a ministry or the board of the government utility that owns the infrastructure. Alternatively, the government may choose to create a new entity to perform these roles.

Longer-term contracts such as lease-affermages and concessions typically need to be modified as time goes by. Circumstances change in unpredictable ways, which means that service standards need to be changed too, as well as tariffs and the rules governing the operator's remuneration. This creates a dilemma, since the mechanisms that modify the arrangement need to be flexible enough to respond to unpredictable developments, but at the same time provide assurance that the result will be fair to all parties. There are two distinct "traditions" or schools of thought as to how to solve this dilemma:

- *Contract-based.* This tradition is based on long-standing French practice, and was embodied in early arrangements such as the Guinea water lease, as well as more recent arrangements such as in Morocco. In this tradition, adjustment of tariffs and service standards are seen as adjustments to the terms of a contract between the operator and the public authority. In its simplest form, changes are agreed between the operator and the contracting authority, or settled by courts or arbitration if agreement cannot be reached. More sophisticated forms may include panels of experts who can be brought in to recommend changes, and other institutions to help the parties reach a balanced decision.
- *Independent regulators.* This tradition derives from the U.S. approach to private utilities, and has now been adopted in various forms in countries as diverse as Argentina and the United Kingdom. In this model, decisions are entrusted to a regulatory agency—a neutral, technocratic body, empowered by statute to make a decision binding on the utility. In this tradition it is essential to ensure that the regulatory agency is competent and independent of the operator, government, and consumers.

Attempts to blend the two traditions by combining a contract with an independent regulator can create risks. For example, if the independent regulator can effectively override the contract, the operator may be exposed to too much policy risk. A better way of blending the approaches may be to ensure the independent regulator's decisions are governed by the contract and subject to arbitration and that contracts and arbitration are public.

Make the arrangements legally effective. When decisions have been made on allocating risks and responsibilities, and creating the machinery to govern the arrangements and adjust them over time, the outline of the proposed arrangement will be clear. It then needs to be put into a legally effective instrument. How best to do this depends on local legal systems and political cultures. Local and possibly international legal advice will be needed. However, there are some general principles, including the following:

- Where special concession or other similar laws or civil law administrative codes exist, the arrangement must comply with the mandatory provisions of such laws.
- In many countries there are precedents for how certain issues, such as tariff reviews or changes in state policy, should be dealt with. Rather than relying on these background rules, it is usually a good idea to spell out the rules in detail in the legal document governing the arrangement.
- An arrangement may be embodied in a range of legal documents, including contracts, statutes, and licenses. The choice of instrument depends in part on which provides most predictability to both parties.

Select an operator. Once the arrangement has been designed and the legal preparations made, the government needs to select an operator. Usually this is done through competitive bidding to determine the firm best able to meet the contracting authority's needs, although in some cases direct negotiation with a single firm can make sense.

A competitive selection process often consists of prequalification of suitable firms followed by submission of written technical and financial offers. Governments will need to answer many questions such as how much weight to put on quality compared to financial considerations and whether to engage in negotiations with one or more bidders after written offers have been evaluated.

Whatever the details of the selection method used, it will always be a good idea to ensure that it is as transparent and objective as possible, while at the same allowing for consultation with potential operators so that the final design of the arrangements and the bidding process are attractive to several operators.

Introducing private participation takes a lot of work. But in a sense, the real work starts once the operator is in place. Both the operator and the contracting authority need to learn how to work effectively together. And as new information emerges and conditions change, the arrangement will need to evolve.

The arrangement should be robust and sustainable, and it should contain within itself mechanisms to promote effective working relationships, as well as the abil-

ity to evolve. This is more likely if the government has tackled the issues addressed in the *Toolkit;* that is, if:

- All stakeholders are consulted and consider the reform legitimate.
- Overall sector policy and structure are clear and sensible.
- Service improvement benefits customers, tariffs cover costs, and subsidies address pressing social concerns.
- Risks are allocated to the party best able to manage them.
- Rules and institutions are developed that allow the terms of the arrangement to change in response to unpredictable circumstances in ways that are flexible but fair.
- The arrangement is embodied in clear and enforceable legal instruments.
- The government has selected a good operator.

Considering private participation

1

Most of the *Toolkit* focuses on the details of the design of arrangements for private participation. This chapter considers what private participation can be expected to achieve. It starts by reviewing some of the underlying problems that afflict the provision of water services in many developing countries and how private participation might address those problems. Then it discusses some of the main forms that private participation takes and the extent to which each form addresses those problems.

The discussion here is necessarily general. Before introducing private participation, governments should attempt to document the particular problems they face in water services, diagnose the underlying causes of those problems, and determine whether private participation could help address the problems.

1.1 UNDERLYING POLICY PROBLEMS IN WATER SERVICES

In many developing countries, the provision of water services is unsatisfactory. Many households don't receive water from the main utility, even though they would be prepared to pay for the services. Others are connected, but get water for only a few hours a day. Even fewer are connected to a sanitation network. Often the water isn't safe to drink and wastewater isn't properly treated.

Lack of money is part of the problem. If customers had more to spend on services and the government had more tax revenue, solutions would be easier. Yet the problems run deeper than money: water services have characteristics that create special problems for public policy.

For example, water services can create benefits for people not receiving the services (that is, externalities): sanitation services, especially, can reduce the spread of diseases, thereby bringing to a community major benefits for which individual customers may not be willing to pay. Other problems are created by the fact that the assets of water utilities are largely underground and their condition cannot easily be appraised by newcomers. This makes it harder for companies to make sensible bids when governments auction the right to provide services, and harder for the government to set appropriate prices for water services. Still more problems are created by the fact that local, provincial, and central governments may have overlapping responsibilities.

But three others factors may create the most serious obstacles—under both public and private operation—to achieving a government's goals in the water industries:

- Water services are critical to all consumers.
- They are often provided under conditions of natural monopoly; one well-run firm can supply the services at a lower cost than two or more well-run firms.
- The investments required to provide the services are often long-lived and irreversible; once made, they cannot be reversed should the returns to the investment prove less than expected.

The combination of these factors leads to trouble. The first two factors mean customers tend to doubt that they are getting a good deal and typically resist price increases even when prices are lower than costs. As a result, governments face strong pressure to keep prices below costs. And the third factor means that governments can accede to that pressure without causing suppliers to cease providing services, so long as prices remain above operating costs. So prices are often too low to cover full costs, including investment and repairs to infrastructure.

Yet unless governments make up the difference between prices and costs with subsidies, providers, whether public or private, will not invest. Private providers

will not invest because they do not believe investment will be profitable, and not-for-profit public providers will generate too little cash to finance investment internally and will be insufficiently creditworthy to finance it externally.

The biggest challenge for governments—with either public or private operation—is to address these problems and thus encourage investment to improve quality, lower costs, and extend access.

1.2 SOME POSSIBLE EFFECTS OF PRIVATE PARTICIPATION

This *Toolkit* does not aim to provide a review of arguments for and against private participation. That is the task of other documents, such as those described in the "More information" box at the end of this chapter. The *Toolkit* proceeds from the assumption that private participation can sometimes help extend access to good services at reasonable prices, if the arrangement governing it is well designed. Before considering the design of arrangements, however, governments should understand the ways in which private participation can and cannot be expected to help them achieve their aims, including tackling the underlying problems outlined above.

Private participation changes the water sector by introducing an operator that is independent of the government and has a strong incentive to be profitable. This obviously creates problems for the government. A private provider cannot be directed in the same way as a public provider and its profit incentive can cause it to take actions that aren't in the public interest. Yet—perhaps surprisingly—independence and the profit incentive may also help the government achieve its objectives. Private participation may have effects in three areas:

- The operating performance of the utility
- The utility's investment decisions
- Policy and its enforcement.

1.2.1 Operating performance

First, a private provider's profit incentive (as well as its expertise and professionalism) may cause it to operate more efficiently than its public counterpart. For example, it may provide services with fewer staff and be more diligent in billing customers and collecting payments from them.

The private provider is likely to retain as profits at least some of the benefits of improved operating performance. But the improvements can also allow lower tariffs for customers, reduced subsidies from taxpayers, or higher-quality services for the same level of tariffs and subsidies.

Whether a private provider operates more efficiently than a publicly managed utility is likely to depend, however, on the details of the arrangement the govern-

ment puts in place. For example, if the private provider can keep at least part of the increase in profits due to better billing and collection and can disconnect long-term nonpaying customers, billing and collection should improve. But if the rules governing price setting are completely cost-plus, and if the operator can never disconnect nonpaying customers, private participation is unlikely to improve billing and collection.

1.2.2 Investment decisions

Second, profit incentives may lead a private provider to make better investment decisions. It may miss fewer profitable opportunities to expand the business, such as extending access to unconnected households that want service and can pay for it. And a private provider may build fewer "white elephants," or projects with more costs than benefits.

Whether private participation improves investment decisions is likely to depend again on the arrangement. If the private provider has some responsibility for determining and financing investment, if prices cover costs and can be expected to do so in the future, and if the operator keeps some of the profits that result from increasing access, the private provider can be expected to invest in increasing access. On the other hand, if extending access to poor households will cost the private provider more than it gains in revenues and subsidies, or avoids in contractual penalties, it can't be expected to increase access.

1.2.3 Policy and its enforcement

Third, the presence of independent profit-motivated private providers influences government policy toward water services and the way it is enforced.

Like other stakeholders, a private provider will seek to shape policy (the arrangements, in other words) in its favor. For example, a private provider may offer bribes to achieve favorable arrangements, and some politicians and officials may be willing to trade policy for money. Problems like these are not specific to private participation—lobbying and corruption occur under public provision as well—but they increase the challenge of designing and enforcing good arrangements.

Overall, however, private participation may improve policy and its enforcement. For example, if the government enforces compliance with environmental standards by private firms more rigorously than it enforces compliance by public agencies, private participation may lead to environmental benefits, even if the private provider has no intrinsic interest in the environment.

Private participation also offers the prospect of changing policy in a way that alleviates the fundamental problem set out earlier—namely, that the politics of water pricing lead to prices being set below costs, frustrating the extension of access. A private firm that finances investment cares deeply about the rules for setting prices

and subsidies, because those rules determine whether it gets its money back. The private provider will therefore insist, before investing, that the government establish clear and prospectively stable rules for setting prices and subsidies. And thereafter it will try its best to hold the government to its promises. If stable rules about pricing and subsidies are achieved, that should encourage investment and thus help the government achieve its objective.

In these cases, the potential advantage of private participation is indirect: the benefits come from good rules and enforcement, not private participation, but good rules and enforcement may be encouraged by private participation.

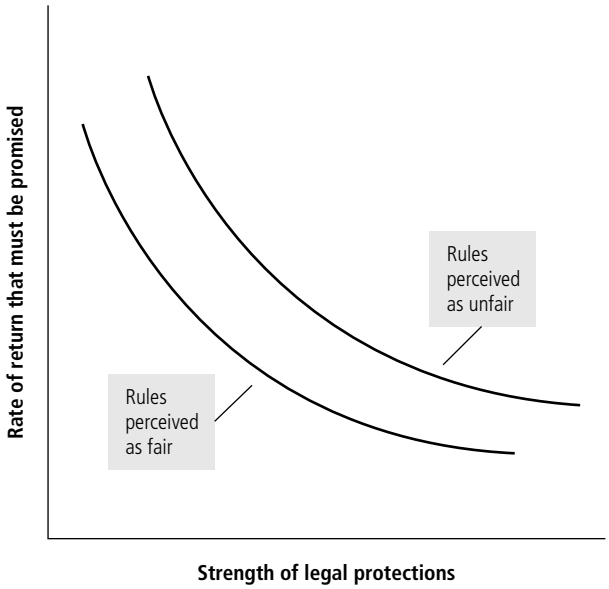
1.3 THE CHALLENGE OF GETTING PRIVATE PARTICIPATION TO WORK

Achieving these possible benefits thus requires getting two big things right:

- Giving the provider the ability and incentives to make good operating and investment decisions. This means giving the provider enough freedom to make decisions and exposing it to the related business risks, so that it gains when getting decisions right and loses when getting them wrong. The provider should be allowed to do well when it improves the business, but likewise it should bear the risks it has agreed to bear; it shouldn't automatically be able to renegotiate the agreement when its profits decline.
- Protecting the operator from the risk of losing from the government changing the rules of the game rather than from bad operating and investment decisions. This means protecting the operator from the risk that the government will opportunistically cut prices after the operator has invested (or take similar actions that undermine the investor's profitability).

The experience of the last decade has shown how difficult it can be to get these things right. Many arrangements for private participation in water services have been cancelled, or at least run into trouble, as either customers or the operator (or both) have felt that the arrangements haven't been fairly implemented (see the examples of Cochabamba and Manila). Making progress is partly a matter of writing pricing rules into contracts or other legal texts that cannot easily be changed without both the government's and the operator's agreement (see Chapter 8) and allowing disputes to be settled by independent experts or arbitration when local courts are not trusted (Chapter 7). But for the arrangement to work well, the government must create an arrangement that most people perceive as fair. Otherwise, customers and voters may pressure the government to override the contractual protection to the point that the operator's property rights are revealed as less secure than they seemed on paper. At best, private providers will demand higher

Figure 1.1 **Perceived fairness allows a lower rate of return to be promised for a given legal protection**



prospective rates of return—and therefore higher prices—as compensation for these risks. An arrangement widely perceived as fair, on the other hand, should lower the returns that investors must be promised (Figure 1.1).

Designing arrangements that combine legal protection with legitimacy requires thinking about many things discussed later in the toolkit, including:

- Considering how private participation will affect customers and other stakeholders and involving them in the design of the arrangement (Chapter 3)
- Working out how tariffs might change, according to a proposed arrangement, for example after a currency devaluation, and considering whether the changes would be acceptable (Chapter 6)
- Choosing and designing good institutions for monitoring operator performance, adjusting tariffs, and resolving disputes (Chapter 7)
- Ensuring the arrangements are transparent—that contracts are published and the operator is selected in an open process (Chapter 9).

1.4 MODELS OF PRIVATE PARTICIPATION

Although this *Toolkit* is not structured around a discussion of different models of private participation, it is useful to understand the nature of some of the important models—including management contracts, affermages, leases, concessions, and divestitures (Table 1.1 and Figure 1.2)—and the implications of these models for the challenges of private participation.

1.4.1 Management contracts

Management contracts transfer responsibility for managing a utility to a private operator, often for three to five years. The simplest management contracts pay a private operator a fixed fee for performing managerial tasks. Other management contracts offer greater incentives for efficiency by defining performance targets and basing the fee in part on their fulfillment. One challenge in the design of management contracts therefore is determining which targets are measurable and under the control of the operator and how sensitive the operator's remuneration should be to the achievement of these targets. Another challenge is determining what powers the operator should have over, for example, employment. Under many management contracts, the utility employs the staff except for a few top managers.

Management contracts are less challenging to implement than other arrangements considered here. Because the operator's remuneration does not depend on the customer tariff, the government does not have to design an arrangement that protects the operator from tariff-related policy risk. Conversely, management contracts do not offer the same potential as other arrangements to address the problem of paying for services: the government is not required to commit to a cost-covering combination of tariffs and external subsidies. Nor is much risk transferred to the operator, so large improvements in operating and investment performance are less likely than under other arrangements.

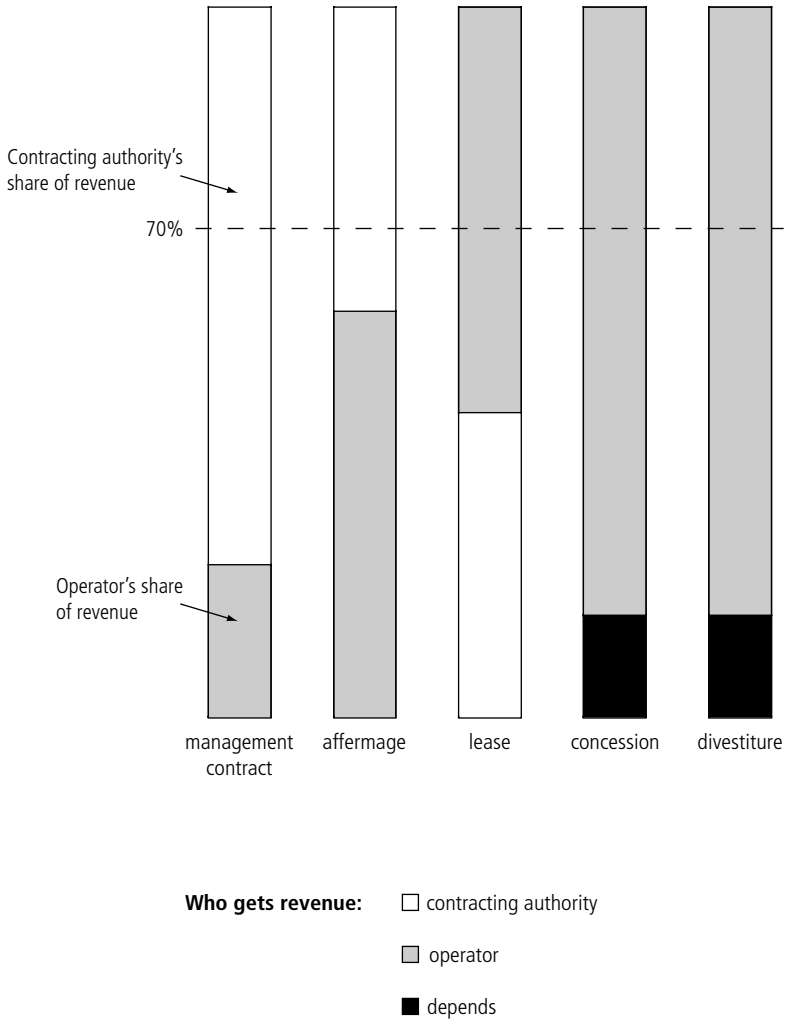
Nonetheless, if the management contractor has flexibility to change the way the business is run and has incentives to improve performance, it may improve operating performance. A management contract can also serve as a transitional arrangement, during which the government can prepare for a deeper form of private participation.

Amman and Trinidad and Tobago are management contracts described in Appendix A.

1.4.2 Affermage-leases

The term "affermage-lease" is used here for a class of arrangements under which an operator is responsible for operating and maintaining the business, but not for financing investment. Affermages and leases, as used here, are specific examples of

Figure 1.2 **Operator and contracting authority's share of customer revenue under five arrangements**



Note: Each bar shows total revenue from customers and indicates how customer revenue is shared between the operator and the contracting authority in five stylized arrangements. When tariffs fully cover costs, the operator and contracting authority get the amounts shown in the bars. When tariffs don't cover costs (as shown, for example, by the dashed line indicating 70 percent cost recovery), the party expecting to receive revenue above that level loses. The black parts of the bars indicate that payments to the government may or may not be made in concessions and divestitures, because, in contrast to an affermage or lease, the contracting authority is not responsible for financing investment.

Table 1.1 **Five arrangements**

Type of arrangement	Definition in the *Toolkit* of operator duties	Selected responsibilities of the operator	Stylized typical profit function for operator	Selected risks typically borne by operator—and typical share of total project risk	Ownership of operating assets	Ownership of infrastructure assets
Management contract	Supplies management services to the utility in return for a fee	Providing management services to the utility	Fixed fee + bonus – managers' salaries and related expenses	Depends on the nature of the performance bonus—very small	Contracting authority	Contracting authority
Affermage	Runs the business, retains a fee (generally not equal to the customer tariff) based on the volume of water sold, but does not finance investments in infrastructure assets	Employing staff Operating and maintaining utility	(Affermage fee x volume of water sold) – operating and maintenance costs	Operating and commercial risks—significant[a]	Operator	Contracting authority
Lease	Runs the business, retains revenue from customer tariffs, pays a lease fee to the contracting authority, but does not finance investments in infrastructure assets	Employing staff Operating and maintaining utility	Revenue from customers – operating and maintenance costs – lease fee	Operating and commercial risks—significant[a]	Operator	Contracting authority
Concession	Runs the business and finances investment, but does not own the infrastructure assets	Employing staff Operating and maintaining utility Financing and managing investment	Revenue from customers – operating and maintenance costs – finance costs – any concession fee	Operating, commercial, and investment-related risks—major	Operator	Contracting authority
Divestiture	Runs the business, finances investment, and owns the infrastructure assets	Employing staff Operating and maintaining utility Financing and managing investment	Revenue from customers – operating and maintenance costs – finance costs – any license fee	Operating, commercial, and investment-related risks—major	Operator	Operator

Note: The use of terms such as "affermage," "lease," "concession," and "divestiture" varies, and arrangements that go by these names do not always have the features set out in the table.

[a] Other things being equal, the operator bears more demand risk in an affermage because the government's payment is fixed in a lease, and variable in an affermage.

affermage-leases. The difference between them is technical: under a lease, the operator retains revenue collected from customers and makes a specified lease payment to the contracting authority, which the authority can use to pay for investment. Under an affermage, the operator and contracting authority share revenue from customers. The operator pays the contracting authority an affermage fee, which varies according to demand and customer tariffs, and retains the remaining revenue. Under both affermages and leases, the operator's profits depend on the utility's sales and costs, which typically gives the operator incentive to improve operating efficiency and increase sales.

Because the contracting authority is usually responsible for financing investment in infrastructure assets under an affermage-lease, it must raise the finance and coordinate its investment program with the operator. In some cases, the operator designs and manages the investment program. In others, the contracting authority has this role. Because the distinction between investment and maintenance is not always clear, affermage-leases often place some responsibility for investment on the operator (for example, for rehabilitation).

Affermage-leases are usually more difficult to implement than management contracts because the operator usually bears more risk. Under a lease, the operator's remuneration depends directly on the customer tariff, so the government is obliged to design an arrangement that protects the operator from tariff-related policy risk and that is also considered legitimate. Under an affermage, the risk is smaller because the operator tariff is different from the customer tariff. But the operator will be more comfortable with an arrangement in which customer tariffs cover, on average, the operator tariff.

Although they are more challenging, affermage-leases offer greater benefits. They require the government, in differing degrees, to confront the problem of customer tariff, and usually give the operator incentives to improve operating performance.

See Cartagena, Chaumont, Côte d'Ivoire, Gdansk, and Senegal in Appendix A.

1.4.3 Concessions and divestitures

A concession gives a private operator responsibility not only for the operation and maintenance of assets but also for financing and managing investment. Asset ownership typically rests with the government from a legal perspective, however, and rights to all the assets, including those created by the operator, typically revert to the government when the arrangement ends—often after 25 or 30 years.

A divestiture, like a concession, gives the private operator full responsibility for operations, maintenance, and investment. But unlike a concession, under a divestiture legal ownership of the assets rests with the private operator.

While the difference between a concession and a divestiture may appear large at first, the rights and obligations of the contracting authority and the operator can be

similar. On one hand, a concession transfers the main economic rights of ownership for long enough that, at the beginning of the concession at least, the operator's incentives closely resemble those of a legal owner. On the other hand, a divestiture may give the operator a fixed-term license without which the divested assets have little value. And, as in a concession, the assets may revert to the government if the license is revoked.

Concessions and divestitures are the most challenging arrangements. The government must persuade the operator that tariffs or external subsidies will cover costs and must design an arrangement that protects the operator from tariff-related policy risk. Although they are more challenging, concessions and divestitures allow all of the potential benefits of private participation to be realized, including solving the tariff problem and improving the operating and investment performance.

For concessions, see Gabon, La Paz–El Alto, Cochabamba, and Manila in Appendix A. For divestitures, see Santiago and London.

1.4.4 Joint ownership

Variants of all the models discussed are possible depending on whether the operator is wholly or partly privately owned. By limiting private investor control, joint ownership may help secure agreement to private participation. It may also signal to the operator the government's commitment to the venture. Jointly owned companies require the parties to determine who has management control, otherwise 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.

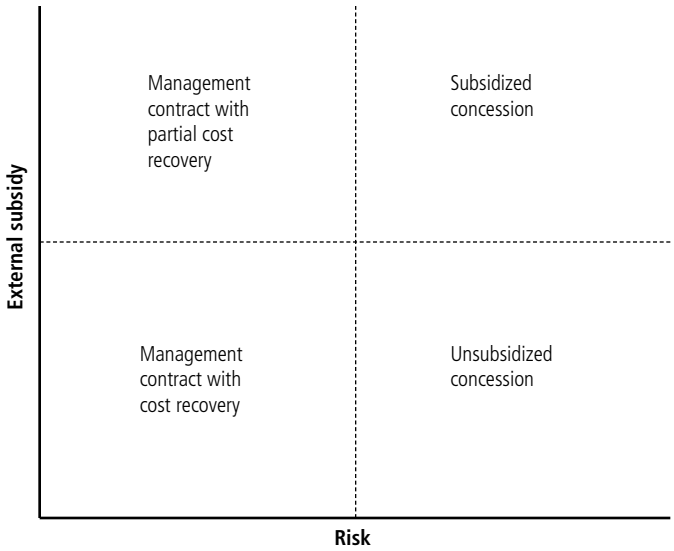
In Appendix A, Cartagena, Gdansk, Sofia, Santiago, and Senegal all provide examples of joint ownership; the extent of government ownership, however, differs widely among them.

1.5 APPROACH OF THE *TOOLKIT*

As noted earlier, the *Toolkit* focuses on the specific choices governments face when designing arrangements for private participation, rather than on describing certain models that result from particular sets of choices.

The reasons are partly presentational. First, many issues arise in the design of more than one model of private participation. For example, the question of how to settle disputes arises in every model. Organizing the discussion by issue thus avoids repetition. Second, this approach reduces the risk of an unproductive debate about the exact meaning of such terms as "management contract," "lease," and "concession." Instead, the *Toolkit* can focus on such matters of substance as the appropriate allocation of risks and responsibilities between the government

Figure 1.3 **The allocation of risk to the operator and determination of subsidies**



and the operator. Third, it recognizes that many real-world arrangements are hybrids.

Another motivation for the *Toolkit's* approach is the belief that a government is more likely to design good arrangements if it considers the design issues on their merits than if it decides at the beginning of the process to adopt a particular model. For example, such an approach may help governments distinguish between choices about subsidies and choices about risk allocation, which are sometimes conflated when the choice is framed as being between a small number of stylized models. Typical management contracts involve little transfer of risk to the operator and can easily be combined with large (possibly implicit) subsidies because the customer tariff need not compensate a private company for the cost of investment. And at the other end of the spectrum, typical concessions transfer much risk to the operator and contain low subsidies. Yet management contracts need contain no subsidy, while concessions may be heavily subsidized (Figure 1.3).

While the *Toolkit* is primarily structured around individual design choices rather than models of private participation, it does discuss certain arrangements, both because the importance of certain issues differs between models and because some readers may wish to focus on a particular model. In particular, the *Toolkit* frequently refers to management contracts, affermage-leases, and concessions—a set of arrangements sometimes known as delegated management.

Checklist **What to do before beginning the process discussed in this *Toolkit***

- ❑ Skim the rest of the *Toolkit* to get an idea of what is involved
- ❑ Read the references in the More Information box below and similar pieces (see References)
- ❑ Prepare an analysis that answers the following questions:
  - ❑ What is the government's objective? How would it like to improve the provision of water services?
  - ❑ What deeper policy problems seem to underlie the service problems?
  - ❑ What are the options for addressing the problems (including reform of public providers, reform of "upstream" policy (see Section 4), and private participation)?
  - ❑ What could each of the options be expected to achieve? What are their likely costs and benefits?
  - ❑ What has happened with similar reforms in other places (see "More information")?

More information **Considering private participation**

Fundamental political-economy problems in the provision of water services and broad strategies for addressing them: Gómez-Ibáñez 2003, Nickson and Franceys 2003, Savedoff and Spiller 1999, and Smith 1997a.

Recent trends in private participation in water: World Bank 2003.

Evidence and arguments about the effects of private participation, including case studies: Abdala 1996, Barlow and Clarke 2002, Bitran and Valenzuela 2003, Brocklehurst and Janssens 2004, Clarke and others 2004, Crampes and Estache 1996, Estache and Rossi 2002, Gray 2001, Harris 2003, Lobina and Hall 2003, Megginson and Netter 2001, Nickson and Vargas 2002, Palaniappan and others 2005, Plummer 2002, Public Citizen 2003, Rivera 1996, Saghir and others 1999, Shirley 2002, Shirley and Walsh 2000, Sirtaine and others 2005.

Concessions and management contracts in particular: World Bank 1997b.

2 Planning the process of introducing private participation

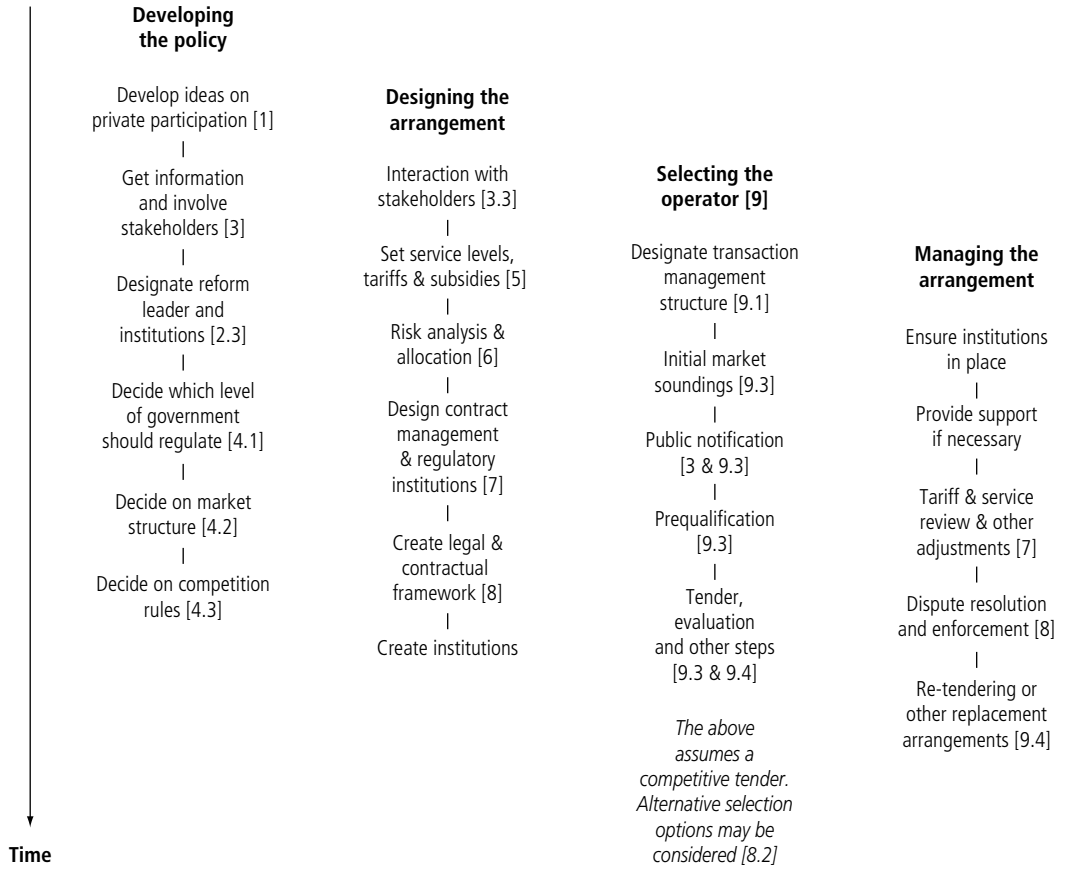
The process of introducing private participation has two objectives:

- To develop the best arrangement for local needs and local circumstances
- To find a suitable firm for this arrangement and obtain the best possible offer from that firm.

The quality of the process can determine the success of the arrangement, so the government needs to take care to get it right. Taking time to consult widely and spending resources to get good advice is usually worthwhile.

Nonetheless, governments also face a tradeoff between the improvements in the arrangement and the costs of the extra refinements in time and money. Among

Figure 2.1 **Stages of the process**



Source: Derived from PPIAF and World Bank 2001. Numbers in brackets refer to sections of this *Toolkit.*

other things, governments must take account of the size of the transaction. In-depth analysis that is justified for a long-term arrangement in a large city may be too expensive for a short-term arrangement in small town. A good process produces a satisfactory outcome without unnecessary costs or delays.

2.1 FOUR STAGES

The preparation and implementation of an arrangement usually involves four stages that overlap each other in time (Figure 2.1).

- *Developing the policy.* Objectives are set, the reform leader is identified, and ground rules for the structure of the sector are determined.

- *Designing the details of the arrangement.* Work on service standards and tariffs, risk, and stakeholder views comes together to define the responsibilities the government intends to assign to the operator and how the relationship will be managed. At the end of this stage, laws and contracts embodying the proposed arrangements may be drafted, and when necessary, bodies to implement the arrangement created.
- *Selecting the operator.* The government tries to attract potential operators, selecting the operator that offers the best combination of technical skills and cost to fit the local needs and circumstances.
- *Managing the arrangements.* After the operator is selected, the hard work of managing the relationship starts. If the design stage was done well, the rules and institutions created should keep the relationship on track and serving the public interest. But, any new relationship of the magnitude and importance of private participation in water services is likely to take some time to work smoothly, and special efforts will be needed to get the arrangement off to a good start. During all but the shortest and simplest of arrangements, there are likely to be tariff reviews and other adjustments. At the end of the initial contract period, the government needs to decide on the next steps.

The time required to complete the preparatory stages varies by country and by the arrangement being pursued. Countries with laws supportive of private participation in water services and with good-quality information on the system may proceed relatively rapidly. In addition, a management contract usually takes less time to prepare and implement than a concession. With strong political commitment, a management contract can be designed and implemented in under 12 months, while a concession could easily require 2 years.

Governments may choose to proceed at a slower pace, allowing more time for consideration of the issues and management of social and political concerns. Some countries have spent many years considering whether to involve the private sector and then several years designing and implementing a transaction.

Securing the financing may need to be addressed separately from selecting the operator, particularly with options that split financing and operation, such as affermage-leases and management contracts. Typically there are "cross effectiveness" conditions between the affermage-lease or management contract and the financing agreement between the financiers and the contracting authority. If financing is requested from an international development bank, it may take two or three years to prepare a project that meets all safeguards and fiduciary requirements.

Preparing for private participation is inevitably an iterative process with new information continually emerging. Each stage in the process requires a different level of detail and precision. Governments should consider all the subject areas cov-

ered here before deciding on a type of arrangement, even though this early analysis can be quite crude. For example, early financial modeling can be based on limited data and approximations. By the time bidders are asked to prepare their bids, however, governments will want to have the best information available and to have thought through the arrangements in detail. So, the stages outlined in Figure 2.1 should not be seen as sequential, but overlapping and iterative. The following sections discuss key considerations at each stage of the process.

2.1.1 Stage 1—Developing policy

The first step in developing policy includes deciding on whether to look seriously at private participation as a tool for achieving the government's objectives (see Chapter 1).

If the government has decided to look seriously at private participation, it will need a consensus on what the reforms are intended to achieve and on the overall vision for the sector's future. This process starts with setting objectives and recognizing the tradeoff between different objectives.

Issues to consider include:

- How important is it to expand service to new customers rather than improve quality for existing customers or keep tariffs low? For example, in the La Paz–El Alto concession, the government's desire to extend coverage to unserved households in poorer parts of the city became the deciding factor for awarding the bid. By contrast, the concessions in Manila were awarded to the bidders offering the largest reduction in tariffs.
- Are the reforms intended to remove the burden of financing the sector from the government, or will the public sector continue to support investment or provide subsidies? Concession contracts such as Manila and La Paz–El Alto brought significant finance from the private sector, but in Trinidad's case, the initial emphasis was on improving management efficiency, with most financing to be provided by the government and development banks.
- Are the proposed reforms linked to the bigger picture, such as a process of democratic decentralization, or are they water-sector specific? In Senegal, the affermage contract was let at a national level, continuing a tradition of centralized responsibility for supply. But the municipality of Sofia signed a concession after Bulgaria decided to decentralize water services following the democratization of the early 1990s.

Clearly articulating and agreeing on objectives at the start of the process allows everyone to work toward a similar end and provides a solid framework for choosing between options and resolving disputes during the design process.

Early on, the government may wish to choose a "reform leader"—that is, a government entity that has appropriate skills, capacity, and responsibilities and that can champion and coordinate the overall process. Choosing the right entity is sometimes difficult. For example, if water services are a municipal responsibility, should the reform leader be the municipal administration (which has the appropriate responsibility) or a central government agency (which has more power and capacity)?

The next tasks under "developing the policy" are addressed in Chapter 4, and include:

- *Allocating responsibilities to different tiers of government.* For example, which level of government should have responsibility for water services?
- *Deciding on the market structure.* How should each provider's service area be determined? For example, should the networks of several small towns be amalgamated before introducing private participation? Should a single provider have responsibility "from source to tap" or should functions such as bulk supply be separated from distribution? And so on.
- *Setting competition rules.* In addition, the government will need to consider competition-related questions such as whether to award exclusive franchises, whether to encourage alternative providers, and whether to allow water operators to merge.

2.1.2 Stage 2—Designing the details of the arrangement

Once the objectives, vision, and structure for the sector are set, the details necessary to make it work need to be developed. Consultation and communication are especially important at this stage. Knowing what stakeholders want from the reforms and letting stakeholders contribute to the discussion will make successful, sustainable reform more likely (Chapter 3).

At the heart of any arrangement is an outline of the services expected, the coverage and quality of the services, and the tariff that customers will have to pay for the service. Sometimes there will be policy reasons for tariffs to be set below cost for some services or some groups. Subsidies will be needed in these cases to allow the utility to recover its costs. Defining the service standard, a tariff, and a subsidy bundle makes clear the essential outputs expected under private participation and provides parameters for remaining arrangements. Work in this area involves consultation and technical and financial analysis. The process is iterative, with initial views on service levels based on changes in cost, willingness to pay, and information on consumer preferences (Chapters 3 and 5).

Designing an arrangement involves choosing which groups should bear which risks (Chapter 6). Before private participation, all the risks of the business are borne

by the public sector or customers. Afterwards, the private operator bears some risk. Decisions made on risk allocation can drive the choice of contract. For example, a concession contract typically assigns significant risk to the private operator, while under a management contract most of the business risk remains with the public sector. Risk allocation decisions can also guide choices on tariff-setting rules. Cost-plus tariff-setting rules pass on the risk of cost increases to customers, while price caps leave the risk with the utility, at least until a tariff reset. Governments will need to identify the major risks, determine who is best able to manage or absorb them, and design arrangements that assign each risk to the party best able to manage it.

Institutions will need to be developed to manage the relationship with the operator, supervise its performance, and adjust tariff and service standards in accordance with agreed rules (Chapter 7). New laws may need to be drafted, and licenses or contracts may need to be written to give legal force to the chosen service standards, tariff adjustment rules, and risk allocation process (Chapter 8).

2.1.3 Stage 3—Selecting the operator

Selecting the operator involves both ensuring that the opportunity is attractive to potential operators and using good processes to determine which operator will be the best partner.

Involving operators early in the process is usually a good idea because it increases the likelihood operators will be interested in the arrangement. The government will also need to consider the kind of operators it wants and can expect to attract. The possibilities range from large international firms that specialize in private participation in water to small local firms, alternative providers, and individual entrepreneurs. Chapter 9 describes ways to involve operators in a structured fashion that limits the risk of any operator being given an unfair advantage or otherwise affecting competition for the arrangement.

After having decided on an arrangement a government needs a suitable private partner. Processes to select and reach agreement with an operator can be divided into three broad types:

- Competitive tendering
- Competitive negotiation
- Direct negotiation.

Often the best result can be achieved by competitive tendering, with prospective operators competing in a formal, structured process. However, sometimes other approaches are suitable, for example when there is limited bidder interest or innovative solutions are needed that are hard to define in advance (Chapter 9).

2.1.4 Stage 4—Managing the arrangements

Contract closure marks the beginning of a relationship between the public and private sectors. Good institutions and rules for maintaining and governing the relationship will be needed. Chapters 7 and 8 provide advice on how to develop suitable rules and mechanisms for maintaining and managing the relationship and adjusting aspects of it over time.

No matter how well designed the rules and institutions governing the arrangements are thought to be, it will take time and experience for the parties to truly understand each other and work together—something that should be taken into account when the arrangements are designed.

2.2 STAKEHOLDER CONSULTATION AND ANALYSIS

The success of any private participation process depends on the extent of support from stakeholders. It will be helpful to:

- Identify key stakeholders and their interests in the design and outcomes of the process. This may involve outreach to traditionally marginalized groups, including poor households, people in informal settlements, and alternative providers.
- Develop effective ways of interacting with stakeholders. This may involve gathering information and communicating decisions, as well as finding ways to engage in dialogue, harnessing the knowledge and creativity of consumers and other stakeholders, and involving them in decisionmaking.
- Identify early on issues that are likely to be politically sensitive or to require policy decisions or political action, particularly issues concerning the distribution of benefits among stakeholders.

These issues are addressed in Chapter 3.

2.3 SETTING UP GOVERNMENT INSTITUTIONS TO MANAGE THE PROCESS

To manage the process, the government needs to:

- Be clear about which level of government is responsible for managing the process.
- Set up a streamlined management structure with strong analytic capacities and a reporting structure that brings powerful decisionmakers into the process in an effective way.

Box 2.1 **Central government support and private participation for building local government capacity in South Africa**

South Africa developed innovative contracts, referred to as "Build Operate Train Transfer" contracts, to transfer responsibility for water services to recently established local governments and to invest in expanding coverage. Under the central government's supervision, such contracts were signed between provincial governments and private consortia for four of South Africa's poorest provinces. The consortia in charge of managing the programs were made up of private operators, construction companies, and local nongovernmental organizations (NGOs). They were in charge of carrying out initial investments, operating the systems for an interim period while building the capacity of municipal governments to operate those systems, and then transferring them to municipal governments at the end of the interim period.

Source: Trémolet and Browning 2002.

2.3.1 Deciding which level of government is responsible

Local, state, and central governments may all have responsibilities for water services. Identifying which level of government will lead the process is the first step in introducing private participation. A leader is not only a transaction manager from an administrative standpoint; it acts as a key decision maker and "political champion" for the transaction, which means making major decisions and consulting stakeholders.

2.3.1.1 Options for leadership. The options for leadership among tiers of government include:

- *Central government acting as the leader.* Water services are so important that central governments often seek to get involved in organizing the services, even if the services are primarily a municipal responsibility. Central governments are involved when a utility provides services across a country as in Senegal or Côte d'Ivoire (see Appendix A). Central government involvement is also common in the main cities, where the quality of water services has political and social implications on a national scale. For example, contracts in La Paz–El Alto, Cochabamba, Amman, Manila, and Santiago were signed at the central level, even though they are for the provision of services at a local level (see Appendix A).
- *Local government as the leader.* Nonetheless, municipal leadership is also common. Contracts in Chaumont, Sofia, Gdansk, Cartagena, and San Pedro Sula were all signed by the municipality at the local level with the private operator, and supervision arrangements were established at that same level (see Appendix A).
- *Local government as the leader with involvement from other levels of government.* If local government is nominally responsible for water services, the central (or

provincial) government may still provide help or incentives to municipalities. For example, the central government in Mexico prepared a model law that states could adopt, and, in France, the central government adopted model concession and affermage contracts as secondary legislation, to help small municipalities such as Chaumont negotiate and sign contracts with operators. The central government may also provide ad hoc support or training and facilitate the sharing of knowledge. In South Africa, the central government used an innovative contract to build local governments' capacity to choose their service arrangements (Box 2.1)

2.3.1.2 Factors influencing the choice of tier of government. Many factors can influence the choice of tier of government:

- *Legal responsibilities for water services.* The agency with legal responsibilities for the provision of water services is an obvious contender as reform leader. Often the level of government that owns the assets is responsible for leading the transaction process. However, asset ownership may not be clear or may not be at the same level of government as responsibility for service provision.
- *Capacity for service provision and assuming leadership.* The reform leader needs to be a strong, capable, and well-resourced body. If the agency responsible for service provision does not display these characteristics, another agency may be chosen, possibly at a different level of government. For example, municipal capacity for leading the process may be weak, perhaps because decentralization is recent or incomplete, and central government support for carrying out the transaction may be required.
- *Financial considerations.* If the operator will have limited investment obligations, public funding will be required to finance investments. Only some development agencies lend to subsovereign entities without central government guarantees. Commercial banks may be reluctant to lend to subsovereign entities without guarantees from the national government. This may curtail the ability of municipal governments to lead a transaction entirely on their own because central governments providing financial guarantees would want to have a say in the process or manage it themselves.

2.3.2 Setting up a transaction management structure

For reform to proceed smoothly, the government leading the transaction—which we will call the contracting authority—may need to establish a project team. The team could consult with interested stakeholders or representative forums, while viewing the process from a broad social perspective that focuses on achieving the government's objectives.

The project team's skills are crucial. The team typically includes senior individuals drawn from the contracting authority and other agencies with a particular interest or area of responsibility related to the project. Members might be:

- A high-ranking official from the contracting authority
- A legal official with applicable policy and procurement experience
- A technical officer with appropriate engineering knowledge and experience
- An economist or other analyst with expertise in policy
- A representative with expertise in communication skills
- A representative of the water utility
- A finance officer with experience in the financial management and funding of public utilities and, if appropriate, the negotiation of financing arrangements with private investors and lenders
- Political representatives (such as municipal councilors).

The project team will typically have an advisory role with the contracting authority approving all key decisions. The project team's delegated powers should allow the reform process to proceed in a timely, efficient, and transparent manner with appropriate checks and balances.

The project team needs to report to a suitable political decision-making group, generally a steering group. The steering group may be a cabinet subcommittee, a committee of municipal leaders, or a combined local- and national-level committee. The steering group should make decisions, with recommendations from the project team.

There are many ways of arranging the project management and decision-making structure. Characteristics of a successful structure are likely to include:

- A competent, dynamic, and focused project team, with a mandate to develop options and proposals, and to describe them clearly
- A decision-making group including enough influential people to ensure that the group's decisions are not undermined, while being focused enough to provide clear and rapid responses to proposals from the project team
- A reform champion—a senior individual who is committed to moving the process along and overcoming inertia.

The composition of the project team and steering group may change during the process. For example, different structures may be suitable for the phases of policy development and the transaction implementation. Following selection of a preferred bidder, the contracting authority may form a separate negotiation team.

2.4 ANALYTIC AND ADVISORY WORK REQUIRED

Designing and implementing an arrangement requires economic, financial, technical, and legal expertise, and the coordination of that expertise. Detailed work is needed to refine the option to be implemented and the legal measures to support it, and to prepare complex documents, such as laws, bidding documents, and draft contracts.

Governments usually lack the full range of expertise within the civil service to carry out these tasks (Table 2.1), and so will need advisers to provide some of these skills and specialized expertise.

There will be times when more or less work is needed, and the appropriate combination of advisors will always depend on the particular circumstances. The costs of advice always need to be weighed against its benefits.

2.4.1 Choosing a sector strategy

Advice on sector strategy involves judgments on issues such as the tradeoffs between decentralization and economies of scale, and the responsibilities of and relationships between various institutions and levels of government (Chapter 4). Advice on sector strategy will typically be led by economists or others with experience in institutional analysis and the water sector. The lead advisors will need input from social researchers to understand the local situation and from specialists who can advise on technical, financial, and legal possibilities and constraints.

2.4.2 Setting service standards, tariffs, and subsidies

Social researchers will usually be needed to determine the level of service currently being received, the services people want, and people's willingness to pay for them. Researchers may also consult with consumers and organizations that represent them, including poor and unconnected households (see Section 3.3.2 for consultation-specific advisors).

Economists are typically needed to develop demand forecasts from surveys and consultations. These forecasts should take into account the sensitivity of demand to price. Technical engineering consultants may estimate the cost of achieving service standards in such areas as water quality, pressure, and service coverage. This will feed into developing reasonable performance targets and methods for measuring performance. Most private operators will also wish to conduct their own technical due diligence.

The demand forecasts and the results produced by the technical consultants will be inputs for the financial consultants. The technical consultants' assessment of the assets' physical condition, judgment on the assets' remaining useful life, and estimate of the capital expenditure required to meet performance criteria will be

Table 2.1 **Advice that may be needed**

Stage	Tasks
Sector strategy	Set high-level objectives and map constraints
	Determine market structure and institutional arrangements for sector
Designing the arrangements	Survey and consult with consumers and alternative providers
	Forecast demand and estimate willingness to pay
	Set coverage targets, service standards, and environmental standards
	Develop investment plan
	Estimate cost of service
	Set tariff structure and subsidies
	Allocate risks and responsibilities, design mechanisms for adjusting tariffs and service standards
	Prepare contracts, licenses
Implementing the transaction	Communicate with potential bidders
	Prequalify bidders
	Develop requests for proposals
	Manage data room and due diligence
	Evaluate proposals
	Negotiate and reach financial close
Managing the arrangement	Monitor and enforce compliance
	Reset tariffs and service standards
	Resolve disputes

Box 2.2 **A typical contract package**

The contract package for a typical concession might include the following:

- The request for proposals or tender document
- The concession contract
- Any license and documents implementing the arrangement
- The asset sale and purchase agreement for any assets transferred
- Share sale agreement and purchase agreement when the operator buys shares in a company owned by the public sector
- An implementation agreement on the government's support (if any) to the project
- Bulk water supply and sewage treatment contracts.

	Skills required						
	Transaction management	Policy, economics, institutional	Consultation, communication, social research	Environmental	Technical—engineering and operations	Financial	Legal
		✓	✓	✓	✓	✓	✓
		✓			✓	✓	✓
		✓	✓				
		✓	✓				
		✓	✓	✓			
					✓	✓	
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		✓	✓			✓	
		✓				✓	✓
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					✓	✓	✓
					✓	✓	✓
					✓	✓	✓
	✓	✓	✓	✓	✓	✓	✓
					✓	✓	✓

inputs to the financial model. And the technical consultants' estimate of the human resources required to provide safe, efficient service will feed into the analysis of the likely staffing costs and retrenchment compensation. These results will also go to the team that consults with workers and their unions.

The financial advisers will assist the government in determining the tradeoffs between tariffs, subsidies, and other financial variables. This analysis entails developing a financial model and discussing with the government the policy assumptions that should be included in the model. The model will be used to test the viability of the proposed service objectives and their impact on the tariff. To do this effectively, the model needs to incorporate the demand forecast and the investment plan. Economists will likely be involved again in advising on tariff structure and

subsidy arrangements, to balance the objectives of efficiency, cost recovery, and social acceptability.

2.4.3 Risk analysis and design of the arrangements

Ideally, all disciplines will be involved in the risk analysis. This may be led by the transaction advisor, or coordinated by the financial experts, especially if risks are estimated in a quantifiable way using a financial model.

Based on the risk analysis and the other analytic work, the outline of the arrangements will be developed. Lawyers are then needed to turn the outlines or drafting instructions into a complete, legally binding regime. Good lawyers will focus on making the intended risk allocation legally effective and developing an arrangement that minimizes future disputes.

2.4.4 Implementing the transaction

Once the arrangements have been designed, the emphasis shifts to marketing the transaction. This requires a transaction manager who knows the potential operators well.

Technical, financial, and economic specialists will all be involved in putting together a request for proposals and information memorandum. Lawyers will help ensure that the legal aspects of the procedure are in order and that the transaction is not challenged on procedural grounds. Communication with customers and workers during this process is vital, and communications and human relations specialists may be brought in to assist (see Section 3.3.2).

Prequalification of potential operators typically involves assessing their financial and technical strength and experience, and specialists with good judgment in these areas will be needed. Similarly, once bids are received, it may be necessary to assess them from a technical and financial perspective, depending on the bidding procedures used. Lawyers and financial specialists will be involved in negotiations to ensure that all the necessary documentation is executed to make the arrangement legally effective and binding.

2.4.5 Managing the arrangement

Once the operator starts work, performance under the contract needs to be monitored to ensure agreed standards are met. Tariffs and service standards may eventually need to be adjusted and disputes may arise that need to be resolved.

The institutions set up to manage the arrangement may have the capacity necessary to carry out these tasks. For example, a regulator or contract monitoring unit may monitor and enforce the arrangements, a regulator may adjust tariffs and service standards, and an arbitration panel or the courts may resolve disputes.

But at least some of the institutions set up to manage the arrangement will likely need assistance, especially early on, when regulators or contract monitoring units are new and learning their trade. Technical specialists can help in monitoring service performance and assessing operating efficiency. Financial analysts and economists will be needed for tariff resets, and lawyers for enforcement and dispute resolution. While the arrangements are being planned, it is worth thinking about what assistance will be needed during the operational phase.

2.4.6 Coordinating advice and packaging advisory contracts

Coordinating the advisory work described above is a difficult task. Tight integration of all the elements and interaction between various disciplines are needed to produce a coherent package.

The government needs someone with an overarching view of all the advisory and analytic work who is responsible for managing and coordinating the advisory work. This person may be a strong and experienced member of the government. But often the government will need to hire an external transaction advisor with the experience and capacity to manage all elements of the design and implementation. (Even then the government will need to maintain close involvement and oversight.) Transaction advisors traditionally have a financial background, but this is not essential. More important is that the chosen advisor has the following attributes:

- The ability to understand how the work of the various specialists from different disciplines fits together
- Strong communication skills, to understand what government and other stakeholders want, communicate the options to them effectively, and help them to make informed choices
- Knowledge and understanding of the potential operators and financiers, their objectives, and their constraints
- Strong planning and management capabilities, to keep a complex, commercially and socially sensitive process moving forward in a controlled way.

How advisors are coordinated depends largely on how the contracts under which they are hired are structured. One option is to hire a single consortium of firms with the requisite economic, technical, consultative, financial, and legal skills, to be led by the transaction manager. Another option is to procure the technical, legal, financial, economic, and other inputs under separate contracts. There are intermediate options, such as packaging together some but not all components of the required advice or hiring a single lead adviser to assist the government in hiring other specialists or advisers for particular tasks.

Hiring different advisers for different areas may make it easier for the government to get the best advice in each area, but this should be done only if the government can coordinate all the specialists effectively. If the government's reform unit lacks capacity and experience, it will probably want to hire a transaction advisor to coordinate the work. Key areas of coordination include:

- Between technical and financial plans—the specification of service standards and the investment plans necessary to achieve them are a key determinant of costs, and thus tariffs, subsidies, and financing structures.
- Between mechanisms for setting tariffs, including the role of any regulatory agency, and the allocation of risk, since the two are closely connected.
- Between economic and financial plans—design of tariffs and subsidies should reflect social and environmental goals, as well as provide for cost recovery.

Another coordination question is whether a single advisor should be hired to help in all stages of the transaction or whether different advisors should be brought in at different points. Some firms that are good at designing policy are not good at managing transactions, and vice versa.

One common approach has been to employ one or more sets of advisors to develop policy and options for private participation with a separate transaction manager to implement the transaction. This approach allows the transaction manager to be paid a success fee, without the government needing to worry about whether the success fee would bias the advice given on policy.

A disadvantage of employing different advisers at different stages is that much of the work done in the early stages can be lost in the transition to a new advisor. In practice, the knowledge and understanding gained earlier in the transaction can seldom be fully embodied in the adviser's reports. More important, the success of the transaction depends on policy choices. Advisers who are not responsible for the final outcome may not pay sufficient attention to the requirements of bidders, reducing the usefulness of their advice.

Checklist **Managing the process of introducing private participation**

- ❑ Ensure objectives of reform are clearly defined
- ❑ Determine which tier of government will lead the reform
- ❑ Determine the management structure (for example, project team and steering group)
- ❑ Determine the work that needs to be done
- ❑ Determine what expertise the government has inhouse and what it needs to hire
- ❑ Determine how to package and sequence the advisory contracts

More information **The process of introducing private participation**

The process generally: World Bank 1997b.

Hiring advisors for private participation in infrastructure projects: PPIAF and World Bank 2001.

Ensuring the process takes account of the interests of the poor: PPIAF and WSP 2002d.

3 Involving stakeholders in the design of the arrangement

In designing an arrangement, the government needs to consider the interests of different stakeholders, including customers, potential customers, workers, private operators and financiers, and taxpayers. The government will benefit from engaging with these groups to ensure their views are understood and that they participate—and feel they've participated—in the design of the arrangement.

Stakeholders' interests sometimes conflict, so the government will have to trade off competing interests. Customers, for example, benefit from subsidies; but subsidies have to be funded by taxpayers. The interests of connected customers may conflict with those of unconnected households hoping to get connections, so the government may have to trade off their interests as well.

The better the arrangement, the easier the trade-offs will be. Put differently, the more the arrangement increases the size of the pie, the easier it will be to share the pie in a way that stakeholders find acceptable. Most of the *Toolkit* focuses on

designing an arrangement that increases the size of the pie. To do that, the government needs to know what people want, so it has to survey and consult. How much are people willing to pay for new connections, for example? What type of connection do they prefer, given the costs of different types of connection?

Engaging with stakeholders has two further advantages.

First, analysis based on the engagement may cause the government to realize that, however good the main features of the arrangement, the distribution of costs and benefits isn't right. Perhaps too many of the costs are imposed on people the government would like to protect because of their vulnerability, such as poor households with connections. Or perhaps too many costs are imposed on groups that have enough political influence to prevent the reforms. In these cases, the governments can use the analysis to redesign the arrangement in a way that preserves the main features, but distributes the costs and benefits differently.

Second, even the best-designed arrangement is likely to give some groups less than they hoped. Their support is more likely if they think the process of design was legitimate. This depends in part on the nature of political governance beyond the scope of water services—do people think government represents them?—but is also affected by factors specific to the arrangement. Legitimacy is likely to be enhanced by making the process of selecting an operator transparent (Chapter 9), publishing the contract, and consulting customers and other stakeholders when tariffs are reset and the arrangement revised (Chapter 7). Legitimacy will likewise be affected by the nature of consultation with stakeholders in the design of the original arrangement. If people understand the objectives of reform, know their views have been heard and understood, and have had an opportunity to influence the arrangement, they are more likely to accept the results.

In brief, involving stakeholders in the design of the arrangement can lead to arrangements that better meet people's needs, are more likely to be implemented, and more likely to be sustained. Conversely, failure to properly involve stakeholders may limit the benefits of the arrangement or contribute to its collapse (Box 3.1).

The following section focuses on how to identify stakeholders, engage them effectively in the process, benefit from their knowledge and creativity, and quantify various groups' interests (Figure 3.1).

3.1 IDENTIFYING STAKEHOLDERS

The first step of engagement is to identify important stakeholders (Table 3.1).

Any group that asserts an interest can be treated as a stakeholder, but only some groups will do so. Other groups may need to be sought out. The unconnected poor, women, and alternative providers such as standpipe operators are all easily overlooked. Women's groups and community and service organizations may prove

Box 3.1 **Could more consultation have helped the La Paz–El Alto and Cochabamba concessions?**

In La Paz–El Alto (see Appendix A) the government focused on extending service through in-house connections engineered to first-world standards. One target for service expansion was the poorer areas of El Alto. A concession contract was designed and awarded to the bidder that offered the most rapid expansion of in-house water and sanitation connections. The winning bidder proposed ambitious expansion targets, which were written into the contract.

As the expansion program got under way, however, it became clear that the newly connected households used less water than already connected households and less than expected. This meant lower revenue for the operator, causing financial problems. The government, the regulator, and the operator addressed the problem by allowing for lower-cost connections, such as condominial sewerage. This resolution however proved insufficient as disagreements over the service in La Paz resulted in the government requesting cancellation of the contract in early 2005.

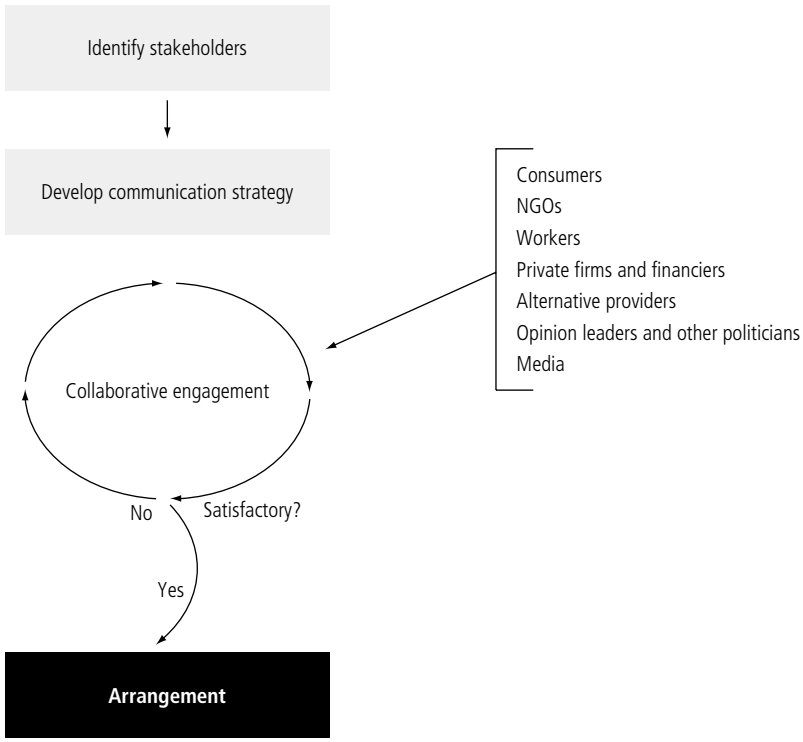
The problems in Cochabamba (see Appendix A) were even greater. Soon after the concession was signed, extensive civil disturbances caused the government to cancel the contract. Many things contributed to the failure of the arrangements, including a decision to require the operator to build an expensive dam. This required significant investment, financed through a 35 percent increase in tariffs at the start of the concession and a 20 percent increase once the new dam became operational.

While technical and financial design issues such as these played a part in the failure, some commentators have argued that more extensive and open consultation could have led to a more sustainable arrangement. Examples of apparent consultation and communications problems included:

- Farmers on the periphery of Cochabamba believed that the operator would be given control of their irrigation water. This led to the first major protest against the project.
- Insufficient appreciation was given to the fact that the combination of a rising-block tariff and an increase in water supply would result in higher bills. This, coupled with tariff increases agreed under the arrangements, caused many customers' bills to increase by 100 percent or more.
- Limited participation of professional associations in the design stages of the concession contract meant that there was no adequate mechanism for addressing concerns of these groups. Two groups rapidly assumed the role of consumer advocate. The long-established Civic Committee, an association that generally represented local business interests in each department, called for modifications in the contract and a freeze on tariffs. The Coordinadora del Agua y de la Vida, which included professional associations and pressure groups such as the coca growers and the irrigation farmers, demanded the outright cancellation of the contract.

Source: Nickson and Vargas 2002.

Figure 3.1 **Steps in involving stakeholders in design**



useful counterparts or may open the path to groups of consumers with specific interests and needs. International specialist water operators may be obvious potential partners, but local firms, banks, insurance companies, and guarantee agencies may also be considered.

A communications needs assessment, based on an initial survey or consultation, may be required to identify the stakeholders to be included in engagement. It can help the government extend consultation beyond the obvious circle of stakeholders who are well known to government. It can also identify prevailing concerns about water services and views about private participation as a possible solution, allowing the government to focus subsequent consultation and other work.

Table 3.1 **Stakeholder identification and composition**

Stakeholders	Subgroups	Questions to answer
Consumers	Middle-class Poor, connected Poor, unconnected Women	Where do they live? What service do they get now? What service do they want? How much are they willing to pay? What monetary and nonmonetary barriers stop them connecting? What are their views on types of arrangement that may be suitable?
NGOs and community-based organizations	NGOs and community-based organizations that represent consumers	To what extent does the organization represent consumers? Which consumers do they represent?
	NGOs that represent broader interests outside the immediate scope of services in question (for example, the environment)	To what extent does the NGO represent the people in the community or country? About which issues are they concerned? What information and ideas can the NGOs offer?
Workers	Managers Permanent workers Contractors and informal workers Unions	What ideas do they have for improving operations? What are their biggest fears about reform? What hopes do they have for benefiting from reform?
Private firms and financiers	International water operating companies Local water operators and potential operators, for example other utilities Financiers Local contractors and consultants	What contribution can they make? What ideas to they have to improve the situation? What risks are they willing to accept? How would they like the arrangement designed? What are likely deal-breakers?
Alternative providers	Water vendors and truckers Standpipe operators Cesspit emptiers Public toilet providers	What services are they providing now? How might private participation threaten them? How can private participation help them improve their business and the service they offer?
Politicians and officials other than those designing the arrangement	National government Provincial or local government Government departments Political parties and individual politicians	How might private participation alter their responsibilities? How might individuals, parties, or organizations portray private participation? What issues might be grouped with private participation?
Media	Journalists writing for foreign audiences Journalists writing for national audiences	On what sources of information do they rely? Who is their main audience? What are the competing sources of information?

3.2 DEVELOPING A STRATEGY FOR ENGAGING STAKEHOLDERS

Having identified the relevant stakeholders, governments need to think about:

- The appropriate type of interaction with each group, given the goals of the engagement
- How to ensure it has the necessary expertise to manage the engagement.

3.2.1 Types of interaction with stakeholders

There are many ways to involve stakeholders, each suitable for a different purpose (Table 3.2). The appropriate approach depends on the objectives, and on such factors as the type of arrangement and public perceptions about private participation in water services.

Each type of interaction requires a different type of authority, different degrees of experience, and a different level of resources. Resources, required of stakeholders and the government, include financial and human capital and consistent institutional support for initiatives. Authority for engagement includes notification and acknowledgement by stakeholders, for example, municipal or state government, public and private operators, or alternative providers. Experience in local engagement implies that stakeholders and a government or communications manager have sufficient knowledge of local situations and can sustain respectable reputations with stakeholders.

Higher-intensity engagements can lead to better decisions and increase their legitimacy by harnessing the creative powers of the stakeholders most directly involved. For example, NGOs, community-based organizations, and worker organi-

Table 3.2 **Five types of interaction with stakeholders**

Collecting information	Gathering information about people such as: who are they, where are they, what do they say they want?
Providing information	Letting people know what is planned
Consulting	Identifying the problems, offering options and proposed solutions, listening to feedback, and revising the proposed approach if appropriate
Deciding together	Not only consulting with the group but also giving it a decision-making role
Acting together	Different interests deciding together what is best, then forming a partnership to make it happen

zations may be involved in a continuing dialogue as the arrangements are developed and implemented. In San Pedro Sula, Honduras, presentations were arranged at information workshops with different stakeholders, including opposition parties, and visits were organized to other places where private participation had taken place (Diaz 2003).

Depending on the type of interaction, different forms of communication will be appropriate (Table 3.3).

Table 3.3 **Four ways of communicating with stakeholders**

Methods	Description	Comment
Printed materials	Standalone brochures and flyers as well as information pieces in local bulletins create direct and cost-effective information transfers	Requires knowledge of local conditions, literacy, and preferences about the form in which information is presented to effectively target stakeholders
	Summaries or copies of the draft contract increase transparency	
Opinion polls and surveys	Household or community surveys to measure general trends or preferences	Accurate results are difficult to obtain due to wording of the survey questions and other local conditions that influence respondents
	Demographically representative of the stakeholder group	
Focus groups	Discussion forum with stakeholders of similar interests	Can reveal more depth of stakeholder preferences and concerns than polls and surveys, but the groups' views may not always reflect those of the wider population
	Open or wide forum for discussion allows for array of stakeholder comments and correspondingly less control of dialogue by mediator or organizer	Allows for engagement with specific stakeholder groups and specific issues
Open forum	"Town hall" meetings with open participation for announcing statements and soliciting responses or questions	Open forum lends the organizer little control of the dialogue
		Suitable for public announcements where audience discontent is low

3.2.2 Acquiring expertise for engagement

Effective engagement requires a particular set of skills—skills that may or may not exist within the government. Different kinds of interaction require different skills: community development specialists can help engage consumers in poor neighborhoods, survey experts can help gather facts and views in a quantifiable way, and communications specialists can help publicize and explain proposals. Depending on the size of the deal, the government may therefore want to employ several specialists.

Designating a communications manager as the focal point for some or all of the consultation usually helps. This manager will need to be well briefed by the team leading the reform (see Chapter 2) and ensure that communications about the proposed arrangement truly reflect government policy. The communication manager can also inform the team of problems not yet dealt with in the design of the arrangement. Getting the sequence of communications right—for example, issuing press announcements, consulting with particular groups, and deciding on changes to the arrangements—can be crucial to the success of engagement.

3.3 INTERACTING WITH DIFFERENT GROUPS OF STAKEHOLDERS

The appropriate approach with each group of stakeholders depends on variables such as a group's capacity and experience with private participation and the ways in which the political, social, and economic climate affect the group (Table 3.4).

3.3.1 Customers

The most important stakeholders are usually customers and potential customers. It is important to recognize early on the disparate nature of this group and the diversity of their views. Naturally, most customers and potential customers are mainly interested in how the arrangement will change the service they receive and the price they pay.

It is helpful to have basic information for all customer groups, including:

- Where customers are located (noting that households in informal settlements may not be formally registered on government records)
- Whether customers are connected to piped water services and, if not, how people get water and dispose of waste
- Typical household sizes and the number of people typically using a single connection
- The level of household income and its stability, including seasonal variation
- The volume and variation of water consumption, especially in low-income households

Table 3.4 **Stakeholders and ways to involve them in designing arrangements**

Stakeholders	Ways to involve	Rationale and comment
Consumers	Surveys and focus groups Consultation on options Deciding and acting together at the community level	A major aim of the reform is to benefit consumers. To be successful the arrangement has to deliver what they want, how they want it. Consumers and potential consumers are a disparate group. The views of the unconnected and of women may not always be heard, unless special efforts are made to seek them out.
NGOs and community-based organizations that represents consumers	Providing information Meetings and dialogue Deciding and acting together	Representative NGOs can provide a useful channel for consultation (and on some issues joint decision making) and can provide guidance on how to consult with difficult-to-reach consumer groups (for example, women and households in informal settlements).
NGOs that represent interests outside the immediate scope of services in question	Providing information Consulting Debating	There is a need to be clear about whom an NGO speaks for, and the extent to which its interests coincide with the interests of those in the country.
Workers	Providing information Consulting Deciding and acting together	Workers and managers employed by the previous system may fear losing their jobs or benefits. Winning support and maintaining morale can do a lot to improve the chances of success. Workers and managers often know what needs to be done to help the utility improve and are willing to accept change if their legitimate interests are protected. Their knowledge needs to be harnessed, and their fears relieved.
Private firms and financiers	Involve potential operators and financiers in the design of the transaction, as outlined in Section 3.3.6. Consider conditions financiers will set for investment and discuss risks with them	The arrangement will be a partnership with private firms, so it needs to be attractive to them and use them productively. Lenders and investors will have different interests from specialist operating companies. These interests need to be considered early, or they will hold up completion of the transaction.
Alternative providers	Providing information Consulting	Alternative providers such as water truckers may see their business threatened by the transaction. Good design will involve consulting with alternative providers to protect their legitimate interests and help them provide better service and collaborate effectively with the utility.
Politicians and officials other than those designing the arrangement	Collecting information Providing information Consulting Acting together	Government representatives and opinion leaders not directly associated with the design arrangement may be involved to ensure the sustainability in the reform, particularly during future government leadership transitions.
Media	Collecting information Providing information through training courses, on-site visits, distribution of government or reform leader contact information, and other means	The media often serve as the most direct link between the government and stakeholders. Media representatives may need education or media-specific information to portray the reform's economic terms.

- What customers are paying for water services and what coping costs they might incur, for example, for installation of pumps and tanks to improve service and pressure, or time spent fetching water from a standpipe
- Special concerns relating to women's roles with respect to water services.

The overarching issue is developing an understanding of what customers and potential customers want and how much they are prepared to pay for it. Which improvements in service quality should be the highest priority? How much are different types of improvement worth to customers? Which are critical and which should wait? Which unserved customers would value a new connection most?

To gather this information it will often be helpful to conduct household surveys (Box 3.2 and Box 3.3). Focus groups and consultations with NGOs and community-based organizations representing consumers are also helpful

3.3.2 NGOs and community-based organizations

NGOs, community-based organizations, and other civil-society organizations should not be treated as a single group. They represent different stakeholders and different interests, and need to be engaged with a clear understanding of whom each organization represents and what its interests are.

Some NGOs and community-based organizations will be effective conduits for dialogue with consumers. These may be neighborhood associations, or they may represent particular groups of customers. For example, women's organizations may be a natural route into understanding the needs and concerns of women consumers. Some organizations may provide a service watchdog function or even provide services themselves (Box 3.4). The creation of NGO networks—as with an NGO forum for urban water and sanitation in Kathmandu in Nepal, an initiative supported by WaterAid, to monitor the preparation of private sector arrangements—can facilitate interaction between the reform leader and different groups.

Other NGOs represent issues, rather than consumers. These may include groups promoting environmental protection, transparency, and other values. Often the causes they represent will be important in the design of the arrangements, and it may be helpful for reform leaders to outline how proposed reforms take these values into account and invite suggestions for improvements.

Some NGOs are opposed in principle to private firms being involved in water provision. These groups will make their case through the media. The government therefore needs to be able to communicate clearly its view of the likely benefits of the proposed arrangements.

Box 3.2 **Household surveys to determine willingness to pay**

There are two commonly used techniques for estimating willingness to pay: the revealed preference method and stated preference methods. Both involve conducting customer surveys.

The revealed preference method is designed to estimate what customers currently pay for their existing service as an indicator of what they would be prepared to pay for improved services. For example, where customers are not connected to piped water and sanitation, what customers are paying for water services can be estimated by the cost of the water from water vendors and the time spent fetching water (and how much that time is worth). This information can be used to estimate what they would pay for piped services. Where customers are connected to piped service but are investing in equipment to improve service quantity and quality, the costs incurred in providing the improved level of service (for example, the tariff paid plus the costs of storage tanks, additional pipes, booster pumps, and water purifiers) can be used to assess what they might be prepared to pay for improved piped service. Stated preference methods use carefully designed questions to get consumers to reveal what they would be willing to pay for a service. Approaches include:

Contingent valuation methods that involve directly asking customers what they would be willing to pay for a particular service level or improvement.

Choice modeling methods that involve presenting respondents with a series of scenarios and asking them to rank the scenarios by preference. For example, one scenario might include water available only 8 hours a day at a low tariff, while another might include service 24 hours a day at a higher tariff. A respondent may be asked to repeat the ranking process several times for different combinations of scenarios. By analyzing how people rank different scenarios it is possible to estimate the value they place on different aspects of water and sanitation service.

Box 3.3 **Advantages of involving stakeholders in Kathmandu, Nepal**

In Kathmandu an affermage contract was being developed to improve water services. Work on design was already under way when it became clear that little was known in fact about potential customers, especially poor households. There were conflicting opinions about the number of poor people in the service area, the type of service they were receiving, and the improvements they wanted. A program of surveys and consultation was carried out. The results showed that a number of preconceptions were incorrect. For example, some officials had argued that a heavily discounted lifeline block was a good way to ensure poor people would benefit from the reforms. In fact, since only 51 percent of the poor had connections, this was not the case. The consultation process therefore recommended avoiding consumption subsidies and instead focusing on expanding access for the unserved population.

Box 3.4 **Advantages of involving stakeholders in Cartagena, Colombia**

In Colombia national regulation requires that water utilities bill monthly. In the town of Cartagena (see Appendix A), the operator found that this billing regime made it difficult for low-income workers—especially those paid by the day—to manage bill payments. Through consultation it became clear that if bills were sent twice a month, these households would find it easier to pay, benefiting both them and the operator. The regulator refused to adjust the national standards, but by working with community organizations that organized to collect payment twice monthly, the operator was able to achieve the same result. It was only through consultation and engagement with local organizations that the problem was identified and the solution developed.

3.3.3 Workers

Many developing country utilities employ more people than they need, for reasons of patronage and general job creation. Sometimes staff are poorly managed, inadequately trained, and lack the resources they need to do a good job.

Private participation is often seen as a threat to workers because they may be laid off to cut costs. The resulting opposition from labor and unions can be enough to stop reforms that would have net benefits overall. One option, then, is to involve labor representatives and unions early in the discussions and planning for reform—as happened in Buenos Aires, for example, where workers were part of the privatization committee that made the decisions on the design of the arrangement.

When interacting with workers, it is helpful to assess the extent to which unions are neutral representatives of worker interests and the extent to which they have their own goals. In some cases unions are effective conduits for consultation with workers. In other cases unions and workers can be treated as distinct stakeholders, with workers consulted through nonunion channels. Many utilities have many unions and groups of staff, each with distinct interests.

Options for consulting with workers and unions include:

- Sharing information and having frank discussions of the problems the utility is having and the areas in which it is falling short of its mandate to provide good quality services to all the people
- Seeking views from staff and unions about ways in which the utility can be improved, particularly concerning corruption and patronage
- Helping staff representatives visit other utilities with private participation and talk to their counterparts there
- Consulting, or making joint decisions, on issues affecting staff, including:

- Pension rights and other entitlements
- The operator's flexibility to reduce staff numbers
- Ways of increasing labor productivity, such as the introduction of more flexible work practices and performance-based pay
- Additional training and other resources (such as safety equipment) for workers
- Help for workers who lose their job to find new jobs or start new businesses
- New business, such as expanding connections or undertaking asset-renewal programs, in which existing staff can be productively deployed.

In consulting with workers a balance needs to be struck between reaching agreement on issues in advance and allowing the selected operators freedom to innovate and manage.

3.3.4 Other politicians

The government entity leading the reforms may also have to consult with parts of the government—for example, with local-level government officials when the arrangement is designed at the state level.

Initial scoping exercises can be used to identify key politicians, including those that may assume office during the term of the arrangement. While political campaigns may not be significantly altered by communications about private participation in water services, awareness of the arrangement and its implications may reduce challenges to its legitimacy.

3.3.5 The media

In many developing countries the media are the primary vehicle through which people obtain information about the reform of water services. Governments sometimes provide information that is suitable for legal purposes but unsuitable for consumers. Thus the media must work hard to interpret the design of the arrangements and may get it wrong. The media (and others) may also interpret a lack of clear information as evidence of conspiracy or corruption (Osborne 2003).

An effective engagement with media will first assess the state of local media and the degree to which consumers and other stakeholders rely on media for information. Particular questions can include:

- Do the majority of people, particularly those that could be most affected by reform, have access to the media?
- Do certain types of media have more reach than others—for example, does the radio have a bigger audience than television?
- Which media are most trusted and most influential?

The media often know relatively little about water services and private participation. The reform leader (Chapter 2) needs to ensure therefore that media get good background information on the proposed arrangements and their expected impact on consumers. Information given to the media should be updated frequently, and the media should be given names of contacts for further clarifications.

3.3.6 Other groups

Interaction with potential operators is addressed in Chapter 9, which outlines ways to preserve transparency while eliciting feedback from operators on the types of arrangements that will be attractive to them. Both the importance and difficulty of this is illustrated by the experience in preparing the Dar es Salaam affermage contract in Tanzania. Two of three prequalified bidders refused to submit bids, despite having substantially invested in their preparation, because the government refused to amend some clauses of the proposed contract.

Governments will also want to consider opening a dialogue with lenders and investors that may be involved in the private participation process. If their interests are left until late in the process and bidders have not adequately represented financiers' interests, it can cause delays and require arrangements to be reworked at the last minute.

Local consulting and construction companies will have a keen interest in the process. They may be able to suggest how best to design the arrangements and they will certainly want to understand the likely effects on their business. It will be desirable to give these companies a fair chance to participate, and to let them know of business opportunities that may exist after the transaction.

Alternative providers need to be involved. People whose livelihood depends on providing water services, such as water vendors and cesspit emptiers, may feel threatened by a proposal to expand service by the formal utility. In general, demand for water services is so extensive that even after private participation has been introduced, the formal utility is unlikely to be in a position to put informal operators out of business in the near future, even if it wanted to. Consultation with alternative providers can help develop a compromise between them and the formal utility. While the alternative providers may lose some business as supply is increased, they can also benefit from changes such as legal recognition and arrangements to receive wholesale services (such as bulk water) on a more organized basis (Box 3.5). Such benefits may help them extend their market to other poorly served areas.

3.4 IDENTIFYING WINNERS AND LOSERS UNDER DIFFERENT OPTIONS

As well as communicating with stakeholders to get an intuitive idea of how different options will affect different groups, the government can use the information

Box 3.5 **Teschie Tankers Water Association in Accra, Ghana**

The water utility in Accra, Ghana, supported the formation of associations for the private water tanker drivers. It provided sanitary and convenient filling points where it sold bulk water to tanker operators. The water is metered, and the associations are responsible for ensuring that payments are made and that tankers are hygienic.

The results have included a reduction in theft of water from fire hydrants (that were previously used as filling points), an improvement in the quality of water provided to customers, and an expansion of the market as more tanker operators have been attracted to the sector.

Source: Kariuki and Acolor 2000.

gained in surveys and consultation to generate quantitative estimates of the effects of different arrangements on different groups. Winners and losers can be identified, and the extent of each group's gains or losses estimated. If necessary, the arrangement can be redesigned.

For example, a proposed arrangement might be expected to provide connections to a group of households currently unserved by the utility. That group would be expected to gain from the change. At the same time, the arrangement might increase tariffs paid by a currently connected group. Unless the quality of the service they received improved rapidly, that group might be expected to lose. The government can benefit from estimating how much the first group benefits and how much the second group loses. If the result looks unsatisfactory, the government can consider redesigning the arrangement to change the distribution of benefits and costs.

This *Toolkit* proceeds from the assumption that the government has decided to introduce private participation because the reform is expected to generate net benefits—that is, the benefits for the winners outweigh the costs borne by the losers. When an arrangement has net benefits, it should be possible in principle to distribute the costs and benefits so that no group loses. In practice, governments may not be concerned to ensure that everyone wins, but may still want to protect some vulnerable groups (such as the poor) and some politically influential groups (utility workers, perhaps, or some middle-class customers). For example, the government might choose to redesign the arrangement just mentioned by including a subsidy for certain connected customers that would last until expected improvements in the quality of service were sufficient to offset higher tariffs (Chapter 5).

One way to obtain a detailed description of stakeholders is to use what is sometimes called a social impact model (Figure 3.2). The first step in building such a model is to define a small number of "typical" household types. The household types might include:

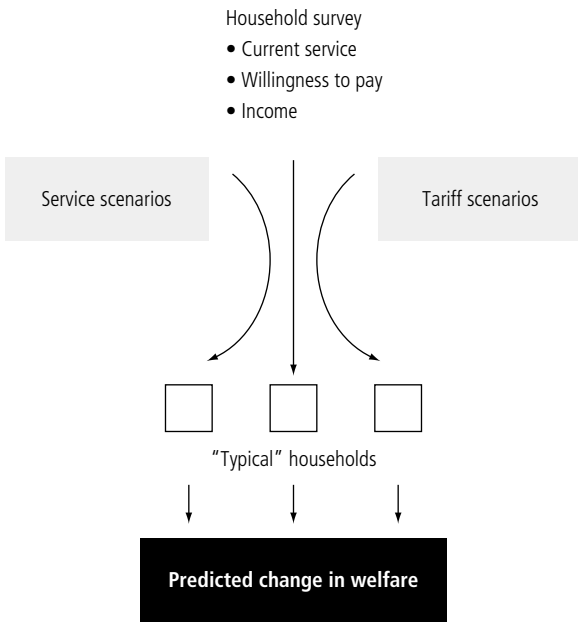
- A middle-class household with a registered piped connection
- A low-income household with a registered piped connection
- A low-income working household in a formal settlement with an illegal connection
- An unconnected household in an informal settlement, receiving water from a standpipe.

The model can also include other stakeholders, such as workers and taxpayers funding subsidies.

Several scenarios of service and tariff changes can be developed when designing the arrangements. For each scenario, the model predicts net impact on the welfare of each typical household by estimating the additional value placed on improved service (see Box 3.2) and subtracting any increase in bills from the scenario's tariff increases. This model can be extended beyond households to include other stakeholders, such as workers and government.

The policy simulation model illustrates a simplified and stylized form of such analysis. It considers two types of household: the currently connected and the currently connected. With assumptions about how much the unconnected have to pay

Figure 3.2 **Social impact modeling**



for water and their willingness to pay for better service, the model provides an illustrative estimate of the effects of reform on both groups (see the guide to the policy simulation model, Appendix B).

More information **Involving stakeholders**

Advantages of involving stakeholders: Cabanero-Verzosa and Mitchell 2002, Plummer 2002, Trémolet and Browning 2002, and Water and Sanitation Program 2002b.

Consultation techniques and stakeholder interaction: Asian Development Bank 2002 (pages 25 to 29), Mukherjee and van Wijk 2003, Plummer 2002, Plummer and Nhemachena 2001, PPIAF and Water and Sanitation Program 2002d (Chapter 6), Sohail 2003, and Wilcox 1994.

Sustainable partnerships with NGOs and community organizations: Trémolet and Browning 2002 and Trémolet and others 2004.

Household surveys: Hanley and others 2001 and Whittington 1998.

Engaging the media: Osborne 2003

Interacting with workers: Chong and Rama 2000, Idelogovitch and Ringskog 1995, Kikeri 1998, PPIAF and World Bank 2004, and Rama 1999.

Advisor support for consultation and effective communication: World Bank Development Communications Web page, "Publications and Articles," available at http://www.worldbank.org/developmentcommunications/Publications/publications.htm

Quantitative analysis of impacts on stakeholders: Catalyst Solutions in association with Castalia 2003 and van den Berg 2000.

4 Setting upstream policy

This chapter examines topics that should be addressed upstream from the design of private participation arrangements. These topics are broadly categorized as:

- Identifying the level of government responsible for water service provision and the responsibilities of other levels of government (Section 4.1)
- Defining the appropriate market structure for the water sector including whether separate contracts should be let for neighboring towns or whether these towns should be grouped to create a larger demand base and improve service efficiency (Section 4.2)
- Establishing policies and rules governing competition in the sector (Section 4.3).

These steps do not necessarily need to be considered in sequence, and in practice, all of these decisions are often examined simultaneously, as the reform strategy is developed (Figure 4.1).

4.1 ALLOCATING RESPONSIBILITIES AMONG DIFFERENT LEVELS OF GOVERNMENT

In all the private participation options examined here, the government is responsible for water service provision and a private operator is contracted to help discharge this responsibility. Thus it is crucial to know which level of government is responsible for water service to ensure a foundation for the legal arrangements for private participation.

Dividing up the responsibilities of water service provision is a three-step process:

- Examine responsibilities under the current law and institutional arrangements
- Decide which level of government should be responsible for water service provision
- Decide which levels of government should be responsible for such issues as tariff setting and environmental protection and create a clear set of legal instruments that allocate appropriate responsibilities and commensurate powers to each level of government.

Laws and regulations may need to be amended to clarify which level of government is responsible for various activities, including monitoring the operator's performance, adjusting tariffs and quality standards, and managing water resources. If the central government is leading the transaction, it can take advantage of the proposed private participation process to introduce legal reforms. If a local government is leading, it may only be able to lobby the central government to introduce such reforms.

Figure 4.1 **Upstream policy decisions and implications for the transaction process**

4.1.1 Examining current arrangements

In many countries responsibilities for water service are spread between two or three levels of government. For example, in federal states like India, the constitution may assign a lead role in areas of water policy to the regional or state governments but also give some responsibility to the central government. Or local governments may be involved in reform at the national level, including new or major private participation initiatives. Even in nonfederal states the division of responsibilities between local and central government may not be clear. For example, in Jamaica water service provision through most of the country is a responsibility of the national government, but local governments are responsible for small systems and for payment for water consumed at standpipes. Legal and financial relations between the Jamaican national water utility and the local governments are not clearly defined. Still, water systems can work well with responsibility divided between different levels of government when roles have been established over time. But introducing private participation changes these roles and can lead to conflict (Box 4.1).

Identifying the current responsibilities of each level of government, the legal and constitutional basis for those responsibilities, and any areas in which responsibilities might be unclear is one of the first steps of water sector reform.

4.1.2 Changing the allocation of government responsibilities

Under private participation a government body enters a contract with a private operator who becomes responsible for some or all aspects of water service delivery. Generally, the tier of government (local, provincial, federal) responsible for water service delivery should be the contracting authority.

Many factors influence the choice of tier:

- *Need for collective choice mechanism.* Water is often a local issue. Since water is expensive to move around, water networks generally serve a single town. And many aspects of water service—such as pressure, quality, and level of storage for dry periods—are the same for most customers on a network. Thus a collective choice mechanism is needed to set the levels of service and hence cost, in a way that suits most customers. The need for a collective choice mechanism is one reason why water service provision is often a local responsibility. The local government makes choices about local issues such as water quality and investment, and is accountable to the people under its jurisdiction. Subsidiarity (the principle that decisions should be made at the lowest level of government possible) suggests considering water service as a local government responsibility, and then examining whether other factors outweigh the advantages of local government responsibility to indicate that a higher level of government should be responsible. In some countries water service reform may take place in the context of a

Box 4.1 **Controversies over water service responsibilities in Brazil**

A controversy in Brazil arose over ownership of water and sanitation assets, leading to the failure of the proposed privatization of Companhia Estadual de Águas e Esgotos (CEDAE), Rio State's water company. On one hand, the legal rights and authority to provide water services appeared to rest with municipalities, but on the other hand, state governments had owned the assets of the water companies providing services since the 1970s through "concession contracts" with the municipalities. This unclear institutional structure led to legal questions over who holds responsibility for introducing private participation.

more general devolution of power to local government, adding to the case for shifting responsibility for water service to the local level.

- *Different capacities at different levels of government.* Responsibility for water service provision requires technical and financial competence. If a government agency contracts with a private company to provide water service, the agency may need less technical skill, but it still needs to be able to design and manage a contract and make sensible tradeoffs on issues such as investment and tariff levels. Local governments in many countries lack such capacity. Placing water service responsibility at a higher level of government or having a higher level of government provide specialized support to local government may be a solution to lack of capacity.
- *Economies of scale.* It can be more efficient to have a single service provider serve several towns and villages, rather than to have a separate provider serve each town because of economies of scale (see Section 4.2.1). And there are several ways to achieve economies of scale. One option is to encourage several municipal governments to join together in a syndicate or association, with the syndicate taking responsible for providing water service to all the member-municipalities (Box 4.2). Another option is to place responsibility for service provision with regional, state, or local government, which will then contract for service provision for all towns and villages in an area.
- Regional water storage and transmission networks, common in water-scarce countries such as Morocco and South Africa, present a similar dilemma. One option is to place water service responsibilities at the same level of government as, or at a higher level than, that of the region served by the transmission network. Another option is to separate the regional transmission system from local distribution systems (such vertical separation is discussed in Section 4.2.2). Distribution can then be a local government responsibility, while the regional network can be dealt with at a higher level of government. Bulgaria and the Czech Republic have used both approaches.

Box 4.2 **Aggregation of water service in small towns in France**

In France, provision of water service is a municipal responsibility and many small towns have decided to combine service areas to improve service efficiency with private participation contracts. The local representative of the central government (the Prefect) can mandate or influence the creation and shape of proposed aggregated structures. In particular, the Prefect can apply the principle of "territorial continuity," requiring that all aggregated municipal services have a geographical boundary in common to strengthen the technical coherence of the grouping.

When the central government is responsible for water service provision, setting tariffs and quality controls will also be a responsibility of the central government. Difficulties can arise when water services are a municipal or state responsibility. In this case there are at least three options for allocating responsibility for monitoring operator performance and adjusting tariff and quality controls:

- To assign these functions to the level of government where services are provided, by, for example, establishing municipal contract supervision units for municipal contracts
- To establish a national regulator, even if services are provided at the municipal level, with responsibility for monitoring operator performance and adjusting tariff and quality controls
- To spread functions among various levels of government, depending on which is more appropriate for performing a given function.

Local governments have the advantages of being close to customers and understanding their preferences. Having the local government as the contracting authority, with responsibility for monitoring performance and regulating services in accordance with the contract, avoids problems of coordination with the central government. But, local decision makers may have less capacity and may struggle to obtain reliable comparative information about the quality of service in other parts of the country.

Establishing a national regulator can overcome some of these shortcomings of local governments by setting tariffs and monitoring performance for all service providers in a country—as does The Office of Water Services (Ofwat), the national regulator for water services in England and Wales. This solution is often problematic, however, because municipal governments may feel that national regulators are infringing on their local powers. There can also be coordination problems. Some countries have had problems combining local private participation with national

regulation when the contract at the local level addressed tariff and service-standard issues and the regulator was given power over the same areas.

A compromise assigns different functions to different levels of government. For example, local contract monitoring units may be best for monitoring service quality and coverage targets, which need to be coordinated with the implementation of local development plans. National bodies may be limited to defining common methods for setting prices or acting as information clearinghouses to share and compare information about various providers. These arrangements often require functions to be carefully considered and assigned as clearly as possible to the national and local levels. This complexity makes these arrangements more difficult to put in place and prone to conflict when responsibilities are not clearly allocated.

Rules on environmental protection and water resource management are especially important for operators because governments tend to be stricter with private companies than with public ones on compliance with environmental standards. Poor overall management of water resources may give rise to additional costs for private operators, and therefore lead to higher tariffs. For example, illegal abstractions may rapidly deplete groundwater resources, creating the need for the operator to develop new water sources to fulfill its service obligations. Alternatively, upstream discharges by polluting industries may increase treatment costs, although more stringent discharge controls can be a more cost-effective way of meeting quality standards. Therefore, such arrangements would ideally be in place before private participation.

A dedicated institution for water resource management, distinct from the service provider, is usually best to arbitrate between competing water uses and to monitor the implementation of environmental standards. The model of river basin agencies, as originally developed in France in 1964, has worked well in that respect and has been introduced around the world (and recently in water sector legislation for the European Union). Such agencies seek to represent the interests of all water users in a river basin and are financed through charges on abstractions and discharges. The level of government responsible for water services need not be the level responsible for water resource management and environmental regulation.

4.2 DETERMINING THE APPROPRIATE MARKET STRUCTURE

Market structure refers to the number of service providers and their responsibilities. It is related to, but different from, the question of which level of government is responsible for water services. For example, it would be possible to have municipal government responsible for water services, but to have a single operator win contracts to supply all municipalities in a region.

The structure of the provider market for water services varies from one country to the next, depending on the location and availability of water resources, the historical evolution of the sector, and political and administrative processes such as the decentralization of central government responsibilities to local governments. The introduction of private participation in water services will most likely give rise to the question of whether the existing market structure should be maintained or modified.

Key market structure components to be decided are:

- *Horizontal structure* (the interaction among providers at the same level of the value chain), which includes decisions on how many providers should serve a region and how decisions on service areas should be made.
- *Vertical structure* (the interaction among providers at different levels of the value chain), which includes decisions on how many companies should control the service delivery process "from source to tap" and how the value chain should be divided.
- *Cross-sector structure.* The limits on ownership or other affiliations between water utilizes and companies in other sectors, especially other utilities.

Once decisions have been made on sector structure, the government will also need to decide in which areas private participation will be sought, and in what sequence. For example if an existing utility is broken up into a distribution company and a bulk supply company, should private participation be invited in the bulk supply company, or the distribution company, or both?

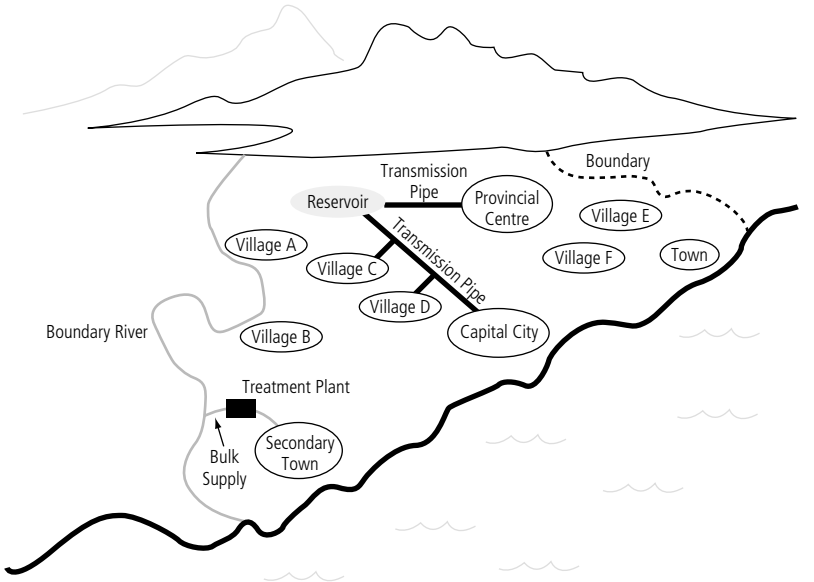
In many cases, the existing market structure is maintained in order to minimize disruption and transition costs. But it may be beneficial to consider a range of market structure options, and it is better to make any changes before the introduction of private participation; afterwards, changing market structure might require renegotiating a contract or even breaking up a private company. The following sections provide a decision framework for the three structuring decisions.

4.2.1 Horizontal structure—Deciding on service areas

This section aims to help governments decide on service areas for utilities operating in their country. Figure 4.2 shows a map of an imaginary country, which is used to illustrate choices real countries will face in deciding on market structures.

There is usually a range of options for horizontal structure, from having a single provider responsible for service throughout the country to allowing every town and village to have its own provider. In between, various groupings of rural and urban centers into service areas are possible. Considerations for which option to choose include:

Figure 4.2 **Imaginary country showing urban areas and water supply features**



- *Environmental and technical factors.* Market structure choices may be driven by the following environmental and technical requirements:

  – *Configuration of existing networks.* When areas are served by a single network (like the Capital City and Villages C and D in Figure 4.2) there may be an argument for having a single utility supply all areas covered by the network.
  – *Least-cost technical options to improve supply.* If the best technical and financial option to improve service involves a scheme serving several areas, this may be an argument for a single provider serving the area.
  – *Water resources issues.* If areas compete with each other for water, for example, abstracting from the same reservoir (like the Capital City and the Provincial Centre in Figure 4.2), it may make sense to have a single provider supply both areas, if it helps to mediate conflict over resources.

Generally, technical and environmental coordination issues can be dealt with by internalizing them—that is, making a single organization responsible for all the affected areas—or by adopting contracts or other rules that would allow coordination among separate service providers. For example, conflicts over water resources can be managed through administrative allocation rules (a government agency decides how much water each town can have) or market mechanisms

(competing service providers can adjust their allocations by buying or selling water rights with each other or third parties). Whether these technical arguments provide a strong case for aggregating service areas is an empirical question.

- *Impact on service efficiency.* Empirical research shows economies of scale in water service provision. As more customers are added to a service area, the average cost of serving those customers may decrease. This effect can be particularly important in small towns and villages that lack the scale to employ specialist managers and equipment. There are limits to economies of scale, though: utilities that are too large become increasingly difficult to manage. Likewise, splitting previously aggregated service areas can increase efficiency by increasing rivalry and comparative competition.
- *Administrative boundaries and collective choice.* When water services in an area are provided by a single network, aspects of service (such as water quality) are the same for most customers. These customers need a way to collectively decide on the quality (and hence cost) of the service they receive. Democratic voting is one collective choice mechanism and it suggests that service areas should be defined by local government boundaries. Where technical considerations or economies of scale dictate a larger service area, mechanisms to coordinate between neighboring local government areas, such as the "syndicates of communities" in France, may be needed.
- *Financial attractiveness and capacity.* Many private operators prefer to offer their services in large urban centers. This is particularly true of international operators, which have large fixed costs associated with prospecting potential markets and can generally only allocate a small international staff for knowledge transfer and supervision. But after a private operator has set up operations in a large urban center, there is scope for small and medium-size towns, or rural and peri-urban areas, to benefit from efficiency gains from the private sector. Grouping poor areas, or areas with comparatively less-developed services, with wealthier areas is one way to attract private operators to serve the poor or less-developed areas. It may, however, reduce the attractiveness of the transaction for private operators if they believe that the poor areas are less attractive commercially (see Section 4.3.1). Grouping financially attractive areas and other areas together can allow cross-subsidization between areas, a common way of achieving social goals in the water sector.
- *Transaction costs.* The costs of changing the market structure can be substantial and need to be included in the analysis of the tradeoffs between alternative options. Aggregation or disaggregation may require transfer of assets, liabilities, and staff. To carry out these transfers, an inventory of assets and liabilities is needed, and technical issues may need to be addressed. For example, it may be difficult to completely separate two systems that were jointly operated, and

physical transfers (each with a transaction cost) between the two areas may still be required after the separation.

Table 4.1 summarizes key costs and benefits of larger versus smaller service areas, while the following sections address common issues in deciding on horizontal structure, such as the role of national and metropolitan utilities, options for serving rural areas, and issues in aggregating small towns.

4.2.1.1 Pros and cons of a national utility. A national utility is a single utility charged with providing services to all the urban centers, and in some cases rural villages, in a country. When a national utility exists, policymakers have two options:

- Leave the utility intact for private participation, as in Senegal and Gabon (see Appendix A) and Ghana (see Box 4.3).
- Divide the utility into several units before private participation. These units may serve different regions or may be created by separating large cities from the rest of the utility, as in Honduras and Nepal.

Table 4.1 **Benefits and costs of increasing scale and scope**

Benefits	Costs
Facilitates access to water resources in water-scarce areas	Introduces distance with end users, dilutes accountability, and makes it more difficult to tailor services to meet their needs
Allows economies of scale in dimensioning works if towns are neighboring	Requires political will to aggregate at local level if water is a municipal responsibility
Allows economies of scale in procurement and support functions	Limits the potential for direct competition or for carrying out comparative competition
Allows economies of scope in sharing overhead costs	Introduces risk of resistance to cross-subsidization from those that lose out
Facilitates access to private finance and international donors	Attracts local private operators to smaller service areas
May make transaction more attractive for international operators, up to a certain point	Creates the problems (as well as the advantages) of cross-subsidization
Allows cross-subsidization of poor areas by richer ones	

Box 4.3 **Difficulties splitting a national utility in Ghana**

The central government of Ghana proposed splitting the national utility between two service areas: one centered on the capital, Accra, and another on the second biggest town in the country, Kumasi. In order to make both areas comparable, "attractive" and "unattractive" towns (in cost-recovery terms) were grouped in each contract package. Not much analysis was done of how to split the utility along technical, financial, and labor lines. The privatization process received vocal resistance from opposition groups and has not yet been implemented. Although there were many reasons for the resistance, fears from the proposal to split the national utility ultimately contributed to the failure of the transaction.

Some governments may decide to create a national utility before private participation, as in Guyana, where the utility serving the capital city was merged with the utility serving regional and rural areas; the goal was a single, stronger organization offering economies of scale in management skills, billing systems, procurement, and other areas. Some governments like national utilities because they facilitate cross-subsidies. Other governments might prefer a market structure under which subsidies have to pass through the budget.

4.2.1.2 Considerations in the case of a metropolitan utility. A metropolitan utility serves a major city and sometimes surrounding areas. The government will want to consider whether a large metropolitan utility should remain a single entity, as in Sofia (see Appendix A) and Bucharest, or divided, as in Manila (see Box 4.4 and Appendix A). Dividing the utility into several parts could facilitate comparative competition and provide a backup operator should an operator in another zone fail. But comparative competition can also be achieved by benchmarking with operators in other cities and in other countries. Retaining an intact utility can minimize disruption and preserve economics of scale.

If a metropolitan area is served by several providers, the government may consider amalgamating them into a single entity. A related question is what to do if a metropolitan utility services several local government areas. Policymakers will wish to consider how these local governments can be involved in planning and managing private participation in water services. The experience of Buenos Aires illustrates difficulties that can arise when local government is not involved (Box 4.5).

4.2.1.3 Ensuring service provision in rural areas. Rural areas are often considered commercially unattractive because consumption per connection is generally low and cost tends to be high (due to low population densities). Customers are often

Box 4.4 **Splitting the metropolitan provider service area in Manila**

The designers of the transaction in Manila referred to the experience of Paris, where the city's network was divided into two concessions, one on each side of the river Seine. The zone supplied by the publicly owned Manila Water Sanitation Board was divided into two areas: the East service area has a smaller population but is comparatively richer than the West service area, which has a large share of the city's urban poor. A higher proportion of the debt repayment, calculated on a per capita basis, was assigned to the West zone. International operators had to bid for both zones but could win only one, in order to maximize the potential for comparative competition and reduce the chance of receiving bids only for the most attractive area. It was not feasible to completely separate the two zones from a technical standpoint. So, the concessionaires have to transfer bulk water across the zones. The determination of the prices for this transferred water was left to agreement between the two concessionaires, which generated controversy and led to arbitration.

Box 4.5 **Single metropolitan provider in Buenos Aires**

In Buenos Aires, a single water concession was let for the entire metropolitan area, which covers the city of Buenos Aires and 17 other municipalities. Blanket coverage targets were defined for the whole concession, with no principles for deciding which areas should benefit first. The tripartite regulatory body for Buenos Aires concession was set up with representatives from the federal, provincial, and municipal governments—but the municipal representatives came only from Buenos Aires municipality and not from smaller municipalities also covered by the concessionaire. After much haggling, the municipalities obtained the right to have a say in the prioritization of coverage targets and in the monitoring of the concessionaire's performance.

poor, which raises concerns about tariff levels and collection risk. But some of these preconceptions may be incorrect. Effective demand in rural areas is sometimes higher than expected (partly because of external remittances) and payment records tend to be better than in urban areas, because of a much higher degree of social solidarity and scrutiny. In addition, the impact of high costs and low demand can be alleviated by a flexible approach to setting quality standards or tariffs.

Nevertheless, it is usually thought more difficult to attract private participation to small towns and rural areas. Several options can be considered for private participation in rural areas:

- A single operator, based on the national utility model, may be created or consolidated, possibly with specific targets for expanding coverage in rural areas.

- Several operators may be created, either on a regional basis or for separate towns and neighboring rural areas. Those operators may operate by themselves or receive support from larger operators, for example, in the form of franchising agreements.
- A combination of both options, with a main utility operator that can compete with smaller operators for local services, can be adopted.

Grouping rural and urban areas under a single national utility may help organize cross-subsidies between urban and rural areas to pay for development of services in those areas. It may not be feasible for a national utility to provide services everywhere, especially in the rural areas that are most difficult to reach, as there are limits to the cross-subsidization potential if the government does not inject additional funds for subsidies. For example, at one stage in the life of its contract with the government, Côte d'Ivoire's water company, La Sociéte de distribution d'eau de la Côte d'Ivoire (SODECI), was legally responsible for serving all major urban centers and rural villages. Such an arrangement proved impossible to achieve in practice, and rural areas reverted to government oversight when the contract was renegotiated in 1987, with a corresponding reduction in SODECI's tariffs, to reflect lower costs.

To supplement this model, experienced operators could provide assistance to local operators through franchising contracts or professional support models (see Box 4.6).

A key factor influencing market structure design is the views of the local communities, which are ultimately responsible (and interested) in efficient service delivery. In some parts of Senegal, local communities prefer to organize their own local private or community-based provider of water services, rather than being incorporated in the national utility's service area, despite the high-quality service and relatively low tariffs offered by the national utility. This is because they prefer retaining control over the services and do not object to higher tariffs, as long as the revenue is reinvested in the local community.

4.2.2 Vertical structure—Provision from source to tap and beyond

Water services can be unbundled into several components, including raw water production and treatment, bulk transport, retail distribution, and sewerage collection, treatment, and disposal (Figure 4.3). The entire process is referred to here as the value chain for water services, and it reveals the relationship between vertical and horizontal structure. For example, if the responsibility for serving the Capital City (Figure 4.2) is separated from the responsibility for supplying Villages C and D, issues of vertical separation follow. One option would be to separate the reservoir and the transmission pipeline business from the distribution businesses to

Box 4.6 **Franchising and other professional support models for small towns**

Small towns and villages could benefit from private sector expertise, capital, and incentives, but the international operators that compete for private participation contracts for large cities or entire countries are not usually interested in contracts for small towns. Local private firms may be interested but may lack the expertise, track record, or management systems that governments want in a private operator.

A "franchising model," based on models used in other sectors such as restaurants, could be a way to address this problem. In a franchising model the supporting entity (the franchisor) provides comprehensive and long-term support without taking an equity position in the company it is supporting (the franchisee). For independent franchisees, franchising is a way of being in a business "for oneself but not by oneself." In return for support, a franchisee pays the franchisor—typically an initial upfront fee and an ongoing franchise fee that is at least partly performance based. A water and sanitation franchise would have two distinct contracts: a primary contract between the asset holder and the operator and a secondary contract between the operator and the franchisor. It remains to be seen whether franchising might work in water services.

Another option is cooperatively provided management support services for small water operators. For example, in Mali, a quasi-government institution, the Cell for Advice and Support to Small Water Providers, provides professional support to rural water service providers, including regular financial audits and on-call technical support services. Rural water service providers finance this entity through a small levy on the proceeds of water sales. This professional support mechanism has substantially improved the quality of services provided and sharply reduced tariffs. The government is currently looking into the possibility of introducing private participation into the Cell to further increase efficiency and the number of rural centers served.

Sources: Roche and others 2001.

create a regional bulk supply business and three distribution companies. Other options are also possible. The important point is that although the *Toolkit* sets out decision frameworks for horizontal and vertical separation separately, in many cases the decisions will be interrelated.

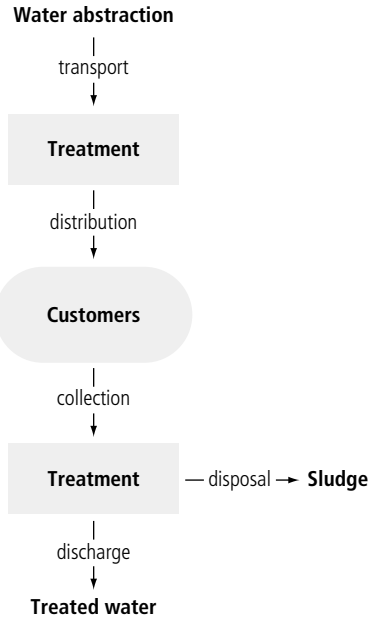
Vertical unbundling has become common in the electricity sector, but is less common in water services. Examples of vertical separation in the water sector include:

- Separating wastewater responsibilities from water supply
- Separating bulk water production and treatment from water distribution, or wastewater treatment and discharge from collection
- Separating water transmission from distribution.

When deciding whether to vertically separate services, governments will want to consider:

- *The current structure of the sector.* Making changes is always costly, so there should be clear reasons for any reorganization.
- *How to ensure quality of service.* It is often thought that when one company is responsible for provision from source to tap it will be more accountable for meeting quality targets. When several companies are involved in the supply chain, it may be unclear which is responsible for a problem with service quality: the distribution utility may argue that a water quality problem is a result of poor treatment by the bulk supply company, while the bulk supply company argues that the problem occurred because of contamination in the distribution network. But if the there are clear contracts setting out the quality of the water the bulk provider must supply and effective monitoring procedures at the boundary between the two networks, it may be possible to ensure accountability for service quality in a vertically disaggregated system.
- *Planning investment.* There are tradeoffs between investments in different levels of the value chain. For example, a water shortage can be addressed by building new production facilities or reducing leakage in the distribution network. Customers will benefit if the lowest-cost mix of such investments is chosen. Making a single company responsible for all parts of the value chain may make such optimization easier. Investments also need to be coordinated. For example, it is often desirable to extend wastewater collection services to an area at the same time as it is supplied with piped water. This may be easier if water and wastewater services are the responsibility of a single enterprise. If they are separated, additional planning, administrative, and contractual mechanisms will be needed to achieve coordination.
- *Where new investment or management is needed.* If one link in the value chain needs improvement, the government may invite private participation in only that link. Similarly, if it is relatively easy to involve the private sector in one part of the chain, but harder to involve it in others, a government may choose to complete the easier transaction first. Many countries have introduced private participation in water production and treatment or wastewater treatment, while keeping distribution public. Different kinds of private participation may make sense for different levels in the value chain. An example is Brno, Czech Republic, which has a build-operate-transfer contract (with private financing) for wastewater treatment and an affermage-lease for water supply and wastewater collection. Governments may also choose to introduce private participation in the parts of the value chain that can be made commercially viable and to retain the parts that need more investment (see Box 4.7 and Appendix A).

Figure 4.3 **Value chain for a water services business**



- *Taking advantage of economies of scale and scope.* There may be economies of scale and scope in vertical aggregation, affecting management overhead, maintenance systems, equipment, and billing and collection.
- *Managing payment risk.* When one company provides all services and collects money from customers, it has only one payment risk to manage: the normal commercial risk of billing and collection. When other operators are introduced, some may not have a relationship with the customer and will usually need to be paid by the distribution utility. This can introduce additional risks. For example, a bulk water supply company may worry that the distribution utility may not pay for the water it receives. The problem is acute for a standalone wastewater utility. Since a wastewater utility cannot effectively cut off service, it is not in a good position to enforce payment, so many standalone wastewater utilities are financed by local property taxes. Another option is for the water distribution utility to collect wastewater charges on behalf of the wastewater utility, as in Chaumont, France (see Appendix A).
- *Managing scarce water resources.* Some large countries with scarce water have built regional or national water storage and management systems. Examples include Umgeni Water and Rand Water in South Africa and the National Office of

Box 4.7 **Separating water and sanitation services in Senegal**

In Senegal, before the introduction of private participation, sanitation services were losing money and needed large investments while water services were closer to cost recovery. The government decided to split management responsibilities for the services. Responsibility for water services was assigned through a concession contract to a publicly owned asset-holding company that entered a 15 year affermage contract with a private operator (see Appendix A). Responsibility for sanitation services was transferred to a government agency. The objectives of the split were to make the contract for water services more attractive and to achieve rapid efficiency gains in the water sector without being held back by problems in the sanitation sector. Because the vast majority of public investments during the early years of the contract were concentrated on water services, the public sanitation agency encountered many difficulties in improving the efficiency of its service, and sanitation services lagged even further behind the progress of water services.

Drinking Water in Morocco. Water distribution, as well as wastewater services, is then often left to local providers.

- *Promoting decentralized decision making.* When a regional utility supplies many towns, governments may wish to separate municipal distribution utilities from the regional bulk supply and transmission utility, in order to allow more local control over at least some aspects of the water service. For example, private participation was introduced in the municipal distribution service in Ostrava, Czech Republic, after it was separated from the regional bulk supply company.

4.2.3 Cross-sector structure—Grouping public services

Water and sanitation services are sometimes provided jointly with electricity distribution services or other local public services (such as solid waste or natural gas distribution, as in the German Stadwerke model of municipal multi-utilities). If these services are already grouped, the reform leader may wish to consider whether they should be separated, and, if they are separated, whether they should be grouped.

Possible benefits of grouping different services together include:

- *Economies of scope.* Billing and collections systems, maintenance systems and staff, information systems, and other overheads can be shared by different utility services.
- *Reducing payment risk.* Customers could be offered an option in their contract that if they default on their water payments, another service such as telephony or electricity may be cut off, and the water left on. While customers would not

want any service to be cut off for nonpayment, they may prefer losing a less essential service like telecommunications to having their water service interrupted. From the operator's point of view, it may be technically easier and socially more acceptable to cut off electricity or telecommunications services.

- *Financial sustainability and cross-subsidy.* Other utilities may be financially more robust than the water utility, and combining them may allow for cross-subsidies from other services to water (see Box 4.8). Policies for subsidy design are discussed in Chapter 5. While cross-subsidies of this sort have disadvantages, they can be an important factor in government decisions.

Possible disadvantages from bundling multiple services into a single company include:

- *Problems in cost allocation and tariff setting.* It may be difficult to allocate costs to one service or another when both services are provided by a single company. This can make tariff setting complicated. Accounting rules requiring separate accounts can help address the problem but do not fully solve it.
- *Competitive distortions.* An operator may be advantaged or disadvantaged in one market because it also operates in another market. For example, if a single company provides both water and cable TV services, it might use profits from its largely monopolistic water service to cross-subsidize its expansion into the more competitive cable TV market.
- *Loss of management focus.* There are limits to the number of things a management team can do well. One team managing two or three services may do less well than a single team focusing on each service. Whether management will lose focus depends on the size and complexity of the business involved and whether the company can attract higher-quality managers by combining several services than by providing only one service.

When services are not jointly provided before private participation, aggregating services into a single provider may be difficult. For example, in Côte d'Ivoire (see Appendix A), the same international investor has a share in the water and in the electricity service operators, but for historical reasons it has signed two separate contracts for those services. As a result, economies of scope for the management of those services are limited.

When services are already jointly provided, the benefits of joint provision should be carefully reviewed before splitting the services on the grounds of improved transparency. When services are not jointly provided, allowing takeovers and mergers between water and electricity (or other) providers might be expected to lead to joint provision where this is efficient.

Box 4.8 **Joint water and electricity service provision in Gabon and Morocco**

In Gabon a concession contract was let for a vertically and horizontally integrated national utility, providing both water and electricity (but not sanitation). When preparing the transaction, the government decided to keep water and electricity services together to maintain the coherence of the previous structure and permit continued cross-subsidies from electricity to water. This contract design yielded several benefits, including cost reductions through the sharing of human, financial, and technical resources, the creation of a platform for more integrated investment planning, and coordination with key stakeholders (such as ministries and communities).

Morocco, too, has chosen to keep water and electricity (and in this case sanitation) together in concessions in Casablanca, Rabat, Tangiers, and Tetouan—with apparently good results.

See Gabon and Tangiers in Appendix A.

4.3 ESTABLISHING RULES FOR COMPETITION

Market structure is likely to evolve based on the rules for competition defined at the time of the transaction, including whether mergers between providers are allowed and whether exclusive franchises have been granted or whether competitive entry by other providers is allowed.

Water services have traditionally been considered a natural monopoly on the grounds that one network is more economical than two or more. Water service providers therefore usually have a monopoly over a given supply area. But competition can occur in several ways:

- Competition for the market
- Competition via capital markets
- Competition in the market.

4.3.1 Competition for the market

Competition for the market consists of rebidding private sector contracts at regular intervals. Because the incumbent contractor risks losing the contract at the next bidding stage, regular rebidding is an efficient way of maintaining competitive pressure to deliver high-quality services at a reasonable price. Rules for rebidding may affect the efficiency of such mechanisms, however.

Given the long-term horizon of most water investments, arrangements involving investments by the operator tend to be long (up to 50 years, for example). In these cases, competition for the market may not give sufficient incentives to the incumbent operator to improve efficiency. Such arrangements therefore typically

contain more explicit mechanisms to mimic competition, such as price controls based on comparative competition.

Another important decision is whether to allow firms to bid for several contracts and whether to limit the number of contracts one company can have in a national market. This is directly linked to decisions on market structure, and it will influence the number of players and levels of competition in the market as a whole, beyond the boundaries of a specific contract.

If firms are allowed to bid for several contracts, they can increase their demand base and benefit from economies of scale and scope, even if their individual contracts are relatively small. If they are allowed to do so without limits, however, the market may evolve into a monopoly or oligopoly, making it difficult for new entrants to dislodge incumbents at the rebidding stage, and reducing the competitive threat. This type of consolidation has, for example, taken place in France over the years, reducing the potential for competition.

In such cases, a limit on the number of contracts that an operator can win may be needed, specifically when several contracts are the result of disaggregation to introduce comparative competition. In Manila, when the city was disaggregated into two separate areas, operators had to bid on the contracts for both areas but were not allowed to win both in order to maintain the potential for comparative competition.

In most developing countries, however, general limitations on bidding for several contracts would not be required because the emphasis would be on developing service providers' demand base to allow them to benefit from economies of scale, rather than on limiting their potential market size.

4.3.2 Competition via capital markets

Competition via capital markets occurs when operators can purchase their competitors by buying shares on financial markets or through direct mergers. The threat of being purchased maintains a competitive pressure on operators and gives them an incentive to improve the company's financial health. This form of competition may take place only when shares of water service providers can be bought and sold, which is usually not allowed for the entity that owns the infrastructure assets, but is frequently permitted for the company in charge of operating such assets.

The government may wish to consider whether operators in a given national market should be allowed to purchase each other's shares or merge. Such share purchases or mergers would be similar to allowing a firm to win multiple contracts (Section 4.3.1). The government, contracting authority, or regulator may want to prevent such mergers if it believes that market consolidation would affect its ability to evaluate operators' performance by means of benchmarking (Box 4.9). But the government should also consider potential economies of scale created by consolidation.

Box 4.9 **Limits to capital market competition in England and Wales**

In England and Wales, Ofwat, the economic regulator for water and sanitation services, has prevented mergers between regional water companies to maintain a minimum number of comparators for carrying out comparative competition. Ofwat uses an econometric efficiency assessment, comparing different water service providers across a range of variables, to determine benchmarks for efficiency standards. For this analysis, it needs a minimum number of comparators. But a recent report challenged this approach by demonstrating the efficiency gains that could be achieved by mergers in the England and Wales water market (Indepen Consulting 2002).

4.3.3 Competition in the market

Competition in the market occurs when operators are free to enter a market to provide goods and services to end consumers. It is the most frequent form of competition in consumer good markets, but it is more difficult to organize for water services.

For water services, competition in the market is often limited by granting exclusivity to the main service provider, either directly or indirectly, through rules that prevent other forms of service provision. For example, in Bolivia, nationwide regulations effectively protect the concessionaire from any form of competition: the sale of water by connected households is prohibited, the concessionaire can charge a fee for private groundwater extraction in its service area, and if two companies want concessions in the same area, the regulator must award one contract through competitive bidding.

Operators like exclusivity because it protects them from competition and some of the uncertainty surrounding future demand. Exclusivity prevents potentially inefficient duplication of piped networks and other investments. It also helps preserve cross-subsidies, because customers who pay higher-than-necessary prices—large industries perhaps—cannot switch to a new provider. But while the interests of the firm, and thus contract signing, may be facilitated by granting the firm exclusivity, customers may benefit from more liberal entry policies.

For example, exclusivity may prevent small-scale alternative service providers from offering services in areas unlikely to be connected to the network in the short term (due to location or the customers' income levels). As a result, small-scale alternative service providers are either confined to illegality or actively suppressed, thereby eliminating important services for poor consumers. This is particularly detrimental when the contract does not specify coverage targets, and therefore incentives to expand service are low. When the contract does specify coverage targets, cooperation with alternative service providers through bulk supply arrangements,

for example, may be optimal for the operator, because those providers may offer the lowest cost and most efficient option for the operator to meet its coverage targets.

Although competition from alternative providers is often forbidden (at least in theory) competition is sometimes encouraged. In Manila, for example, the two concession contracts allow for third-party provision and effectively encourage it in certain cases. This has resulted in numerous housing associations, community groups, and at least one local company buying water in bulk and reselling it.

If alternative providers are allowed, governments need to consider how laws and regulations affect them. Should providers be licensed? Should the prices they charge be controlled? If alternative providers are to function, retail reselling of bulk water generally needs to be allowed, and the tariff at which the operator sells bulk water to alternative providers will tend to determine their ability to compete and continue to provide services to poor customers.

More information **Setting upstream policy**

Market structure and competition: Ballance and Taylor 2001, Ehrhardt 2003, Ehrhardt and Burdon 1999, Webb and Ehrhardt 1998, PPIAF and Water and Sanitation Program 2002d, and Solo 1998.

Service efficiency: Environmental Resources Management and others 2003, and Tynan 2003.

Flexible approaches to setting quality standards: Baker and Trémolet 2000, EconOne Research and others 2003.

Potential for cross-subsidization and government role: Trémolet and Neale 2002, and Trémolet and others 2002.

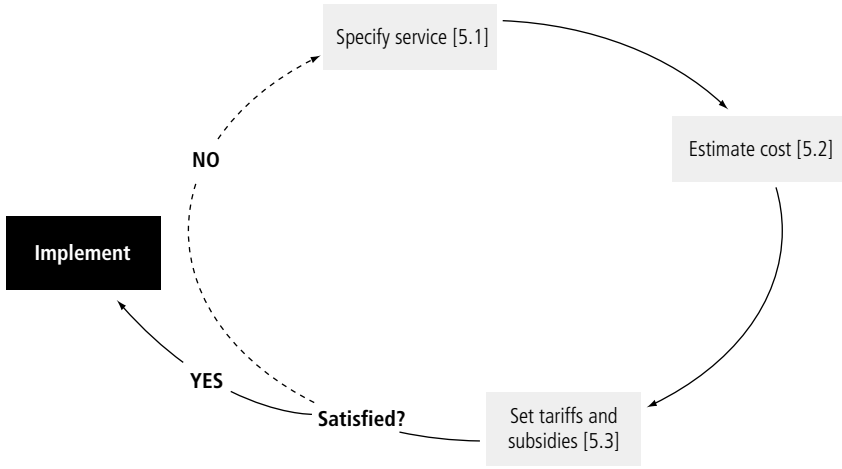
Small-scale providers and market structure: Smith 2003.

5 Setting service standards, tariffs, subsidies, and financial arrangements

In designing the arrangement, the government needs to balance the level of service with the level of tariffs. Better service generally costs more. This balance involves technical analysis, to determine the cost of service, and consultation and social research, to determine what people are willing to pay for particular levels of service. When the cost of service is more than the government thinks is reasonable, it may provide subsidies to cover the difference between cost and the desired tariff (Figure 5.1).

Finding an acceptable package of coverage targets and service standards is a multifaceted and iterative process. Governments may start by setting coverage targets (who should receive service) and service standards (the type and quality of the service) (Section 5.1). With these coverage and service targets, as well as assumptions about the efficiency of service provision, it is possible to calculate the cost of the desired service and to estimate what cost-recovery tariffs would be (Section 5.2).

Figure 5.1 **Balancing service standards, tariffs, and subsidies**



A government may want to keep tariffs below cost for poorer households or for a transition period. This can be achieved through subsidies. If available subsidies cannot cover the difference between the cost of service and socially acceptable tariffs, the government may need to lower coverage targets and service standards, to reduce costs. Reaching the appropriate mix of service standards, coverage targets, tariffs, and subsidies is an iterative process (Section 5.3).

Finally, the mix of service, tariff, and subsidy will influence the decision on which model of private participation to use, and help define the outputs that the private operator will be required to produce. The implications for private participation are discussed in Section 5.4. Section 5.5 provides guidance on how to structure investment finance under various private participation models.

Estimating the cost of service and the tradeoff between tariffs and subsidies is done best in a financial model (see the policy simulation model in Appendix B for a simplified example).

Finally, while the discussion starts with setting service standards, the process involves going in a loop through all the steps at least once, as Figure 5.1 shows. It is thus possible to start at other points in the process. For example, some may start by estimating the most investment that could be financed at socially acceptable tariffs and then use that information to set coverage and service targets.

5.1 SETTING A SERVICE GOAL

The service goal has two components:

- Coverage—the number of people who receive service
- Quality—potability, reliability, pressure, effluent treatment, customer service, and so on.

Coverage and quality objectives should be based on what customers want and are willing to pay for, as well as social and environmental considerations. In addition to private benefits, clean water and effective sanitation can benefit the people in a city or country as a whole. Wastewater treatment is likely to provide mostly public benefits by reducing pollution from sewage discharged into waterways. Good water supply can reduce the incidence of waterborne diseases.

Targets for the operator are often based on first-world standards. Achieving such targets quickly may be very expensive, however. It is important to set realistic and affordable targets.

Instead of specifying the inputs (or resources) to be expended, targets should generally be output-based, to take advantage of the private sector's expertise and maximize opportunities for innovation. The Manila contract provides a good example of this.

5.1.1 Defining coverage targets

Options for defining service coverage for both water and sanitation services include specifying:

- The number of new direct household connections, or the percentage of households to be connected
- The percentage of roads with tertiary pipes
- The geographic area to be served through direct connections, kiosks, standpipes, or other nonpiped delivery systems (for water services), and public latrines or other improved sanitation options (for sanitation services).

The main advantage of specifying the number or percentage of new households to be connected is that a number is relatively straightforward to choose, monitor, and enforce. Operators may, however, connect properties that are cheap and easy to connect or that are likely to be the best payers. So this approach may not be effective in expanding service in poor areas, unless a specific subtarget for poor households or poor areas is set, as in the Buenos Aires concession (Box 5.1). Targeting can be improved with customer surveys and poverty mapping to locate

Box 5.1 **Service targets for the Buenos Aires concession**

The concession contract for Buenos Aires specified precise geographic areas for service expansion to target poor areas. To meet the targets the concessionaire developed a five-year service expansion plan based on priority areas defined by each municipality. The plan was the vehicle for agreeing on coverage expansion. The concessionaire estimated that 60 percent of the 150,000 new water connections each year would be to poor areas, which would require 15 percent of investment and generate only 1 percent more revenue. By specifying precise geographical targets, the contract attempted to bring service to areas of low coverage, mostly poor neighborhoods. For example, the first five-year expansion targets for the poorly served south zone aimed to increase the number of connected households from 49 percent to 79 percent for water and from 21 percent to 40 percent for sewerage.

Source: Water and Sanitation Program 2001.

poor households more precisely and define priority areas for service expansion (Chapter 3).

Defining coverage only in terms of piped connections may increase costs because customers may prefer to receive alternative service at a lower price, as in the La Paz–El Alto concession in Bolivia (see Appendix A and Chapter 3).

Flexible definitions of coverage may allow the operator to use several types of service to meet targets, which may reduce costs and offer customers more choice. These types of service include bulk supply arrangements with alternative providers, which may offer service more quickly and cheaply in poor areas. In Manila, for example, concessionaires can offer standposts instead of private connections in designated low-income areas. For the purpose of calculating coverage for the contracts each standpost equals service to 475 people or about 100 households. The concessions in Manila also define coverage so that people are considered "served" no matter who supplies service, which resulted in small private piped networks and infills being installed in some areas. These networks supply water purchased in bulk from the primary operator, which benefits because coverage targets are met in the area and because it is paid for the water being supplied (see Appendix A).

Appropriately defined tariff structures can also provide incentives for expansion. An operator is more likely to extend service to poor areas if it benefits financially from doing so. If tariffs do not cover the operator's cost, there are no incentives to connect. Low tariffs may benefit customers already connected to the system, but harm people who are not connected.

5.1.2 Defining quality standards

Dimensions of service quality that governments may want to specify include:

- *Availability of service.* Should water be available 24 hours a day, seven days a week, or only at certain times?
- *Pressure.* At what pressure should water be available?
- *Water quality.* Should the water supplied meet WHO guidelines or EU standards, or should some flexibility be allowed, perhaps by setting noncritical standards at lower levels?
- *Effluent treatment.* What percentage of wastewater must be treated before discharge, and to what standard?
- *Customer service.* What payment methods should be available? How should customer complaints be handled?

Target levels for such standards will often be specified in the arrangement. In addition to such output-focused standards, arrangements may specify technical standards (such as the minimum diameter and depth of pipes). Setting technical input standards might be important in contracts where the incentives for the operator to effectively invest for the future are low (for example, in short-duration contracts). Input standards, however, do not provide incentives for the operator to seek the most cost-effective way to provide services to customers.

5.2 ESTIMATING THE COST OF SERVICE

Once initial objectives have been set, governments should estimate the cost of providing service. But much confusion still surrounds the definitions of "cost of service" and "cost recovery."

The focus of this section is on average costs as the starting point for determining the level of tariffs. Marginal costs may be important for determining the *structure* of tariffs. Setting the price of an additional unit of consumption at marginal cost can be a good signal to customers to use water services only when the value of the service exceeds the cost of producing it.

5.2.1 The importance of cost recovery

When a utility cannot cover its costs, service will suffer. Utilities will need to cut back on essential expenditure, such as chemicals for treatment, replacement pumps to provide reliable service, and expansion of the network to serve new customers. Surveys often show that most people would prefer a better water service that costs a little more, over a cheaper but low-quality service or no service at all. This is because low-quality water service imposes costs including diseases from poor sanitation, the costs of coping strategies, such as boiling water or installing water tanks, and the time and effort spent collecting water. These costs usually exceed the cost of the water tariff. So trying to keep tariffs low to help consumers can backfire, if the

effect is to stop the utility from providing a service people want and would be willing to pay for.

Not allowing utilities to recover their costs may also increase the cost of providing the service over the medium run. This is because when utilities are short of money they let assets deteriorate. Inadequate capital maintenance expenditure today leads to higher rehabilitation costs tomorrow.

5.2.2 A definition of cost of service

The cost of service has three elements:

- *Operating and maintenance expenses.* These are the day-to-day expenses involved in providing services and keeping the system functioning. They include labor costs, electricity, chemicals, repairs to equipment, and the like.
- *Depreciation.* Depreciation is the reduction in value of system assets over time. This is roughly equivalent to the amount of money needed to replace assets as they wear out.
- *Return on capital.* The return on capital is the interest on debt and the return on equity. The so-called weighted average cost of (debt and equity) capital is usually considered an appropriate measure of the rate of return on capital.

Full cost recovery requires tariffs to yield enough revenue to recover all the above costs. Alternative definitions of (partial) cost recovery are sometimes used, usually as part of an attempt to keep tariffs low. Measuring only some of the costs is risky, however, since it may result in the utility not being allowed enough revenue to meet all its costs, including the costs of investment and maintenance. It is better to have a clear idea of the total costs and then separately decide whether the tariff should recover all those costs or whether taxpayers should subsidize the service.

Estimating the cost of service from costs incurred in a single year, including depreciation and return on capital, is commonly used in U.S. tariff setting and is appropriate when tariffs are based on costs in a particular period.

Another approach involves looking purely at cash flows (including capital expenditure, that is, but excluding depreciation) over the life of the contract or some shorter period of time. Under this approach, cost-recovery tariffs generate revenue with a present value equal to the present value of the utility's cash costs, discounting both at the utility's weighted average cost of capital.

Accurately estimating the cost of service is difficult and technical (see Box 5.2). This *Toolkit* skips those details because they are covered in other material. The essential point is that the government will want to have a good estimate of the full cost of providing any level of service. For a water system to be viable, the sum of tariffs and subsidies must add up to the total cost of service.

Box 5.2 **The capital maintenance approach to estimating depreciation**

The capital maintenance approach focuses on measuring the expenditure needed to maintain assets at their current level of serviceability. This approach recognizes that assets like pipes and treatment plants do not generally wear out and then get replaced all at once, but rather are maintained and renewed in a continual process. Measuring expenditure on capital maintenance for an asset can thus be an alternative to including depreciation of the asset in the measurement of cost of service.

In any particular period, capital maintenance expenditure and depreciation can differ. When the asset base is relatively new, depreciation is likely to be higher than capital maintenance expenditure because the new assets will not require a great deal of maintenance. When assets are old, capital maintenance costs might exceed depreciation. When the assets are in a "steady state" one would expect depreciation and capital maintenance expenditure to be broadly equal. The corollary of this is that depreciation charges can provide a guide as to the long-term appropriate level of capital maintenance expenditure necessary to maintain the water utilities' asset base.

Source: Tynemarch Systems Engineering and Stone & Webster Consultants 2002.

In setting the revenue a utility is also allowed to earn, governments and regulators need to consider not just the full cost of service as described above, but also the annual cash needs of the utility, and the financial ratios required by lenders. For example, if assets are financed with loans whose term is shorter than the asset life, the utility will need to earn enough cash to repay the loan, which may mean that revenues would need to be higher than implied by a standard cost recovery calculation. Of course, if tariffs are initially higher than necessary to recover costs as defined, they should be lower later. This highlights the importance of using a financial model to ensure that all elements of cost are considered, and that the utility is able to meet its cash needs and required financial ratios in each year (see the policy simulation model in Appendix B for a simplified example).

Water services may also have environmental costs, such as depletion of water resources, or discharge of wastewater. At a social level, these are real costs. However, they need only be incorporated in the cost of service calculation if government has decided to impose these costs on the utility, for example through abstraction charges or pollution taxes.

5.3 DETERMINING THE MIX OF TARIFFS AND SUBSIDIES

Cost of service estimates tell government how much it will cost to provide the desired level of coverage and service. The next step is to check whether this amount

should be recovered through tariffs. If not, either subsidies will be needed to cover the difference between tariff revenues and the cost of service, or coverage and service targets will need to be lowered.

There are three reasons why tariffs that recover the full cost of service might be considered too high:

- People are unwilling to pay the full cost of the service
- People are willing to pay, but it is considered socially unacceptable to require them to pay what the service costs to provide
- Environmental or public health externalities make it socially beneficial to charge people less than the cost of the service.

5.3.1 Willingness to pay

As outlined in Chapter 3, assessing willingness to pay for various service improvements is useful preparatory work. Willingness to pay surveys conducted in recent years have shown that most consumers (especially unconnected consumers) are willing to pay substantial amounts for better water service—in many cases more than generally accepted notions of what they should have to pay. For example, in a survey of five small Moroccan cities, respondents were prepared to spend 7–10 percent of total household expenditure for an individual water connection, despite already receiving free and reliable standpost service.

But, if willingness to pay surveys reveal that consumers are unwilling to pay for the full cost of service, the government will generally have to change the service definition to reduce cost or increase quality until a quality–cost combination is found that consumers are willing to pay for. This was the case in La Paz–El Alto, when it was found that low-income households used too little water to allow the utility to recover the cost of a standard connection, and it was agreed that the operator could develop lower-cost approaches (see Box 3.1).

If a large proportion of the population is unconnected, information from a willingness to pay survey is valuable for determining the requirements and means for service expansion. Willingness to pay should be part of a broader consultation exercise, in order to crosscheck the results with experience on the ground (Chapter 3).

Willingness to pay may be lower for sanitation services than it is for water services, partly because some of the benefits are external, and perhaps partly because of lack of awareness. When this is the case, an appropriate response may be to provide subsidies, encouraging consumers to use the service and thus providing the desired social benefits.

5.3.2 Social acceptability

Even when households have demonstrated a willingness to pay for improved water services, governments sometimes refrain from raising tariffs, fearing unpopularity. This can stop people getting improved services. But when tariff increases precede service improvements, it is understandable: in many countries customers have experienced several attempted reforms in which tariffs were increased, but service did not improve. In Cochabamba, failure to find a balance between tariffs and service standards that consumers considered reasonable contributed to the arrangement's failure (Box 3.1).

There may be justifications for charging customers less than full cost, at least for a period, to promote social acceptance of the proposed reforms, and thus their political sustainability. Useful techniques in such cases can include phasing in tariff increases over time and linking tariff increases to clear improvements in service.

The government may also keep the tariffs for poor people below cost. This is done to ensure that poor people can afford sufficient quantities of service to meet some socially acceptable "basic needs" level of service or because some wider social benefits exist.

5.3.3 External benefits

External benefits may also be a reason to subsidize water services. Encouraging connections to sewer networks and providing effective wastewater treatment prevents sewage discharge, making waterways safe again for bathing, fishing, and other uses.

Water service may promote hygiene, reducing overall disease levels in the community. These external benefits may justify subsidies for water services.

Governments may also wish to compare the literature on the effectiveness of demand promotion with that on the subsidized provision of services (Mehta 2003).

5.3.4 Deciding on subsidies

Private participation can be consistent with customers paying tariffs below cost of service. But for any utility to perform well, total revenue from tariffs and subsidies must at least equal the total cost of service. So, if the government wants to set some tariffs below cost, it needs a source of money to provide a subsidy that makes up the difference between tariffs and costs. Decisions on subsidies involve a tradeoff between the value of other uses for the funding and the value that society or government places on some consumers receiving water services at below cost.

Subsidies can be categorized according to:

- Where the money comes from
- Who subsidies are paid to and for what.

There are three sources of money for subsidies:

- Revenue from other customers (usually called a cross-subsidy from one class of customers to another)
- Government revenue, collected from taxpayers
- Grants from development agencies.

Development agencies may also provide loans that can be used for paying subsidies. But since these loans have to be repaid—usually from tax revenues—they are not really an additional source of funds over the long term, though they may help to make structuring a subsidy fund easier. And to the extent that the terms of the loan are concessional, they include what is effectively a grant element.

Subsidies can also be categorized by who they are paid to and what the payment is contingent on. There is a distinction between subsidies paid on the provision of outputs and those provided generally to help the utility cover its costs. Within the general category of output-based subsidies, there are subsidies paid directly to the consumer to help them pay bills and subsidies paid to the utility or operators that are contingent on providing service.

Input-based subsidies include general support to the utility to meet its costs, paid regardless of outputs. Such subsidies may be planned or ad hoc. Input subsidies can also be implicit, such as government debt guarantees.

Table 5.1 shows the various types of subsidy that are possible, given these three sources of revenue and four things for which subsidies may be paid. The shaded boxes identify where various subsidy types discussed in the text fit within this categorization. The following sections discuss the major types of subsidies, and issues to be considered in their design and implementation in the context of private participation.

5.3.4.1 Output-based subsidies. Subsidies have traditionally been paid to help utilities cover their costs. The problem with this approach is that it remunerates the utility on the basis of its costs, not its results. A better approach, especially when a private operator is involved, may be to make payment of the money contingent on provision of outputs. These outputs can include delivery of water to a household, connection of new households in poor areas, or treatment of specified quantities of wastewater to the required standard. The shaded subsidies in Table 5.1 identify two useful types of output-based subsidy:

Table 5.1 **Types of subsidy**

	Output-based		**Input-based**	
Paid to / **Money from**	Customer to help pay the bill	Utility/operator for outputs	Utility/operator for inputs	Utility or operator as implicit or ad hoc support
Customer revenue			Cross-subsidy	Customer bail-out
Government revenue	Social security provisions			Implicit subsidy or bail-out
Development-agency grant or loan with concessional element		Donor financed Output-based Aid	Input subsidy	

Social security provision linked specifically to water services. In this approach, the government may help low-income households by paying part of their water bill. For example in Chile municipalities pay (nationally funded) subsidies to private (and public) water companies when water is supplied to low-income households. The central government allocates subsidy money to each region according to local tariffs and the estimated number of households likely to pay water bills greater than 5 percent of household income. Local municipalities assess eligibility for the subsidy, with the water company billing the recipient net of the subsidy amount and billing the municipality for the remainder.

Donor-financed output-based aid paid to utilities. New structures have been developed in which, rather than lending to finance the construction of infrastructure such as a new distribution network, development agencies will lend or grant money to a government-controlled subsidy fund (Box 5.3). This fund then pays the operator when particular outputs are produced. For example, in Paraguay a scheme is being developed to expand service by paying private operators a fixed amount (approximately US$150) for each new connection.

A difficult question in designing output-based subsidy schemes is whether to target the subsidies specifically at poor households. Effective targeting can make sure the money goes where it is most needed, but it also tends to be difficult and costly to administer. In the Chilean scheme, eligible households are identified by a questionnaire that covers living conditions, housing conditions, income, ownership of durable goods, and so on. Such a system demands a high degree of institutional

Box 5.3 **Output-based aid (OBA) approaches**

OBA refers to the approach in which the government contracts to a third party the delivery of a service to consumers for which public funds, complemented in some cases by user fees, are paid contingent on the actual delivery of these services as determined in performance-based contracts with public or private providers. It aims to encourage providers to deliver the services the government wants by tying some or all of the payments to the delivery of specified outputs or outcomes. It also seeks to enhance accountability for the use of public funds by focusing on measurable outputs or results. OBA approaches have been used in many sectors.

In water, OBA approaches can be used to:

- Expand access to services by linking the payment of a subsidy to access or new connections
- Cushion the move to cost-recovering tariffs by paying subsidies for a transition period
- Help disadvantaged groups by providing an ongoing payment to an operator of the difference between the desired tariff (paid by the household) and full cost
- Achieve positive externalities by, for example, subsidizing the achievement of environmental targets.

OBA's potential advantages include:

- Better targeting of government and donor funding
- Greater accountability of the service provider
- Reduced costs, as providers can decide how to produce contracted outputs.

The extent to which the potential benefits are realized depends on the design of individual schemes. Questions that need to be answered include:

- What is the rationale for public funding? How might budgetary constraints and sustainability issues influence design?
- Who are the intended recipients? How will they be targeted?
- What criteria should govern eligibility?
- Will services be provided in a competitive or monopolistic market?
- What should the service package include? How should key performance standards be defined?
- What should be the form and size of payment? How will payments be structured?
- What should be the form and duration of the contract? How will issues of contract adaptation and dispute settlement be addressed?
- What should be the scope of the scheme? Who should be responsible for administering the scheme?

capacity. In the Philippines, eligible households are identified by using the parameters of a national survey of minimum basic needs (Yamamoto and Hunt 2005).

If payments are made for each new connection, the operator might have an incentive to connect only those premises that would maximize expected revenues less connection costs, probably better-off households. One alternative is to subsidize the cost of new connections only in certain areas—for example where poor households are concentrated.

Section 5.5 shows how OBA from the government or development agencies can help finance new capital expenditure under concession contracts.

5.3.4.2 Cross-subsidies. A cross-subsidy occurs when one customer pays more than the cost of service so that another customer can pay less. Cross-subsidies can be an effective way of achieving social goals, while ensuring that water and sanitation utilities as a whole are self-financing.

One of the most common types of cross-subsidy is the increasing-block tariff. This tariff structure attempts to ensure that all customers can afford enough water to meet their basic needs by providing an initial quantity ("block") of water at a low price, with volumes in excess of that block sold at a higher price. Another common approach is to charge industrial customers more than the cost of service so that residential customers are charged less. While cross-subsidies are common, they can have disadvantages:

- If the poorest people are not connected to the network, they will not benefit from the subsidy.
- If connected poor households are large, they may not benefit from increasing-block tariffs.
- Similarly, if poor households share a single connection, they may not benefit from increasing-block tariff structures.
- If cross-subsidies reduce the revenue from poor households below the cost of serving them, operators have an incentive to keep poor households unconnected.
- If tariffs are too high for customers that pay the cross-subsidy (large users, for example), some of those customers may disconnect from the network and get water from other sources, such as their own wells. This is inefficient and can deprive the operator of revenue.

5.3.4.3 Direct cash subsidies to the utility. In many countries, governments finance new infrastructure for water and sanitation. Governments sometimes explicitly fund a portion of operating costs as well, a subsidy that can continue under private participation. Affermage-lease and management contracts typically involve

continued government finance for infrastructure. When not covered by the tariff, this financing amounts to an input subsidy.

More generally, when there are political constraints to increasing tariffs, a general cash subsidy can be paid to the private service provider to reduce the average tariff needed to cover the utility's operating expenses. In this case, there are significant advantages associated with setting the amount of the subsidy in advance. Not doing so will ensure that the private operator has little incentive to minimize operating expenses. Setting the amount in advance might allow the subsidy to be gradually phased out through annual reductions as operating efficiencies are realized and tariff increases are phased in.

In Guinea a subsidy to the private operator under the 1990 lease contract was structured along these lines, with the cash subsidy phased out over six years. The initial amount of the subsidy was a function of two specific cost elements, foreign currency-denominated costs and debt-servicing costs, rather than a generalized gap between projected revenue and expenditures. Another rationale for this structure was to shield the private operator from foreign exchange risk, which can be an obstacle to private participation in the water sector (Brook and Locussol 2001). Because the subsidy in Guinea was part of an arrangement that committed the operator to deliver certain outputs, it is often cited as an early example of an OBA approach.

5.3.4.4 Implicit and ad hoc subsidies. Sometimes governments provide subsidies in ways that are not immediately obvious:

- *Subsidies for the cost of debt.* Governments can subsidize a water utility's cost of debt by lending money at concessional rates. Subsequent write-offs of these loans can be a further subsidy.
- *Unremunerated bearing of business risks by the government.* The government may subsidize a utility through unremunerated bearing of business risks associated with investment in the water and sanitation sector, thus increasing investor confidence and facilitating private participation. For example, the government may provide partial guarantees to mitigate such risks as foreign exchange losses or default during the long payback period typically required for large water sector investments. Because the contract counterpart is able to rely on the government guarantee, the private operator may be able to enter contracts on more advantageous terms. The government takes the risk of having to pay out on the contracts without necessarily receiving compensation from the utility. This subsidy is not targeted directly to service delivery outcomes or to customers most in need of assistance. When the government must accept these risks for an arrangement to proceed, it may be a good idea to determine the value of the risk-bearing and

perhaps charge a fee in order to ensure that the government knows the value of the support.

- *Customer bailouts.* An ad hoc subsidy from the customer to an operator occurs when risks that the operator was supposed to have borne under the arrangement are transferred to customers through a tariff increase in order to protect the operator from financial distress. For example, in Manila, after a rapid and unexpected depreciation of the exchange rate, tariffs were increased by more than would have been allowed under the planned regulatory mechanisms.
- *In-kind grants and tax exemptions.* Governments may also provide subsidies to private water and sanitation utilities through in-kind grants and tax exemptions. In-kind grants might take a variety of forms, such as water abstraction rights, which would otherwise be subject to some form of charging regime, or land grants for treatment works. Tax exemptions are commonly applied to publicly operated water and sanitation utilities, and may be extended once the utility is privately operated.

When developing an arrangement, the government should be aware of such implicit or ad hoc subsidies. It should consider its strategy for avoiding unintended ad hoc subsidies, and think about converting implicit subsidies into explicit subsidies that target the government's particular goals.

5.3.5 Evaluating alternative forms of subsidies

Governments need to analyze the likely effectiveness, costs, and benefits of various forms of subsidy. There can be a tendency to believe that any subsidy will benefit poor people. But subsidies can have errors of inclusion (for example, when rich customers get subsidized) or exclusion (for example, when unconnected poor households miss out on consumption subsidies for network services). Subsidies may also cost more to administer than they are worth, or divert money away from other areas that are actually higher priority. Box 5.4 summarizes suggested principles to ensure that poor people benefit effectively from tariff reform and subsidy design.

5.3.6 Setting the final customer tariff and service level

Having considered the cost of service, willingness to pay, social acceptability, externalities, and subsidy options, the government will face a choice of:

- Setting cost-recovery tariffs for all customers
- Setting tariffs below cost for at least some customers, and providing a subsidy to make up the difference between tariffs and cost
- Changing (probably reducing) coverage and service levels to lower the cost of

Box 5.4 **Designing tariffs and subsidies to help poor people**

The following principles can help ensure that tariffs and subsidies assist the poor:

- Ensure that subsidies and the tariff level and structure give the operator sufficient resources and a financial incentive to connect and serve poor households.
- When many poor households are unconnected, prefer access or connection subsidies to consumption subsidies.
- Ensure subsidies are targeted, transparent, and triggered by household demand.
- Get enough information to tell whether a proposed tariff or subsidy will hurt or help poor households.
- Because tariffs and subsidies need to be adjusted over time, work out how to incorporate concerns about the poor in decisions to adjust tariffs.

Source: Adapted from PPIAF and Water and Sanitation Program 2002b.

service and hence tariffs or to otherwise make the cost–quality bundle more attractive to customers.

As outlined in Chapter 3, making these decisions may involve consultation with customers and potential customers. It may be necessary to develop a range of options and iterate toward a solution, until finally an acceptable tradeoff between tariffs, service, and subsidies is reached.

5.4 IMPLICATIONS FOR DESIGN OF THE ARRANGEMENT

Private participation is possible even if tariffs do not cover costs. This is because the operator's remuneration may not be the same as the customer tariff. Under a management contract, for example, the operator's remuneration is relatively small compared with the utility's customer tariffs. Donors may finance a management fee, as in Guyana, so that the operator is not directly affected by the financial health of the utility. Under performance-based management contracts, however, the formula for the operator's performance payment may include some sharing of profits (as in Amman, Jordan—see Appendix A), giving the operator an incentive to improve the financial health of the utility as a whole.

When the government wants to transfer substantial responsibilities (and associated risks) to the operator but investment requirements are so large that they cannot be financed by the private operator alone, affermage-lease contracts can be used with some investment obligations for the private operator and public financing for the remainder. Such a model was used in Senegal, where large investments in bulk water supply transport and distribution were carried out by the asset-holding company, SONES, with external funding (see Appendix A).

It is sometimes thought that concessions cannot be used unless tariffs are close to cost recovery or the government has credibly committed itself to increasing them to that point. This is because in a concession the operator's remuneration, derived from the customer tariff, must be enough to pay for all costs of the utility including investments. As noted in Section 1.5, concessions can be combined with subsidies. Concessions using OBA approaches can be a viable way to both recover costs and offer improved services at affordable prices (see Section 5.3.4.3). Under such a concession, the government pays a subsidy to cover the gap between the cost-recovery tariff and the actual tariff paid by the consumer, or pays a certain amount for each new connection made or other output provided.

5.5 ACCESSING AND STRUCTURING FINANCE FOR INVESTMENT

Water and sanitation utilities are capital-intensive. To thrive, they need capital for investment, as well as good management. This section looks at:

- How private finance for water utilities can be structured and what governments can do to make private finance successful
- How to involve public and development-agency finance in arrangements for private participation.

5.5.1 Issues when structuring private finance in concessions and divestitures

Tapping new sources of finance for water and sanitation utilities has been a significant motivation for private participation. Of the forms of private participation discussed in this *Toolkit,* only concessions and divestitures mobilize significant private investment. This section looks at how that investment is typically structured in order to assist governments in designing transactions and arrangements conducive to private investment.

The way in which an operator provides finance can be complicated. The operator is usually a project company, specifically created for an arrangement. The owners of the project company could be a larger company that specializes in managing water companies, or local or international investors and businesses. For example, in the Manila concessions—where Philippines law required that the concession company be at least 60 percent locally owned—the Ayala Group, a local diversified property developer, owned 60 percent of Manila Water, and International Water owned 40 percent. In Gabon an international specialist operating company (Veolia) owns 51 percent of the operating company, with the rest of its shares traded on the local stock exchange and owned by workers and local investors.

The owners of the project company typically do not provide the majority of the finance. They might put up, say, 30 percent of the finance required as equity, with the

rest of the money being borrowed from banks or other financial institutions. The company may also seek insurance or guarantees against certain risks. For example, some agencies offer partial or political risk guarantees, which can include insurance against the government or regulator not doing what it promised under the contract. While these agencies do not provide finance themselves, they may make it easier to attract capital on reasonable terms by carrying some of the risk that would otherwise be borne by the investors. In general, the sources of finance include:

- Equity from a project promoter (for example, an international operator, local company, or financial investor)
- Equity from other investors (for example, insurers, pension funds, mutual funds, or private shareholders)
- Loans from local or foreign banks
- Bonds
- Export credit guarantee finance
- Loans from development agencies
- Grants from development agencies.

Governments will be more successful at attracting finance if they investigate the financial structures likely to be used by firms and accommodate the providers of capital as much as possible. It helps to recognize that the different participants have different interests and concerns. For example, lenders may want to have possession of the physical assets or cashflows of the utility in the event of a default on debt servicing, or they may require the right to "step-in" and take over ownership of the operating company. Governments should be cautious about granting such rights, but the more the government can do to structure the transaction to provide lenders with security, the easier it will be to finance the arrangement. Providing security involves going through the risk analysis in Chapter 6 to ensure that risk allocation is appropriate. Lenders will want a very low probability that the operator will be unable to service its debts, which means either that the debt–equity ratio is low or that the project risks, such as demand and foreign exchange risk, are not too great. Lenders will also look for political commitment to the arrangement.

On the private sector side, the main equity investors can generally be thought of as promoting the deal. They try to put together a winning offer to the government, while trying to attract debt finance. Since finance arrangements may not be finalized until late in the process, it can be difficult for the government to know the requirements of lenders and hence to design a structure that takes their needs into account. The government sometimes believes that a deal with an operator is complete only to learn that the bank or other lenders require significant changes to the structure and allocation of risks. Late in the process this can lead to ad hoc changes to the

arrangements, putting at risk the benefits of value for money and transparency that a well-designed competitive process can provide.

Governments can use several techniques to avoid these problems. One is to encourage the equity participants or promoters to be a good agent for the lenders—that is, to make them represent effectively the lenders' interests to the government. This can be done by requiring bids to be submitted with firm financing commitments, which demands that equity participants have an agreement with debt providers before submitting a bid. This is risky when the government is unsure whether the arrangement as put out to bid will be attractive. Even when the opportunity is attractive, lenders are likely to charge the project sponsor for the due diligence they would have to do before committing to lend. Sponsors are often reluctant to incur this cost before they know whether they will be successful. Therefore this approach risks deterring firms from bidding and encourages them to make noncompliant bids or increase the price they offer.

Direct discussions with potential lenders can help to ensure that their views are considered. Another approach is to include bankers or other advisors with a good understanding of what lenders are likely to require on the advisory team on the government's side. They can design features into the arrangement that increase the chance of it being financed.

Governments need to think carefully about the amount of investment needed, and how it can be phased. Some concession contracts such as those in Buenos Aires and Manila were structured to bring in a lot of private finance near the start of the contract, to allow major new infrastructure investments early in the contract. These contracts ran into difficulties as falling exchange rates and other unanticipated events made it impossible for the utilities to service large amounts of foreign-currency debt. Risk can be reduced, and the arrangement made more robust, by reducing the amount of debt taken on, and reducing the proportion of that debt that is denominated in foreign currency.

Another option may be to focus the initial investment program on works that will rapidly increase free cashflow. Typically, this includes things like reducing leakage, and improving energy efficiency by installing more efficient pumps. If the operator can spend the first two or three years of the contract reducing costs and increasing revenues, the utility should then be able to finance more of the investments needed from its own cashflow, reducing the need to take on debt, and so making the arrangements more robust.

5.5.2 Options for involving public and development-agency finance

Private participation is sometimes thought to mean that private firms will finance all the needed investment. But there is often a continuing role for public and development-agency finance. Even under a concession contract, governments that can

access development-agency lending and grants will want to continue to do so when it reduces the total cost of funds.

In other forms of private participation, private investment provided is limited or nonexistent. Under an affermage-lease contract the operator may provide finance for working capital and some small capital works or equipment replacement, but major infrastructure investments are the responsibility of the public sector. Under management contracts the private sector finances no investment at all.

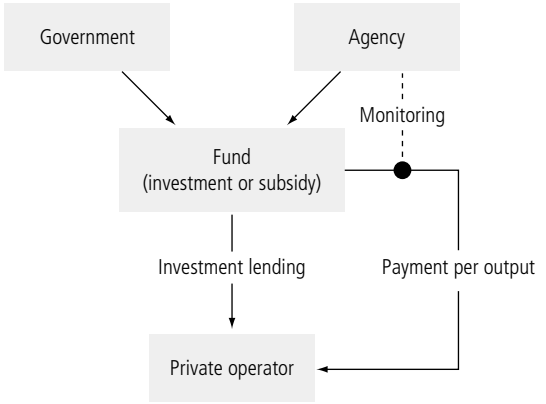
Governments choose affermage-lease and management contracts because they bring operational efficiencies and other benefits, such as clarifying roles and providing commercial focus. But the benefits of private participation are most fully realized when accompanied by sufficient investment, so it is helpful to include structures for providing public finance alongside private participation. There are several options for integrating public finance with the models of private participation.

Management contracts are sometimes used by utilities that have adequate capital, but that need more-focused management skills. But management contracts are sometimes recommended for utilities in difficult finance situations, such as when the utility is not generating any cash to invest in the business. If there is no money to invest in even basic efficiency-enhancing measures—such as replacing pumps, improving billing and commercial systems, and staff training—even the most talented and motivated manager will find it difficult to improve the situation.

Some public or development-agency finance therefore needs to be available to support the reforms being implemented by the management contractor. To be effective, the arrangement may need more than conventional public-sector finance (which can be unreliable) or development-agency loans (which have long lead times and can be inflexible). A better option may be a fund that can invest in priorities as they arise. The investments need to be responsive to the management team's ideas. But since the public sector will be responsible for repaying the loan there needs to be some public control, such as requiring approval from the utility board for spending outside certain broad limits.

Affermage-lease contracts are often recommended when a utility is generating enough cash to pay for operations, but not enough to service new borrowing from cashflow. Under such contracts the operator may recommend an investment plan, which the contracting authority (or other public-sector body) would approve and then finance. Implementation may be carried out by the operator or by the public sector. Because the public sector remains the asset owner, investment in infrastructure can be financed by government grants, development-agency loans, or other public borrowing. To be successful it will be worth ensuring that an adequate supply of capital exists to invest in the utility and striking the right balance between using the insights of the private managers to plan investment and protecting the public interest against excessive borrowing or investments which are designed to shift

Figure 5.2 **A possible structure for development-agency finance in an arrangement**



costs from the operator's account to the contracting authority.

Concession contracts have been used to mobilize substantial amounts of private investment in the water and sanitation sectors (Figure 5.2). But the fact that a government can mobilize private finance does not necessarily mean that it should rely entirely on private finance. Governments may have valid social and developmental reasons for subsidizing the water services and financing infrastructure may be an effective way to do so. Governments may also find that involving development agencies in financing infrastructure under concession contracts can help to lower the total cost of funds. Options to incorporate public finance into a concession contract arrangement include:

- Government lending to the concession company or providing an equity investment (that is, joint ownership)
- Government financing some infrastructure directly (and not allowing the concessionaire to earn a return on the publicly financed investment)
- Government providing an OBA fund that pays to extend service to new areas, thus effectively financing infrastructure on the basis of results.

In any of these models, government funding could include loan or grant funding from development agencies, which may be invested directly (where the charter of the development agency allows it) or lent to the government for investment in the project.

Figure 5.2 illustrates one possible structure for incorporating government and development-agency financing in an arrangement. The figure incorporates two options. The arrow showing "investment lending" indicates finance from the public

fund as a loan to the operator. The operator would then use this money to invest in infrastructure.

An alternative approach is illustrated by the arrow marked "payment per output." In this case the subsidy fund would agree to make a certain contribution toward the cost of providing specified services. For example, the fund might agree to pay US$150 for each new connection made in specified low-income areas. In this case the operator would finance the initial connection, but would be paid back by the subsidy fund once the connection was made, allowing the operator to recycle its capital into further investment. When alternative providers are operating, the subsidy fund might be structured in a way that is provider-neutral, so any operator providing the specified service would be eligible for the subsidy payment.

Checklist **Setting service standards, tariffs, subsidies, and financing**

- ❏ Understand what services customers want
- ❏ Evaluate external benefits from service
- ❏ Define coverage and service objectives
- ❏ Establish method for defining cost recovery
- ❏ Evaluate operations and maintenance costs
- ❏ Define methodology for calculating depreciation
- ❏ Value asset base and estimate cost of capital
- ❏ Estimate future efficiencies
- ❏ Evaluate how much customers are willing and able to pay
- ❏ Identify sources of external subsidies
- ❏ Review alternative subsidy schemes
- ❏ Revisit service objectives if service is too expensive
- ❏ Select appropriate model of private participation
- ❏ Define the financial terms of the arrangement
- ❏ Specify operator's coverage and service targets
- ❏ Assign responsibilities for setting and monitoring standards

More information **Setting service standards, tariffs, subsidies, and financial arrangements**

Definition of service standards: Baker and Trémolet 2000, Estache and others 2002, Smith 2003, and Trémolet 2002c.

Health and environmental benefits from water and sanitation: Whittington and Swarna 1994.

The desirability of cost recovery: Environmental Resources Management 2003a and Snijar and Syme 1998.

Regulatory accounting and methods of estimating costs: Green and Pardina 1999 and PPIAF and World Bank Institute 2002.

Estimating the cost of capital: Green and Pardina 1999 (Chapter 9) and Alexander 2000.

Benchmarking water utilities: Kingdom 1999 and Tynan and Kingdom 2002.

Customers' willingness to pay: Gómez-Lobo and others 2000, McPhail 1993, Singh and others 1993, Whittington 1998, and Whittington and others 1991.

Use of willingness to pay surveys in the context of private participation: see Box 3.1 and Chapter 3, UNDP and others 1999, Water and Sanitation Program 2002b, and Whittington and others 1998.

Social acceptability: Plummer 2000, UNDP and others 1999.

Affordability: UNDP and others 1999, Whittington 1992, and Whittington and others 2000.

Rationale for and evaluation of subsidies: Estache and others 2002, Foster and others 2000, Irwin 2003, Mehta 2003, Whittington 1992.

Output-based aid (OBA) approaches: Brook and Smith 2001, Drees and others 2004, EconOne Research 2003, Foster and others 2000, Global Partnership on Output-Based Aid Web page (www.gpoba.org), Gómez-Lobo 2001a and 2001b, Marin 2002, Mumssen 2004, Yamamoto and Hunt 2005.

Information on financing: Brealey and Myers 2000, Delmon 2001, Finnerty 1996, Hoffman 1998, Levy 1996, Nevitt and Fabozzi 2000, PricewaterhouseCoopers n.d., Yescombe 2002.

6 Allocating responsibilities and risks

This chapter discusses how to best allocate business responsibilities and risks and how to design tariff adjustment and other rules to achieve the desired allocation.

Under public provision the contracting authority has all the business responsibilities: it is responsible for managing the business, operating and maintaining the assets, investing in new assets, and financing the business. In some concessions and divestitures, the operator has practically all the business responsibilities. (Business responsibilities exclude such policy responsibilities as setting tariffs and quality standards.) But in management contracts, affermages-leases, and hybrid arrangements, business responsibilities are shared between the operator and the contracting authority. A big part of designing the arrangement is deciding how to allocate business responsibilities between the operator and the contracting authority.

Allocating risks is less intuitive than allocating responsibility, but it is also a large part of designing the arrangement. Risks come about because the world is unpredictable. Demand for water services may be higher or lower than forecast. Costs may be higher or lower than forecast. Exchange rates will change. The question is, who should bear these risks? Who should bear the losses or experience the gains? If the operator bears cost risks, for example, then the operator makes bigger profits if costs fall and smaller profits—or losses—if costs rise. On the other hand, if customers bear cost risks, then customers lose if costs rise and win if they fall; the operator's profits are unaffected.

It is useful to think about responsibilities and risks together. Operators may be given responsibility for the things they are able to do better than government, and may take the risks naturally associated with those responsibilities. For example, if the operator is responsible for collections, it will often be a good idea for the operator to bear collection risk (that is, for the operator's profits to depend in part on the utility's ability to collect what customers owe).

Many risks are allocated by the rules for adjusting tariffs: what usually determines whether the operator or customers bear cost risks, for example, is whether the rules allow tariffs to change in line with changes in cost.

The basic process for allocating responsibilities and risks is as follows:

- Identify the main areas of responsibility involved in delivering the services and the risks associated with each responsibility
- Allocate each area of responsibility and risk to the party best able to manage it
- Design the arrangement to achieve this allocation of risks and responsibilities.

6.1 ANALYZING RESPONSIBILITIES AND RISKS

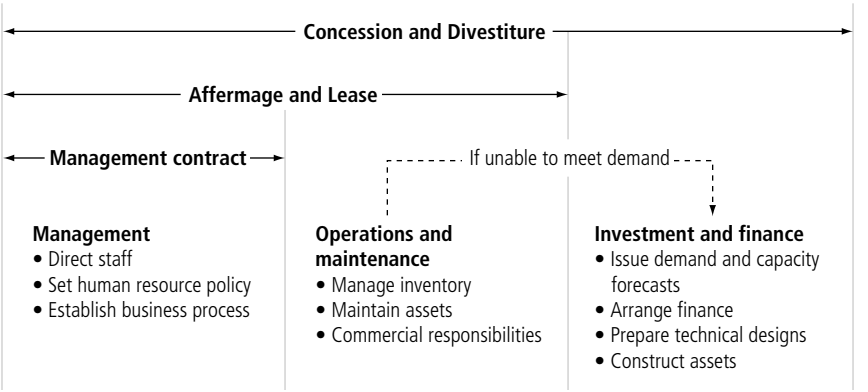
The first step is to identify the main responsibilities and risks.

6.1.1 Responsibilities

Figure 6.1 illustrates the major responsibilities involved in delivering water services, grouped as follows:

- *Management*—the responsibilities associated with managing a company, such as directing staff, setting human resource policies, and establishing or improving business processes
- *Operation and maintenance*—the responsibilities associated with operating the existing assets and maintaining them to required standards, including such

Figure 6.1 **Key areas of responsibility**



Note: The arrows indicate which areas of responsibility are allocated to the operator under three common arrangements.

activities as inventory management and asset maintenance, and such commercial responsibilities as billing and collection

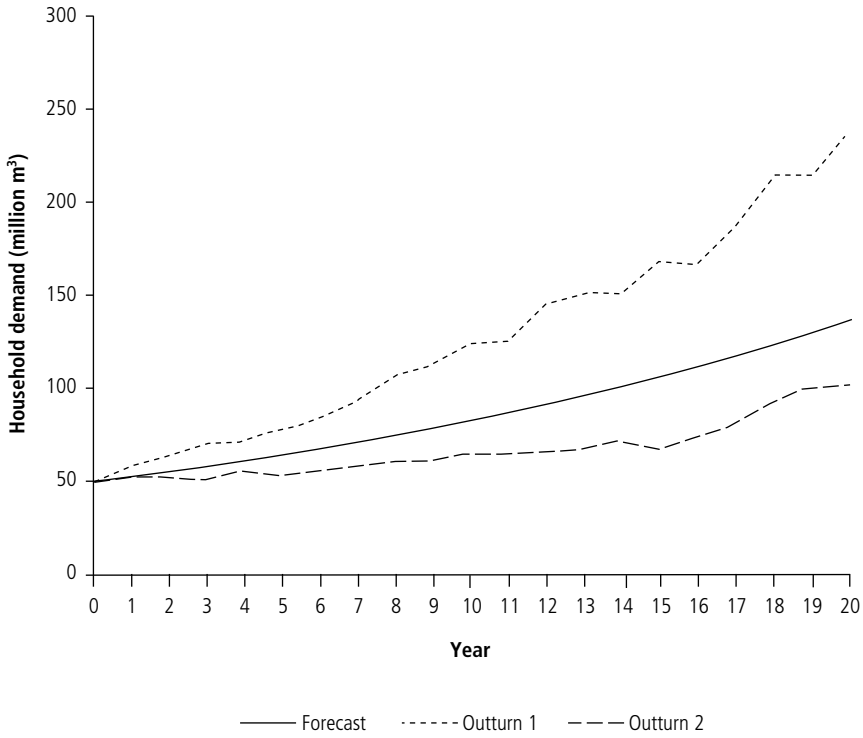
- *Investment and finance*—the responsibilities involved in expanding the asset base, including planning new investments, forecasting demand and capacity needs, arranging finance, preparing detailed technical designs, and constructing assets.

6.1.2 Risks

Risk is an unavoidable factor in the provision of water supply and sanitation services. The contracting authority and operator know that the value of certain variables, such as demand, interest rates, and foreign exchange rates, is important for the project. But while they may know the past and present values of the variables, they cannot predict future values with certainty.

Future demand, for example, depends on growth in per capita income and population as well as changes in the weather, preferences, and technology—none of which can be forecast with certainty. Even a good forecast of demand offers only a most likely, "average," or "expected" outcome. Actual demand may be higher or lower. Figure 6.2 illustrates using the policy simulation model (see Appendix B). It shows a forecast of demand and two randomly generated possible outturns, and raises questions that the government needs to consider. For example, would existing investment plans be appropriate under each of the possible outturns? And what would happen to the operator's profits?

Figure 6.2 **Demand risk—A forecast and two possible outcomes**



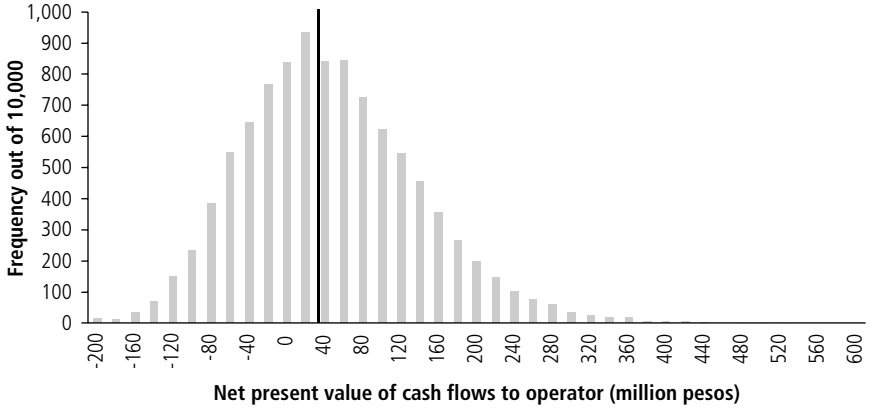
Source: Policy simulation model.

The policy simulation model also treats two other variables as subject to risk: inflation and the exchange rate. Part of the model's purpose is to show that risk is measurable, at least approximately, and that measuring risk is often a useful step in managing it.

Figure 6.3 illustrates the possible value of the operator's business, given unpredictable variation in demand. For example, the figure implies that there is about a 20 in 10,000 chance (that is, about a 0.2 percent chance) of the operator's net present value being as low as –200 million (the left-most bar); and about a 9.5 percent chance (950 out of 10,000) chance of the operator's value being between 0 and 20 million pesos (the tallest bar).

Risk can be measured in various ways. In addition to looking at the variability of the present value of total cashflows over the life of the contract, it is important to look at the chance that cashflows in any one year may be inadequate to service debt, triggering a default.

Figure 6.3 **Demand risk for the operator**



Note: The heavy vertical line at about 40 million pesos shows the best forecast of the net present value of the cash flows to the operator; the bars on the left indicate downside risk and those on the right upside risk.

Each area of responsibility for delivering water services entails a set of corresponding risks. For example:

- *Asset condition.* An operator bidding for a water distribution concession depends on information about the assets provided by tender documentation and initial inspections. The actual state and value of the assets may differ from initial assumptions, with implications for operating and maintenance costs.
- *Collection.* Revenue collection carries the possibility that some customers will not pay. An operator bases its business case on assumptions about the likely level of bad debts, which varies over time. For example, if economic conditions improve, so does the ability of households and businesses to pay for water services.
- *Construction.* Construction of a new plant entails a series of risks. Factors such as labor costs, the timing of equipment delivery, and the cost and time to obtain permits can affect total costs and construction times, positively or negatively.

Risk can be divided into two broad categories:

- *Operation-related risks*—the set of risks associated with operating and maintaining service
- *Investment-related risk*—the set of risks associated with investment in new infrastructure, for example, extending a distribution network, developing a new bulk water source, or constructing a new wastewater treatment facility.

Within these broad categories there are many more specific risks associated with particular responsibilities or aspects of the operating environment. Figure 6.4 illustrates the relationship between key risks and how they ultimately affect cashflows. Each box in Figure 6.4 is associated with a specific risk: a variation in any of these parameters will flow through to cause an increase, or a decrease, in the total value of the business. For example, the shaded boxes in Figure 6.4 show how variations in demand have an impact on other areas of risk and, ultimately, the cashflows and the value of the business.

Identifying and allocating risks is complicated for several reasons:

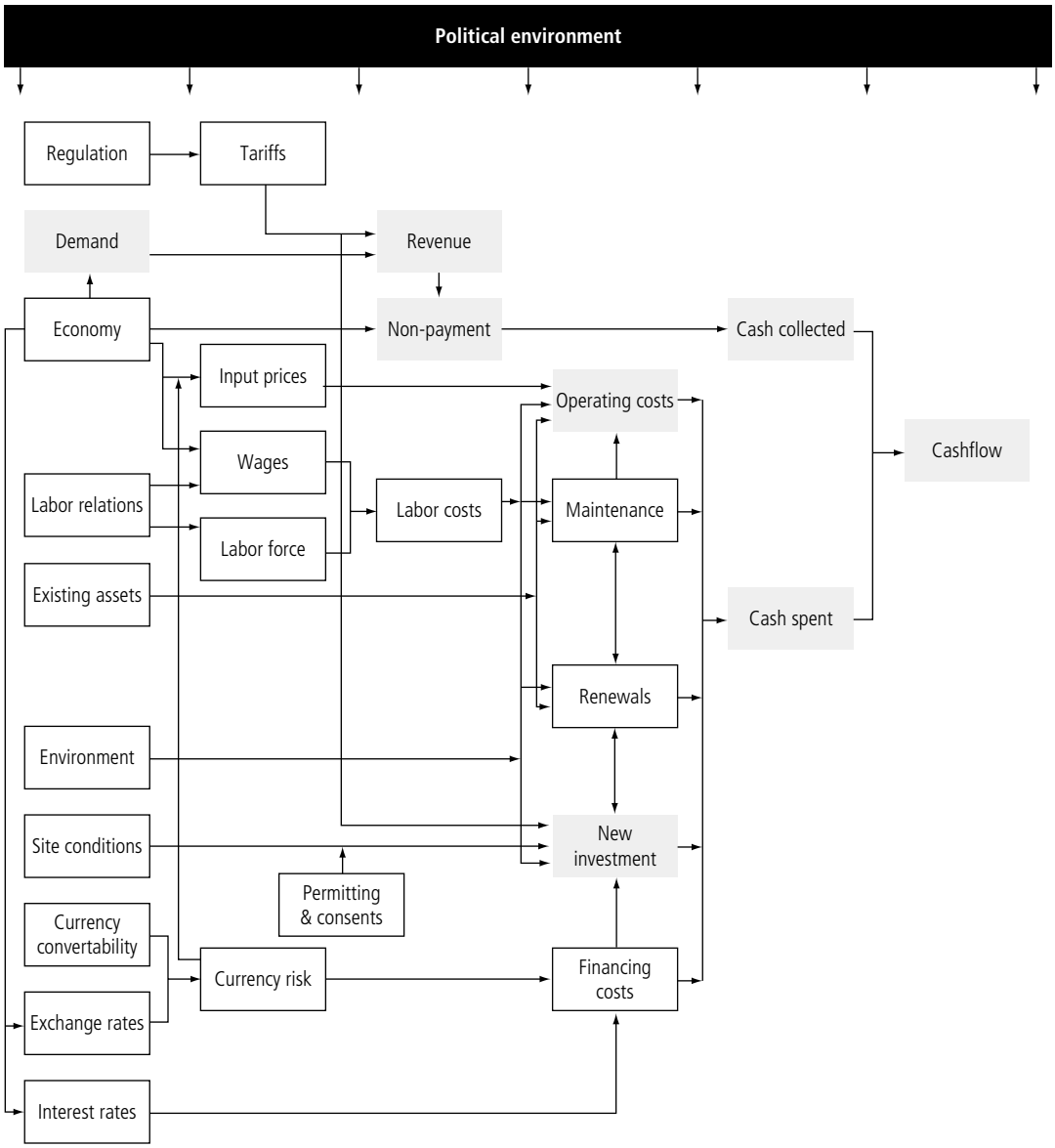
- *Many risks affect the water sector.* Although Figure 6.4 looks complicated, it simplifies the risks and relationships that exist in practice.
- *One risk is often a bundle of other, more specific risks.* For example, construction risk can include unpredictable variation in input prices, the condition of the construction site, or in the cost or availability of labor.
- *Risks are interrelated.* An unexpected change in demand, for example, will influence revenue, operating and maintenance costs, the need for new investment, and the need for financing. These effects are shaded in Figure 6.4. Depending on the tariff-adjustment rules, a change may also lead to new tariffs, which in turn influence demand.

6.2 DETERMINING THE BEST ALLOCATION OF RESPONSIBILITIES AND RISKS

The aim of private participation is usually to allocate risks and responsibilities between the operator and the contracting authority so that:

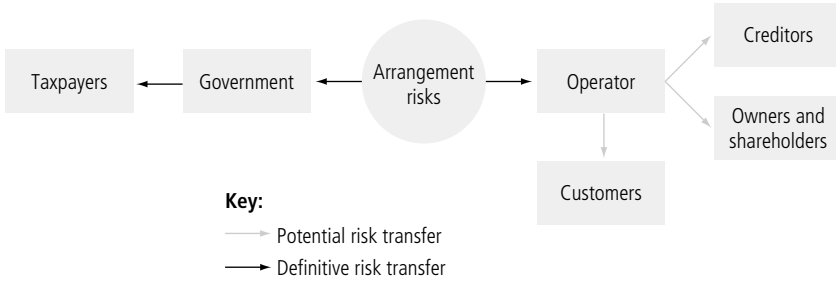
- Each responsibility is allocated to the party best able to undertake it.
- Each risk is borne by the party best able to manage it, taking account of the parties' ability to:
  - *Predict changes in the relevant risk factor.* For example, one party may be better able to predict nonpayment.
  - *Influence or control the risk factor.* For example, one party may be better able than others to reduce the number of nonpaying customers through customer management.
  - *Control the impact of the risk on the value of the water and sanitation business.* For example, one party may be better at limiting the effect of nonpayment, perhaps by offering different credit terms to different customers.
  - *Diversify or absorb the risk.* For example, one party may be better able to diversify risks across a portfolio of projects.

Figure 6.4 **Links between risks**



Bearing risk has a cost. And when nothing can be done to change a risk, the party passively bearing the risk will likely demand something in return. So the contracting authority should not simply try to allocate as much risk as possible to the operator because the operator generally seeks to recover the resulting cost by charging the contracting authority or customers more. Instead, the contracting

Figure 6.5 **Initial and final risk allocation for a concession**



authority should consider which party can best manage each risk. Allocating each risk to the party best able to manage it reduces costs to the contracting authority and customers.

Take an operator that is not permitted to adjust tariffs to reflect changes in demand. The operator bears all demand risk and is likely to demand a higher initial tariff than it would otherwise. Although the operator faces all demand risk, customers still bear the expected cost. If the operator could adjust tariffs in response to demand changes, it would likely settle for a lower initial tariff.

Allocating a risk to a party generally gives the party an incentive to alter its behavior to minimize its costs. Risk allocation therefore affects the parties' incentives to improve efficiency.

Although some risks can be predicted and controlled, others cannot. Natural disasters, such as earthquakes, are largely unpredictable and uncontrollable. A risk that can neither be anticipated nor controlled should be allocated to the party best able to diversify or absorb it. But it is often possible to anticipate and partially mitigate risks that are uncontrollable and largely unpredictable. The damage from a large earthquake may be mitigated by using appropriate engineering techniques and building materials. The probability of a fire, and resulting damage to the business, can be reduced by adopting fire safety policies, using fireproof building materials, installing sprinkler systems, and so on. In these examples, the optimal solution may be to allocate risk to the operator, which may then share the risk with insurers.

An arrangement, as defined in the *Toolkit,* allocates risks among customers, the operator, and the contracting authority. In practice the risks allocated to the contracting authority and the operator are passed on to others—taxpayers in the case of the contracting authority, and shareholders and lenders in the case of the operator. The tariff structure and the rules for adjusting tariffs over time determine the distribution of risk between the operator and customers (Figure 6.5).

Checklist **Allocating risks and responsibilities**

- ❑ Define the major areas of responsibility (management, operations and maintenance, new investment)
- ❑ Define specific responsibilities for each area
- ❑ Identify the risks that are associated with each responsibility
- ❑ Note the direct and indirect relationships between risks and responsibilities
- ❑ Establish how the risks are interrelated
- ❑ For each risk, identify which party (the operator, contracting authority, or customers) is best able to bear the risk, and in particular who can:
  - ❑ Predict the risk
  - ❑ Influence the risk
  - ❑ Control the impact of the risk
  - ❑ Diversify or absorb residual risk
- ❑ Decide whether the risk should be fully allocated to one party or shared
- ❑ Check for any constraints on the ability of the parties to bear risk (such as information problems or unwillingness of the contracting authority or operator to bear risks they appear best able to manage)
- ❑ Based on the risk analysis, assign a party to:
  - ❑ Assume each responsibility
  - ❑ Bear each risk

6.2.1 Some examples

To illustrate the considerations involved in deciding how specific risks should be allocated, it is useful to focus on two important risks: demand risk and exchange rate risk.

6.2.1.1 Demand risk. Demand risk affects many elements of the water and sanitation sector and can have a significant impact on business value. Fluctuations in demand can make new investments too big or too small, which can increase costs. Demand risk can affect all parts of a water and sanitation company, including commercial performance, operation and maintenance, and new investment.

Given the potential business impact of demand variations, it is important to consider carefully who is best placed to bear demand risk:

- Who can best predict changes in demand? Private water and sanitation companies generally have the technical expertise needed to derive reasonable projections of demand as long as data on historical usage, customer numbers, and economic and demographic trends are available and accurate.

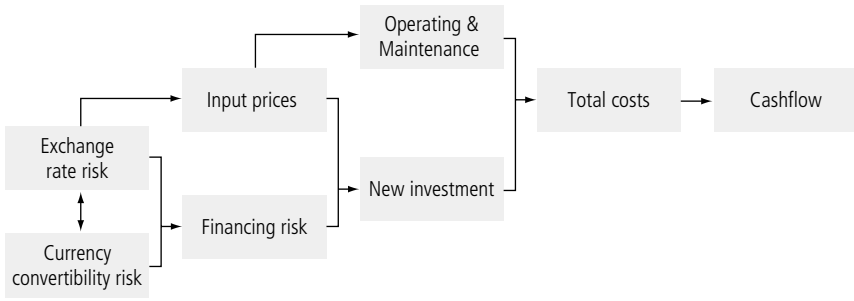
- Who can influence the risk? Influencing the demand for water services is difficult. Once customers are connected, they can use as much or as little water as they wish. But customer behavior can be influenced through metering policies, changes in tariffs, and public relations campaigns to discourage waste.
- Who can control the impact? Operators can mitigate the impact of unexpected demand variations by adjusting maintenance and investment programs. If demand falls, the operator might defer a planned water source expansion or cut back on leakage reduction. Conversely, if demand increases unexpectedly, the operator might seek to optimize system capacity by increasing investment in leakage reduction.
- Who can diversify or absorb the risk? The ability of water and sanitation companies to absorb demand risk is limited by their cost structure. A large proportion of costs is fixed. So when demand falls, the average cost to the operator of delivering each unit of water rises. Therefore, it is at least plausible to allow tariffs to increase if demand is substantially below forecast levels. If tariff setting rules leave demand risk largely with the operator rather than customers, the operator's overall risk exposure increases significantly and the sustainability of the arrangement may be threatened.

The extent to which demand risk is shared between the contracting authority and the operator depends on the particular circumstances of the project, including the availability of good information on demand, economic stability, and the operator's willingness to accept risk. In practice operators will be reluctant to fully assume demand risk and will seek to pass it on to customers in tariffs or reduced service levels.

6.2.1.2 Currency risk. Currency risk is made up of exchange rate risk and convertibility risk. Exchange rate risk comes from unpredictable variation in the exchange rate. For example, concessions in Manila and Argentina ran into financial difficulties following rapid and unexpected currency depreciation. Convertibility risk comes from uncertainty as to whether the government will allow the operator to convert local currency into foreign currency and send it overseas. Currency risk affects the value of the business through several mechanisms (Figure 6.6):

- *Operational costs.* The exchange rate affects the price of imported inputs. For example, a change in the exchange rate alters the cost of imported fuel oil, which may affect the domestic price of electricity used to pump water.
- *Maintenance and construction costs.* The exchange rate directly affects the price of imported parts or other inputs required to maintain existing plants and construct new assets.

Figure 6.6 **Currency risk**



- *Finance costs.* If loans are denominated in a foreign currency, but are serviced from local currency revenues, exchange rate fluctuations will affect business profitability. If the local currency depreciates, return on equity will fall.

Exchange rate fluctuations are not readily amenable to control. Central governments influence the exchange rate through macroeconomic policies, but the degree of influence is imperfect. Central governments can decide whether currency can be converted and transferred. But local or provincial governments may have no ability to influence the exchange rate or convertibility.

The operator also lacks control over the exchange rate and convertibility. An operator may be able to mitigate the impact of exchange rate changes by reducing its reliance on imported inputs or foreign-currency borrowing, but this has a cost. The operator may be able to hedge exchange rate risks by entering into swaps or futures contracts, but this is costly, and not possible in most developing countries.

For largely uncontrollable risks, the key question is who to best able to diversify or absorb the risk? In principle, the operator should be able to diversify its exposure to exchange rate risk across projects in different countries. After dramatic currency crises in developing countries, operators may be unwilling to accept substantial exchange rate risk. This makes an argument for the contracting authority to bear some exchange rate risk (for example, through guarantees or through retaining responsibility for financing new investment), or to allow the operator to share risk with customers. In the La Paz–El Alto and Cochabamba concessions, customers bore exchange rate risk when tariffs were set in U.S. dollars. This passed the exchange rate risk, including the risk associated with the companies' dollar-denominated debt, on to customers (see Appendix A).

6.3 DESIGNING RISK ALLOCATION RULES

Once the preferred allocation of responsibilities and risk has been determined, the next step is to design rules to effect that allocation.

Rules for adjusting tariffs are an important mechanism for allocating risk among customers, the operator, and the contracting authority. When the tariff received by the operator is different from the tariff paid by the customer, as in an affermage, the rules that matter most for the operator are those that govern its tariff.

The relevant tariff adjustment rules govern cost pass-throughs, tariff indexation, tariff resets, extraordinary tariff resets, and the like. Other risk-allocating rules including those specifying bonuses and penalties and the compensation paid to or by the operator when the contract is terminated.

6.3.1 Cost pass-throughs

The rules for adjusting tariffs often allow changes in the costs of certain inputs to be immediately passed through to customers. These cost pass-throughs allocate the risks of the cost of these inputs to customers.

In Tangiers, for example, the concessionaire buys bulk water from a government-owned bulk water supplier. If the price of bulk water increases, tariffs are increased so that the operator neither gains nor loses from the change (see Appendix A). Customers therefore bear the price risk of bulk water.

Cost pass-throughs should be considered for important costs over which the operator has no control. Other items that might be treated as pass-throughs include the cost of changes in sales tax or value-added tax and changes in regulations governing the quality of water or wastewater.

6.3.2 Tariff indexation formulas

Indexation formulas serve a purpose similar to cost pass-throughs. The formulas adjust tariffs according to the change in an index of prices, not the operator's actual costs. Tariffs are adjusted at regular intervals—every six months, for example—rather than in response to particular events.

Indexation formulas attempt to anticipate changes in certain determinants of the cost of service. They automatically adjust (customer or operator) tariffs according to specified rules. One kind of tariff indexation formula simply adjusts the tariff according to the change in the average level of prices measured by, say, the consumer price index, expressed mathematically as

$$T_n = T_{n-1} \frac{cpi_n}{cpi_{n-1}}.$$

In this formula, the tariff T in the period n is equal to the tariff in the previous period multiplied by the proportional increase in the consumer price index (CPI).

CPI-X indexation includes a tariff indexation formula that is based on changes in the consumer price index minus some proportion X:

$$T_n = T_{n-1}\left(\frac{cpi_n}{cpi_{n-1}} - X\right).$$

So, if the consumer price index increases from 100 to 105—by 5 percent, that is—and X is 1 percent, the tariff increases by 4 percent. CPI-X indexation is also known as RPI-X indexation, where RPI stands for the retail price index.

This kind of tariff indexation formula protects the utility from general inflation, but exposes it to risks of changes in prices of particular inputs. If the prices of electricity and chemicals increase by more than the average rate of inflation, the utility will lose. Conversely, if the price of those inputs rises by less than the average rate of inflation, the utility will gain.

Other tariff indexation formulas adjust prices according to a custom price index that more nearly reflects changes in the utility's likely costs. For example, the Gabon concession included a formula for quarterly tariff adjustments to account for changes in the exchange rate and the prices of inputs such as fuel, personnel, imported goods, and import taxes (see Appendix A). In this case,

$$T_n = T_{n-1}\frac{i_n}{i_{n-1}},$$

where the custom price index i is determined by a formula such as

$$i_n = w_1 p_{1,n} + w_2 p_{2,n} + w_3 p_{3,n}$$

where w_1 is the weight accorded to the price of the first input, $p_{1,n}$ is the price of the first input in period n, and so on. This second kind of indexation is more complicated but it also exposes the utility to less risk.

Another option, commonly used in the United States, is to have no indexation. In this case tariffs are fixed in nominal terms (at 50 cents a cubic meter, for example) and all changes are made during tariff resets.

6.3.3 Tariff resets

Tariff resets recognize that contractual incompleteness is unavoidable: that no tariff indexation formula can adequately cover all eventualities. If it were possible to identify in advance all the factors that might affect an operator's profits—and how they would do so—it would be possible to write an indexation formula into the arrangement to adjust tariffs or the operator's remuneration in the desired way with any possible change in costs. But in practice it is generally not possible to predict profit drivers with accuracy and certainty, so more discretionary, flexible approaches are often required.

This section on design of reset formulas and processes assumes a long-duration contract, such as an affermage-lease, concession, or divestiture. Resets are usually unnecessary in management contracts.

Tariff resets involve a set of rules, principles, and processes that can be used to adjust tariffs in a predictable fashion. (They can also be used to adjust service standards, but for convenience, they are called tariff resets). The rules are agreed on before the arrangement, and their design is a major determinant of the allocation of risk between operator and customers.

In general, the operator bears more risk (that is, can make bigger profits and have larger losses):

- The longer the gap between tariff resets
- The less that tariff resets pass changes in costs on to customers.

Chapter 7 of the *Toolkit* discusses the design of institutions for implementing resets. This section discusses the rules governing them.

When designing tariff-reset rules, the main considerations include:

- What are the objectives of the tariff reset
- If the review concludes that a new tariff is appropriate, what is the method for determining the new tariff?
- What will trigger a tariff review and possible tariff reset?

6.3.3.1 Objectives of the tariff reset. The objective of the reset refers to the result the parties are trying to achieve from a potential reset. Possible objectives include:

- Allowing the operator to earn a reasonable return on capital regardless of efficiency
- Allowing only an efficient operator to earn a reasonable return on capital

Box 6.1 **Example of the need for reset mechanisms**

Consider a hypothetical concession between an operator and a municipal contracting authority for water distribution. The operator has fixed costs of $40 million a year, including depreciation, staffing costs, and fixed overheads. Variable costs are $0.25 a cubic meter, including the cost of treatment chemicals and electricity for pumping. The operator's revenue, however, is fully variable: the operator's tariff is $1 a cubic meter. Over the first 10 years of the contract, the projected net present value of the deal is $12.4 million, based on expected demand growth of 3 percent a year.

What if, in the first year of the arrangement, water consumption drops by 3 percent rather than increasing as projected? Even if demand grows as projected in subsequent periods, this unforeseen event will have a substantial effect. While the present value of actual revenue over the 10-year period is 5 percent lower than expected, total costs drop by only 1 percent because of the high proportion of fixed costs. Instead of earning a modest profit over the first 10 years, the operator will make a loss in present value terms.

Given the potential impact on the value of the business from demand fluctuations, the operator may be unwilling to enter into the contract without being confident that it will be permitted to adjust tariffs to account for unpredictable shocks of this nature. The same will apply for other significant sources of risk.

The utility's projected and actual financial positions are summarized below.

	Expected	**Actual**
Revenue		
Initial demand (millions m3)	50	50
Demand growth		
Year 1	3%	-3%
Afterwards	3%	3%
Tariff	1	1
Total revenue ($ millions)	344.2	326.8
Costs		
Fixed ($ millions)	245.8	245.8
Variable ($ millions)	86.0	81.7
Total costs	331.8	327.5
Net present value ($ millions)	12.4	-0.7

Note: Total revenue and costs are in present value terms over a 10-year period at a discount rate of 10 percent.

- Returning the operator to the financial position it would have been in were it not for some unexpected change in a particular variable such as demand, interest rates, or the exchange rate.

The differences between these objectives may seem subtle, but they are crucial to the allocation of risks (and therefore incentives) under the arrangement. This is illustrated by the example in Table 6.1. In this example, we assume the operator is responsible for operating and maintaining a water and sanitation business and for financing some investment. Several factors have adversely affected the operator's financial position since the previous tariff review:

- The local currency has been devalued, increasing some input prices.
- The operator has not succeeded in reducing nonrevenue water as hoped, increasing operational costs.
- Electricity prices are higher than forecast.

Table 6.1 shows how the operator's risk differs according to the objective used for the price reset.

Tables 6.2 and 6.3 illustrate the financial implications that can flow from the choice of reset objective. Assume that for our example utility the average tariff was set at $1.19 a cubic meter at the start of the arrangement with an expected average return on capital of 10 percent over the first five years. By year 5, unexpected changes in the exchange rate have caused the operator's fixed costs to increase from $40 million to $48 million. Variable costs have increased by 50 percent, from $0.25 a cubic meter to $0.375 because of increased electricity prices and higher-than-expected nonrevenue water (Table 6.2).

As Table 6.2 shows, the increase in costs results in a loss of $2 million in year 5. The operator requests a tariff reset. Table 6.3 illustrates the impact of different reset objectives on the methodology used to calculate the new tariff and on the outcome for the operator. (To simplify, the table assumes that the tariff is reset for just year 6.)

The objective of the tariff reset determines the factors considered and the method used to establish the new tariff level:

- If the objective is to allow the operator to earn a reasonable return on capital, a full tariff review, based on the operator's actual financial position, is appropriate.
- If the objective is to allow only an efficient operator to earn a reasonable rate of return, a full review with adjustments for potential efficiency improvements is appropriate. The operator's financial position, costs, and revenues are assessed and then "optimized" to bring them into line with a theoretical efficient operator. Options for estimating efficient costs include:

Table 6.1 **Objectives of tariff resets and corresponding risk allocation**

Objective	Resulting risk allocation	Example
Allow the operator to earn a reasonable return on capital, regardless of efficiency	Passes all risk to customers in the long term. Risk is borne by the operator between periodic resets	To enable the operator to achieve the same rate of return as it would have without unexpected changes, the reset adjusts tariffs to account for changes since the last reset, thus passing through: • Costs from the currency devaluation • Higher-than-forecast operational costs from nonrevenue water • Increases in electricity costs • Any other changes (positive or negative), such as demand growth or managerial efficiencies.
Allow only an efficient operator to earn a reasonable return on capital	Uncontrollable risks are borne by the operator between periodic resets, but passed on to customers in the long term Controllable risks are borne by the operator	The reset adjusts tariffs so that an efficient firm can earn the target rate of return. The regulator or other decision maker estimates what it would cost an efficient operator to provide the service, including assumptions about the level of nonrevenue water an efficient operator would have been able to achieve. The regulator resets tariffs based on this cost estimate which passes through only those costs an efficient operator would not have been able to avoid, such as exchange rate and electricity price effects.
Return the operator to the financial position it would have been in if not for some unexpected change in a particular variable—in this case the exchange rate	The risk associated with the specified variables is passed through to customers in the long term The operator bears all other risks	The reset adjusts tariffs to pass through the cost from the currency devaluation. The operator must absorb the higher operational costs from higher-than-expected nonrevenue water and higher electricity prices. The operator also retains the benefit (or cost) of any other changes since the last reset.

  - Benchmarking the operator against other similar companies
  - Obtaining advice from an independent expert on how an efficient company would perform
  - Market testing (Box 6.2).

- If the objective is to return the operator to the financial position it would have been in if not for some unexpected changes in particular variables, a partial review that looks solely at the variables in question is appropriate. For example, what additional costs has the operator incurred as a result of currency devaluation? What is the change in the operator's net revenue attributable to a slowdown in demand growth?

Table 6.2 **Hypothetical operator—Financial position**
(Millions of U.S. dollars unless otherwise specified)

	Year 1	Year 5
Revenue		
Demand (million m^3)	50.0	56.3
Tariff (per m^3)	1.19	1.19
Total revenue	59.5	67.0
Costs		
Fixed costs (FC)	(40.0)	(48.0)
Variable costs (VC)	(12.5)	(21.1)
Total costs	(52.5)	(69.1)
Profit	7.0	(2.1)
Capital employed (A)	100	100
Rate of return on capital	7.0%	(2.1%)

Box 6.2 **Market testing—A way to determine whether the operator's costs are reasonable?**

To market test costs the operator says it must incur to perform a particular activity, the contracting authority calls for bids from other firms to perform the activity. If the other firms' bids differ little from the cost submitted by the operator, the operator's costs are assumed reasonable. If bids are much lower than the operator's submitted cost, the contracting authority reduces the tariff accordingly and contracts—or requires the operator to contract—the function out to the preferred bidder.

This approach can give the operator strong incentives to ensure its submitted costs are as low as possible. But it is only effective for activities that can be effectively separated from the rest of the business (for example, meter reading). It also increases the complexity of the tariff reset. The transaction costs of calling for bids and possibly contracting with a new firm need to be weighed against the potential benefits.

Table 6.3 **Impact of reset objectives on methodology and outcomes**

Objective	Tariff calculation	New tariff for year 6 (per m^3)	Projected return on capital (year 6)
Allow the operator to earn a reasonable return on capital regardless of efficiency	Full review: New tariff = $(A*r + FC_6 + VC_6) / D_6$ Target return on assets *(r)* is 10 percent FC_6 and VC_6 are projected fixed and variable costs in year 6, assumed unchanged Projected demand in year 6 (D_6) is 58.0 million m^3 (based on 3 percent a year demand growth)	$1.38	10 percent
Allow only an efficient operator to earn a reasonable return on capital	Full review: New tariff = $(A*r + EFC_6 + EVC_6) / D_6$ Target return on assets, for notional efficient operator, (r) is 10 percent D_6 is defined as above Assume the fixed costs of an efficient operator (EFC_6) are $48 million (as an efficient firm could have done no more to mitigate the impact of currency devaluation) Assume the variable costs of an efficient operator are $0.30 per m^3 (assuming an efficient operator would have achieved nonrevenue water targets, but could not have avoided increased electricity prices)	$1.30	5.7 percent
Return the operator to the financial position it would have been in if not for the currency devaluation	Partial review: New tariff = Existing tariff + $(\Delta SFC + \Delta SVC) / D_6$ D_6 is defined as above ΔSFC and ΔSVC are the changes in fixed and variable costs attributable to the specified variables. In this example the specified variables are the exchange rate, which has caused an increase of $8 million in fixed costs, but no increase in variable costs	$1.33	7.2 percent

A = capital employed; *D* = projected average demand; *E* = value associated with an efficient operator; *FC* = fixed costs; *VC* = variable costs; *r* = return on capital.

Tariff resets may also raise additional questions:

- How should the reasonable rate of return be determined
- How should the value of assets on which a return is allowed be set
- Should a return on operations, or a management fee, be allowed, in addition to the return on capital?

A decision will need to be made on the basis for calculations. For example, should the method be based on a historic test year, or be forward-looking, based on projections of costs and revenues? If a forward-looking approach is chosen, what period should be used? For example, should the period be the immediate future (say the next five years) or the full term of the arrangement? These issues are addressed in texts on regulation, some of which are listed in the "More information" box at the end of this chapter.

In some countries influenced by civil law, underlying rules provide for a tariff reset to restore "financial balance." But it is not always clear what "financial balance" means in practice—in fact, it could mean any of the three objectives above. It is a good idea for the contract to spell out as clearly as possible the procedures, principles, and objectives which will apply in any tariff reset.

6.3.3.2 Timing of tariff resets. The timing of tariff resets determines the length of time that the operator must bear risk before passing it on to customers. Three main approaches to the timing of tariff resets are possible:

- *Review on request.* The timing of tariff resets is not set in advance. Resets are triggered at the request of an affected party, such as the operator or a customer, if the operator's profitability diverges too far from a reasonable rate of return. In principle this approach allows the operator to pass changes in costs or revenues on to customers before the value of the business is significantly affected. This is the approach traditionally used in the United States.
- *Periodic reviews.* Permitted tariffs are reviewed and reset on a regular basis, say every five years. In principle, the operator retains profits or losses earned between resets. This approach is used in the United Kingdom.
- *Event-based reviews.* This approach is appropriate where the review seeks to adjust for specific variables. The arrangement specifies certain events that, if they occur, will trigger a tariff review. For example, the arrangement may specify that a tariff review will be held if demand varies from forecast by plus or minus 10 percent, if the local currency depreciates by more than 15 percent, or in response to changes in relevant legislation, for example on standards (see Box 6.3).

Box 6.3 **Event-based reviews in The Gambia and Gabon**

Event-based reviews have been used in The Gambia in an affermage-lease for water, wastewater, and electricity. The contracts included automatic tariff adjustment mechanisms, combined with a trigger mechanism. The trigger mechanism provided that tariffs, or the price index formula, could be adjusted on the request of either the contracting authority or the operator if any of the following events occurred:

- A discrepancy of more than 20 percent between the volume of sales and forecast volumes
- An increase in the tariff of more than 50 percent since the last tariff negotiation, simply from application of the price index formula
- Changes in custom duties, taxes, excises, or local government rates applicable to the operator
- Changes in the law, or in government investment, that decreased or increased operating costs
- Four years passing since the last adjustment.

A similar approach was taken in the Gabon concession (see Appendix A). Among other mechanisms for adjusting tariffs, the contract allows for exceptional tariff adjustments if any factor prices in the automatic tariff adjustment formula vary by more than 50 percent, if the total index rises 20 percent, or if legislative change or a significant change in production capacities affects the financial health of the contract.

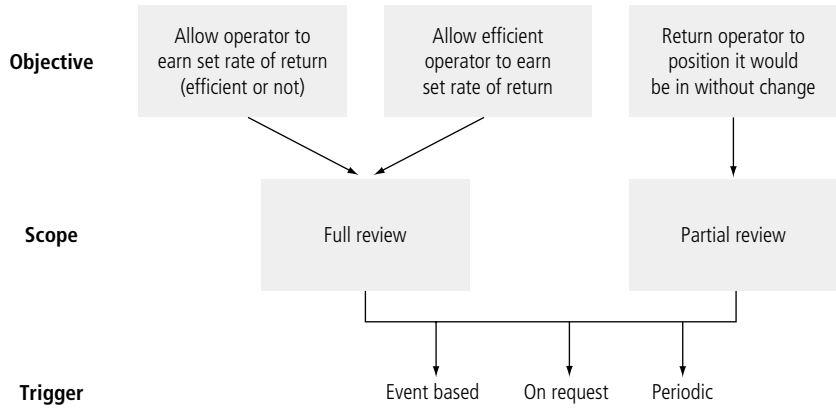
Hybrid approaches are also possible. Tariffs may be reviewed if certain events occur and one of the parties requests a review, or they may be reviewed in any case after a certain period if no event-based reviews have occurred.

6.3.4 Extraordinary tariff resets

Even with very carefully thought-out rules regarding cost pass-throughs, indexation, and tariff resets, circumstances can change in ways that cause the operator to suffer very large losses or make very large profits. The contracting authority may find both of these outcomes difficult to accept in practice. When the operator is on the verge of going bankrupt, for example, the contracting authority will probably be under strong pressure to renegotiate the agreement in order to prevent bankruptcy. Similarly, if profits are very high, there will be political pressure to reduce tariffs.

To deal with these pressures in an orderly way, the arrangements might provide for an extraordinary tariff review if a major unforeseen event occurs that is outside the control of the operator.

Figure 6.7 **Summary of key decisions in designing resets**



In the United Kingdom water companies' licenses sometimes include "shipwreck" clauses that provide for extraordinary tariff reviews (see, for example, the license for Thames referenced in Appendix A). In countries influenced by civil law, such as France, administrative law provides for something similar (see the discussion of *imprévision* and *fait du prince* in Chapter 8).

6.3.5 Other mechanisms for allocating risk

Tariff-adjustment rules—including cost pass-throughs, tariff indexation, tariff resets, and extraordinary resets—are the main instruments for allocating risks between customers and the operator. Many other mechanisms also allocate risk, usually between the operator and the contracting authority and sometimes among these parties and others.

6.3.5.1 Bonuses and penalties. Performance payments such as bonuses and penalties aim to encourage efficiency gains by sharing some elements of risk with the private operator. A contract may set out a list of penalties if the operator fails to meet specified performance requirements. Penalties usually vary according to the type of breach and its severity, duration, frequency, and effect on customers. The contract may also provide for bonuses if the operator exceeds certain targets.

In management contracts, bonuses are the main instrument for transferring risk to the operator. A management contract with no performance bonus only gives an operator weak incentives to improve performance. The operator may care about its reputation and take professional pride in doing a good job, but its profits from the arrangement do not depend on how much it improves the business. For this reason,

management contracts often include a performance-based bonus in the management fee.

6.3.5.2 Government guarantees. The contracting authority or other government entity may provide guarantees to operators (or their shareholders or creditors) against certain risks. For example, the government may provide a guarantee for the operator's debt. Or it might provide an exchange rate guarantee related to foreign currency debt that protects the operator from the negative effects of a depreciating exchange rate.

These guarantees transfer at least downside risk from the operator to the government, which makes the arrangement more attractive to the operator. But government guarantees reduce the operator's incentives to manage the risk in question, which undermines the benefits of private participation if the guarantee covers a risk that the operator can anticipate, control, or absorb better than the government. (Government guarantees of the performance of the contracting authority or other party are discussed in Chapter 8.)

When the government does provide guarantees, it needs to consider the associated costs and risks, and whether they should be recognized or disclosed in the budget and financial reporting.

6.3.5.3 Termination triggers and payments. An arrangement will usually set out a list of trigger events that entitle the parties to terminate the contract. For example, the requisition, expropriation, or seizure of the water system by the government may entitle the operator to terminate the contract. So may an event of *force majeure* that renders execution of the contract virtually impossible. Alternatively, if penalties in a particular period reach a certain threshold, the contracting authority may have the right to terminate the contract.

Termination payments compensate the operator in the event of early termination of the arrangement. They are particularly important where the operator makes a substantial sunk investment because such investments make the operator more vulnerable. Termination payments can reduce this concern, and the way the termination payment is calculated helps determine the allocation of risk.

For example, on termination of a concession arrangement because of default by the contracting authority, the compensation provisions may make the contracting authority pay the operator's outstanding debt, equity, loss of profit, and third-party liabilities resulting from cancellation of subcontracts. These significant sums can be a major deterrent to the contracting authority terminating an arrangement.

When a contracting authority terminates a concession agreement because of operator default, the project sponsor may lose the equity put into the project company. The operator usually ensures that all possible steps are taken to prevent default.

Provisions for compensation on termination are always closely scrutinized by the banks, which want to ensure that their loans will be repaid if the arrangement is terminated. Providing compensation that allows repayment of debt makes it easier for the operator to finance the project. But treating lenders more favorably than equity investors encourages the operator to increase its leverage, which increases vulnerability to shocks.

6.3.5.4 Transition periods at commencement. Where information problems increase the risk of the arrangement, the contracting authority may wish to consider providing a transition period at the commencement of the arrangement. This would give the operator a "grace period" to collect information needed to run the business on a commercial basis without being held accountable for performance improvements. At the end of the grace period, the arrangement may allow key terms to be adjusted if the actual situation differs significantly from initial assumptions. This mechanism spreads the risk from inadequate information among the operator, contracting authority, and customers.

6.3.5.5 Contract duration. Contract duration also influences the amount of risk that parties to an arrangement assume. Risk comes from unpredictable variation in the environment, and the longer the contract term, the more the environment is likely to change and the more difficult the changes are to forecast. If key terms are fixed for the duration of the arrangement, both parties will assume more risk—not necessarily a bad outcome because the parties will have to manage that risk and improve performance. But if all terms of the contract are fixed over a long period, the risk exposure of both parties can become unacceptably high, leading to unnecessarily high costs that deter private companies from entering the arrangement, particularly when substantial investment is involved.

The risk from contracts with longer durations, and in particular with significant private investment, can be kept to manageable levels by introducing an appropriate reset mechanism.

6.4 ALLOCATING RISKS AND RESPONSIBILITIES UNDER DIFFERENT MODELS OF PRIVATE PARTICIPATION

Each of the standard models of private participation—management contracts, affermage-leases, and concessions—is associated with, and to some extent defined by, a particular allocation of responsibilities and risks.

One way of designing the arrangement is to determine whether one of the three standard models (management contracts, affermage-lease, and concessions) can deliver the desired outcome. In practice, allocation of risk and responsibility under

these three standard models may not match the preferred outcome. If this is the case, a tailored or hybrid approach can be developed to achieve the desired allocation. Hybrids of different models are common.

6.4.1 Management contract

Under a management contract the operator fills key management positions in the water company with appropriately skilled staff. The publicly owned water company continues to be accountable for other responsibilities, such as operating and maintaining existing assets and undertaking new investment.

The risk transferred to the operator depends on the performance bonus. If there is no performance bonus, the operator bears the risk of not being paid by the contracting authority, but bears little of the risks of the water business. If there is a performance bonus, the formula for the bonus determines in large part how much risk is shifted to the operator. For typical management contracts, very little risk is transferred to the operator. (How risk is shared between the contracting authority and customers depends on rules governing tariff adjustment.)

6.4.2 Affermage-leases

Under an affermage-lease, responsibility for operating and maintaining existing assets, plus commercial and management responsibilities, pass to the operator. The contracting authority retains responsibility for new investment.

The risk transferred from the contracting authority to the operator is usually significant, but depends on the details of the contract and, in particular, the way the operator's remuneration is determined. Under an affermage, the tariff-adjustment rules that matter most are those applying to the operator's tariff (or affermage fee). Under a lease, the operator gets the customer tariff minus a lease payment, so the tariff adjustment rules that matter most are those that apply to the customer tariff.

6.4.3 Concessions

Under a concession the operator assumes full responsibility for service delivery, including management, operation and maintenance of existing assets, and new investment.

The risk transferred from the contracting authority to the operator is usually substantial, but depends on the details of the contract, and particularly on the rules for adjusting the customer tariff.

6.4.4 Hybrids

Various types of customized risk-sharing arrangements are possible. These could include:

- A "management contract plus" arrangement, in which the performance-related element of the management contract is so substantial as to transfer real risk. For example, the management contract might provide substantial bonuses, but only pay these if the operator succeeds in increasing the operating cashflow of the utility by more than the amount of the bonus. If the bonuses are large, operators might risk providing inputs in addition to those paid for by the fixed fee, if this improves the utility's performance enough to secure the bonus.
- An "affermage-lease plus" arrangement. Under a standard affermage-lease the contracting authority retains full responsibility for undertaking and financing new investment. However, it may be desirable to transfer some responsibility for investment to the operator. For example, the operator is usually better placed to manage construction of new assets. Contracting authorities may also wish to share other investment-related risks and responsibilities, particularly those relating to financing, with the operator. Mechanisms for sharing responsibility for new investment include:

  – *Limited investment targets for the operator.* For example, the operator could be given responsibility for extending service coverage to poor areas, or peri-urban neighborhoods, while the contracting authority retains responsibility for other investments.
  – *Cofinancing.* Cofinancing agreements are agreements between the operator and the contracting authority, or the operator and a development agency, under which investment and finance costs and risks would be shared.
  – *Sharing investment responsibility between the parties.* An affermage-lease contract can include responsibility for some investments (such as network extensions).

  See Box 6.4 for two examples.

Box 6.4 **Examples of hybrid arrangements**

Sharing risk through performance payments. Water distribution and wastewater collection services in Amman, Jordan, are subject to a management contract. Under the contract the operator, Suez Lyonnaise Des Eaux, Montgomery Watson Arabteh Jardaneh (LEMA), receives a fixed fee plus a performance-related bonus. The level of this payment depends on the change in operating revenues and operating and maintenance costs from year to year (see Appendix A). LEMA benefits from performance improvements, but faces penalties if it fails to achieve improvements. This has the effect of sharing some risks with the operator.

Sharing responsibility for investment. In 1995 the Colombian government entered into an affermage-lease for water and sanitation services in Cartagena. The operator, Aguas de Cartagena (ACUACAR), initially was responsible for operation and maintenance of the system, asset rehabilitation, and investments necessary to meet two specific output-based performance targets (increased collection rates and reduced nonrevenue water). Soon after the contract was signed, it became apparent that there would not be sufficient funds to cover the investments required to meet the performance targets. As a result, ACUACAR secured loans from the World Bank and the Inter-American Development Bank to implement an investment plan. This plan also included new investments outside ACUACAR's original obligations, particularly focused on increasing coverage in poor areas of the city. New loan agreement contracts between ACUACAR, the municipality, and the funding agencies expanded ACUACAR's responsibilities to include investment, and introduced a wider range of output- and input-based performance targets (see Appendix A).

More information **Allocating risks and responsibilities**

Allocating risk generally: Asian Development Bank 2000, Beato and Vives 1996, Delmon 2001, Finnerty 1996, Johnson and others 2002, Kerf and others 1998, Levy 1996, Nevitt and Fabozzi 2000, Department of Treasury and Finance 2001a and 2001b.

Political and regulatory risk: Smith 1997a.

Exchange rate risk: Gray and Irwin 2003a and 2003b, Mas 1997, Matsukawa and others 2003.

Debt levels and effect on risk allocation: Ehrhardt and Irwin 2004.

Implementing a tariff reset: Green and Rodriguez Pardina 1999, PPIAF and World Bank Institute 2002.

Estimating the cost of capital: Alexander 2000, Benninga 2000, Brealey and Myers 2000.

Government guarantees: Irwin and others 1997, Irwin 2003.

7 Developing institutions to manage the relationship

Arrangements governing private participation include many rules to be interpreted, applied, and enforced. The previous chapter describes rules for adjusting tariffs during resets. Applying these rules requires considerable judgment. Designing an arrangement therefore involves deciding which people, committees, and organizations—that is, which institutions—will interpret and apply the rules. Governments also need to allocate responsibility for monitoring performance and ensuring compliance with the obligations set out in the arrangement.

In some cases government may decide to design and create a new institution, such as an expert panel (at the easy end of the spectrum) or an independent regulatory agency (at the difficult end). At other times, the government may be able to assign a task to an institution that already exists, such as a court or a government ministry. If so, it may still need to improve the capability of that institution.

This chapter considers the tasks that have to be performed over the course of an arrangement and the institutions that might best perform them.

7.1 TASKS AND INSTITUTIONS

To manage the relationships between the operator, the contracting authority, the utility, and customers, institutions are typically needed to do the following:

- Monitor the parties' performance of their obligations and take action to address poor performance
- Resolve disputes between the parties
- Adjust tariffs and service standards.

Many kinds of institutions can, at least in principle, perform some or all these tasks, including:

- A government ministry, department, or other agency that is not legally distinct from the government
- The board of the publicly owned water utility (in the case of a management contract) or asset-holding company (in the case of a lease-affermage)
- A contract monitoring unit
- An independent regulator at the same tier of government as the contracting authority or at a higher tier (for example, a national regulator for a municipal concession)
- Customers
- The operator
- The operator and the contracting authority acting by common consent—perhaps through a bipartite committee and possibly with a mediator or independent expert acting as an adviser
- An independent expert or experts selected by the two parties
- A private firm with relevant expertise
- A local or international arbitrator or panel of arbitrators selected by the two parties (local or international)
- Local or foreign courts.

The task of managing relationships in an arrangement is represented in Table 7.1. The blank spaces or cells are for the names of the institution or institutions assigned to perform each task. A more-detailed table could distinguish between various aspects of the operator's performance, and assign responsibility for monitoring each aspect to specific institutions. For example, a ministry might monitor the

Table 7.1 **Choice of tasks and institutions**

	Institutions					
Tasks	Ministry	Utility or asset-holding-company board	Contract monitoring unit	Independent regulator	Operator and contracting authority together	[Other options not shown]
Monitoring operator's performance						
Enforcing operator's performance						
Monitoring contracting authority's performance						
Enforcing contracting authority's performance						
Resolving disputes						
Adjusting tariffs						
Adjusting service standards						
Maintaining good relations						

In Trinidad and Tobago, for example, the board of the Water and Sanitation Authority had ultimate responsibility for monitoring the management contractor's performance.

In the United Kingdom, a national independent regulator, Ofwat, can fine the operator for failing to meet its obligations.

In Senegal, for example, the contracting authority and operator, Sénégalaise des Eaux, jointly decide on adjustments to the tariff, following rules set out in the affermage contract.

quality of the water distributed by the operator, and an independent regulator might monitor its success in meeting coverage targets. Some of the conceptual possibilities can be dismissed rapidly; for example, it makes no sense to rely exclusively on the operator to monitor its own performance. But for many tasks the choices among institutions can be difficult.

7.1.1 Criteria for choosing institutions

Although each task makes its own demands on the institution performing it, there are a few general characteristics that institutions should share:

- *Information.* The institution performing the task must have access to the information needed to perform the task well. If the institution is carrying out a cost-based tariff reset (Section 6.3.3.1), for example, it will need access to information on the operator's costs.
- *Capability.* The institution performing the task should have, or be able to obtain, the skills needed to do the job. If the institution is carrying out a tariff reset based on efficient costs (Section 6.3.3.1), it needs access to the financial, economic, and engineering skills necessary to estimate efficient costs.
- *Incentives.* The institution performing the task should have incentives to make good choices. Specifically, it needs incentives to comply with the rules governing its choices (the rules and principles governing a tariff reset, for example) and to exercise its discretion in the interests of customers and the operator.
- *Legitimacy.* A legitimate institution is one that the parties believe has the moral and legal right to make a decision. Especially with a contentious or politically sensitive task, the institution should be considered legitimate by the affected parties, including the operator and customers. If customers consider the institution adjusting tariffs to be legitimate, they will be more inclined to accept increases in tariffs. If they do not, they may resist tariff increases and put pressure on the contracting authority to breach the contract or terminate the arrangement. Legitimacy can thus reduce regulatory risk for the operator. And if the institutions involved in sanctioning the operator for failing to meet its obligations are considered legitimate, the operator may be more willing to accept penalties or other sanctions.

An institution that has access to the right information, is capable, has good incentives, and is considered legitimate is ideal for performing the task of monitoring the arrangement (Figure 7.1).

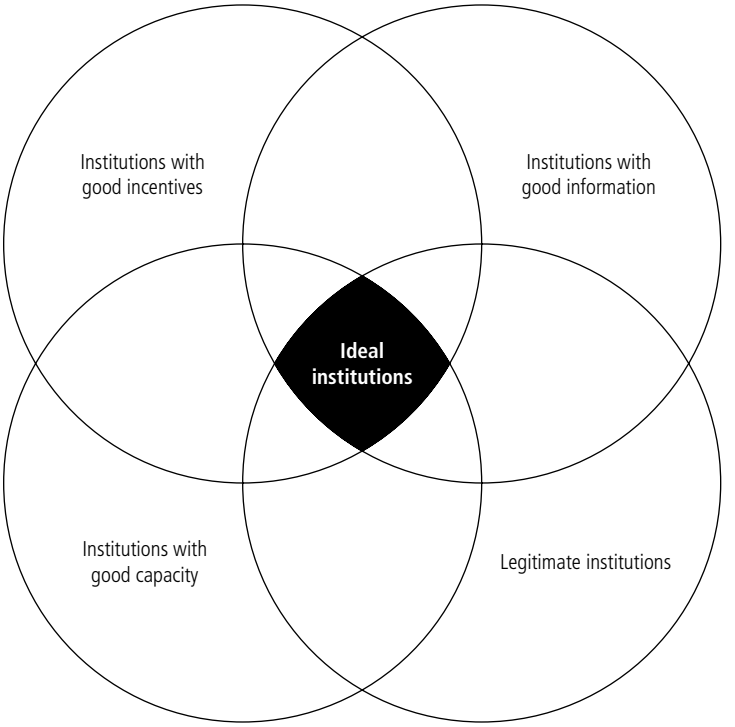
7.1.2 Typical strengths and weaknesses of institutions

Institutional strengths and weaknesses vary by country, but there are patterns of strengths and weakness that are typical (Table 7.2).

In practice, no institution is perfect in all respects, so governments must choose between institutions with strengths in some areas and weaknesses in others. But the government can seek to improve institutions' information, incentives, capability, and legitimacy, and to create new institutions with the right characteristics.

Ensuring that an institution has the right information and the right skills can be expensive. Ensuring that an institution has good incentives would be difficult even if money were not scarce. At a minimum, the institution cannot have conflicts of interest or other sources of bias. For difficult and contentious tasks, such as adjust-

Figure 7.1 **Information, capability, incentives, and legitimacy**



ing tariffs and resolving disputes, additional means of improving incentives may be needed, such as:

- *Exploiting reputation.* Use existing institutions with good reputations and incentives to preserve those reputations. Sometimes local courts, international experts, or consulting firms have this advantage.
- *Requiring transparency.* Require institutions to provide customers, the operator, the contracting authority, and other interested parties with information about their decisions. It will usually be a good idea if the legal documents governing the arrangement, for example the contract between the operator and the contracting authority, are public.

The following sections discuss how these strengths and weakness affect the institutions' suitability for performing some of the main tasks of managing arrangements, such as monitoring and enforcing performance, resolving disputes, adjusting tariffs, and maintaining good working relationships.

Table 7.2 **Typical strengths and weaknesses of selected institutions**

	Typical strengths	**Typical weaknesses**
Operator	Knows the business well—has much relevant information Has many relevant skills	Lacks independence and won't have the right incentives for some tasks as a result of being one of the main parties to the agreement
Ministry	Knows aspects of the business well Already functioning Will have legitimacy in some countries	Lacks independence. May not have all the expertise required for some tasks, such as applying tariff-adjustment rules
Independent regulator	Can be independent of the operator and somewhat insulated from political pressure on the contracting authority May have more legitimacy with customers than other more independent bodies such as international arbitration panels	May not be effectively independent from the government in practice May not be trusted by the operator or the contracting authority
Joint decision making (bipartite committee)	Represents the interests of the operator and the contracting authority Incorporates expert knowledge of the business and has many relevant skills Has incentives to take into account the interests of both the operator and the contracting authority	May fail to reach an agreement if both parties hold out for a better deal. May not operate transparently May not directly involve customers in decision making
Independent expert	Is independent and likely to have technical expertise	May lack legitimacy in the eyes of customers
Arbitral panel	Is independent and can have expertise in resolving disputes	May lack legitimacy in the eyes of customers
Courts	Already exist Generally independent of the operator and the contracting authority Often have legitimacy	Typically reactive, rather than active, limiting their role Lack expertise for certain tasks May be slow or corrupt May lack legitimacy

7.2 MONITORING AND ENFORCING PERFORMANCE

An institution is needed to monitor whether the operator is fulfilling its obligations under the arrangement. For example:

- Is the operator meeting coverage targets (if any) and providing the required quality and quantity of water at the required pressure, meeting wastewater treatment standards and customer service standards?
- Is the operator maintaining the utility's assets as agreed?
- Is the operator providing the required information?

Several institutions are good candidates for monitoring operator performance:

- *A ministry.* A ministry can monitor the operator's performance under any type of arrangement. A ministry's lack of independence is not usually a problem in roles that involve monitoring and enforcement, but a ministry may lack the appropriate resources or expertise, and can be distracted by other duties or conflicting responsibilities.
- *A utility or asset-holding company.* Under a management contract, the utility can monitor the operator's performance. Under an affermage-lease, an asset-holding company can do the monitoring.
- *A contract monitoring unit.* If the existing public agencies do not have the right skills, a special contract monitoring unit can be created.
- *An independent regulator.* An independent regulator is likely to have the appropriate expertise to monitor and enforce performance.

The contracting authority will also need to be monitored to ensure its compliance with its obligations. The operator can usually monitor the contracting authority's performance.

Customers should be involved in monitoring the performance of the utility, and need an effective institution to which they can take their concerns, such as a responsive ministry, regulator, or court. They may be helped by consumer groups and other NGOs.

Some institutions that monitor performance can impose fines if they discover the operator is not meeting its obligations. Other monitoring institutions have to take court action or use another dispute-resolution procedure.

7.3 RESOLVING DISPUTES

Disputes arise even when arrangements are well designed, laws and contracts are clearly drafted, and good working relationships are maintained. Efficient dispute-resolution methods are crucial. Good dispute-resolution methods have the following characteristics:

- *Information.* The decision makers have access to information that allows them to reasonably resolve the dispute.
- *Capability.* The decision makers have the skills to understand the dispute and the effects of different solutions.
- *Incentives.* The decision makers have incentives to make a decision that is not only impartial, but good.
- *Appropriate speed.* The process resolves the dispute quickly, while still giving due consideration to the issues, taking account of the magnitude and complexity of the dispute.
- *Appropriate cost.* The cost of resolution is commensurate with the magnitude and complexity of the dispute, and with the size of the project.
- *Effectiveness.* A decision made under the dispute-resolution process is enforceable by the parties.

Institutions that can plausibly be used to resolve disputes include:

- Negotiation between the operator and the contracting authority
- Negotiation with the help of a mediator
- Negotiation informed by an independent expert
- Decision by an independent expert or experts
- Decision by domestic or international arbitration
- Decision by the courts.

The appropriate institution will vary according to the size, scope, and nature of the dispute. For example, negotiation or reference to an independent expert may work well for a small dispute, for which international arbitration would be too costly and slow. But such institutions cannot be relied on to solve all disputes. Therefore the arrangement needs to include a range of options.

One way of providing a range of options—and reconciling demands for speed and low cost with the need to make good, enforceable decisions—is to allow for progressive escalation of disputes until they are resolved. The dispute can be discussed first by various officers of the parties. If they cannot agree, it is referred to senior officials. If they cannot agree, the dispute may then be subject to mediation

Box 7.1 **Renegotiating an affermage-lease in Senegal**

In 1996, Sénégalaise des Eaux took over responsibility for water and sanitation services in urban centers throughout Senegal. Sénégalaise des Eaux found that the actual value of noninfrastructure assets was substantially lower than what been disclosed during the bidding process and that the baseline technical efficiency figure used in contract negotiations was wrong. The operator and the government negotiated to revise downward both the bid price and the baseline figure for technical efficiency to reflect these factors. (See Appendix A for further details on Senegal.)

Initial information on the state of a system is often wrong—a risk that bidders for a project accept. Rather than renegotiating after bidding to adjust for true asset values and efficiencies, governments and operators can specify, before bids are submitted, how this risk will be addressed. Options include:

- Including in the contract objective mechanisms that will be used to reevaluate asset values and technical efficiencies and adjust bid prices accordingly
- Allowing a transition period at the commencement of the arrangement during which the operator is required to address information problems.

Source: Jacobs Babtie 2004.

and finally a binding court judgment or arbitration. Care needs to be taken in the design of the escalation process to limit the time it takes to resolve disputes. Deadlines for each stage that trigger the next stage are useful. These stages and options are considered in more detail below.

7.3.1 Negotiation

The starting point for dispute resolution is negotiation between the parties. Negotiation has general advantages, including speed, low cost, preservation of relationships, flexibility of solutions, and control by the parties of the process and outcome (Box 7.1).

If a settlement cannot be reached quickly through negotiation, other forms of dispute resolution should be considered.

7.3.2 Mediation

Mediation is essentially negotiation with the help of a neutral third party. The mediator's role is to facilitate negotiations without expressing a view on either party's position. Mediation has all the advantages of conventional negotiation, but can help parties to move away from entrenched positions and reach solutions more easily.

7.3.3 Independent expert opinion

When disputes depend partly on technical questions, the parties can agree to obtain the opinion of an independent expert. The expert's opinion may not be binding, but can inform and influence negotiations.

7.3.4 Independent expert decision

An independent expert or panel of experts can also be asked to provide a binding opinion to help end an impasse. A well-chosen expert or panel of experts will have the skills and impartiality needed to find a reasonable solution.

The use of a single expert has advantages in terms of cost, speed, and administrative simplicity. But individuals are more easily influenced than a panel, and their impartiality can more easily be called into question. In addition, one person may not have all the needed expertise.

The use of three or more expert panel members allows more skills to be drawn on and enables each party to appoint one member. A neutral chair perhaps can be appointed by common agreement of the other two members (Checklist 5).

Checklist **Issues to consider in designing expert panels for dispute resolution**

- ❏ Size
- ❏ Method of choosing members
- ❏ Rules of conduct and procedure—for example, is the panel given powers to investigate or must it rely on evidence provided by the parties?
- ❏ Funding—is there a levy included in the tariff?
- ❏ Use of alternates when members are not available
- ❏ Timetable for decisions
- ❏ Whether decisions are binding and how they will be enforced

7.3.5 Arbitration and court proceedings

Binding settlements of major disputes generally require a decision by the courts or an arbitral institution. Courts are the default option for settling legal disputes. But they do not always work well, so arrangements often provide for decision by arbitral institutions instead.

Arbitration has several advantages:

- The parties can choose their tribunal. With three arbitrators, the operator and contracting authority can each chose one arbitrator. These two arbitrators can then jointly choose the third. Arbitration can offer greater assurance of a fair and

competent decision when one or both parties are concerned that judges may be partisan, corrupt, or lack relevant expertise.

- The parties can appoint people with appropriate specific skills, including experts other than lawyers, who understand the reasons for the dispute and can reach a practical decision.
- Arbitration proceedings can be more flexible. For example, it is possible to have a "documents-only arbitration" with no oral hearing.
- A final decision can often be made more quickly because the right to appeal an arbitrator's award may be narrower than the right of appeal of a judge's decision—or it may be excluded altogether.
- Arbitration usually ensures continuity of personnel throughout the case. In the courts, there is no guarantee that the same judge will deal with the entire case.
- Arbitration is generally informal, which some parties prefer.

However, arbitration awards are not usually directly enforceable, so the parties may have to go to court to enforce them.

Courts have some advantages as well:

- When disputes over the same subject arise under more than one contract, court procedures allow the joinder of parties and the consolidation of proceedings. This can occur in arbitration proceedings only if appropriate clauses are included in all the relevant contracts.
- Courts may be more readily available to deal with cases. If the arbitrators chosen for a case are experienced and popular, it may take a long time before the arbitrators become available. Courts may also be more robust at imposing sanctions for noncompliance with time limits.
- Court proceedings can be less expensive than arbitration. Arbitrators' fees have to be paid and rooms have to be rented for hearings. Some institutions that administer international arbitrations, such as the International Chamber of Commerce, charge fees calculated as a percentage of the sums claimed.
- Court proceedings are more transparent, which increases the legitimacy of the outcome among customers affected by the arbitration, but not party to it.

However, in many cases the advantages of arbitration outweigh the advantages of courts, which is why most large arrangements for private participation in water and sanitation provide for arbitration. In arrangements involving private finance, lenders may insist on international arbitration.

When drafting arbitration provisions, parties should consider:

- *Permissibility of international arbitration.* One of the first issues to be clarified is whether local law allows disputes over contracts with government authorities to use international arbitration. Sometimes disputes between a locally incorporated operator and a local government lack the international element required to allow the use of foreign rules. In this case, an international arbitration clause can be included in an agreement between the local government and a foreign parent of the operator.
- *Deciding which disputes are subject to arbitration.* In some arrangements only a few kinds of dispute are covered by the arbitration clause, while other types of dispute are covered by different procedures. Because disputes do not always fall neatly into one category, it helps to include a mechanism for quickly deciding into which category disputes fall.
- *Enforceability.* International arbitration awards are reciprocally enforceable if both the country that is the seat of arbitration and the country in which the award is to be enforced have ratified the New York Convention on the Recognition and Enforcement of Foreign Arbitral Awards.
- *Number of arbitrators and decision-making rule.* In a three-person panel, for example, the rule might require a decision to have the support of two arbitrators.
- *Rules for appointing arbitrators.* In a three-person panel the operator and contracting authority typically each select one arbitrator. The third can be appointed jointly by the two or, if they do not agree, by a third party.
- *Nationality of arbitrators.* Arbitrators can be locals or (if local law permits) foreigners. When the operator is foreign owned, it is a good idea to preclude arbitrators who are citizens of the host country or the country of the operator.
- *Institutional or ad hoc arbitration.* Parties must choose between institutional and ad hoc arbitration. Institutional arbitration is supervised by an arbitration institute, which appoints the arbitrators, decides on challenges to arbitrators, and reviews the award before it is released, among other things. One example is the International Chamber of Commerce. Institutional arbitrations can be more expensive and somewhat bureaucratic, but in international arbitrations they have some advantages, especially for challenges to arbitrators. By contrast, ad hoc arbitration is not supervised by an arbitration institution.
- *The seat of arbitration.* Even when arbitration involves international rules or the rules of an international institution, it is important to seek local advice on the laws governing arbitration proceedings. The choice of seat may be affected by local rules, for example in regard to nationality restrictions of arbitrators or counsels, the role of the local courts regarding interim measures, or provisions for challenging or appealing an award.

- *Joinder and consolidation of disputes arising under connected contracts.* The arbitration clause in the relevant contracts should generally provide for the appointment of the same arbitrator in connected disputes.
- *Criteria.* The criteria by which the arbitrator is to reach a decision should be set out in the contract.
- *Rights of appeal.* The contract should include procedures for appealing a decision, including whether any exclusions should apply.
- *Language of the arbitration.* The contract should specify in which language arbitration should be conducted.

7.4 ADJUSTING TARIFFS

Managing decisions on resetting tariffs is one of the most difficult tasks involved in managing an arrangement with a private operator in which the operator's remuneration depends on the revenue of utility, as in a conventional concession and some lease-affermages. Such decisions have major financial consequences for customers, the operator, and the contracting authority. And they cannot be controlled in advance, so they involve substantial risk for the parties. Chapter 6 discusses the rules for tariff resets; this section discusses the institutions that apply the rules.

7.4.1 Two approaches

There are two traditional approaches to the design of tariff-adjusting institutions: bipartite negotiations and regulatory agencies.

Under bipartite negotiation, the two parties to the contract, the operator and the contracting authority, jointly agree on tariff changes. If they cannot agree, then dispute-resolution procedures outlined in the contract are used. Tariff resets—usually contentious—are treated much like disputes. This approach is used in France and former French colonies such as Côte d'Ivoire, Gabon, Morocco, and Senegal (see Appendix A). Bipartite negotiations are associated with affermage-leases and concessions, and the detailed rules are set out in contracts rather than licenses.

The regulatory agency approach involves a third party: the regulator. It has long been used in the United States and is now standard in the United Kingdom. It is also used in former British colonies and in countries strongly influenced by practice in the United States, such as Caribbean countries. The regulatory agency approach is traditionally (though not inevitably) associated with private ownership and the absence of a contract between the parties.

Simply transplanting the regulatory agency approach to a developing country is usually not an option, because the political and regulatory risks of investing in water services without contractual protection are likely to be too great for operators (see Chapter 8). A relatively straightforward transposition of the bipartite renegotiations approach is more feasible (see Appendix A). But even the bipartite negotiations approach requires adaptation to deal with heightened political and regulatory risk.

The regulatory agency approach still has some attractive features. Regulatory agencies can be insulated from political pressures that make it difficult to agree to tariff increases when costs increase (just as independent central banks may better resist pressures to create inflation). Regulatory agency decision making typically involves consultation with customers and a good deal of transparency. Also, exemption from civil service salary limits and privileged access to budgetary resources can give regulatory agencies more expertise than most ministries.

A third option that has become common is to combine a contract with an independent regulatory agency—a feasible but challenging option. If not dealt with carefully, the combination can create an arrangement that is confusing at best and unworkable at worst. Consider a municipal government that hires consultants to develop a concession contract. The contract contains rules for adjusting tariffs to be applied by joint agreement of the contracting parties, and provisions for independent experts and international arbitration in case of continuing disagreement. At the same time, the national government hires another set of consultants to design an independent regulatory agency controlling the tariffs that water companies can charge. Without clever workarounds, the national government's policy may negate much of the municipal government's work. The problem can occur even with one tier of government, especially when influential foreign donors and advisers give uncoordinated advice.

The bipartite approach to tariff adjustment is considered here first, followed by the regulatory agency approach. Options for modifying each approach in ways that can capture its advantages while avoiding its pitfalls, or blend the best of the two traditions, are included in the discussion of each approach.

7.4.2 The bipartite tradition

Institutional options for adjusting tariffs under the bipartite approach include:

- *Agreement between the contracting authority and the operator.* Under this option, the two parties must agree on any tariff adjustment. Neither party can impose an outcome on the other. Customers and other interested parties are not directly involved in the decision. Usually, the proceedings and information exchanges remain confidential. This approach has drawbacks: the parties may be unable to agree, or they may move away from the provisions and principles established in

the initial contract, which may compromise wider objectives, such as customers' interests. This approach relies on the contracting authority effectively representing the public interest, even in the face of competing pressures.

- *Third-party help.* To help the parties arrive at a mutually acceptable outcome independent experts or mediators may facilitate negotiation, provide technical advice or information, or make independent nonbinding recommendations. Even though the independent expert's recommendations may not be binding, they provide a basis for discussion between the parties. If one party seeks to move away from the recommended solution, that party must justify the change. This approach is used in Gabon, which also specifies the use of independent experts to carry out a study every five years to assess progress made toward coverage targets (see Appendix A).
- *Arbitration.* The parties can agree to appoint a third party to make a final decision. The parties can appoint an arbitrator or panel of arbitrators that follows a specified procedure to arrive at a decision (see Section 7.3.5). The arbitrator's authority usually derives from the contract between the two parties, but the process to be followed and certain powers of the arbitrator are influenced by the country's arbitration law.
- *Final-offer arbitration.* A common concern with conventional arbitration is that the arbitrators will simply split the difference between the parties' positions, which may lead them to present extreme positions to the arbitrators. Under final-offer arbitration, each party proposes a settlement, and the arbitrator is obligated to select one, without amendment. Final-offer arbitration reduces the likelihood that the parties will propose unreasonably one-sided settlements because the arbitrator could select the other party's offer. Final-offer arbitration is used in Santiago, Chile, to resolve tariff disputes between the operator and the government (see Appendix A).

The following options may help improve the operation of the bipartite approach.

- *Promoting continuity in decision making.* A weakness of conventional arbitration as an institution for adjusting tariffs is that arbitrations are each undertaken independently of previous processes and do not benefit from institutional memory or the certainty provided by a body of precedent. This problem can be addressed by establishing an ongoing arbitration-type institution incorporating mechanisms to preserve consistency among decisions. For example, in Sofia, Bulgaria, the concession established a dispute-resolution board with three members: a chairperson (a lawyer trained in arbitration), a technical expert, and a financial expert (see Appendix A). This mechanism is adapted from the approach commonly used in construction contracts. The board provides a first-level mecha-

nism for handling disputes. Members are appointed for fixed terms and are paid a small retainer. They undertake regular site visits to maintain familiarity with the arrangement. While the board is used mainly for dispute resolution in Sofia, a similar model could in principle be considered for tariff adjustments.

- *Increasing transparency and consultation with customers.* Under the traditional bipartite approach deals are made in private, and contracts are often confidential (in practice, if not in law). If disputes about tariff adjustment go to arbitration, the proceedings are likely to be private. During the recent Maynilad arbitration in Manila, customer groups sought to allow the public to listen to the proceedings, but failed (see Appendix B). Rules ensuring transparency and consultation can be adopted and could increase legitimacy.
- *Increasing expertise.* Steps can also be taken to ensure that the contracting authority has sufficient expertise. This may be harder when civil service rules apply and budgets are tight. But if customers or taxpayers have the resources to pay for an expert independent regulator, they probably have the resources to pay for an expert ministry.

7.4.3 Independent regulator

A traditional independent regulator has the power to change tariffs and otherwise modify the major terms of the arrangement without the agreement of both parties. A regulator can be explicitly asked to consider wider objectives than those of the contracting authority. But relying on an independent regulator can increase risk for both parties by reducing their ability to control or influence the outcome.

When designing a regulator, three main issues need to be addressed: the source of the institution's legal powers, the institution's structure, and the controls over the institution's decision-making processes.

Independent regulators usually receive their powers from a specific government statute (and so are sometimes called "statutory regulators"). The statute may mandate appointment processes, funding arrangements, decision-making processes, and the like. One weakness of statutory regulators is the increased risk they bring because the operator loses some control over outcomes. (As an alternative, an ongoing, quasi-regulatory institution could be established under contract, with many of the features of a statutory regulator, but with greater scope for the operator and contracting authority to control its powers and thus their risks.)

Independence and accountability for the quality of decision making are important for the design of a regulator. Reset processes involve tradeoffs among the interests of the operator, the interests of the contracting authority as the owner of the

system, and the interests of customers. The decision maker should not be improperly influenced by any of these interests. Independence for regulators consists of three elements:

- An arm's length relationship with the operator, customers, and other private interests
- An arm's length relationship with political authorities
- Organizational autonomy, such as earmarked funding and exemption from restrictive civil-service salary rules, to foster the requisite expertise and to underpin those arm's length relationships.

One obvious danger with independent regulators is political interference. The contracting authority or other government entity may try to influence decisions to favor particular constituencies or interests for political gain. For example, a politically influenced regulator might refuse justified tariff increases. Thus the regulator needs to be insulated from day-to-day control by politicians. Although the government will always be involved in setting the rules of the game, an independent regulator helps ensure that these rules are applied without fear or favor.

Improper influence over the regulator through the political process is only one of the concerns. Parties can offer favors or bribes to sway a regulator's decision or appoint people inclined to favor their interests.

Governments can improve the regulator's independence with:

- Robust appointment processes that include, for example:
  - Prescribing professional criteria for appointment
  - Involving both the executive and the legislative branches of the government
  - Appointing regulators for fixed terms and protecting them from arbitrary removal (while still providing for their removal in case of proven misconduct or incapacity)
  - Setting terms that do not coincide with election cycles and staggering the terms of the members.
- Adequate capacity, supported in particular by:
  - Exempting the agency from civil service salary rules that make it difficult to attract and retain qualified staff
  - Providing the agency with a reliable source of funding, usually earmarked levies on regulated firms or customers.

Too much independence from political oversight can become a problem if political leaders are more accountable than the regulator and less vulnerable to improper influence. Institutional arrangements for regulatory independence need to take into account the specifics of the country, its political and organizational culture, and its legal environment.

Ensuring that the regulator is independent from political and other interference will not guarantee good decisions. A regulator might be highly independent, but still fail to make decisions that properly balance the interests of the operator, contracting authority, and customers. Ensuring that the regulator is accountable helps to encourage good performance and reduces the potential for improper influence. There are several processes and appeal mechanisms that can increase accountability and the quality of decisions.

Governments can try to improve the quality of a regulator's decisions by simultaneously constraining the regulator's discretion and increasing its accountability. This can be done by careful design of constraints on the decision-making process, such as:

- Prescribing clear, transparent criteria the regulator must follow in making determinations. If the criteria are set out in a contract, the contract should be published.
- Establishing set processes that must be followed before making a determination to prevent abuse of its power. These processes should be clearly defined and predictable; give the operator and other stakeholders adequate time and opportunity to make submissions, provide evidence, and comment on draft decisions; and require the regulator to publish its decisions and the reasons for them.
- Ensuring that the regulator is accountable for its decisions by providing for effective appeal processes. Avenues for appeals include the courts for judicial review of the decision-making process, or appeal on points of law. Appeals may address such questions as: Was the regulator within its mandate in taking the decision? Did it take appropriate factors into account? Did it interpret the requirements of the arrangement correctly? In many countries, courts are credibly independent and predictable, with known operating rules and precedents. But courts are best equipped to resolve questions of law: they generally do not have the technical and economic expertise needed to review the substance of a regulatory decision. Alternatively, the contract may provide that regulatory decisions are subject to arbitration mechanisms, as in the bipartite tradition.
- Allowing appeal to a special-purpose expert body in order to review the substance of the regulator's decision. The expert body may confirm the decision or substitute its own decision. This body may be another government agency, as in the United Kingdom, where operators may appeal regulatory decisions to the Competition Commission (see Appendix A).

7.5 INVOLVING CUSTOMERS

Whether the bipartite approach or the regulatory agency approach is chosen, it makes sense to involve customers in managing the arrangement.

Customers should be considered in institutional design at two levels: individual and collective. At the individual level, it is usually a good idea if the following conditions are in the arrangement:

- Customers should have a clear legal right to service of a specified standard, at a specified price. It is often helpful if this can be embodied in a contract between the utility and the customer, to make the operator legally accountable directly to the customer for delivering the required service at the stipulated tariff. The contract does not need to be a separate written document for each customer. The important thing is that there is verifiable set of legal obligations to supply service owed by the utility to the customer, and a reciprocal and clear set of legal obligations owed by the customer to the utility to pay for that service.
- Customers should have a way to hold the utility accountable if it does not deliver. One accountability mechanism is the ability to take the utility to court for underdelivering or overcharging. But the cost and complexity of going to court means that, while helpful as a last resort, this is not a practical remedy for most customers, so it can be beneficial to supplement this with more customer-friendly measures, such as:

  – A requirement that the utility make it easy for customers to complain, and respond to the complaints fully within a defined period (such requirements are part of what is often called customer service standards)
  – A body to assist customers to deal with the utility if the utility does not respond adequately to the complaint. This can be a customer service unit in a regulatory body or ministry, for example, which will review unresolved complaints with the customer, and where appropriate require the utility to take action.

At the same time, customers need to recognize their responsibility to the utility, and in particular their obligation to pay for services received. The legal and institutional regime should make this quite clear, and provide for penalties if customers do not honor their obligations.

At the collective level, customers and potential customers are vitally interested in the price, coverage, and quality of services This means that the institutions responsible for setting these standards need to include a way to elicit the views of customers, and include them in the decision making. Involving customers and potential customers has several benefits:

- The customers know better than anyone the problems with the current service, the improvements they would like to see, and what they are willing to pay. This information needs to be captured in any tariff or service review process. Unconnected potential customers need to be brought into the process as well. Their interests are often different from existing customers, in that existing customers tend to oppose tariff increases, while unconnected customers may support tariff increases if they are needed to allow the operator to finance new connections.
- Customers may also know ways in which efficiency can be improved, which are not obvious to the utility or a regulator. For example, customers may have detailed knowledge of local conditions which can help to improve the ways in which service is delivered
- Involving customers increases the legitimacy of a decision. If customers have a chance to present their views and requests, listen to opposing views presented by the utility, respond to the utility's views, and see that the decision-making process has dealt responsibly and fairly with the arguments presented by all sides, they are likely to accept the resulting decision. Customers are much less likely to accept a decision made behind closed doors without consultation, because they will not trust the process by which it was reached, and will fear that their interests were not given due weight.

There are a number of ways in which the public can be involved in decisions to adjust tariffs and services standards. These ways include:

- Simply collecting information from customers, for example through willingness to pay surveys and analysis of complaints received
- Consulting with nominated customer representative groups, as is done in the United Kingdom
- Giving all customers and customer groups the right to be heard before the decision-making body, to question the utility, and to witness all deliberations—as is done in the United States, Guyana, and Barbados.

Many arrangements in developing countries have not provided for extensive customer involvement in deliberations on tariffs and service standards. There has been concern that customer involvement will be costly and time consuming, or that customers will be uninformed and unable to understand the issues and tradeoffs involved. While these are valid concerns, it is also true that customers will only learn to participate effectively if they are given information and involved in the process. The benefits of more responsive services and more legitimate arrangements, which

can flow from involving customers in decisions on tariffs and service standards, may well outweigh the disadvantage of less orderly decision-making processes. It will be a good idea to openly and publicly review ways in which customers can be involved in decisions on tariffs and service-level decisions, and include workable mechanisms for customer input.

This is not to suggest that customer demands should be able to override tariff-setting rules in contracts or licenses—this would create too much risk. Rather, customers should be given a role within those rules, for example to choose between alternative combinations of tariffs and service, or to contribute to a decision-making body's assessment of efficient cost levels by highlighting areas in which the utility could improve.

7.6 MAINTAINING GOOD WORKING RELATIONS

The relationship between the operator and the contracting authority is ongoing, and the parties often need to agree on the interpretation of specific terms and conditions. It can be helpful to have a permanent forum to manage the relationship between the two parties and to facilitate agreement on specific matters of interpretation or implementation as they arise.

Government-operator committees, made up of representatives from both parties, address this need. They provide a forum for the parties to work through issues as they arise and so can be helpful in establishing and maintaining a constructive relationship.

But it is important to distinguish between maintaining good relations and monitoring and enforcing performance. Involving representatives from the operator in monitoring performance and making decisions on enforcement creates a conflict of interest and reduces the effectiveness of the enforcement process. For example, in Trinidad responsibility for monitoring performance was given to a committee including representatives of the operator. This approach did not work well because the government had little confidence in the results (see Appendix A).

7.7 LINKS BETWEEN INSTITUTIONS TO MANAGE THE RELATIONSHIP AND MODELS OF PRIVATE PARTICIPATION

Some aspects of the choice of institutions for managing the relationship depend on the type of arrangement selected, and particularly on the allocation of responsibilities and net revenues between the operator and the contracting authority. For example, management contracts and concessions generally imply different choices about institutions.

7.7.1 Management contract

Under a management contract the contracting authority bears most of the risks related to tariff levels, collection, and service delivery. The job of setting customer tariffs in this context has little to do with the management contract; and the process for resetting customer tariffs is a matter concerning the publicly owned utility and the regulator or other customer-tariff decision maker. Monitoring the operator's performance is in this case a separate function from setting and resetting tariffs. Thus, any regulator may have two quite distinct roles in helping to oversee the management contract (Figure 7.2).

7.7.2 Concession

In the case of a concession or a divestiture, all the major responsibilities involved in delivering water services are undertaken by the operator. As a result, a more integrated approach to tariff adjustment is useful. One option is to combine monitoring and enforcement of the operator's performance with management of tariff resets (see Figure 7.3).

Figure 7.2 **Possible institutions in a management contract**

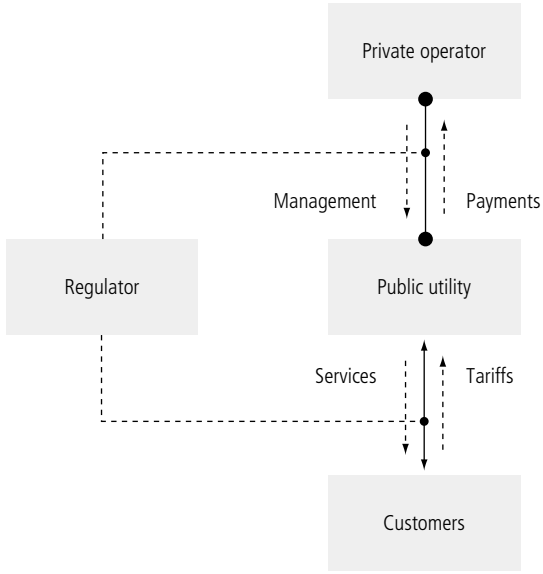
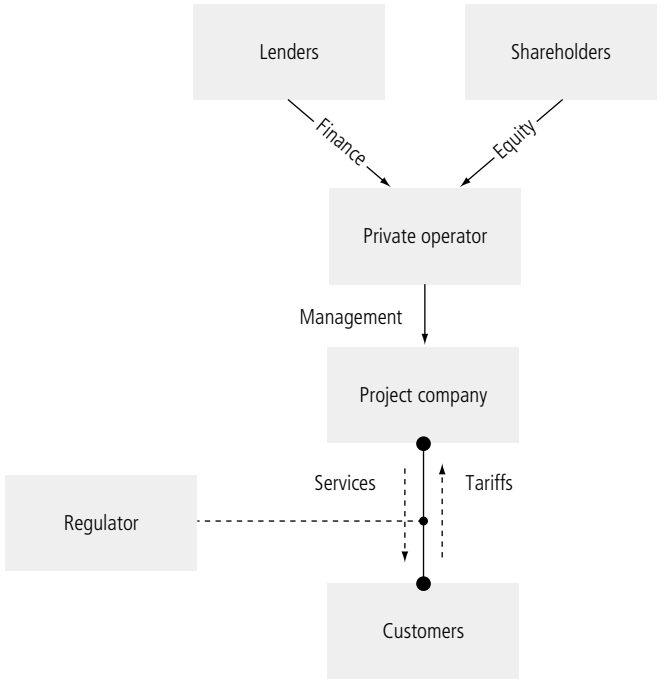


Figure 7.3 **Possible institutions in a concession contract**



More information **Choosing and designing institutions to manage the relationship**

The design of utility regulators: Asian Development Bank 2000, Phillips 1993, Smith 1997a, 1997b, 1997c, and 1997d.

Institutional arrangements: Crampes and Estache 1996, Gómez-Ibánez 2003, Guasch and Spiller 1999, and PPIAF and World Bank Institute 2002.

For a comparison of the two approaches: Gómez-Ibánez 2003 and Shugart 1998.

Source of a regulator's authority: Artana and others 1999.

Decisionmaking process and accountability: Coelli and others 2003 and Helm 1994.

Arbitration and court proceedings: Broches 1990, Nelson 1989, Paulsson 1996, and World Bank 2003.

Contracting out regulatory functions: Bertolini 2004 and Bertolini and Trémolet 2004.

8 Designing legal instruments for the arrangement

The design of an arrangement includes the tariffs and service standards (Chapter 5); the risk allocation between the operator, government, and customers (Chapter 6); and the institutions for managing and adjusting the arrangement over time (Chapter 7). This chapter outlines how the arrangement can be embodied in legally effective documents, such as laws, contracts, and licenses. It also describes how the government can retain the legal power to implement the arrangement, and check whether there are legal constraints on aspects of the arrangement (such as foreign ownership or labor force reduction).

When parties are discussing an arrangement, there is give and take. The operator may agree, for example, to pay penalties if it fails to deliver the service levels agreed on. The government may agree that tariffs will be set according to a strict formula or process that takes no account of political sensitivities. After the arrangement is in place, the parties often find some aspects of the arrangement they would

prefer not to follow. The operator would prefer not to pay penalties. The government would prefer to delay tariff increases until after an election. But for the arrangement to be sustainable all the parties must be held to their commitments. Effective legal instruments are needed to do this.

There are many ways to make an arrangement legally enforceable; the objective is to develop the mix of legal instruments that neatly embodies the intended arrangement, complies with the general law of the country, and is easy to understand and enforce. Section 8.1 outlines instruments that can be used, including statutes, laws, executive orders, regulations, licenses, and contracts. It describes some of the advantages and disadvantages of each instrument, to give guidance on when it might be better to choose one approach over another. The choice of legal instrument depends on legal tradition and constitution, as well as the particular task at hand.

Section 8.2 highlights countries' background laws that may limit the government's ability to design the arrangement. Background regulatory rules, concession laws, and administrative law traditions can guide or dictate key terms in the arrangement. Laws in numerous other areas can affect taxes, labor conditions, foreign ownership, and the like, and the arrangement needs to be designed with these provisions in mind.

Section 8.3 looks at legal mechanisms that can make it easier to enforce specific obligations. For example, the utility will benefit from mechanisms requiring customers to pay. The contracting authority may find it easier to enforce the operator's obligations if the operator has posted a performance bond. Intelligent use of such mechanisms can make the arrangement more enforceable and sustainable.

8.1 CHOOSING LEGAL INSTRUMENTS

This subsection looks at a range of legal instruments and discusses when to use them. The legal design of the arrangement must:

- Provide a legal basis for the transaction and selection of the operator. In some legal systems the government has a general inherent authority to enter into contracts or sell assets, so this issue does not arise. In other countries the government may need special legal authorization to introduce private participation.
- Make the tariff and service standard rules, and the provisions for their adjustment, legally effective.
- Make other commercial aspects of the arrangement legally binding, such as financial provisions, notice periods, and termination provisions.
- Provide clear and effective dispute resolution and enforcement.

Table 8.1 **Legal and implementation design issues**

Identify	• Legal codes that govern private participation [8.2] Civil law administrative jurisprudence [8.2.1] Special privatization or concession laws [8.2.2] Regulatory statutes [8.2.3]
Evaluate	• options for legal instruments [8.1] Contracts Statutes Regulations Licenses Executive orders
Determine	• Mechanisms to ensure compliance with obligations [8.3] Avoiding renotiation [8.3.1] Enforcement [8.3.2] Customers rights and oblications [8.3.3]

The choice of instrument in any particular case depends on the legal system and practice of the country and the purpose the instrument is intended to serve. Table 8.2 lists a range of possible legal instruments and some of their advantages and disadvantages. Table 8.3 discusses which instruments are typically used for which purposes.

There are no hard and fast rules for choosing legal instruments, and a single arrangement can use several. For example, the Manila concession was authorized by a statute (the Water Crisis Act), spelled out in executive orders, and finally given legal effect in a concession contract. Some guidance is possible, however: where new agencies with special powers need to be created, statutes are usually required. In countries where contract law is well established and respected, putting as many as possible of the rules about tariffs, service standards, commercial arrangements, and dispute-resolution mechanisms into the contract will provide certainty to both the government and the operator. But in countries where it is common for governments not to honor contracts, supplementing contracts with other legal instruments such as statutes may provide greater certainty.

Contracts bind the government as well as the operator, which may seem like a disadvantage because it reduces government's flexibility. Yet one party's flexibility is often the other party's risk. If the government had complete freedom to change the arrangement after the operator had started its work, the operator would face the risk of not getting paid or losing all its investment. No operator would agree to such

Table 8.2 **Legal instruments**

	Definition	Advantages	Disadvantages
Statute	Legally binding document passed by the legislature	The highest form of law (except the constitution) The most certain way of providing for something legally Indicates government commitment	Typically time consuming Requires consensus between the executive and legislature Inflexible Can be changed without operator's consent
Executive order	Documents with legal force issued by the executive arm of government, typically the president. Only possible in jurisdictions where the executive has some legislative power	Where the legal system permits—for example in the Philippines and some former Soviet republics—allows the executive to establish a legal basis for the arrangement without needing to go to the legislature	Not possible in many legal systems (notably Westminster-derived systems) Can be changed without operator's consent
Regulation	Legally binding document issued by the executive under power granted by a statute. Differs from executive orders in that the regulations must be strictly within the scope of authority delegated to the executive by the relevant statute	Flexible, quick to implement and legally effective Generally used to govern a number of companies, not just one	Can be changed without the operator's consent Regulations must be within the powers granted by the relevant statute.
License	A document issued by the executive under powers granted by a statute that confers rights and obligations on a particular company	Flexible and quick to implement Similar to regulations, but suited to granting rights and obligations to a specific company	More scope for unilateral change than contracts More doubt about how an operator can enforce a license
Contract	A legally binding agreement between two or more people or companies	Very flexible Almost anything can be agreed on in a contract to make it legally effective Can be changed by consent of both parties, providing real certainty to an operator	Generally only confers rights and obligations on the parties to the contract, not third parties, so cannot be used for some purposes, such as creating exclusivity Can be overridden by law May be subject to certain mandatory rules Inability to change the contract unilaterally may be a disadvantage

Table 8.3 **Appropriate instruments for particular tasks**

Purpose	Instruments typically used
Procurement. Provide a legal basis for entering the transaction and selecting the operator	In many countries, governments and state-owned corporations have inherent powers to enter into contracts, and no special provision establishing the power to enter into a contract is needed. This was the case for the Senegal lease and the Trinidad management contract. Where the government does not have clear inherent power to enter into a contract, high-level legislation such as a statute or executive order may be needed. For example, the Sofia concession was carried out pursuant to the Bulgarian concession law, and the legal basis for the Manila concession derived from the Water Crisis Act, supplemented by two executive orders.
Powers of the contracting authority. Ensuring that the contracting authority has the power to enter the arrangement and play its part	Again, the government may rely on an inherent power, as in Trinidad, or may use a statute to establish a specific body to monitor and enforce the arrangement, as the U.K. government did in establishing Ofwat, and the Bolivian government did with the creation of the Superintendencia de Saneamiento Básico. In Manila the government felt it did not have time to create a regulatory agency by statute, so it established the regulator as a quasi-independent branch of the Ministry and Metropolitan Water Works and Sewerage System (MWSS), the existing public authority. Special provisions or laws may be required to address cases in which local governments are the contracting authority. In France such provisions are part of the *Code des collectivités locales.* Specific laws have also been adopted, for example, in Bulgaria and Romania.
Effectiveness of tariff and service standard rules. Ensuring that the mechanisms for setting tariffs and services are effective	Contracts are the most common legal instrument to govern the setting of tariffs and service standards. Licenses were used in England and Wales. A key difference is that contracts provide for a tariff and service standard regime that can ultimately be changed without the consent of the operator. Licenses may give more flexibility to the government and consequently less certainty to the operator. Some countries—including Armenia, Guyana, and the United States—have used statutes to create a regulatory body with discretionary powers to set tariffs and service standards. Unless the regulatory body has been able to establish a clear record of competence and neutrality, this arrangement is likely to be regarded as risky by operators (and those investing in operators), who will typically seek contractual agreements with the government to limit the regulator's discretion or protect the utility against adverse decisions by the regulator.
Other commercial arrangements. Creating provisions that affect commercial risk, such as requirements for performance bonds, insurance, and escrow accounts	Most commonly dealt with by contract, as in Manila, Senegal, and Trinidad. Licenses largely service this purpose in the United Kingdom.
Dispute resolution and enforcement. Creating rules about penalties, mediation, and termination procedures	Most commonly dealt with by contract, as in Manila, Senegal, and Trinidad. Other instruments may also be used to create some of the enforcement machinery. For example, a regulatory agency may be given statutory power to levy penalties for breach of customer service standards. If this power is brought into effect by regulations it can give the government flexibility and unilateral control in certain limited areas, while leaving other matters to be dealt with by contract. In the United Kingdom, appeals against the regulator can be made to the Competition Commission, which was created by statute.

an arrangement. So to get the benefits of private participation, the government has to commit to a course of action for the future—in other words, to limit its flexibility. Contracts are often effective ways for governments to commit themselves while also providing for flexibility. For example, affermage-lease and concession contracts in the French tradition typically give the contracting authority the power to make unilateral decisions about certain aspects of service even after the contract is signed, provided the operator is compensated for any additional costs or loss of revenue that result (see Section 8.2.1).

Some countries, including the United States and England and Wales, do not embody arrangements for private participation in contracts, preferring regulators with decision-making power and (in England and Wales) licenses. Regulators and licenses may seem to give governments significant flexibility, but the arrangements in the United States and England and Wales contain rules constraining the power of the regulator and political authorities. In particular, under both systems the decision-making body is a regulator carefully designed to be independent from the political authorities, and the regulator's decision is constrained by appeal mechanisms and statutory or constitutional prohibitions on expropriation of private owners.

Governments that want private participation in the water and sanitation sector need to give up flexibility by making a credible commitment to compensate the operator for major changes to the arrangement after it is adopted. This is why a key consideration when choosing a legal instrument is how effective it will be in controlling government and contracting authority behavior.

8.2 WORKING WITH ADMINISTRATIVE, CONCESSION, AND REGULATORY CODES

It is often appropriate to embody most aspects of an arrangement in a contract. Contract law provides considerable flexibility, allowing the government to draft a document that is legally binding and that fits particular circumstances and objectives. But many countries have legal codes that govern private participation. These codes can have a major influence on the legal architecture of the arrangement. There are three main sources of such "background" law to consider:

- Civil law administrative jurisprudence
- Special privatization or concession laws
- Statutes creating regulators.

8.2.1 Civil law administrative jurisprudence

There is a general distinction between countries that use civil law and countries that use common law. Civil law is used in France and Spain, many other continental

European countries, and most of their former colonies. Common law is used in the United Kingdom and most of its former colonies, including the United States.

In common law systems there is no legal distinction between contracts involving only private firms and contracts such as concessions that involve a public authority and a private firm. Private participation contracts are governed by the same law and same courts that business people rely on for their dealings with each other. Common law contracts are very flexible, and almost any agreement can be put into a contract and enforced.

In many civil law countries, however, a separate administrative law governs contracts for private participation.

Because the standard approaches to private participation contracts are based largely on the civil law tradition, some of the important civil law administrative rules that apply to delegated management arrangements such as management contracts, affermage-leases, and concessions are summarized here. It is important to check whether these rules apply in a particular civil law system.

- *Right of unilateral modification.* The contracting authority may, as in France, have the right to modify aspects of the contract unilaterally when it deems the change to be in the public interest. The contracting authority does not have the right to change the contract's financial provisions or its fundamental nature, but it can change such aspects as the specification of the service to be provided.
- *Right of unilateral cancellation.* The contracting authority has the right to cancel the contract early (although it must compensate the operator).
- *Right to continuity of service.* The operator in an administrative contract may not suspend the execution of its obligations under the contract, even if the contracting authority breaches the contract. Under a concession or affermage-lease, the operator is deemed to assume duties relating to operating a public service, even beyond those included in the contract (such as investing to address increasing demand or adapting to new technologies).
- *Operator's right to financial equilibrium.* The operator is protected in certain circumstances by the right to have the "financial equilibrium" of the contract preserved. For example, when the contracting authority imposes a unilateral modification, it must also adjust the financial terms of the arrangement so that the operator is not worse off (for example, if the contracting authority required higher service standards, it might also have to allow a higher tariff). Particular doctrines that form part of the operator's right to "financial equilibrium" in France, which have counterparts in other civil law countries, include:
  - *Fait du prince.* Relief is granted when the contracting authority has caused the operator's profits to decrease without breaching the contract. Relief

under *fait du prince* requires the following conditions: the contracting authority's action has adversely affected the operator and was unforeseeable when the contract was concluded; the contracting authority's action is beyond the scope of the contract (otherwise the action would merely constitute a breach of the contract); and the action taken by the contracting authority must be specific to the operator (general decisions concerning all enterprises are not considered as *fait du prince,* but they may give rise to damages on the basis of the *imprévision* principle; see below).

  - *Imprévision.* The operator is entitled to compensation for financial difficulties arising from large and unforeseen changes in economic conditions that render execution of the agreement financially hazardous. Examples of possible compensation events under *imprévision* include a major devaluation, price control decided by an authority other than the contracting authority, or a reduction in working hours that increases labor costs. The adverse economic impact of these events must not only be exceptional but beyond all limits foreseen by the contract. The operator's compensation is not equal to the total losses or damages incurred (an administrative circular provides for the administration to bear 90 percent of the losses as an indicative rule).

- *Force majeure.* Unpredictable and uncontrollable events that render the performance of the contract materially impossible exonerate the operator from its obligations. For example, a spill from a chemical factory causing permanent pollution of the only water source would be considered *force majeure.* Natural phenomena such as hurricanes and droughts may also be considered *force majeure.*

Governments may wish to include these rules in the arrangement, and when they are part of the background law it may not be necessary to repeat them in the contract. But relying on just the background rules is problematic because the rules are sometimes ambiguous. For example, the jurisprudence on restoring the "financial equilibrium" of the contract is not clear on what "financial equilibrium" really means.

So writing clear rules into the contract is safest. It is generally a good idea to specifically outline in the contract what rights the contracting authority has to demand unilateral changes in services, and to include provisions that deal explicitly with the circumstances under which the operator is to be compensated.

Indeed, there has been a trend in France toward contracts that deal more explicitly with such situations. In particular, tariff indexation and reset provisions are becoming more common in contracts, resulting in less frequent use of *imprévision,* because factors included in an indexation clause are not unforeseen.

A contract that takes a background administrative law principle and spells out exactly how it is to be applied will generally be effective. But, changing or overriding an administrative law principle may or may not be legally possible—that would need to be checked. For example, it may not be possible to completely remove the ability of a contracting authority to unilaterally change service standards. In France the law makes void any attempt to override the contracting authority's ability to unilaterally cancel a contract. Some civil law codes also contain mandatory notice periods before termination for breach of contract that cannot be avoided or overridden.

8.2.2 Special privatization or concession laws

Some countries set out the principles governing private participation in some or all infrastructure sectors in special statutes:

- In Central and South East Europe: Bulgaria, Croatia, Hungary, Romania, Slovenia, and Turkey
- In Latin America: Brazil, Chile, Columbia, and Peru
- In Asia: the Philippines, Thailand, and Vietnam.

These special statutes can provide a clear framework for an arrangement. A well-designed law addresses issues such as which agencies have the powers to initiate the introduction of private participation and sets out processes to be followed to ensure competitive procurement and deal transparently with unsolicited proposals. They also indicate the government's openness to private participation.

Contract design needs to be consistent with special statutes because they typically govern all forms of private participation. Consider the following provisions on contract "financial equilibrium" from several concession laws:

- In Romania, Article 33 of the Concession Law provides the concessionaire compensation when its financial balance is impaired by measures imposed by Romanian authorities or created by *force majeure* or other causes beyond the control of the operator.
- In Slovenia, the Public Trading Services Law entitles the contractor compensation for expenses incurred when delivering services required in "unforeseeable circumstances."
- In the Philippines, the build-own-transfer (BOT) Law on the financing, construction, operation, and maintenance of infrastructure projects by the private sector guarantees operators a rate of return on investment reflecting the prevailing cost of capital in the domestic and international markets.

The parties can often contract out of these provisions, provided the contractual provision is more favorable to the party that the statutory provision intends to protect.

8.2.3 Regulatory statutes

Many countries have enacted statutes creating utility regulatory bodies with power over service standards and tariffs. Sometimes these laws also require private participation contracts to have the approval of the regulator.

These laws create a risk of conflict between the arrangements the government wishes to develop and the regulator's views and powers. For example, a law that gives the regulator the power to set utility tariffs will usually override any tariff-setting provisions in a contract between the government and an operator. Major difficulties arise when a regulator has the power to override contracts and does not have a reputation for competence and neutrality. Management contracts may still be possible, but potential operators will be unlikely to agree to enter concession or affermage-lease contracts unless one of the following changes is made:

- The statute governing the regulator is amended so that the regulator's powers are limited to applying the contract. Jamaica's Office of Utility Regulation Act, for example, allows the regulator to enforce the terms of a concession or similar contract, but does not give it power to override the contract. In some cases new laws are developed as part of the private participation process, which provides an opportunity to ensure that the powers given to any new body are consistent with the proposed arrangement.
- The operator's remuneration does not depend on the customer tariff set by the regulator. That is, the arrangement distinguishes between the operator tariff (the money due to the operator for providing the service) and the customer tariff (the amount paid by customers). An arrangement can allow the regulator to set the customer tariff and the contract to set the operator tariff, with the contracting authority committing to make up the difference from public funds if the customer tariff falls below the operator tariff.

8.2.4 Other background laws and legal due diligence

The relevant laws and regulations underpinning water service projects are wide ranging. Because water service projects involve such diverse matters, it is important to review applicable laws, regulations, and other rules at the outset in order to see what will affect the arrangement and determine how to design the arrangement in keeping with the law (Checklist 6).

Checklist **General background law—Additional issues for due diligence**

- ❑ 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 participation, including by foreign companies
- ❑ Water resource management law
- ❑ Environmental law
- ❑ Contract law
- ❑ Competition (antitrust) law
- ❑ Employment law
- ❑ Tax law
- ❑ 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

8.3 ENSURING THAT PEOPLE COMPLY WITH THEIR OBLIGATIONS

Chapter 8 so far has reviewed how to give legal standing to the intended tariff and service regime, financial arrangements, and risk allocation. This can be more difficult in practice than it first seems:

- When an operator runs into financial difficulties, the government may renegotiate the terms of the contract rather than let the operator go bankrupt, fundamentally altering the intended risk allocation.
- When a party defaults on its obligations, remedies such as suing for damages in court can be costly, time consuming, and unpredictable.
- Customers also have rights and obligations that need to be enforceable, including the obligation to pay for service.

This section considers how to manage such problems, looking first at ways to stop renegotiations and bailouts and then at practical techniques that make the arrangement easier to enforce.

8.3.1 Avoiding renegotiations

According to one study, 55 percent of water concessions awarded in Latin America were renegotiated in the 1990s, many within two years of the award (Guasch 2004).

In some cases, the operator or contracting authority may reasonably refuse to renegotiate. Moreover, developing a reputation for being hard-nosed could reduce the likelihood that the contracting authority will be exposed to opportunistic behavior in the future.

In other cases, circumstances may have changed in ways that mean the current arrangements are no longer appropriate, and renegotiation can help both parties. Often, both the contracting authority and the operator have strong incentives to renegotiate rather than terminate the arrangement: contracting authorities are often concerned that terminating the arrangement may result in an interruption to key services, while operators do not want to lose any past investment or future profit.

Yet renegotiation changes a previously agreed arrangement. The contracting authority or the operator may try to renegotiate in order to reduce its risk exposure or to gain advantages it was unable to obtain in the initial agreement (Box 8.1). When the operator is selected based on the lowest tariff bid or highest concession payment, operators may engage in aggressive bidding strategies (lowballing) to win the contract and then seek to renegotiate for more favorable terms once competitive pressure is no longer an effective constraint.

8.3.1.1 Good design. Good design and predictable reset mechanisms should reduce the likelihood of having to renegotiate an arrangement. For example, poor information on asset condition can be addressed by including a transition period at the start of the arrangement during which the operator can take an inventory of assets and assess their condition (see Gabon in Appendix A). And shocks that significantly change costs or demand can be addressed with a well-designed extraordinary adjustment mechanism, rather than renegotiation. These and related risk-allocation issues are discussed in Chapter 6.

8.3.1.2 Minimum equity, performance bonds, and tripartite agreements. In many arrangements involving private investment in water or sanitation infrastructure, financing comes largely from debt, not equity. Because debt has to be serviced from cashflow regardless of the financial performance of the company, higher shares of debt financing lead to a greater chance of bankruptcy.

While governments will not usually renegotiate an arrangement just because profits are below forecast, they are often unwilling to let a water operator go bankrupt. This means that, all else being equal, the more debt used in the financing

Box 8.1 **Renegotiation and risk transfer—the Manila water concessions**

In 1997 the government of the Philippines let two concessions for the provision of water and sanitation services in Manila. The original contract contained a price-adjustment mechanism that shared exchange rate risk between the operators and customers. In effect, the operators were required to bear the cost of exchange rate fluctuations up front, but they could recover the cost from customers over the remainder of the concessions.

Soon after the contract commenced, the Philippine peso lost much of its value. As a result, the value of the operator's denominated debts and debt-servicing costs increased substantially in local currency terms. The operators argued that the existing adjustment mechanism was inadequate because even though they would be able to recover exchange rate losses over time, in the short run the negative impact was substantial.

The operators successfully negotiated an amendment to the agreement establishing a new mechanism called the Foreign Currency Differential Adjustment, which allowed full and immediate recovery of exchange rate losses from customers. This transferred substantial risk to customers.

structure, the more likely that financial underperformance will result in bankruptcy and that the government will renegotiate.

Options to control the risk of renegotiation caused by financial distress include:

- Minimum equity requirements
- Performance bonds
- Tripartite agreements with step-in rights.

Minimum equity requirements require the operator to have a minimum amount of equity or a minimum ratio of equity to debt. As a result, they increase the operator's ability to withstand shocks and reduce the chance that the government will be pressured to renegotiate.

Performance bonds can have a similar effect. The operator is required to put up a bond of a specified sum of money, which the contracting authority may call on if the operator breaches or cancels the arrangement. Should the operator prove unable to perform its obligations under the arrangement, the money is forfeited. Performance bonds can also help to cover any costs to the contracting authority arising from the operator's failure.

Tripartite agreements—linking the contracting authority, financiers, and the operator—establish a framework and processes to manage the contracting authority's dealings with financiers, in the event of bankruptcy. These agreements seek to balance the financiers' interests in being repaid with the contracting authority's interest in ensuring uninterrupted service.

Financiers are concerned with preserving and recovering the value of their financing, by way of a charge over the assets involved or by exercising step-in rights and taking over the operation of the business. If financiers were to remove assets, they could compromise service provision. By giving the financier step-in rights under a well-designed tripartite agreement, the contracting authority may be able to offer an acceptable solution to the financier while ensuring uninterrupted service. In particular, the tripartite agreement should include a process that is clear to all parties and that provides for continuous service provision during the transition.

8.3.2 Making enforcement easier

If either party breaches its obligations under the arrangement, settling the matter through court cases can be costly and time-consuming. Several techniques can be built into an arrangement to make enforcement easier.

8.3.2.1 Set-off rights. Set-off rights allow a party to recover sums owed to it by not paying money it owes the other party. For example, the contract between the contracting authority and the operator may provide for payments of certain revenues or fees to the contracting authority. The operator could withhold payment of these fees or payment of management fees or other sums as a set-off against money owed to it. Set-off rights may be enshrined in law or set out in the contract.

8.3.2.2 Escrow accounts. An escrow account is a bank account where funds are held and can generally be accessed only under certain strict conditions. The advantage of an escrow account is that it enables funds to be kept separately from other funds of the contracting authority and to be accessed according to objective criteria. For example, the contracting authority may be responsible for past environmental liabilities. But the private sector as operator may have to clean up and remediate a site because of environmental problems. The operator would have to rely on payment from the contracting authority, which may be problematic, particularly if all the budgeted funds for the year have been spent or allocated. An escrow account that keeps funds for certain liabilities provides greater protection to the operator.

8.3.2.3 Third-party guarantees. A guarantee from a creditworthy third party can also protect the operator or contracting authority. For example, a national government's guarantee of a municipality's obligation under a water contract could

provide an operator much comfort. Within the project structure, it is common for certain subcontractors to provide guarantees to the operator, and the contracting authority will want to ensure it can take over the benefit of these guarantees if the contract with the operator terminates and the contracting authority wants to continue using the subcontractor.

8.3.2.4 Partial risk guarantees. Third-party partial risk guarantees can be useful where political and regulatory risks are high. For example, political risk guarantees may help where the contracting authority has a poor track record with reform or private participation or where political instability increases the possibility that future governments will renege on the arrangement. A third party, such as a multilateral development bank, acts as guarantor to the operator (or its shareholders or lenders). If the contracting authority defaults on specified obligations under the arrangement, the third party compensates the operator for its resulting loss. Third-party partial risk guarantees can pass political and regulatory risk associated with the arrangement to the guarantor. The guarantors can attempt to manage this risk by bringing pressure to bear on the contracting authority if it defaults on its obligations under the arrangement.

8.3.2.5 Other involvement of international agencies. Operators and sponsors are sometimes more comfortable working on projects that involve bilateral or multilateral agencies. They may believe the government is more likely to meet its obligations because of its desire for future bilateral or multilateral funding and support and because of the possible damage to its reputation. Therefore, projects involving international agencies can prove attractive to sponsors.

8.3.2.6 Penalties. The contract often sets out penalties for failing to meet performance requirements. These penalties usually vary according to several factors, including the type of breach and its severity, duration, frequency, and effect on customers. The benefit of this approach is that the penalties are clear, agreed on, and more easily enforceable than a general claim for damages. Local legal advice should be taken on the amount of such fixed penalties because some jurisdictions limit penalties. For example, in some jurisdictions, the penalty must reflect a genuine preestimate of the likely loss that would be incurred.

8.3.2.7 Conaming on insurance. The operator is normally required to take out insurance against many risks. The contracting authority should seek to be conamed on the insurance policy and have its interest noted on all insurance taken out by the operator. This offers more protection than simply being named "loss payee" under the policy, because the contracting authority can make the claim itself rather

than rely on the insured party to do so. Specialized advice on local insurance should be obtained for individual projects.

8.3.3 Enforcing customer rights and obligations

Ensuring that customers, including government agencies, pay for services is usually a challenge in developing countries. The right to disconnect nonpaying customers is perhaps the most effective power. The right to disconnect and the mechanisms for enforcing it generally need to be set out in law rather than in the contract with customers because it is a fundamental right with wide-ranging consequences. Indeed, in some countries, the right may be available only to the government. In civil law countries, affermage-leases and concessions are based on delegation of public service and the assignment of the government's powers (prerogatives de puissance publique), including the right to cut off service in the case of default.

Other options include direct recovery of outstanding amounts by seizing customer assets. Pursuing customers for nonpayment in the courts is another option but depends on the efficacy of the system and the ability to enforce any judgment. In many countries such an approach may not be practical.

Collecting tariffs from government customers can be particularly difficult. Agreements will often contain provisions preventing the disconnection of certain public bodies such as hospitals and schools. There may also be significant existing debts to other public-sector bodies such as the electricity supplier. Appropriate contractual mechanisms to ensure payment need to be included in the contract. Similarly, where significant debts currently exist, appropriate commercial arrangements with the relevant public body need to be agreed on with the involvement of the private sector. Indeed, it is often helpful for the operator to participate in this process.

Customers need to be able to enforce their contractual rights against the utility as well: see Section 7.5.

Checklist **Designing legal instruments to embody the arrangement**

Establish legal basis for	❑ Transaction process and selection of the operator
	❑ Contracting authority powers
	❑ Tariff and service standard rules and adjustments
	❑ Other commercial aspects of the arrangements, such as financial provisions, notice periods, and termination arrangements
	❑ Dispute resolution and enforcement
Background codes	❑ Check existing frameworks of general application governing private participation: administrative law, concessions laws, and regulatory statutes
Enforcing customer rights and obligations	❑ Mechanisms to ensure customers pay, such as right of disconnection or asset seizure
	❑ Mechanism to ensure public customers pay, such as right of set-off or escrow accounts
	❑ Mechanisms to ensure customers can enforce their rights against providers
Making the risk allocation stick	❑ Minimum equity requirements
	❑ Performance bonds
	❑ Tripartite agreements
	❑ Step-in rights
	❑ Set-off rights
	❑ Escrow accounts
	❑ Third-party guarantees
	❑ Penalties
	❑ Conaming on insurance
Other legal due diligence	See the previous checklist: General background law—Additional issues for due diligence

More information **Designing legal instruments to embody the arrangement**

Legal mechanisms effective in committing governments: Levy and Spiller 1996, Savedoff and Spiller 1999.

Legal instruments for long term arrangements: Castalia Strategic Advisors 2004.

French administrative law: Morand-Deviller 2003.

Legal instruments and project finance: Delmon 2001, Hoffman 1998, Pritchard 1996, and World Bank 2003.

Legal examples: Department of Water Affairs and Forestry 1997; World Bank: Rapid Response Unit Knowledge Services, "Infrastructure Contracts and Licenses Database," available at http://ppi.worldbank.org/icl/.

Arbitration and court proceedings: Broches 1990, Nelson 1989, Paulsson 1996, World Bank 2003.

Minimum equity requirements, performance bonds, tripartite arrangements, and related mechanisms: Ehrhardt and Irwin 2004.

Partial risk guarantees provided by multilaterals: Gupta and others 2002.

9 Selecting an operator

This chapter provides an overview of the key issues to be addressed and the steps involved in selecting an operator. It focuses on selecting an operator for the main utility rather than for alternative providers. For relatively small utilities, the steps in the selection process are the same, but the selection process is adapted to fit the requirements and to limit expenses. In particular, the eligibility and selection criteria could be relaxed in order to attract regional operators.

9.1 CHOOSING A SELECTION METHOD

Once a contracting authority has decided on the kind of arrangement it wants, it needs to select an operator. The selection process should obtain the required service on terms that are the best value for money for the public sector and customers. This requires a procurement process that is:

- *Clear and transparent.* The transaction objectives should be explicit, and selection criteria well defined. All parties, including external stakeholders, should understand the tender process and the basis for decision making.
- *Robust.* The process should be resilient to problems encountered during procurement and not open to challenge by losing bidders.
- *Fair.* Procurement should be undertaken on a level playing field, with all bidders competing on equal terms.
- *Cost-effective and timely.* The cost and duration of bidding should be commensurate with the potential rewards of winning.

There are three basic approaches to operator selection:

- Competitive bidding
- Competitive negotiation
- Direct negotiation.

9.1.1 Competitive bidding

Competitive bidding is widely believed to be the best method of selecting the operator in most circumstances. The main advantages of competitive bidding are that it:

- Encourages transparency (Box 9.1)
- Provides a market mechanism for selecting the best proposal
- Protects the government's key terms from erosion through intensive negotiation
- Stimulates interest among a broad range of potential partners.

The main disadvantages to competitive bidding are that it:

- Can be hard to implement unless outputs are standardized and all technical parameters can be clearly defined, making evaluation of innovative or nonstandard proposals difficult

Box 9.1 **Transparency in Manila**

For the two concessions in Manila considerable effort went into assuring the public of a transparent process. Bid envelopes were stored in safes under tight security; bidders unlocked their padlock and submitted their still-enclosed bids to be opened in front of television cameras. Of the approximately 400 guests that attended the bid opening ceremony, 70–80 were journalists. The results of the bidding were featured in the headlines of Manila's three largest newspapers.

Source: Dumol 2000.

- May encourage underbidding (lowballing)
- May entail high costs for bid preparation, which can deter potential operators.

A competitive bidding process generally has the following steps:

- The government notifies the public that it seeks an operator to provide water services and requests expressions of interest from private companies.
- A formal process is developed for screening potential bidders and a list of qualified bidders is finalized.
- Bidding documents and draft documents are distributed to potential bidders.
- A formal, public process is used to present and evaluate bids and select a winner.

9.1.2 Competitive negotiations

In competitive negotiations the contracting authority engages in simultaneous negotiations with two or more bidders.

The main advantages of competitive negotiations are that they can:

- Encourage bidders to be more creative and innovative
- Reduce the incentive for bidders to deliberately underbid in order to win projects
- Offer a richer way to screen bidders than price alone, since the contracting authority can get to know the operator and judge how good a partner it is likely to be.

The main disadvantages are that:

- Bids can be difficult to compare
- Competition is less transparent than with competitive bidding, which may allow corruption and reduce the legitimacy of the process
- The cost of bidding may deter some firms.

Competitive negotiations are well suited to projects with many possible technical variations and much scope for innovation. They are also useful when project financing is difficult to secure on the basis of standardized contract documents. But the approach carries additional risk: it is more subjective and less transparent, and it may give bidders undue influence.

Competitive negotiations typically involve the following key steps:

- The government specifies its service objectives and seeks proposals from private operators through a request for proposals.

- The government reviews the proposals and selects those that are technically responsive to the request for proposals.
- The government negotiates contract terms and conditions with the selected bidders.

9.1.3 Direct negotiation

Sometimes it is appropriate to let a contract using direct negotiation between a contracting authority and private sector sponsor. Direct negotiation most frequently occurs when a project idea originates with a private sector sponsor and that sponsor seeks to negotiate directly with the contracting authority the terms and conditions for the proposed contract (an unsolicited bid).

The main advantages of direct negotiations are that they:

- Provide incentives for private companies to find innovative solutions to local service problems
- Increase the chance of private interest when the costs of competitive bidding would be high relative to expected revenues (as in small towns).

The main disadvantages are that:

- The absence of competition reduces pressure for cost effectiveness.
- The approach lacks transparency and may be more likely to be perceived as corrupt, which among other things reduces political sustainability.

Allowing unsolicited bids can attract innovative projects and secure private involvement in small cities and towns, where the costs of entering competitive bidding contests would be high relative to the expected returns. But direct negotiations make it difficult to ensure transparency and efficiency. Without competition, it is much harder to assess the reasonableness and cost effectiveness of a bidder's offer. And direct negotiations can increase the risk of reversal for a contract, especially when there is public resistance to private involvement in service provision.

Three methods allow unsolicited bids, while still holding a competition to select the operator:

- Purchase of the project concept by the contracting authority and award of the contract through competitive tendering
- A bonus system where the original proponent is awarded the contract, provided its bid is within an agreed margin (say 10–20 percent) of the best offer received
- The Swiss Challenge System, which allows third parties to put forward alternative proposals during a designated period and gives the original proponent the

right to match any offer that undercuts its own.

9.2 SETTING THE SELECTION CRITERIA FOR COMPETITIVE BIDDING

The contracting authority needs to determine early on how it will select the winning bidder. One of the most commonly used systems proceeds as follows:

- *Prequalification.* Firms interested in the project submit information on their operating expertise and financial capacity. The contracting authority assesses the information, and creates a short list, usually with three to six firms. Only firms on the short list are allowed to submit proposals in the next stage.
- *Evaluation of technical proposals.* Bidders submit technical proposals detailing how they would fulfill the contract and providing additional information on their financial and technical capacity. The proposals are assessed using "technical evaluation criteria." Bidders have to pass a "technical threshold" (for example, scoring at least 80 percent on the technical evaluation criteria) to be eligible for selection.
- *Evaluation of financial proposals.* After the technical proposals have been evaluated, the financial proposals of bidders that pass the technical threshold are assessed against the "financial evaluation criteria." The financial evaluation criteria may be very simple. For example, the criterion may simply be which bidder requires the lowest tariff (in a concession or affermage-lease) or lowest fee (in a management contract). The bidder with the best financial proposal is then awarded the contract.

The contracting authority needs to decide whether to follow this approach or some other approach, such as a "two-stage" bidding process. It also needs to set the technical and financial evaluation criteria and scoring mechanisms. These decisions involve difficult tradeoffs. For example, evaluation processes that give a lot of weight to subjective factors, such as the quality of a bidder's management team or the bidder's reputation, may capture things that are very important to the contracting authority, but are also subject to manipulation. Getting the selection criteria right is critical if the contracting authority is to select the best partner. The following sections outline some of the key choices to be made, under the following headings:

- Technical evaluation criteria
- Financial evaluation criteria
- Relationship between technical and financial criteria
- Choice of bidding process.

The evaluation methods and processes and scoring principles and weightings should be set before the formal operator selection starts (Tables 9.1 and 9.2). The broad framework to be used in evaluation, although not necessarily the detailed scoring matrix, may be communicated to candidates to maintain transparency and build bidder confidence. Training should be provided to staff involved in reviewing bids to ensure consistency in application.

9.2.1 Technical evaluation criteria

Technical evaluation criteria are intended to assess whether a firm would do a good job if selected. They are used at two stages in the process: prequalification and technical evaluation. At the prequalification stage the objective is to assess bidders' operating capacity and financial capacity.

Operating capacity may be assessed by examining a bidder's experience with similar private participation arrangements and the quality of its staff and other resources, such as utility management systems. Financial capacity can be assessed by inspecting a bidder's balance sheet and profitability, the support offered by financial institutions to its bid, and its track record in financing similar deals. Note that financial capacity is part of the technical evaluation rather than the financial evaluation because it concerns a bidder's ability to deliver on its obligations if selected and not the amount the bidder will charge.

At the technical bid evaluation stage, more criteria are added. For a management contract criteria may include the quality of the management team, the proposed working methods, and the management systems to be transferred. For a concession these factors may also be included, but there will be more emphasis on things like the bidder's proposed approach to improving overall operations and rehabilitating and extending the infrastructure.

The majority of a technical proposal will typically focus on operational and investment-related issues, but it may also contain details of the bidder's financing plans for working capital and capital investment. The financing plans can be used to provide the contracting authority with assurance that the bidder's proposals can be carried out, typically taking account of:

- Strength and deliverability of the financing plans
- Degree of commitment from equity and debt providers
- Degree of acceptance of underlying contract terms and associated risk allocation.

The technical evaluation typically includes an appraisal of these aspects by appropriately qualified external advisers or in-house staff.

Table 9.1 **Example of a weighted-average technical score**

Item	Base score	Weighting (%)	Weighted score
Operations plan	3	20	2.4
Technical plan	4	10	1.6
Service plan	4	20	3.2
Investment plan	3	25	3.0
Financing plan	5	25	5.6
Total			21.4

Table 9.2 **Possible scoring of items in technical proposals**

Quality of response	Score
Not addressed	0
Proposal gives rise to major concerns due to lack of content or detail	1
Proposal gives rise to minor concerns due to lack of content or detail	2
Proposal satisfactorily addresses all but minor requirements	3
Proposal satisfactorily addresses all requirements	4
Proposal exceeds requirements in material respects	5

9.2.2 Financial evaluation criteria

There are many possible financial evaluation criteria, including:

- Customer or operator tariff required
- Upfront fee, periodic lease payments, or concession payment to the contracting authority
- Price for shares or assets to be sold
- Capital investment committed by the operator
- Coverage (or new connection) targets
- Service or management fees payable to the operator
- Subsidy payable by the contracting authority.

The appropriate selection of financial criteria will depend on several factors:

- Type of arrangement proposed
- Level of cost recovery achieved by existing tariffs
- Predictability and value of future tariff-based revenues

- Contracting authority's objectives
- The rules for setting future tariffs
- The need to avoid lowballing by bidders (Section 9.4.1).

Some commonly used approaches for each major type of arrangement are summarized in Table 9.3.

Combinations of one or more of the financial parameters can be used as a basis for bidding. Care must be taken, however, to maintain transparency and understand the true effect of the combination. For instance, bidders for a concession may be required include an upfront concession payment to the contracting authority in addition to specifying their required customer tariffs. While this approach may allow the contracting authority to obtain an upfront payment, bidders will seek to recover the upfront payment in the tariff. By contrast, a single financial criterion can aid rapid and transparent bid evaluation. Getting good results with a single financial criterion may, however, require the government to do more work to ensure bidders have a precise and common understanding of the work to be done. If both upfront and periodic payments are part of the financial proposal, a discount rate must be chosen to turn the payments into a single value suitable for evaluation.

A range of variables were used for financial evaluation in the examples in Appendix A, including operator fees (Amman and Senegal); customer tariffs (Honduras, Gabon, Manila, and Sofia); coverage expansion targets (Cochabamba and La Paz–El Alto); and price per share (Chile).

All the options have advantages and disadvantages:

- Lowest tariff bids resulted in substantial tariff reductions in Manila. This seemed like a clear demonstration of the arrangement's benefits, but there was a hidden

Table 9.3 **Some possible financial criteria by type of arrangement**

Arrangement	Typical financial criteria
Management contract	Lowest fixed management fee
Affermage	Lowest affermage fee (for example, price per cubic meter of water sold)
Lease	Lowest customer tariff; highest lease fee paid to (or lowest subsidy paid by) contracting authority
Concession	Lowest customer tariff; highest concession fee paid to (or lowest subsidy paid by) contracting authority; coverage expansion targets
Divestiture	Highest amount paid for utility

cost: reducing the cashflow to the operators reduced the amount of money available for investment and the sustainability of the arrangements to unexpected shocks, such as exchange rate depreciation. When these shocks occurred, investment in the system was squeezed, and tariffs had to be increased.

- Coverage expansion targets, as used in La Paz–El Alto, are a good way of focusing on benefiting poor customers, who are usually unconnected at the start of a contract. But coverage expansion targets can create perverse outcomes. For example, in La Paz–El Alto only individual connections were taken into account in bid evaluation. Later it became apparent that customers were not willing to pay the full cost of service connections, and adjustments had to be made for cheaper alternative technologies.
- Bids based on the amount paid for shares or upfront or periodic concession fees focus on improving the government's financial position. But the improvement can come at the cost of reducing the money available for investing in water services.

9.2.3 Relationship between technical and financial criteria

Having established how to assess both the technical and financial quality of bids, the contracting authority needs a way to select the best overall bidder from the information in the two assessments. Three methods are described here with their advantages and disadvantages.

9.2.3.1 Weighted average of technical and financial scores. A common procurement approach is to choose weights for the technical score and financial score and then combine the weighted scores to produce an overall score. A weighted average score for bidder i is calculated as:

$$S_i = w_t T_i + w_f F_i,$$

where T_i is the technical score of bidder i, F_i is the financial score of bidder i, w_t is the weight given to the technical score, and $w_f (= 1 - w_t)$ is the weight given to the financial score. The financial is often calculated as:

$$F_i = \frac{P_{\min}}{P_i},$$

where $P_{\min}$ is the price (or other criterion) offered by the bidder offering the lowest price and P_i is the financial proposal of bidder i. Making the financial scores depend in this way on the minimum price offered can, however, cause the relative

ranking of the two best bidders to depend on the price offered by a third bidder. An alternative that avoids this problem is to make the financial score a linear function of offered prices (for example, $F_i = P_i$ or, if positive scores are desired, $F_i = P_{\max} - P_i$, where $P_{\max}$ is the highest price offered) and to adjust the weights if necessary.

The weights applied to the technical and financial scores should be predetermined to avoid even the appearance of the score being manipulated to suit a particular bidder. Careful analysis of the weights is needed to ensure that the total score really gives the contracting authority its preferred combination of price and performance.

Technical proposals are usually evaluated first. When the technical scores are finalized, bidders are informed of their technical scores, and then the financial proposals are reviewed. Calculation of the final scores is usually straightforward, using a predetermined formula like the one described above, so the winning bidder is determined soon after the financial proposals are evaluated.

9.2.3.2 Technical threshold, highest financial score. Under concession contracts, an initial technical threshold is usually followed by an award on purely financial criteria. Under this evaluation approach all bidders are first scored technically. A "technical threshold" is set—for example, a technical score of 80 points out of 100. Bids that are noncompliant or that do not pass the technical threshold are rejected. The remaining bid with the best financial offer wins the contract. The threshold approach was used in Amman, Cartagena, Manila, and Senegal (see Appendix A).

9.2.3.3 Fixed budget, highest technical score. A third option is for the contracting authority to inform bidders of the available budget available, and ask then to make the best possible technical proposal within that budget. For a management contract the budget would be the amount of money available to pay the management fee. For an affermage–lease or concession the budget would be the rules setting maximum tariffs and subsidies. This approach has not been widely used in the water sector, but it may be worth considering.

9.2.3.4 Pros and cons of the scoring options. The pros and cons of the three options are summarized in Table 9.4.

A weighted average score may seem like the best approach. Most contracting authorities are interested in both price and quality of bids, and they see a tradeoff between them. The weighted average score takes this into account with the weight given to the technical score reflecting the relative importance the authority places on quality compared with price.

But the weighted average score can be manipulated, which can facilitate corruption, or give the appearance of corruption. The subjective technical score is decisive

in determining the winning bid. Someone who wanted to favor one bidder over another could give that bidder a high technical score with little chance of being detected.

By contrast, the technical threshold, best financial approach is simple and transparent. All parties can clearly focus on a single, objective selection criterion: price. This approach is harder to manipulate. Once a bidder reaches the threshold, manipulating the score would not make the bidder more likely to win.

But the threshold approach limits the contracting authority's ability to select a higher quality, but more expensive, technical solution. Supporters of the threshold approach argue that the initial prequalification stage should ensure that only good firms can bid, and the technical threshold should be set so that the contracting authority will be satisfied with the quality of any proposal that exceeds the threshold. On the other hand, some experts have argued that the threshold approach can result in the contracting authority accepting operators that are initially cheaper, but that do not provide good value in the long run.

The fixed price, best quality approach, which puts a clear emphasis on quality within a limited budget, is most relevant to management contracts, where the quality of the management team and systems can make a difference in performance disproportionate to their cost. By specifying the budget this approach removes the problem of a bidder asking for more money than is available or winning with a low-quality offer that does not use the whole budget. The approach also channels bidders' creativity toward quality, rather than toward minimizing cost.

The fixed price, best quality option is clearly not suitable when the budget is not fixed and when the contracting authority favors cost over quality. It is probably more subject to manipulation than are other methods, because the winning bidder is determined entirely by the subjective technical evaluation.

9.2.4 Choice of bidding process

The steps in the bidding process, and how they are interrelated, can strongly influence the quality of the outcome. This section looks at some process options and their advantages and disadvantages.

Table 9.4 **Comparing ways to combine financial and technical scores**

Scoring option	Competition focused on cost or quality?	Objectivity and transparency
Weighted average score	Both	Medium
Technical threshold, best financial	Cost	High
Fixed price, best quality	Quality	Low

9.2.4.1 Prequalification, two envelope. Many private participation deals for water services have followed what is called the "prequalification, two envelope" approach, which has four steps:

- The contracting authority prequalifies a short list of bidders based on their technical and financial capacity.
- Bidders on the short list submit separate technical (nonprice) and financial (price) proposals, each in a different envelope.
- The contracting authority evaluates the technical and financial proposals separately (often the financial proposal is not opened until the technical evaluation is complete).
- The winning bidder is selected by combining technical and financial scores using one of the methods discussed earlier (weighted average; technical threshold, best financial; or fixed price, best quality).

This approach allows the technical proposal to be evaluated independently, without being influenced by price. It is also less susceptible to manipulation, because the subjective technical evaluation is done without knowing the content of the financial proposals. This means the technical evaluation generally cannot be used to determine the winner, since the winner will not be known until the financial proposals are reviewed—especially if a "technical threshold, best financial" method is used to combine the technical and financial results.

9.2.4.2 Two-stage bidding. Two-stage bidding is an alternative approach that has not been widely used to select an operator for water services. Two-stage bidding has four to five steps:

- There may be a prequalification process where a short list of bidders is selected based on their technical and financial capacity.
- Bidders submit a first-round bid that responds to the request for proposals with only technical information.
- The contracting authority meets with each eligible bidder to clarify and discuss the bid and to indicate what changes are needed in the bid.
- Bidders submit a second-round bid that includes an updated technical proposal and a financial proposal.
- The contracting authority verifies that the technical proposals meet the specifications and include the requested changes, and then awards the contract to the bidder with the best financial proposal.

Compared with the prequalification two-envelope approach, two-stage bidding provides more structured interaction between the contracting authority and the bidders on technical specifications. With this approach technical bids are more likely to be of a quality acceptable to the contracting authority. Two-stage bidding is often recommended when the contracting authority is initially uncertain about its technical requirements. Two-stage bidding is also less likely to result in technically inferior selection, even when the prequalification approach is combined with the two-envelope, technical threshold, best financial approach. With two stages, the contracting authority can require bidders to remedy any deficiencies in their first-round technical proposals, making final bids likely to be of a satisfactory quality in nearly all respects. And two-stage bidding is just as objective and transparent because under both systems the winner is determined almost entirely by unbiased financial evaluation.

Other choices to be made early on include:

- How to interact with bidders in preparing the tender documents
- How many firms to include on the short list
- Whether there will be a negotiation stage between evaluation and contract award.

These and related issues are as discussed in the following sections, which describe the competitive bidding process step by step.

9.3 MANAGING THE BIDDING

Before starting the selection process, the contracting authority needs a clear management structure. The management structure for the selection stage might be leaner and more execution-oriented than earlier in the reform process. The structure could include a steering group representing key government agencies in charge of the process and supervising a technical team that does the work.

Box 9.2 **A note on terminology**

The terminology for describing different procurement processes is not standardized and can be confusing. Some people call the "prequalification, two envelope" approach "two stage" since they regard prequalification as the first stage and bidding as the second. By a similar logic, a "two-stage" process that starts with prequalification is sometimes referred to as "three stage." Later in this chapter other terms such as "two-stage prequalification process" (Box 9.3) are used. In discussions, it is important to ensure that everyone is using the same terms to mean the same thing.

The steering group is typically responsible for drafting bid documentation, determining bidders on the short list, and identifying the winning bid. It usually advises the contracting authority, which has final approval over all key decisions. The steering group should be able to conduct the procurement in a timely, efficient, and transparent manner with appropriate checks and balances to minimize the risk of undue influence.

After selecting a bidder, the contracting authority may form a separate negotiation team which typically includes members of the project steering group, while retaining authority for approval on material issues.

The following sections outline the process the contracting authority will need to manage:

- Initial market soundings
- Public notification and prequalification of bidders
- Bidding
- Bid evaluation
- Possible negotiation.

In many cases the structure of the process is determined by local or funding-agency procurement rules. A review of relevant legislation and regulations may be required early in the procurement design to ensure that the proposed tender process will be legally compliant with applicable local and international regulations.

9.3.1 Initial market soundings

Talking with potential bidders at an early stage about the structure and scope of a proposed project is a good idea. This type of informal market sounding, typically based on an initial project briefing, a consultation paper, or a prebid road show, is often undertaken before commencing the formal procurement process.

Potential bidders generally welcome the opportunity to participate in informal market soundings. Early recognition of bidders' commercial concerns can greatly enhance bidder interest and increase the overall effectiveness of the formal procurement. Market soundings can vary from a simple request for comments on the initial project briefing to a structured process with questions testing market response to particular ideas and proposals. The contracting authority may also decide to hold meetings with selected potential bidders to discuss areas of particular interest or concern.

When a contracting authority has no track record in the particular form of contract under discussion, bidders may collectively seek to influence the shape of the transaction to their advantage. To avoid that, the contracting authority may employ

experienced advisers to help it distinguish between well-founded and purely self-interested suggestions.

Participating in early consultation should not offer any bidder an advantage later in the bidding process. Canvassing a range of opinions can help avoid accusations of bias in the formal procurement process. Early consultation can also solicit the views of customers, customer representatives, and other groups with an interest in the transaction (Chapter 3).

9.3.2 Public notification and prequalification

The formal procurement process is likely to start with an official public notification of the tender opportunity by advertisement through electronic and traditional means. The advertisement goes out to appropriate government channels, both national and international, as well as media outlets. The form and content of the advertisement may reflect the requirements of applicable procurement law. The advertisement typically includes a general description of the project and an invitation for suitably qualified companies, groups, or consortia to participate in the tender process. Companies responding to the invitation are then sent the prequalification documentation. Once the process has been formally advertised, contact between the contracting authority and potential bidders will need to be tightly managed to maintain transparency and fairness.

9.3.2.1 Prequalification—Purpose and documentation. A government introducing private participation in water services is establishing a long-term relationship with an operator. To be confident in the relationship, the government needs to assess not only what bidders promise to do and on what terms, but also whether the bidders are truly qualified to do what is needed. Prequalification is a way to ensure that bidders have the technical and financial capacity for the task and a track record in performing similar tasks.

Prequalification can also reduce the overall cost and complexity of the bidding process and increase interest and commitment from bidders who remain on the short list because their chance of winning is higher. In addition, prequalification imposes a valuable discipline on the contracting authority by requiring it to specify the key characteristics of the project.

The prequalification documentation typically includes some or all of the following:

- Project information memorandum providing the background to the proposed arrangement
- Instructions to tenderers outlining the bidding process to be followed and the criteria for bidder selection

- A prequalification questionnaire listing the information required from parties seeking prequalification.

9.3.2.2 Prequalification criteria and submissions. Parties that wish to prequalify may be asked to complete the prequalification questionnaire, which collects information to assess parties against the prequalification criteria (see Section 9.2). Information typically collected includes:

- Legal status of the bidding entity
- Experience or track record on similar contracts
- Geographic presence
- Size of existing customer base (population served)
- Financial standing
- Finance-raising capacity
- Type of financing bidder intends to raise if private financing is required
- Staff and resources.

When defining prequalification criteria, the contracting authority will need to keep in mind that the number of private companies with substantial international experience in providing water services to sizable populations is relatively small. Furthermore, local private-sector capacity in direct provision of such services may be limited, especially if most of the water businesses in the country are government owned. The contracting authority may therefore wish to design its prequalification criteria to allow participation by the widest range of international, regional, and local companies with relevant commercial experience (for example, telecommunication or power utilities and construction companies) on a standalone or consortium basis. Consortia have traditionally had to be led by a utility operator, but when a consortium seeks private finance it may be beneficial to allow financial investors to lead.

When consortia seek prequalification, the evaluation should reflect the overall strengths of a consortium, recognizing that no one component of the applicable consortium will on its own offer the full range of expertise and experience required. Particular attention must be paid to the consortium's collective financial standing, with careful consideration of the depth of parent company support and commitment available to both the contract and other consortium partners. The extent to which consortium members have successfully worked together in the past may also be of interest.

Multifirm bidding groups may adopt a range of consortium structures. For example, a group may create a joint-venture bidding company (in which all parties

take equity stakes), or it may have one company lead the group as the prime contractor, with other firms brought in under subcontracts. The key issue for the contracting authority is to ensure that the bidding entity fully meets the criteria and can provide legally binding assurances that it will be able to meet its obligations under the proposed contract.

9.3.2.3 Evaluation of prequalification responses. The prequalification documentation should require potential bidders to demonstrate their credentials within a standardized framework, allowing rapid comparison and evaluation. It is usually a good idea to have a predetermined scoring matrix that defines the scale by which each criterion will be marked and the weight attached to each criterion (see Tables 9.1 and 9.2).

The contracting authority must also decide how much the prequalification process is intended to narrow the field of prospective bidders. In general, potential bidders prefer fewer bidders on the short list because that increases the chance of winning. Prequalifying too many bidders can cause companies to withdraw from the process or reduce their efforts. Prospective bidders tend to particularly concerned when more than five bidders are prequalified.

By contrast, the contracting authority usually wishes to prequalify more bidders to ensure competition. Experience suggests that at least three bidders are required for strong competition. Prequalifying four provides a cushion should one bidder subsequently withdraw.

The contracting authority should set the prequalification rules based on the number and quality of bidders it wants. There are several approaches, each with advantages and disadvantages:

- *Define a prequalification threshold.* Place all bidders that pass a defined quality threshold on the short list, and choose a threshold likely to generate a reasonable number of short-listed bidders. This may result in too many or too few bidders being selected.
- *Define the number to be placed on the short list.* Specify the number of firms to be placed on the short list and select that many firms, starting with the one ranked first in the prequalification evaluation and going down the prequalification ranking until the specified number is reached. This may result in low-quality bidders being included or high-quality bidders being excluded.
- *Define a hybrid.* Combine the two approaches, putting a maximum of five firms that meet the defined quality threshold on the short list, while reserving the right to select the two or three top-ranked firms if less than two or three firms meet the threshold.

Box 9.3 **Two-stage prequalification in the European Union**

Under the European Union Services Directive, all candidates demonstrating satisfactory technical and financial capacity must be prequalified. But under the EU Utilities Directive, greater discretion is allowed in defining prequalification criteria. Under the Services Directive, a threshold test can result in a long list of potential bidders at prequalification, so another process is used to reduce the number of bidders before the detailed bid stage.

In the second stage, prequalified bidders may be asked to outline service solutions to be reviewed in terms of deliverability, responsiveness to local circumstances, and ability to meet target service levels. When appropriate, the contracting authority may invite bidders to participate in individual clarification meetings, which, if carefully managed, can provide an opportunity for all parties to exchange views on how the proposed contract arrangements and procurement process might be improved and strengthened.

9.3.3 Bidding

Following prequalification, bidders will be invited to submit proposals. The contracting authority will need to:

- Provide information to bidders
- Interact with bidders and perhaps adjust the proposed arrangement in response to their suggestions
- Specify the format and content of proposals.

To provide all parties with a framework during the bidding period and to ensure transparency and competition, tender rules and procedures are usually sent to bidders.

9.3.3.1 Provision of information. The better the information available to bidders about the state of the business and about what the contracting authority wants the operator to do, the better the chance that:

- Bidders will be able to prepare bids that are responsive to the contracting authority's requirements
- Bidders will have a common understanding of what is needed and can enter bids that are comparable with each other
- Complaints about fairness and transparency—from both bidders and political critics—will be kept to a minimum.

With assets buried underground and questionable management information systems, the availability of accurate, good-quality information is always a challenge. But if information is lacking during the bidding process, bidders will factor more risk in to their bid and make a proposal less advantageous to the contracting authority. In addition, as new information becomes available, they may want or have a right to renegotiate the original deal. The contracting authority will need to provide—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 (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 and commercial practices (tariff level and structure, subsidy arrangements, disconnection arrangements)
- Commercial operations data, including the number and condition of meters, the quality of the billing system, and collection rates
- Financial performance.

The principal mechanisms for making the information available to prequalified bidders include:

- The bidding documents, which may include an information memorandum
- A data room
- Meetings with management and staff of the utility.

System data, closed-circuit television surveys of typical sections of underground assets, and other information should be made available to bidders on CD-ROM or through a Web-based project intranet as part of the bidding documents. Bidders should be allowed to use the data room to obtain further information about the state of the water or sanitation business. This additional information might include the results of technical audits and evaluations; financial information; and data on staff, inventory, and other resources. Information on the commercial operations of the company—that is, the state of metering, billing and collection—is also very relevant.

Bidders are likely to expect reasonable access to senior management and other key members of staff at the contracting authority and in the target utility. Access to

both data room and staff should be controlled both to limit the resource impact on the utility and to ensure that all bidders have equal access to the data.

9.3.3.2 Interaction with bidders. Prequalified bidders and, where appropriate, their prospective financers, generally welcome the opportunity to enter into a dialogue with the government on the form of contract to be adopted. When designing a bidding process, the contracting authority ought to take into account the potential benefits of dialogue at each stage of the procurement process and design appropriate mechanisms accordingly. Bidder feedback on early drafts of the contract documents can help make the project more attractive to bidders, with no loss of value to the contracting authority or other stakeholders, resulting in better, more affordable bids. (Other stakeholders can also be given the opportunity to comment on drafts; see Chapter 3.)

Two main approaches have been used to obtain bidder feedback: bidder conferences and arm's length consultation. Another option is the two-stage bidding process (see Section 9.2.4).

Bidder conferences

In bidder conferences the contracting authority and its advisers present their ideas and prequalified bidders are invited to hear and respond. Bidders are sometimes provided with draft documentation before the conference and invited to propose amendments for consideration by all parties.

While bidder conferences ensure that all prospective bidders are treated equally, the approach can have limitations:

- Bidders with good ideas about how the transaction can work better may be unwilling to share ideas with competitors.
- Bidders will often respond favorably in public to ideas over which they hold significant concerns.
- Bidders may collectively seek to obtain advantageous changes to the transaction terms from the contracting authority and its advisers.

If not managed carefully the prebidding conference can significantly weaken the contracting authority's position and bidders' confidence in the process. A particular danger is that, through discussion of key commercial points in an open forum, bidders will collectively persuade the contracting authority to accept a risk allocation that reflects private interest rather than public ones. Arm's length consultation and similar consultations with customers, their representatives, and other interested groups will decrease the likelihood of the risk allocation shifting.

Arm's length consultation

Arm's length discussions can be an alternative or an addition to the bidder conference. In these discussions bidders comment on the draft bidding documents, including the proposed contract. The contracting authority can then consider how reasonable the received suggestions are.

Because bidders submit independent comments on the contract, the contracting authority can identify areas of common concern to bidders without pressure to accept the most bidder-friendly approach. The contracting authority can avoid accusations that it has given different information to different bidders by sending its responses to all bidders. Two rounds of comment and review before issuing the final contract for bidding are usually enough.

Another goal of the bidder conference and the arm's length approach is bidder acceptance of the set of contract documents that constitute a compliant bid. Bidders can still submit alternative bids that offer better value for money to the contracting authority (Section 9.4.1)

9.3.3.3 Technical proposal. In the invitation to bidders to submit a technical proposal, the contracting authority should specify the information to be included in the proposal and the format in which it is to be provided. Information requested should relate to the evaluation criteria. The proposals should contain all information that the contracting authority needs to evaluate bids and little else.

The format and content of the technical proposal can vary significantly, with requested information ranging from a firm's fitness and willingness to participate in bidding to details on how the contracting authority's requirements would be met. In the second case details of some or all of the following are included:

- Organization and structure of the bidding consortium
- Key personnel
- Capital investment plan
- Financing plan (although in a two-envelope plan this should not allow the identification of the financial bid parameters)
- Operating plan
- Management systems
- Comments on the proposed contract.

The contracting authority typically examines the technical proposals to confirm the bidders' capacity to deliver the required service over the full contract term in a robust, sustainable way. This confirmation should avoid detailed approval of specific technical programs because it could compromise the authority's ability to penalize an operator for noncompliance after the contract has been awarded.

The information required in the technical proposal should reflect the type of arrangement for which the contracting authority seeks an operator. Thus for a relatively simple management contract, a demonstration of capability or experience may be sufficient. If this information was already submitted during prequalification, all that may be required at the detailed bid stage is a letter confirming willingness to contract, perhaps supported by a bid bond.

By contrast, a concession arrangement might require bidders to demonstrate a high degree of understanding of and capability with the technical proposal, including such details as:

- Operations plan
- Consumer service plan
- Capital investment plan
- Financing plan.

The technical submission should always be structured to reflect the particular requirements of a project. On the Buenos Aires concession, for example, the technical submission focused on the bidders' operations plans, requiring each bidder to submit:

- Plans for improving the management, organization, and training of employees
- Procedures and systems to measure water quality
- Details of technology for operating and maintaining the system
- Procedures for managing the company's financial systems.

Each plan should detail the bidder's proposals for achieving the obligations set out in the bidding documents and, in particular, meeting the required levels of service defined in the concession contract.

9.3.3.4 Financial proposal. The financial proposal should include the information necessary for the financial evaluation. In some cases, this may be very simple. For example, if the financial evaluation criterion was the level of subsidy required from the government, the financial proposal would contain this number with a statement that the bidder was bound by its offer to provide the services specified under the contract for the amount of subsidy requested. When the financial evaluation criteria are more complex, the amount of information needed in the financial proposal will be greater.

Sometimes the contracting authority will ask bidders to submit a detailed, spreadsheet-based financial model as part of their financial proposal. The financial model should demonstrate the consistency of the firm's bid and allow the contract-

ing authority to see how all parts of the offer fit together. For example, a financial model for a concession contract would include expected operating profit, the cost of new investments, and the financing terms for new borrowing. The model should show that the revenue the operator expects to collect is enough to cover operating costs and debt service, given the proposed investments and financing terms.

In addition to helping the contracting authority check that the technical and financial proposals are consistent and sustainable, the financial model can also be used as a basis for future contract or tariff adjustments. For example, in an extraordinary price adjustment resulting from factors beyond the operator's control, it would be possible to go back to the original financial model and use it to determine the appropriate adjustment.

Requiring a financial model can pose difficulties though, including the following (see also Box 9.4):

- *Subjectivity and loss of transparency in the evaluation.* If the financial criterion for the award of the contract is a simple number, such as the tariff offered, the award can be very transparent. In Manila, for example, the financial envelopes were opened in public, the offered tariffs were compared, and the winning bids had the lowest tariffs. But if the evaluation committee must consider financial models and does not agree with something in one , it could be accused of changing the result or making the process too subjective.
- *Lack of clarity about effect.* If the arrangement contains procedures for adjustments and tariff reviews, the contracting authority needs to be clear about where the financial model fits. For example, if the arrangement allows for a tariff increase to offset unforeseen and uncontrollable cost increases, the arrangement would also need to specify whether the financial model would be used to calculate the price increase and, if so, how.

Bidders will look to the invitation to tenderers for guidance on the content, format, and performance of any financial model required for their financial proposal. But in general, models should be structured in accordance with good modeling practice and should generate financial statements and other required outputs in a form consistent with local accounting requirements or International Financial Reporting Standards (formerly known as International Accounting Standards).

Financial models are generally not required for management contracts. Financial models for affermage-lease or concession contracts may include:

- Inflation and other macroeconomic assumptions
- Demand projections and unaccounted-for water ratios
- Capital expenditure

- Operating and maintenance costs
- Financing
- Tariffs and revenues
- Billing and collection ratios
- Taxation
- Accounting rules.

The contracting authority may specify certain key assumptions (such as inflation rates) to ensure maximum comparability of bids at the evaluation stage. In addition, bidders may be required to generate outputs and key bid parameters such as tariffs using a standard template that can then be directly exported into the contracting authority's bid evaluation model.

9.3.3.5 Bid bonds. In most major projects, the contracting authority requires the bidder to submit a bid bond with the bid. Bid bonds are normally issued by a bank or other financial institution with an acceptable credit rating. They are intended to prevent the eventual winning bidder from withdrawing from the project without appropriate justification. If the bidder does withdraw, the bank that provided the bond will be required to pay the bond over to the contracting authority.

9.3.3.6 Acceptance of process. Contracting authorities face the risk of legal challenge from unsuccessful bidders seeking to re-open the bid evaluation process. This is typically done on the grounds that some part of the selection process was legally flawed, such as bidding procedures, evaluation criteria, or distribution of bidder information.

Contracting authorities can of course reduce this risk by treating all bidders fairly. In addition, they may require bidders to sign a legally binding letter or deed indicating that they are satisfied with the process so far, that they will accept the decision of the evaluation process, and that they will not challenge the award of the contract.

9.3.3.7 Signed contracts. Once the preferred bidder has been selected there may be a long negotiation period during which the selected bidder may try to change parts of the arrangement. One way to overcome this is to require the bidders to indicate their willingness to accept the arrangement unchanged. This can be done by requiring the proposal to include a copy of the contract signed by the bidder. If done, the contracting authority can then accept the winning offer simply by signing the contract—without any negotiations. An approach like this was used for the Manila concessions. When the bid depends on financing from someone other than the bidder, the contracting authority may also require a legally binding commitment from the financier.

This approach will only work when all bidders and financiers are willing to accept the arrangement unchanged. Since the arrangements are often so complex, there may be terms that some bidders will accept and others will not. Getting complete agreement on the terms of the arrangement from all participants is a time-consuming process, requiring several rounds of consultation on the bidding documents or a two-stage bidding process. Requiring bidders to submit signed contracts when they are not happy with all aspects of the arrangement risks having some bidders refuse to bid.

Where practical, the contracting authority should agree on all terms with all bidders, then require signed contracts (and committed financing, if relevant). For smaller transactions or ones needing to be done quickly, it may make sense to accept bids that include variations to the contract, recognizing that negotiation may be needed after evaluation.

Box 9.4 **Be careful what you ask for—how information in proposals relates to evaluation criteria and contracts**

While it might seem like a good idea to get as much information as possible in proposals, sometimes asking for more information can cause unexpected problems. Some issues to consider when deciding what to ask for include:

- How is the information relevant to the specific evaluation criteria established? If it is not relevant to evaluation, how will it be used and why is it being asked for? Is there a risk that it could be used in a way that would cause the evaluation to deviate from the established criteria?
- Can some information relevant to the evaluation criteria make it difficult to create a legally binding proposal? For example, if details on the individuals in the proposed management team are important in the evaluation, what happens if the successful bidder then changes the management team?
- If bidders are required to submit investment plans, but the contract is written to hold the bidder accountable for results (for example, an increase in hours of service and connections), what is the status of the winning bidder's investment plan? Requiring the bidder to follow the plan changes the focus of the contract from one based on outputs that the bidder can achieve as efficiently as possible to one based on constructed assets. But if the bidder is not required to follow the plan that was a factor in its selection, it might be seen as unfair or improper.

In general, the contracting authority needs to be clear, for each piece of information submitted, how it will be used in evaluation, what its contractual status will be, and how the two relate to each other.

9.3.4 Evaluating the bids

The overall approach to evaluating bids is set at the start of the selection process. This section outlines steps in a typical two-envelope evaluation process, to give an idea of the practical reality of evaluating bids, and some of the detailed issues to consider.

9.3.4.1 Compliance. On receipt of bid submissions, the contracting authority ought to check that each bid complies with the procedures and requirements set out in the instructions to bidders. Material noncompliance may disqualify a bidder from further participation in the bidding process or require immediate remedial action before the bidder's submission can be considered further.

The compliance check may also include a detailed review of changes to the contract proposed by the bidders. When bidders have been required to submit bids on the basis of unconditional acceptance of the final draft contract, a bid that includes changes may be deemed noncompliant and disqualified accordingly. When bidders have been allowed some flexibility, they may be asked to clarify their proposed changes so that a suitable risk adjustment can be applied in the financial evaluation to ensure that all bids are compared on an equivalent basis.

9.3.4.2 Financial and technical evaluation. Financial and technical proposals are usually evaluated independently, with the financial proposals often opened after the technical evaluation is complete to keep price considerations from influencing the technical marking. The contracting authority may return unopened the financial proposal of bidders whose technical proposal is judged noncompliant or fails to exceed the threshold score.

The actual opening of the financial proposal can be carried out either in public or in private. In the Bucharest and Manila concessions, bidders' financial proposals were opened and projected onto a screen with all bidders present. In Sofia, on the other hand, financial proposals were opened and evaluated in secret, with only the financial advisers aware of the results until the completion of the technical evaluation.

Opening in public maximizes transparency and can allow rapid identification of the winning bid. The scope for further competitive negotiation is then limited (see below). If another round of bidding or negotiation with two or more bidders is envisaged, confidentiality may help maintain competitive tension.

9.3.4.3 Selection of preferred bidder. Having completed the technical and financial evaluations, the contracting authority can select a preferred bidder. If a technical threshold approach was used, the preferred bidder is the one making the best financial offer.

9.3.5 Negotiating when necessary

The contracting authority can select the operator with the highest score at bid evaluation—at the price offered by that bidder—or it can enter into negotiations or another round of bidding.

There are two main reasons to have another stage after selection of the preferred bidder:

- Issues remain that still need to be agreed on with the preferred bidder.
- A better offer may be obtained by incorporating a further stage.

Several negotiation options are outlined below.

9.3.5.1 No negotiation. If all technical and contractual issues have been settled before bids are submitted, a contract can be signed very soon after the financial bids have been opened, as in the Manila concession. This approach provides the greatest objectivity and transparency, especially when a two-stage bidding process is used or when consultation with bidders has been effective enough to allow signed and unmodified contracts to be included with their bids.

9.3.5.2 Negotiation with preferred bidder. When these conditions do not hold, the contracting authority will have to negotiate outstanding issues with the preferred bidder. In this case, even when a reserve bidder (typically the second-highest scoring bidder) is retained, the contracting authority can no longer rely on competitive tension and must therefore ensure that it has the resources and capacity to maintain its negotiating position, particularly because two sides' negotiating experience may differ markedly. Bidders and their financiers may request substantial changes to contractual terms during negotiations, and it can be hard for the contracting authority to determine if the changes are truly justified or are simply an attempt by the bidder to improve its position.

9.3.5.3 Competitive negotiation. To help with the determination, the contracting authority can negotiate in parallel with two or more bidders, not designating either one as preferred, but playing them off against each other (Box 9.5). This technique can also help the contracting authority get a better deal than was offered in the competitive bids. An important disadvantage of this approach is that it lacks transparency because to be effective, the negotiations need to be conducted in secret. Therefore, people may not be confident that the final decision is unbiased.

9.3.5.4 An additional round of bidding. A final alternative is a second round of formal bidding, after each bidder has seen the other bidders' offers. When procur-

Box 9.5 **Best and final offers and competitive negotiation in the United Kingdom**

In the Private Finance Initiative projects in the United Kingdom (also known as public-private partnerships), bid evaluation is often followed by a round of "best and final offers" and further competitive negotiation where bidders may propose significant changes to the draft contract to deliver better value for money. These changes are usually put forward initially as variant bids with a base bid that closely resembles the original contract. After evaluating the bids in detail, the contracting authority typically invites a limited number of bidders to submit another set of detailed bids, on a best-and-final-offer basis.

These bids form the basis for further competitive negotiation. (For cost reasons this type of negotiated procedure is usually used when only two, or at most three, bidders remain in the competition.) Second round best-and-final-offer bids are based on revised contracts, separately negotiated to reflect each party's commercial position, so contracts are likely to differ more between bidders. The contracting authority may still wish to require a base bid prepared with reference to a common contract for comparative purposes. After evaluating the submissions and conducting negotiation meetings that may further refine the best-and-final-offer bids, the contracting authority will select a preferred bidder.

This approach may generate better offers for the contracting authority, especially for large and complex projects. On the other hand, it requires more time, resources, and capacity from the contracting authority or its advisers. Because this approach involves negotiation, it is also less transparent than selecting the bidder with the best score in bid evaluation.

ing wholesale electricity from independent power purchasers in the Philippines, the contracting authority holds a second round of bidding by electronic auction. This retains transparency while allowing bidders to improve their financial offers after seeing what other bidders have bid. However, it is not suitable for adjustment of nonprice conditions in the bid.

9.4 DEALING WITH OTHER ISSUES

There are several other important issues that the contracting authority may have to deal with when deciding how to select an operator, including:

- The winner's curse and lowball bids
- Variant bids
- Complaints and appeals
- Flexibility and future rebidding.

9.4.1 The winner's curse and lowball bids

The winning bidder may offer a price that is too low to enable it to provide the services sustainably. This could happen because the bidder makes a mistake (the winner's curse) or because it deliberately underbids, intending to win the contract and renegotiate later (lowball bidding). While it might seem advantageous to the contracting authority to get a financially favorable bid, experience shows that if the operator ends up in financial trouble, relationships will be disrupted and performance will suffer.

The risk of underbidding in water services is acute in developing countries because poor data on the utility and quickly changing economic circumstances make it genuinely difficult to estimate a financially sustainable bid and create legitimate reasons for renegotiating.

Some options may mitigate the problem, but most come with a cost, which must be weighed against the cost of underbidding. There are some things the contracting authority may be able to do in the selection process to reduce the problems of the winner's curse and lowball bidding:

- Compare bidders' offers with its own estimate of a financially viable bid, based on its own "shadow model." If the bid seems too good, the contracting authority can query or even disqualify it. Any threshold between acceptably and unacceptably low bids is arbitrary, however, and this approach may prevent the contracting authority from getting the best price.
- Accept the bid, but take steps to make default less likely. For example, the bidding procedures might provide for the contracting authority to discuss the bid with the operator, perhaps giving the operator the option to withdraw if it agreed the bid was not financially sustainable. If the operator insisted that the bid was financially sustainable, the contracting authority might negotiate a higher performance bond or simply increase its vigilance in order to react to any problems before they became a crisis.
- Ensure consistency between the criterion for selecting the operator and the rules governing price resets. For example, a price reset based on an estimate of the operator's costs (independent of its bid) scheduled early in the contract period invites lowballing when the bidder offering the lowest customer tariff wins.
- Prequalify only bidders with a significant reputation at stake. This may help, so long as operators' lowballing is to some extent observable—that is, if people can observe a pattern in which some firms ask for price increases after winning a contract more often than others do.

Section 8.3.1 discusses some other ways to reduce the risk of low bids that lead to renegotiation.

9.4.2 Variant bids

The contracting authority will generally gain by attempting to ensure that the bidders' base bids are based on the same set of bidding documents. But in complex contracts involving significant risk transfer, it may be beneficial to allow individual bidders to offer bids with alternative service-price combinations. Such variant bids may offer the contracting authority better value for money. In addition, if the contracting authority is considering alternative service options or wishes to test the cost of transferring certain risks, it may wish to require bidders to submit one or more variant bids with the base bid.

The admissibility of variant bids and the criteria for considering and evaluating them should be decided at the start of the bidding process. In general, a clear distinction needs to be maintained between:

- Base bid
- Mandatory variant bids
- Bidders' variant bids.

For the purposes of evaluation, bidders should provide details of the differences between their variant technical proposals and their base bid and clearly quantify the impact on their financial submission. The contracting authority also needs to decide whether variant bids will be evaluated in parallel with the base bid for all bidders or only after selecting the preferred bidder and for only that bidder. Depending on the complexity of the project and the number of variant bids received, the timing of variant bid evaluation may have a significant impact on the project timetable.

9.4.3 Complaints and appeals

Even in the best-run procurement process, there is a risk that one or more unsuccessful bidders will seek to overturn the result on the grounds of unfair competition, bias, or procedural irregularities. While the contracting authority may have taken all reasonable steps to avoid leaving itself open to challenge including obtaining letters of satisfaction from bidders, having a predetermined process to cover the risk of challenge may still be advisable. In many jurisdictions this is determined by law. A suitable mechanism for handling complaints might specify:

- Who will be responsible for hearing and arbitrating complaints and appeals
- On what basis complaints and appeals will be heard
- How complaints and appeals should be formulated
- Whether a fee will have be deposited for each complaint (to discourage frivolous complaints)

- What the deadlines are for the receipt of complaints and appeals and their resolution.

9.4.4 Flexibility and re-tendering

When developing an arrangement, whether to allow rebidding at the end of the arrangement should be considered. Governments typically want flexibility when an arrangement ends. They might wish to take the utility back into public management, adopt a different form of private participation, or at least have competitive tenders to select the best operator for the next stage.

To preserve this flexibility, the contract needs to be designed so that the utility is not dependent on the operator at the end of the arrangement. This can include ensuring that billing and management information systems installed by the operator remain with the utility, that assets can be transferred, and that key supply contracts remain effective. When the operator has undepreciated investment in the utility, a termination payment to compensate the operator will probably be warranted.

The contracting authority also needs to think about how to encourage competition in any re-tendering. The key issue here is the advantage an incumbent might have. The incumbent will have much better information than anyone else about the likely future costs, efficiency, and revenue potential of the utility. This means that other firms may be reluctant to compete because they feel disadvantaged and worry that, if they win, it will be because they underestimated the costs involved.

One option is to exclude the incumbent. This is sometimes suggested when management contracts are used as a preliminary step leading to a more complex form of arrangement, such as a concession. But excluding the incumbent may come at a high cost, if a successful and established operator is forced out. A better option may be simply to ensure that the operator is obligated to deliver a full information set to the contracting authority near the end of the arrangement.

Checklist **Selecting the operator**

Choosing the selection method	❑ Consider relative importance of transparency, speed, cost, and innovation
	❑ Choose a selection method: competitive bidding, competitive negotiation, or direct negotiation
Setting the selection criteria for competitive bidding	❑ Set technical evaluation criteria for prequalification
	❑ Set technical evaluation criteria for bidding
	❑ Set financial evaluation criteria for bidding
	❑ Determine how the technical and financial criteria will be combined: weighted average, technical threshold, best financial or fixed price, best quality
Manage the stages in bidding	❑ Initial market sounding to determine operators' interests and concerns
	❑ Public notification and prequalification to bidders on the short list
	❑ Specify the contents of bids and a detailed bidding process
	❑ Evaluate
	❑ Negotiate or allow bidders to further improve their bid, if necessary
Dealing with other issues	❑ Relationship between information required in proposals, evaluation criteria, and contractual obligations
	❑ Avoiding underbidding
	❑ Variant bids
	❑ Appeals and complaints
	❑ Maintaining flexibility for future re-tendering

More information **Selecting the operator**

On selecting the operator generally: Kerf and others 1998, Klein 1998a, 1998b, and 1998c, PPIAF and World Bank 2002, Saghir and others 1999, World Bank 1997, and World Bank 2004c.

On two-stage bidding: a possible model is found in World Bank 1997a, and on general procurement models World Bank 2004d

Provision of information: Jacobs Babtie 2004.

Unsolicited proposals: Hodges 2003a and 2003b.

Bidding for management contracts: Saghir and others 1999.

Rebidding for concessions: Klein 1998c.

Appendix A: Examples

The *Toolkit* includes sixteen examples of arrangement designs in developed and developing countries. The Examples follow a similar format to the text, highlighting design aspects such as allocation of risks and responsibilities and managing the relationship with institutions. The Examples describe the initial arrangement design but do not describe the implementation or assess the impacts of the arrangements.

AMMAN (JORDAN)

Contract overview	
Award date	1999
Type	Performance-based management contract
Duration and possible extension	51 months. The contract allowed for an extension upon agreement of both parties for up to 12 months. However, the contract was extended for up to December 2004 to keep the operator, LEMA, in operation until the end of the associated investment program and to allow more time for institutional development.
Contracting authority	Central government (Water Authority of Jordan or WAJ)
Operator	Lyonnaise Des Eaux, Montgomery Watson-Arabtech Jardaneh (LEMA), a joint venture between the French company SUEZ (75 percent) and a Jordanian-United Kingdom equal joint-venture company between Montgomery Watson and Arabtech Jardaneh (25 percent).
Setting upstream policy	
Market structure	*Horizontal structure:* The service area covers the Amman Governorate, with approximately 300,000 water connections. It includes several municipalities and encompasses urban, peri-urban, and rural areas, although rural areas are usually not networked. It also includes a water intake system that extends to other governorates. *Vertical structure:* Water and sanitation services are jointly provided. *Cross-sector structure:* Water is provided separately from other utilities.
Competition constraints	*Competition for the market:* Bidders needed to be companies; local companies are required to associate with an international company. Any change in the nationality of owners requires approval from WAJ. *Competition in the market:* LEMA has exclusivity over network services. WAJ also grants licenses to private water tankers, to supply customers who are not connected to the network or who do not receive enough water through the network. This water is taken either from LEMA or from private wells monitored by the Ministry of Health for quality.
Bulk water payment	LEMA pays for some bulk water being supplied to the system from external sources according to terms set out in the contract. Groundwater is abstracted free of charge.
Donor financing	None
Setting service standards, tariffs, subsidies, and financial arrangements	
Operator obligations	*Input or output terms:* Obligations are specified in both input and output terms, with detailed performance objectives. Penalties are associated with the failure to achieve obligations.

	Coverage obligations: • Disconnect some existing stormwater connections *Quality obligations:* • Meet or improve the quality standards of raw water sources, drinking water, and wastewater effluent • Reduce nonrevenue water and achieve constancy of supply during peak and nonpeak seasons • Repair malfunctioning meters and replace some water meters • Implement a leak detection and repair program and reduce response time for leak repairs • Reduce the overall number of water facility breakdowns • Improve customer bill collection • Develop a comprehensive GIS-based information management system. (GIS = geographic information system.)
Cost recovery	The tariff broadly covers operation and maintenance costs, but it does not cover investment costs or asset depreciation.
Tariff structure	Residential tariffs are based on a rising-block structure, with the first 20 m3 of water charged at a flat rate. Commercial and industrial customer tariffs are based on a fixed rate, which is higher than any residential rate. Wastewater tariffs are based on a similar structure but are lower than water rates. Poor customers can pay their bills in installments under special circumstances.
Types of subsidy	None
Donor financing	The German bilateral aid agency, Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ), funded the preparatory phases of the contract. The World Bank injected funds into an Operating Investment Fund to finance rehabilitation and renewal investments. And several loans from various donors are financing substantial capital and operational investments as well as technical assistance. The Program Management Unit established to manage the Greater Amman Water Sector Improvement Program, under which the Management Contract Directorate falls, is funded by the European Union through the European Commission delegation to Jordan.
Allocating business responsibilities and risks	
Main business responsibilities	Operator: • Management • Operation and maintenance of certain facilities • Proposing plans and budget for the use of a capital investment program financed, primarily by donors, through an Operating Investment Fund • Carrying out investment according to WAJ's capital program and Operating Investment Fund.

	Government: • Asset ownership • Implementation of capital investment program financed primarily by donors through an Operating Investment Fund.
Allocation of main risks	Risks are allocated mainly through LEMA's remuneration formula, which combines a fixed payment and a variable component. The "performance incentive compensation" (PIC) formula is as follows: $PIC = 0.05\ [(R_n - R_{n-1}) - (E_n - E_{n-1})]$, where: 5 percent (0.05) = Improvements in financial performance to be paid to the contractor by WAJ R = Eligible cash receipts from operating revenue: actual collections of sales and fees billed, other operating revenues, and all other receipts identified by WAJ. Other receipts that do not directly result from operations, such as interest income and nonoperating revenues, are not included E = Eligible operating expenses: all expenses incurred in the normal course of operations (salaries, power, spare parts, maintenance, bulk water transfers, and external sewerage disposal costs) and n is the current year of operations whereas $n-1$ is the previous year. The PIC formula is constructed around the principle that better performance is a function of revenue optimization, improved collection efficiency, and cost control. It compares the current year's financial performance with the previous year's. With this formula, the operator shares potential profits with the government (and at the same time some of the risks associated with revenues and costs). In addition, the management contractor is subject to paying penalties for failing to meet its targets.
Provisions for unforeseen events and changes	WAJ can adjust a small part of the PIC if applicable laws change significantly and decrease costs. LEMA can apply for an adjustment if the converse occurs.
Managing the relationship with institutions	
Monitoring and enforcing performance	The Management Contract Directorate acts as contract administrator on behalf of WAJ. It is placed under the Program Management Unit established to manage the Greater Amman Water Sector Improvement Program, which falls under the Ministry of Water and Irrigation. The Management Contract Directorate's responsibilities are to: • Monitor and control the management contractor's technical and financial performance • Check and approve the management contractor's budget plans • Verify and authorize the management contractor's invoices and payment requests • Manage the balance of operational cashflows between WAJ and the management contractor

	• Check and approve nonoperational services such as updating the computerized database • Coordinate with external technical and financial audits of the management contractor's performance and bonus calculations. WAJ may complete audits itself, have another branch of the government complete audits, or retain an independent auditor, at WAJ's own expense, to complete audits.
Role of independent experts	The determination of the remuneration formula is based on statements prepared by the management contractor, which are financially and technically audited by an independent and reputable international accounting firm. Independent experts can also be used for adjudication or arbitration procedures in the event of dispute.
Resolving disputes	According to the contract, the two parties should first seek to resolve a dispute through discussion. If this fails, the dispute is referred to an independent adjudicator agreed to by both parties. If either party is dissatisfied with the adjudicator's decision, the dispute can be settled by arbitration, either through a sole arbitrator or an arbitration panel with three members (two members, one appointed by each party, and a third chairperson appointed by the first two). Since the onset of the contract, disputes have been resolved directly through dialogue between WAJ and LEMA, with the World Bank acting as a mediator in some cases.
Adjusting tariffs	The prime minister sets customer tariffs at his discretion. Operator tariffs, in this case remuneration, are adjusted with the PIC formula (see Allocation of main risks).
Changes in the arrangements	Arrangements have not been significantly modified. A Memorandum of Understanding was adopted to extend the contract and to clarify the service targets in light of delays in the capital investment program.
Designing legal instruments for the arrangement	
Legal instruments	The contract and applicable national water laws set out the arrangements. The legal framework included elements of Islamic law, civil law, and common law.
Mechanisms for compliance	*Operator:* The contractor can be penalized for not meeting performance criteria. Penalty amounts are withheld from the fixed management fee or the performance-based amount. *Customers:* Customers can be disconnected if they fail to pay their bills. *Government:* The operator can terminate the contract if the government fails to pay the operator or if the operator cannot fulfill its obligations due to reasons attributable to the government.
Selecting an operator	
Operator selection	The operator was selected by competitive tender. Each bidder had to meet a minimum technical score for criteria such as innovation, staffing, methodology, and approach, and this for each of these criteria as well as in aggregate before moving to the financial evaluation. The financial evaluation was based on a combination of the bid's fixed fee

	and the percentage of improvements in financial performance paid to the contractor. A limit on the total fixed fee was also set during the tendering process. LEMA bid a lower fixed fee and a higher performance payment than its only prequalified competitor.
Re-tendering	The government has not indicated the strategy it intends to adopt after the contract concludes.
Other comments and references	
Other contract information	Delays in the implementation of the investment program made it difficult for the contractor to meet its targets. The Project Management Unit acknowledged that it was difficult for LEMA to achieve the stipulated targets before the restructuring and rehabilitation of the entire network had taken place, which led the government to agree to extend the contract.

Sources and references: Al Farawati 2001, Ministry of Water and Irrigation 2004, Platts 1999, Platts 2001, Suleiman 2002, and Waterunc.com 1999.

CARTAGENA (COLOMBIA)

Contract overview	
Award date	1995
Type	Affermage-lease contract with joint-ownership arrangements
Duration and possible extension	26 years
Contracting authority	Local government (Municipality of Cartagena)
Operator	Aguas de Cartagena (ACUACAR), a joint venture between the Municipality of Cartagena (50 percent), the Spanish operator Aguas de Barcelona (45.9 percent), and local investors (4.1 percent).
Setting upstream policy	
Market structure	*Horizontal structure:* The service area covers the municipal boundaries of Cartagena, including more than 80,000 connections at the outset of the contract. Originally this included only urban and peri-urban areas, but some rural areas were subsequently incorporated.
Vertical structure:	Water and sanitation services are jointly provided.
Cross-sector structure:	Water is provided separately from other utilities.
Competition constraints	Competition for the market: No constraints
Competition in the market:	There are no formal rules regarding exclusivity. Before recent network expansion in 2001, small informal providers operated in unserved areas, but they have since disappeared.

Bulk water payment	None
Donor financing	None
Setting service standards, tariffs, subsidies, and financial arrangements	
Operator obligations	Input or output terms: Obligations with respect to bill collection and nonrevenue water are specified in output terms. Additional World Bank loan agreements introduced a wider range of output- and input-based performance targets and obligations. *Coverage obligations:* • Increase number of connections (World Bank loan agreement) *Quality obligations:* • Improve bill collection rates • Reduce nonrevenue water • Improve operating efficiency of the network, including service continuity and response time to leakages (as per the contract and World Bank loan agreement) • Improve internal utility management and administration.
Cost recovery	Tariffs cover operation and maintenance costs including the remuneration to ACUACAR, ACUACAR's portion of loan cofinancing, and ACUACAR's portion of loan servicing. The municipality authorized some tariff increases in order to ensure that tariffs would provide ACUACAR's required portion of the loan cofinancing.
Tariff structure	The tariff structure incorporates a system of cross-subsidies based on the 1991 National Constitution. The structure divides customers into six categories, with the top two categories subsidizing the lowest three and the remaining one paying cost-recovery tariffs. In addition, some guidelines allow for explicit subsidies to support social investments.
Types of subsidy	There are no direct subsidies provided by the government; but the tariff structure allows for explicit subsidies to support social investments. ACUACAR has a Community Access Unit whose primary function is to facilitate relations between the company and poor customers. Offices have been set up in several poor districts and a mobile unit established. These give poor customers easy access to the company and also provide more flexible payment arrangements.
Donor financing	No donor funding was provided when the contract was initially signed, but soon after the contract was signed, it emerged that sufficient funds did not exist to cover the investments required to meet the performance targets. As a result, ACUACAR secured loans from the World Bank and the Inter-American Development Bank to implement an investment master plan. This plan included new investments, focused particularly on increasing coverage in poor areas of the city.
Allocating business responsibilities and risks	
Main business responsibilities	*Operator:* • Management of existing services • Operation and maintenance

	• Investment to meet performance targets (financed by loan agreements with the World Bank and the Inter-American Development Bank). *Government:* • Provision of finances by transferring a percentage of the national tax income to the local government. In turn, municipalities are obliged to spend at least 80 percent of the transferred amount on basic services, and 20 percent specifically on water and wastewater. • Cofinancing. The government provides some matching funds for the World Bank loan and ACUACAR.
Allocation of main risks	Risks are mainly allocated through ACUACAR's remuneration formula. ACUACAR's operating fee is based on a percentage of revenues collected from customers. The percentage for each year is adjusted depending on the performance relative to the targets defined in the contract. As a result, operations-related risks are allocated primarily to ACUACAR. Investment-related risks, including exchange rate risks, are effectively shared between ACUACAR and the municipality because they are both responsible for partial loan servicing.
Provisions for unforeseen events and changes	Rules for renegotiation are established in the contract by shareholder meetings.
Managing the relationship with institutions	
Monitoring and enforcing performance	Performance is evaluated by: • National economic regulator. The Comisión de Regulación de Agua Potable y Saneamiento Básico (CRA) was established by law as a special administrative unit attached to the Ministry for Economic Development. Although it is not a separate legal entity, it operates with technical and administrative independence and an independent asset base. It has four key functions: regulation of natural monopolies and economic competition; tariff regulation; regulation of service quality; and regulation of company management. • Compliance monitoring. A public-sector monitoring agency, Superintendencia de Servicios Públicos Domiciliarios, monitors the day-to-day activities of the operators involved in the delivery of public services and takes action in the case of noncompliance with national regulations. The Superintendencia also ensures that poor people receive the subsidies designed by the national government. • Municipal monitoring. The District of Cartagena employs a supervision team to annually audit ACUACAR. When performance targets are not met, the municipality can impose penalties, as stipulated in the contract. • Citizen groups. These groups are the first recourse for customers with complaints.
Role of independent experts	The municipality uses independent experts for the annual audit of ACUACAR.

Resolving disputes	Depending on the type of conflict, three different institutions can resolve conflicts: • La Superintendencia de Servicios Públicos Domiciliarios (mainly resolving disputes arising between ACUACAR and customers) • Local courts • The Chamber of Commerce.
Adjusting tariffs	Tariffs are adjusted according to three principles, as regulated by the CRA: • Financial sufficiency and economic efficiency. Tariff levels should allow self-sufficiency of the service providers, covering operations, administration, maintenance, and infrastructure expansion. The tariffs should also ensure that there is a competitive market structure. • Simplicity and transparency. The tariff regime should be easy to understand, apply, and control. The tariff should be expressed simply and with no hidden charges and all tariffs should be in the public domain. • Equity and solidarity. Lower-income customers should be supported by a homogeneous system of cross-subsidization. Tariffs are calculated at the municipal level according to a formula derived by the CRA.
Changes in the arrangements	*Initial renegotiations:* The contract was renegotiated before operations commenced. The renegotiation focused on redistributing the shares in the joint-venture company to increase the municipality's share and decrease shares of local investors and of Aguas de Barcelona. Because the municipality lacked the financial capital to increase its share, it was agreed that it could pay in kind (by asset transfers to ACUACAR). This significantly increased the political risk for Aguas de Barcelona. To mitigate this risk, the renegotiation also established a "reversion fund." After a grace period, this fund repaid Aguas de Barcelona annually until it had recouped the total value of its initial investment.
Subsequent developments.	The original contract limited ACUACAR's role to operation and maintenance with rehabilitation; but after the loan agreement contracts with international financial institutions, ACUACAR became responsible for implementing wide-ranging sector investments.
Designing legal instruments for the arrangement	
Legal instruments	Contracts and regulations set out the arrangements. There are three key contractual instruments: • The affermage-lease contract between ACUACAR and the municipality • The agreement establishing the joint-venture company ACUACAR • Loan agreements between ACUACAR and the international donors, the World Bank, and the Inter-American Development Bank. The regulator (Comisión de Regulación de Agua Potable y Saneamiento) and the Ministries of Health, Environment, and Housing and Public Credit establish regulations with which ACUACAR and the municipality must comply.

Mechanisms for compliance	*Operator:* The municipality can apply penalties for noncompliance with the terms of the contract. *Government:* The government is held to its obligations by the public-sector monitoring agency, the Superintendencia. *Customers:* The company can disconnect customers for nonpayment.
Selecting an operator	
Operator selection	The operator was selected by international competitive bidding. Because the joint-venture model was to be used, the bidding process aimed to find an international partner to join the municipality and local investors. Three companies expressed an interest in the contract. However, only Aguas de Barcelona bid, so it was awarded the contract by default.
Re-tendering	The government has not indicated the strategy it intends to adopt after the contract concludes.
Other comments and references	
Other contract information	There has been a long-term commitment from the municipality to increase tariffs. Loans from international financial institution have expanded service primarily to poor customers (those in the bottom two tariff strata obtaining cross-subsidies from tariffs). The arrangement establishing the joint-venture company called for the municipality to maintain a 50 percent share.

Sources and references: Caplan and Jones 2001b, Comisión de Regulación de Agua Potable Y Saneamiento 2004, Erml 1999, and Nickson 2001.

CHAUMONT (FRANCE)

Contract overview	
Award date	1998
Type	Affermage-lease. The characteristics of the Chaumont contract are common to most affermage contracts in France.
Duration and possible extension	12 years. In France, the law strictly limits the duration of water service contracts. Affermage-lease and concession contracts cannot last for more than 20 years or be extended, as the anticipated revenues for the company would change and the general balance of the contract would be distorted.
Contracting authority	Local government (municipality)
Operator	Société Lyonnaise des Eaux, fully owned by SUEZ.

Setting upstream policy	
Market structure	*Horizontal structure:* The service area corresponds to the limits of Chaumont municipality, which includes about 27,000 inhabitants. The utility serves approximately 12,000 customers with a connection to the water network. The contract authorizes the provision of water services to customers in neighboring communities based on a bilateral agreement between the local authorities in Chaumont and in the neighboring towns. *Vertical structure:* The same operator provides water and sanitation services on the basis of two different contracts, which were signed simultaneously. In France, municipalities can choose a different modality of management for each service. If they opt for an affermage-lease for both water and sanitation services, they have to negotiate two separate contracts even if they are with the same company, on the basis of the "one service, one specific contract" rule. Billing can be done jointly for practical reasons. *Cross-sector structure:* Water is provided separately from other utilities.
Competition constraints	*Competition for the market:* No constraints. *Competition in the market:* The operator has exclusive rights over service provision in the municipal area. When sources are located outside the municipality's boundaries, the operator may share the use of those facilities with an operator dealing with another contract. The terms of this agreement are to be negotiated directly between the parties.
Bulk water payment	The operator does not pay for bulk water.
Donor financing	None
Setting service standards, tariffs, subsidies, and financial arrangements	
Operator obligations	Input or output terms: Obligations are specified input and output terms. The operator must bring technical losses down from 30 percent at the start of the contract, to 27 percent in the third year and maintain these losses at less than 24 percent onwards from the sixth year of the contract. Additionally, the operator must also meet all safety and quality requirements for drinking water distribution. *Coverage obligations:* • Provide water to any customer who can be connected to the existing network. If the operator defaults in the fulfillment of coverage and investment obligations, financial penalties are imposed by and paid to the municipality. Given that full coverage is already in place, there are no incentives or responsibilities for coverage expansion. *Quality obligations:* • Uphold the quality criteria specified by law and the contract.
Cost recovery	The tariff paid by the end user covers all costs as follows: • The operator's tariff covers operation and maintenance costs. • The municipality's tariff covers a portion of the investment costs and depreciation of assets.

	• The river basin agency's tariff covers the other part of investment costs. Investment costs are borne by these three parties and the exact allocation is decided on a project basis rather than based on a specific allocation formula. Occasionally, higher levels of government (such as departments) finance up to 20 percent of the investment cost.
Tariff structure	A 1992 law reformed the tariff structure for water service provision. Flat fees are now strictly prohibited. Customers generally pay proportionally to their real consumption. An analysis of an average bill for a consumption of 120 m3 reveals that the tariff is split as follows: • Operator remuneration: Tariff portion consists of a two-part structure—an annual fee (which represents 6 percent of the total for an average bill) and a variable charge per cubic meter consumed (50 percent of the total) • Municipality remuneration: Tariff portion consists of a variable charge per cubic meter and represents 15 percent of the total for an average bill • River basin abstraction and discharge fee: Tariff portion consists of a variable charge per cubic meter and represents 29 percent of the total for an average bill.
Types of subsidy	Contributions to investment costs are provided to the municipality by the river basin agency and are financed by a specific part of water tariffs. They are as described above. The financing consists of no-interest loans and cash contributions ranging from 30 percent to 70 percent of total investment costs.
Donor financing	None
Allocating business responsibilities and risks	
Main business responsibilities	*Operator:* • Management • Operations and maintenance • Some investment as specified in the contract and depending on the nature of the works. *Government:* • Asset ownership • Major investments, equipment replacement, and most network renewal charges.
Allocation of main risks	The municipality bears most of the investment risks, while the private operator carries operational and commercial risks. According to the contract, the operator tariff can be renegotiated in the following circumstances: • Not less than four years after the last tariff adjustment • If the average annual volume of water distributed varies by more than 20 percent from the reference volume in the contract • If the scope of the contract is revised • If taxes paid by the operator increase by more than 30 percent or if

	a new tax is imposed on the operator, that totals more than 1 percent of its revenues under the contract • If legislation changes. Risk is also allocated according to the adjustment of the operator tariff (*OT*), which in turn is determined by the price index (*PI*) formula contained in the contract: $OT_n = OT_0 \left[.15 + \left(\frac{PI_n}{PI_0}\right)(.5W + 0.05E + .1X + .2G)\right]$, where: W = Wages E = Energy X = Excavation work G = Goods and services.
Provisions for unforeseen events and changes	The operator's remuneration can be adjusted if some prescribed conditions are met. Apart from these circumstances, nothing is specified in the contract. The contract relies on the parties reaching common agreement for unforeseen events.
Managing the relationship with institutions	
Monitoring and enforcing performance	Water quality is monitored by the central government's public health administration. The municipality supervises the contract itself. The municipality has its own research department on technical investments. The team involved in monitoring the water and sewerage contracts and planning of investments is included in a larger environmental department. A technician controls and coordinates the operator's daily work on the water distribution network. External parties can assist the municipality in monitoring, for example, with independent or decentralized state experts. The operator has several annual financial and technical self-reporting requirements from the municipality and is required to give access to any information the municipality may ask for, apart from information deemed to be commercial and strategic information.
Role of independent experts	The role of experts is not specified in the contract. The municipality has called on external professional support to help with contract supervision, contract renegotiation, and communication with consumers.
Resolving disputes	According to the contract, a conflict between the two parties is referred to an independent administrative court.
Adjusting tariffs	The tariff is composed of three main components that are set independently: • The operator tariff, as set in the affermage-lease contract and updated annually based on the formula set out below • The contracting authority tariff, to cover investment costs, which is set through an annual vote by the municipal council • Abstraction and discharge charges levied by the river basin agency.

Changes in the arrangements	Arrangements have not changed significantly since the contract was signed.
Designing legal instruments for the arrangement	
Legal instruments	The contract contains most of the arrangements for service provision, although it is is written according to a tightly defined legal framework and a series of model contracts drafted by the associations of French municipalities and consultants.
Mechanisms for compliance	*Operator:* The municipality can fine the operator for not meeting its obligations. The Customer Committee, an institution created by a 1992 law to help users control the quality of the service, also monitors the operator's obligations with respect to customer service. *Government:* There are no automatic mechanisms to force the municipality to assume its obligations. But if the administrative court has jurisdiction, it will determine each party's responsibility. The administrative court can be seized by the local state representative and has the power to modify or cancel a delegation contract. In case of disputes, the administrative court is empowered to determine each party's responsibility and to enforce such adjudication. There are also evenly spaced audits by an independent local office to verify that the municipality is meeting its legal obligations, including the ones related to the utilities business. The municipality also has to publish annual financial and technical reports to inform customers about the quality of service. This rapport du maire contains legally required information about stakeholders' responsibilities, water quality, and tariffs. *Customers:* Disconnection for nonpayment is prohibited by law, and a solidarity fund has been established to help customers who cannot afford to pay their bills.
Selecting an operator	
Operator selection	The contract was awarded through a procedure which involved competitive bidding followed by direct negotiation. Competition for the contract was strong and Société Lyonnaise des Eaux was awarded the contract; it provided the most advantageous financial and local development proposal.
Re-tendering	The government has not indicated the strategy it intends to adopt after the contract concludes.
Other comments and references	
Other contract information	None

Sources and references: Florence and Llorente 2003.

COCHABAMBA (BOLIVIA)

Contract overview	
Award date	1999 (terminated in 2000)
Type	Concession
Duration and possible extension	40 years
Contracting authority	Central government (Superintendencia Sectorial de Saneamiento Básico, or SSSB). The concession negotiation committee included the mayor of Cochabamba, a superintendent from the SSSB, the vice-minister of investment and privatization, and the general manager of Servicio Municipal de Agua Potable y Alcantarillado (SEMAPA), the municipal water service department of Cochabamba.
Operator	Aguas del Tunari, a consortium of International Water Ltd. (55 percent), Rivestar International (25 percent), and four Bolivian companies, Sociedad Boliviana de Cemento, Compañia Boliviana de Energia S.R.O., Constructura Petricevic S.A., and ICE Agua y Energia S.A (20 percent). At the time of contract signing, Bechtel Enterprise Holdings held 100 percent of International Water. In November 1999 Edison S.p.A. acquired a 50 percent share of International Water.
Setting upstream policy	
Market structure	*Horizontal structure:* The service area covers the municipality of Cochabamba. At the time of the contract signing, there were approximately 500,000 potential consumers in the municipality. The contract did not cover rural areas. *Vertical structure:* Water and sanitation services are jointly provided. *Cross-sector structure:* Water is provided separately from other utilities.
Competition constraints	*Competition for the market:* No constraints *Competition in the market:* The operator had exclusivity over water resources in Cochabamba and any additional sources needed to supply consumers in the municipality. Aguas del Tunari also had exclusivity in its service area. The contract required all actual and potential consumers to connect to the system.
Bulk water payment	The operator did not pay for bulk water.
Donor financing	None
Setting service standards, tariffs, subsidies, and financial arrangements	
Operator obligations	Input or output terms: Obligations were specified mostly in output terms but construction of the Misicuni Multipurpose Project required input terms for investments. *Coverage obligations:* Detailed coverage targets defined in the contract include a share of the population with access to the network, with five-year moving targets until 100 percent water and wastewater net-

	work coverage was reached in 2034. Some targets were subject to water availability from the completion of the Misicuni Multipurpose Project.
Cost recovery	Tariffs covered operating costs and some investment costs.
Tariff structure	The contract stipulated an increasing-block tariff. Water customers were split into nine classifications, with residential customers divided into four categories based on the type and condition of housing units. Differential rates based on consumption existed in each category.
Types of subsidy	No external subsidies
Allocating business responsibilities and risks	
Main business responsibilities	*Operator:* • Management • Operations and maintenance • Investment including the construction of the Misicuni Multipurpose Project, a project intended to utilize the water resources of the Misicuni River for the municipality of Cochabamba's electricity generation, irrigation, and water supply. *Government:* • No significant business responsibilities
Allocation of main risks	The consumers bore much of the risk; for example, decreases in demand would not affect the concessionaire because the contract guaranteed the concessionaire a rate of return of 15-17 percent. Customers also bore exchange rate risk because the concessionaire's rate of return was indexed to the U.S. dollar.
Provisions for unforeseen events and changes	Renegotiation of certain contractual provisions could occur. The construction of the Misicuni system, for example, was subject to the results of field research, technical feasibility, and financial feasibility studies. Stipulations on tariff, network coverage, and network expansion targets could also be renegotiated.
Managing the relationship with institutions	
Monitoring and enforcing performance	The contract was supervised by the Sectoral Superintendence for Basic Sanitation or Superintendencia Sectorial de Saneamiento Básico (SSSB). The name of the SSSB has changed to the Superintendencia de Saneamiento Básico Aguas as noted in the La Paz–El Alto example. In addition to granting the concession, the SSSB was responsible for enforcing compliance with regulatory rules for water services; granting, revoking, extending, or modifying concessions and licenses; approving tariff structures and price increases; monitoring water services performance; promoting efficiency in delivering water services; and acting as the court of appeal for consumer complaints against the operator. The SSSB is financially and managerially autonomous.
Role of independent experts	None indicated

Resolving disputes	Any dispute-resolution institution recognized by the Bolivian government could be used in contract disputes. The following institutions were recognized in the contract: International Centre for the Settlement of Investment Disputes, the International Chamber of Commerce, and the United Nations Commission on International Trade Law.
Adjusting tariffs	After the initial average tariff increase of 35 percent, tariffs were set to increase by 20 percent in 2002 (with the expected additional resources from the Misicuni system). Tariffs could be adjusted in the interim based through periodic reviews and revision of tariff and expansion targets to guarantee the operator's 15–17 percent rate of return.
Changes in the arrangements	The contract was not changed between the signing of the contract on September 3, 1999, and the operator's cancellation of the contract on April 10, 2000. The initial tariff increase of 35 percent was reduced to 20 percent on February 3, 2000 in response to conflict with customers and others.
Designing legal instruments for the arrangement	
Legal instruments	The contract set out the arrangements. The contract was developed within the legal framework provided by the 1994 Sistema de Regulación Sectorial and the 1999 Water Services Law or Ley de Servicios de Agua Potable y Alcantarillado Sanitario. The Bolivian legal framework is based on civil code similar to the French civil code.
Mechanisms for compliance	*Operator.* The concessionaire would incur penalties for not meeting its obligations (for example, a fine for not reaching coverage targets, or failure to complete the Misicuni system). *Government.* Government noncompliance concerned any part of contractually stated obligations, for example failure to authorize agreed-on tariffs. Contract termination was possible if either the operator or the government was noncompliant.
Selecting an operator	
Operator selection	The operator was selected by negotiation. The government initially conducted a competitive bidding process, as required by Bolivian law. Because the government received only one bid, the government passed a Supreme Decree allowing for direct negotiation of the contract with Aguas del Tunari.
Re-tendering	The government did not indicate the strategy it intended to adopt after the contract concluded.
Other comments and references	
Other contract information	The contract was terminated due to significant conflict involving consumers in the municipality, residents from outside the municipality, the government, and the operator. See Box 3.1 for additional information on the dispute and cancellation.

Sources and references: Bechtel 2002, Nickson and Vargas 2002, Woodhouse 2003, and World Bank 2002.

CÔTE D'IVOIRE

Contract overview	
Award date	1987. SODECI has been providing services in Abidjan since 1960 and has gradually increased its coverage in the country through successive contracts. All such contracts were consolidated in the 1987 contract, which was modified in 1992.
Type	Affermage-lease with concession features. Although the contract is nominally referred to as a "concession," SODECI manages tariff revenues reserved for investments but, as in an affermage contract, it is not required to invest from its own funds and receives an operator tariff, different from the customer tariff.
Duration and possible extension	20 years. The contract can be automatically extended for 3 years at least 2 years before the end of the contract if both parties agree.
Contracting authority	Central government (the Direction Centrale des Grands Travaux (DCGTX), a central government agency responsible for large infrastructure projects.
Operator	La Société de Distribution d'Eau de la Côte d'Ivoire (SODECI) is listed on the Abidjan Stock Exchange with the following shareholders: Saur International from France (47 percent), small shareholders (45 percent), SODECI employees (5 percent) and the state (3 percent). SODECI shares can be bought on the Ivorian stock market.
Setting upstream policy	
Market structure	*Horizontal structure:* The service area covers several hundred urban centers throughout the country, ranging from the capital city Abidjan to villages above 3,000 inhabitants. In 2001, SODECI served approximately 600,000 connections. *Vertical structure:* SODECI provides sanitation services in the capital Abidjan through a separate affermage contract. No sanitation services are provided in the rest of the country. *Cross-sector structure:* Water is provided separately from other utility services. However, the national electricity company, Compagnie Ivoirienne d'Electricité (CIE), is also a Saur International subsidiary and the two companies share some headquarter functions.
Competition constraints	*Competition for the market:* The contract was awarded to the incumbent operator. *Competition in the market:* SODECI has exclusivity over the provision of water services in the entire country (except in rural areas) and over the exploitation of groundwater resources. The water company (SODECI) grants licenses to authorized resellers for domestic connections in Abidjan's low-income areas. Resellers are authorized to build small networks and pay bulk supply tariffs instead of the normal rising-block tariff.
Bulk water payment	SODECI does not pay for bulk water.

Donor financing	None
Setting service standards, tariffs, subsidies, and financial arrangements	
Operator obligations	*Input or output terms:* Obligations are specified in terms of both output and inputs (for example, billing and collection). *Coverage obligations:* SODECI must provide a connection to any resident requesting service that is located within 60 meters of the network. Residents must first pay necessary charges. *Quality obligations:* • Comply with existing drinking water standards (World Health Organization standards) • Comply with specified billing and collection ratios • Ensure continuity of service (24 hour supply) and minimum pressure requirements
Cost recovery	Tariffs cover all costs, including investment costs (the sector does not receive external subsidies). Tariff revenues are broken down into three main elements: the operator fee; a contribution to the Water Development Fund (Fonds de Développement de l'Eau) which finances network extensions (including social connections) and rehabilitation; and a contribution to the National Water Fund (Fonds National de l'Eau), which is managed by the Ministry of the Economy to pay off existing debt for the sector.
Tariff structure	Uniform tariffs apply throughout the national territory, resulting in a high degree of cross-subsidization between regional areas. For domestic consumers, tariffs are set using a steep rising-block tariff structure with four blocks. Administrative customers face a single volumetric tariff. A sanitation charge is applied separately, with a similar increasing-block structure. Different sanitation charges apply to three types of customers: those with a sanitation connection, those who are close to the network, and those who are in unserved areas.
Types of subsidy	The tariff structure allows for cross-subsidies for poor consumers in the form of a social connection and a social tariff block for consumption below 18 m3. The price for the first consumption block is approximately half of that for the second block. Connection charge subsidies are financed from the Fonds de Développement de l'Eau: the cost of a connection is discounted by around 90 percent for eligible customers. Eligibility criteria include using a small-diameter pipe, being within 60 meters of the network, and having a meter.
Donor financing	No donor has financed the development of the sector since the signing of the 1987 contract.
Allocating business risks and responsibilities	
Main business responsibilities	*Operator:* • Management • Operations and maintenance • Planning investments and managing the National Development Fund for installing social connections and extending the network

	• Carrying out investments on behalf of the Water Development Fund below a certain threshold (tenders are required above such threshold) *Government:* • Asset ownership • Approving investments in network extension, renewals, and rehabilitation
Allocation of main risks	SODECI faces operation risk and commercial risk. SODECI's remuneration (Prix Maximal de Base) is a component of the total volumetric tariff. It has been set to take into account all of SODECI's operating costs (including taxes). This operator tariff (per cubic meter sold) is adjusted every 6 months according to a complex adjustment formula, which takes into account inflation factors, the cost of certain types of labor, the price of gas, oil, and electricity, certain chemicals, import duties and taxes, certain French intermediate goods and services, and exchange rates. The contract also provides for SODECI's remuneration to be renegotiated every 5 years during the life of the contract. In the event that no agreement is reached or the new remuneration is not formally approved, the previous Prix Maximal de Base remains applicable. The government faces investment and financial risk. The tariff receipts first need to pay for SODECI's remuneration; the remainder is used to repay the debt and finance new investments.
Provisions for unforeseen events and changes	The contract has no special provisions for unforeseen events and changes.
Managing the relationship with institutions	
Monitoring and enforcing performance	The Water Directorate (Direction de l'Eau) within the Ministry of Economic Infrastructure acts as the owner of the water supply and sanitation networks and is in charge of monitoring compliance with the contract.
Role of independent experts	Not specified in the contract
Resolving disputes	Disputes are resolved according to a standard administrative procedure applicable to public work contracts.
Adjusting tariffs	The Water Directorate leads discussions regarding tariff adjustments to the operator and customer tariff. Customer tariffs must be adopted by a decree approved in the Council of Ministers. Tariffs are scheduled to be revised every five years but the application of tariff determinations has recently been subject to delay.
Changes in the arrangements	An amendment was adopted in 1992 in order to specify key agreements contained in the contract and simplify the institutional structure for financing the sector.

Designing legal instruments for the arrangement	
Legal instruments	The contract contains the arrangements between the parties. Decrees approved by the Council of Ministers are used to implement decisions, as for example decisions on tariffs.
Mechanisms for compliance	*Operator:* Monetary sanctions are applied if there is (1) unjustified interruption or partial interruption of supply; (2) failure to reach water quality levels; (3) insufficient pressure levels; or (4) failure to provide accounts. Sanctions are estimated based on a given volume (per sanction) multiplied by the Prix Maximal de Base. In addition, the government can terminate the contract without compensation for any serious failure by SODECI to provide services. *Customers:* SODECI can disconnect customers for nonpayment.
Selecting an operator	
Operator selection	The operator had been in activity for the previous 35 years and was sole-sourced.
Re-tendering	The government has not indicated the strategy it intends to adopt after the contract concludes.
Other comments and references	
Other contract information	None

Sources and references: Trémolet and others 2002.

GABON

Contract overview	
Award date	1997
Type	Concession
Duration and possible extension	20 years. The contract can be extended for several periods based on an addendum to the contract. The party requesting an extension must advise the other 3 years prior to contract termination.
Contracting authority	Central government
Operator	Société d'Energie et d'Eau du Gabon (SEEG), a consortium of French company Veolia Water (51 percent), a company of Veolia Environnement, and local shareholders (49 percent). The share sold through a public offer was the first of its kind in Gabon. Employees were able to buy up to 5 percent of those shares. The state retained a single "Golden Share," which entitles it to two representatives on the board of SEEG with a consultative voice.

Setting upstream policy	
Market structure	*Horizontal structure:* The water service area includes all large cities and most population groupings above 1,000 inhabitants, most of them being in rural areas. The concessionaire serves over 80,000 customers. *Vertical structure:* Water and sanitation services are separately provided. *Cross-sector structure:* Water and electricity are jointly provided, but both services are not necessarily provided in all service centers simultaneously. Electricity is provided to over 140,000 customers.
Competition constraints	*Competition for the market:* No constraints *Competition in the market:* SEEG has exclusivity over service provision in its service area. Within and beyond SEEG's exclusive service area, water and electricity resellers are accepted, but there are no formal arrangements between the SEEG or the ministry and the small-scale operators and the operator to cooperate in order to accelerate service expansion.
Bulk water payment	The operator does not pay for bulk water.
Donor financing	None
Setting service standards, tariffs, subsidies, and financial arrangements	
Operator obligations	*Input or output terms:* Obligations are specified mostly in output terms. Input obligations are stated with a minimum renewal investment, of which a certain percent should go to the water network as opposed to electricity. The concessionaire has informally committed to additional investment over the life of the contract, mainly in increasing network density and extending the network. *Coverage obligations:* Detailed coverage targets are included in the contract. They are defined as a share of the population with access to the network, with five-year increasing targets differentiating (different targets between main cities and rural areas) . In addition, a list of new centers to be served is also included in the contract. If the concessionaire fails to reach its coverage targets, the amount of investment not undertaken is calculated. The concessionaire is then obliged to pay a penalty equal to 25 percent of this estimated investment, in addition to any costs incurred in making the investments needed to effectively meet the contractual targets. *Quality obligations:* Quality obligations are specified with little detail in the contract, which indicated that they should initially meet the WHO standard and thereafter be specified by mutual agreement after the start of contract.
Cost recovery	Tariffs cover all operating costs and most investment costs There are two exceptions: large investments costs in electricity production, which were to be met with subsequent independent power production plans; and possible government subsidies for other large investments.

Tariff structure	There are only two types of volumetric tariffs that apply throughout the perimeter of the concession: a social tariff (for consumption up to 15 m3 a month) and a normal tariff. The operator can modify the tariff structure every year as long as certain tariffs (including social tariffs) do not increase by more than 1 percent a year and the total revenue remains unchanged. Notably, a special contribution is added to the tariff to create the Water Special Fund (Fonds spécial de l'eau).
Types of subsidy	No direct subsidies are provided. The tariff structure implies some cross-subsidization.
Donor financing	None
Allocating business responsibilities and risks	
Main business responsibilities	Operator: • Management • Operations and maintenance, including expanding the network to previously unconnected areas • Investment *Government:* Although not required by the contract to invest, the government continues to finance major investments in the water network in the capital city (due to the amount of investment needed) and in electricity transmission and distribution networks throughout the country.
Allocation of main risks	The concessionaire bears operational, investment, and financing risks. Its remuneration entirely comes from tariffs, which are adjusted according to the formula discussed below. There is no concession fee to the government.
Provisions for unforeseen events and changes	The contract contains rules for different types of renegotiation: • Mutual agreement as stated in the contract or in the event of substantial changes in external conditions that affect the financial and economic equilibrium of the contract. • Unilateral renegotiation. The government can modify the contract unilaterally but it must provide adequate financial compensation if it does so. The government must also provide appropriate compensation if it chooses to terminate the contract.
Managing the relationship with institutions	
Monitoring and enforcing performance	The contract is supervised by the Ministry of Mines, Energy, Oil, and Water Resources (also known as the Conceding Authority). Within the ministry, the Direction Générale de l'Energie et des Ressources Hydrauliques is directly in charge of controlling the contract. This directorate is not independent and also has responsibilities for defining sector policies and carrying out large investments in both sectors, namely hydroelectric or rural water and electricity schemes.

Role of independent experts	The contract specifies the use of independent experts to carry out specific studies (for example, for the 5 year revision and coverage study) and participate in the control of the concession, with a portion of the customer tariff to pay for these studies and control.
Resolving disputes	The International Centre for the Settlement of Investment Disputes (ICSID) resolves disputes.
Adjusting tariffs	There are several types of tariff adjustment mechanisms: • Automatic adjustments every three months, based on a tariff adjustment formula that incorporates changes in factor prices and cost reductions from efficiency gains. These tariff changes are calculated by the concessionaire and authorized by the conceding authority • Potential annual adjustments, which the concessionaire can propose to rebalance the tariff structure between tariff classes or geographical areas within certain limits (for example, social tariffs and tariffs for isolated centers cannot increase by more than 1 percent in any one year and the total annual revenues must remain unchanged by this rebalancing) • Exceptional adjustments, if any of the factor prices contained in the formula vary by more than 50 percent, if the total index is higher than 20 percent, or if there is a legislative change or a significant change in production capacities • Five-year negotiations, if deemed necessary, whereby the concessionaire and the Conceding Authority can negotiate a change every 5 years in the structure or the level of tariffs or the tariff adjustment formula.
Changes in the arrangements	Because the government quickly entered a concession contract and because uncertainty about the state of the systems at the time of privatization was high, a "transition period" of 2.5 years was defined in the contract. During that period, no penalties could be applied, but the concessionaire had several obligations, such as to define (and implement) an emergency repair plan and to establish the methodological basis and the tools for controlling the enforcement of the contract, such as an inventory of assets and an analytical accounting system.
Designing legal instruments for the arrangement	
Legal instruments	The contract sets out the arrangements. This contract was developed within a legal framework that specifies that the state has a monopoly over water and electricity services and that it can delegate the provision of this service to one or more operators through concession contracts.
Mechanisms for compliance	*Operator:* The concessionaire incurs penalties for not meeting its obligations (for example, a fine for not reaching coverage targets). *Customers:* Disconnection of customers for nonpayment is allowed. *Government:* There are no mechanisms to force the government to comply with obligations that fall outside of the contract, such as building roads to facilitate coverage extension.

Selecting an operator	
Operator selection	The operator was selected through competitive bidding. The companies first had to pre-qualify on the basis of general criteria, such as experience and financial integrity. A round of negotiation with each bidder followed and the contract terms were determined at that time. The final bidding process was based on tariff reductions alone.
Re-tendering	The government has not indicated the strategy it intends to adopt after the contract concludes.
Other comments and references	
Other contract information	Many activities that should have taken place during the transition period, such as the negotiation of quality targets for water service, were not carried out in the prescribed period due to intense negotiation between the company and the contracting authority.

Sources and references: Environmental Resources Management 2002.

GDANSK (POLAND)

Contract overview	
Award date	1992
Type	Affermage-lease
Duration and possible extension	30 years
Contracting authority	Local government (City of Gdansk)
Operator	Saur Neptun Gdansk (SNG), a joint venture between the French company Saur International (51 percent) and the City of Gdansk (49 percent). Saur International has overall control of the company.
Setting upstream policy	
Market structure	*Horizontal structure:* The service area covers urban inhabitants of the City of Gdansk and Sopot, a neighboring town (approximately 30,000 total water connections). Vertical structure: Water and sanitation are jointly provided. *Cross-sector structure:* Water is provided separately from other utilities.
Competition constraints	*Competition for the market:* No constraints *Competition in the market:* For those assets owned by the City of Gdansk, SNG has exclusive rights for the provision of services. However, there is a different operator in one area of the city, which delivers similar services through its own network.

Bulk water payment	There is no payment for bulk water, but SNG pays an environmental tax for abstracted raw water to the National Environment Protection Fund.
Donor financing	None
Setting service standards, tariffs, subsidies, and financial arrangements	
Operator obligations	*Input or output terms:* Obligations are specified in both input and output terms. *Coverage obligations:* There are no coverage obligations on the company. The city carries out investments in coverage extensions. *Quality obligations:* • Maintain continuity of service and quality of water and sewage according to Polish law • Reduce operating costs and water losses • Modernize management systems • Improve customer service quality as specified in the service regulations approved by the city • Achieve EU water quality standards (as specified in the European Water Framework Directive) within specified deadlines.
Cost recovery	Tariffs are based on full cost-recovery principles, including provision for investments in capital works.
Tariff structure	A national ordinance was adopted in 2002 and applied to set tariffs from 2003. The ordinance defines the principles and procedure for setting tariffs in a unified manner across customer classes and requires the elimination of cross-subsidies between customer classes over the course of five years. Before this measure, industrial consumers provided a significant cross-subsidy to domestic consumers. The tariff is a single volumetric charge that varies between customer classes.
Types of subsidy	Subsidies include:
	• The local government can set lower tariffs for certain consumer groups and compensate the loss of income through direct operating subsidies to SNG. • The city provides investment subsidies by funding some of the required investments with its own budgets and loans.
Donor financing	None.
Allocating business responsibilities and risks	
Main business responsibilities	*Operator:* • Management • Operations and maintenance • Proposing investment programs and advising on investments. *Local government:* • Asset ownership • Approving and proposing investments (with advice from SNG); financing investments (mainly from city budgets, tariffs, or structural EU funds and credits) • Regulation and setting of tariffs based on SNG proposals.

Allocation of main risks	SNG revenue and tariff proceeds cover its operating costs with any surplus going to the city to finance investment. In the event of nonpayment by customers, the commercial risk is spread between SNG and the city. Financial aspects of the contract can be reconsidered on the basis of the following events: • Material change in conditions (this provision is only applicable 5 years after contract signature) • Yearly variation of 10 percent in the revenue base • Significant changes in buildings and equipment or technical processes • Significant changes in sewage quality standards • Serious economic crises where revenues cease to cover service provision costs.
Provisions for unforeseen events and changes	The contract can be changed in the event of significant variations between the contract and Polish law. Each change in the contract must be agreed in writing and signed by both parties. If an agreement is not reached, Polish law takes precedence but without prejudice to the SNG's right to go to arbitration. Financial aspects of the agreement can also be reconsidered in light of certain defined events.
Managing the relationship with institutions	
Monitoring and enforcing performance	The shareholders' agreement between the city and SNG regulates the company's performance. Enforcement of performance is also done through the city's members on the Supervisory Board of SNG.
Role of independent experts	Independent experts are used in the arbitration of disputes.
Resolving disputes	Disputes are settled through arbitration in Gdansk. If this fails, disputes are referred to the Arbitration Chamber in Gdynia, a neighboring town. The Arbitration Board consists of three arbiters and functions according to the rules of the International Chamber of Commerce.
Adjusting tariffs	Tariffs are set and approved by the city of Gdansk based on SNG proposals. Tariffs can be reset every 12 months based on general principles (there are no specific formulas). Tariff adjustments must consider improved efficiencies (through negotiation with SNG) and considerations for particular consumer groups.
Changes in the arrangements	The contract was amended in 1995, 1999, and 2001 for legal and other reasons. The amendments altered procedures for the timing of annual tariff negotiations, sharing and control of information, and operator tariff formula for the private operator (defined on the basis of a fixed return on capital).
Designing legal instruments for the arrangement	
Legal instruments	The contract sets out the arrangements. In addition, general legislation takes precedence over the contract, such as the Act on Collective

	Water Supply and Sewage Treatment, especially in the event of a contradiction between this legislation and the contract.
Mechanisms for compliance	*Operator.* Mechanisms are included in the contract as well as in Polish law. Penalties are also stipulated. *Consumers.* Consumers can be disconnected for nonpayment if they have not paid their dues for more than two invoicing periods.
Selecting an operator	
Operator selection	The operator was selected through a direct negotiation process. Saur International initiated negotiations with the city in 1990 and signed the contract in 1992.
Re-tendering	The government has not indicated the strategy it intends to adopt after the contract concludes.
Other comments and references	
Other contract information	A sharp drop in demand affected the activities of the company, mainly due to the introduction of metering, changes in consumption practices, and the closure of many heavy industries. The company diversified its services, expanded geographically, and requested additional tariff increases. The city approved most tariff increases.

Sources and references: International Water Association 2001, Marek Swinarski 1999, Pricewaterhouse Coopers 2001b, Public Services International Research Unit 1997, and Ringskog 2000.

LA PAZ AND EL ALTO (BOLIVIA)

Contract overview	
Award date	1997
Type	Concession
Duration and possible extension	30 years
Contracting authority	Central government
Operator	Aguas del Illimani, a joint venture including the French company Lyonnaise des Eaux, fully owned by SUEZ (35 percent), Bolivian partners Bolivian Investment Corporation, or BICSA (20 percent), the Argentinean Sociedad Comercial del Plata (18 percent), Arousa, an affiliate of the Argentinean bank Banco de Galicia (10 percent), and engineering corporation CONNAL (5 percent).
Setting upstream policy	
Market structure	*Horizontal structure:* The service area covers the capital city La Paz and the poorer neighboring city El Alto, with a combined population of approximately 1.3 million. When Aguas de Illimani took over the concession, over 80 percent of the population of La Paz and over 70 percent of the population of El Alto had a water connection, and

	over 60 percent of La Paz residents and 30 percent of El Alto residents had a sewerage connection. *Vertical structure:* Water and sanitation services are jointly provided. *Cross-sector structure:* Water is provided separately from other utilities.
Competition	*Competition for the market:* There are no specified constraints. *Competition in the market:* Nationwide regulations effectively protect the concessionaire from competition, given that: • The sale of water by connected households is prohibited • The concessionaire can charge a fee for private groundwater extraction in its service area • Legislation states that if two companies want concessions in the same area, the regulator must award one through competitive bidding.
Bulk water payment	The operator does not pay for bulk water.
Donor financing	None
Setting service standards, tariffs, subsidies, and financial arrangements	
Operator obligations	Input or output terms: Obligations are specified mostly in output terms, with corresponding penalties for defaulting to meet those obligations. Input obligations concern design standards and service quality, although some flexibility was provided in poorer areas, such as El Alto. *Coverage obligations:* • All new connections must be in-house • Maintain 100 percent water service coverage in La Paz and in El Alto and achieve contractually stated coverage targets. There were distinctions made for coverage targets between El Alto and La Paz. *Service obligations:* • Improve water quality to standards above the Bolivian national standards • Achieve targets for water pressures and flow • Achieve customer service targets.
Cost recovery	All costs are recovered through tariffs, including investment costs.
Tariff structure	Industrial, commercial, and government users pay higher tariffs than domestic customers. The tariff differentiates between low- and high-volume users, with a rising-block tariff. Poor customers are charged a reduced rate for the first 30 m3 consumed each month. There is only a volumetric tariff, and no fixed charge is payable. The contract requires that tariffs for water and sanitation be differentiated after 5 years.
Types of subsidies	None
Donor financing	Before the concession contract was awarded in 1997, the Water and Sanitation Program—Andean Region, in partnership with the Swedish International Development Cooperation Agency, launched the El Alto

	Pilot Project to experiment with options for providing sanitation in peri-urban areas and provided very limited financial support.
Allocating business responsibilities and risks	
Main business responsibilities	*Operator:* • Management • Operations and maintenance • Investment, including repaying the debt of the previous municipal company. *Government:* No business responsibilities
Allocation of main risks	The operator takes on all main risks, with some exceptions stipulated in the concession contract: • Environmental liabilities. Aguas de Illimani is not responsible for environmental liabilities incurred before the concession. • Currency risk. This risk has been hedged as the tariff is contractually specified in U.S. dollars, the currency in which all loans have also been taken.
Provisions for unforeseen events and changes	The contract includes rules for its renegotiation.
Managing the relationship with institutions	
Monitoring and enforcing performance	An independent regulatory agency in charge of economic regulation, the Superintendencia de Saneamiento Básico (SISAB), was established in 1997 by a central government regulation specific to concessions in the water sector. SISAB is responsible for making sure that all regulated companies in the sector (municipal, private, or cooperatives) meet their obligations. The name of the SISAB has changed since 1997 to the Superintendencia Sectorial de Saneamiento Básico (see the Cochabamba example).
Role of independent experts	Aguas de Illimani must employ an independent expert to carry out the capital expenditure and tariff studies on which the five-year contract revision is based. The studies are financed by the operator and presented to the regulator.
Resolving disputes	The overall system of economic regulation for network services comprises five sector regulators (including SISAB), and a sixth, the Superintendencia General, which serves as an appeal body for disputes relating to those sectors. This is the first recourse before a judicial review is initiated. The contract also includes provisions for international arbitration.
Adjusting tariffs	According to the contract, tariffs are revised every five years in order to cover the costs of operation and maintenance, repaying capital for existing investments, and expansion to meet targets set out in the contract. The contract defines the procedure for estimating tariffs in four steps to be applied by an external consultant. The first step consists of estimating a formula to cover the following five-year period, including the costs of operation and maintenance, taxes,

	depreciation, the costs of repaying capital for existing investments, and a return on new investments. The second step consists of projecting revenues based on current customer tariffs. In the third step, the change in revenues required to cover the projected costs is estimated in real terms, using a set discount rate of 12 percent. The last step involves deriving projected tariff change in order to reach the corresponding change in revenue requirement based on a tariff-basket formula. The concession contract also provides for extraordinary revisions after the first two years if the concessionaire's costs rise above a certain percent.
Changes in the arrangements	The contract has not been renegotiated. The regulator refused Aguas de Illimani's request for an extraordinary tariff renegotiation during the first five-year period. Aguas de Illimani had requested such renegotiation due to a much lower than forecast demand for new connections and lower demographic growth than expected, which both had the effect of depressing demand and revenues.
Designing legal instruments for the arrangement	
Legal instruments	The concession contract is the main instrument and builds on a series of earlier regulations passed at the national level. These include the 1992 National Regulations for Water and Sanitation Service in Urban Areas, which define in-house water and sewerage connections as the only acceptable long-term water and sanitation solution for urban areas.
Mechanisms for compliance	*Operator.* Penalties are used to ensure coverage connections are met. For example, the number of required connections for a given year will increase by one for every five failed connections. If Aguas de Illimani is more than 15 percent short, they pay US$500 for every connection they have failed to install and if they are more than 25 percent short, SISAB can cancel the contract, and execute a US$5 million guarantee. *Consumers.* According to the contract, the operator can disconnect customers if they have not paid their bills for two consecutive months.
Selecting an operator	
Operator selection	The operator was selected by international competitive bidding, but there was only one bidder. The bidding criteria were the number of household water connections to be established in El Alto by 2001, as well as a commitment to specified levels of sewerage coverage.
Re-tendering	The government will re-award the contract according to the minimum net asset value bid, as set out in the concession contract.
Other comments and references	
Other contract information	Given that demand was lower than expected and the inflexibility of service standard obligations, the concessionaire worked in partnership with the Ministry of Basic Services and the Water and Sanitation Program to introduce a condominial technique for water and sewerage. The short-term objective of the project was to provide water and sanitation connections to 10,000 low-income households.

	Key strengths of the initial pilot were improved institutional and organizational structures, and strong community relationships.

Sources and references: Caplan and Jones 2001a, Foster 2001, Inter-American Development Bank 1998, Komives 1998, and Trémolet and Browning 2002.

LONDON AND THAMES VALLEY (UNITED KINGDOM)

Contract overview	
Award date	1989
Type	The Secretary of State for the Environment granted a license and simultaneous sale of shares in the license-holder capital. At the time of privatization, the water and sewerage management elements of the former ten regional water authorities were converted into public limited companies, wholly owned by holding companies, and licensed to operate water and sewerage services in their defined service areas. Shares in the holding companies were sold on the London Stock Exchange via initial public offerings. A similar process was used for smaller water-only companies.
Duration and possible extension	The license is effectively a perpetual appointment, but for a minimum of 25 years after the date of transfer of assets in 1989. The license conditions originally allowed for possible termination after the first 25 years on the Secretary of State giving 10 years notice; this was amended in 2002 to 25 years notice.
Contracting authority	*Central government.* The license is granted by the Secretary of State for the Environment.
Operator	Thames Water Plc, a subsidiary of RWE Group as of 2001.
Setting upstream policy	
Market structure	*Horizontal structure:* Thames Water is one of ten water and sewerage supply companies in England and Wales. Service areas are defined primarily on the basis of river basin boundaries. Thames Water serves approximately 13 million primarily urban customers in London and the Thames Valley. The service area includes over 3 million connections. *Vertical structure:* Water and sanitation services are jointly provided, except in certain cases described in competition constraints and where former statutory water companies continue to operate independently as water supply companies. *Cross-sector structure:* Water and sanitation are provided separately from other utilities, although a subsidiary of RWE provides electricity to other regions in the United Kingdom outside of the Thames Water service area.
Competition constraints	*Competition for the market:* No constraints *Competition in the market:* When the initial license was signed, the operator had exclusive right to the area of service for water and sewerage supply. Since then, the regulators have authorized both

	inset appointments (external water and sewerage suppliers can supply services for specific clients within the operator's service area), and common-carriage permits (a service provider shares the infrastructure assets of another provider). The introduction of the Competition Act of 1998 allowed for this increased competition in the service areas, namely by enabling common carriage. The Water Act 2003 was expected to allow licensing of new water production and retail companies and for competition in the market for supply to large industrial users.
Bulk water payment	Bulk supplies are managed largely by the company with oversight from the economic regulator (Ofwat), the Environment Agency, and ultimately the ministers. The Environment Agency licenses and levies charges over the abstraction of raw water from the environment.
Service standards, subsidies, and tariffs	
Operator obligations	Input or output terms: Obligations are specified in both input and output terms. The system of regulation is primarily output-driven; the operators propose target service levels, operating costs, and capital investments anticipated to be incurred for each five-year tariff period and Ofwat modifies and monitors operator obligations. *Coverage obligations:* Universal coverage *Quality obligations:* Ensure environmental, quality, and customer service standards. Quality improvement obligations derive from the transposition of European Union directives, mainly the European Water Framework Directive, into national legislation. Improvements are driven by European Union directives and other incentives, for example, with the application of comparative competition by the economic regulator for the determination of prices. The performance of companies on the basis of a number of indicators is compared: the company achieving high performance relative to the other companies can charge comparatively higher customer tariffs.
Cost recovery	Tariffs are designed to cover the majority of costs.
Tariff structure	Tariffs are the same throughout the service area, thereby creating implicit cross-subsidies between regions. Maximum connection charges are levied and regularly reevaluated by Ofwat. Under a law enacted in 1999, the operator is required to establish policies for vulnerable consumer groups whereby low-income groups supplied by meters are eligible for tariffs that were equal to or lower than the operator's average bill.
Types of subsidies	Subsidies include: • No direct government subsidies are provided to consumers other than social security and other general welfare provisions. • Subsidy for the operator. The government provided an implicit subsidy by offsetting the companies' existing debts at the time of privatization and granting companies a "green dowry" in order to encourage immediate investment. In addition, the asset base, on the basis of which tariffs are estimated, was set at a lower level than the historical value of assets, on the grounds that companies should not earn a return on sunk investments made by the public sector.

Donor financing	None
Allocating business responsibilities and risks	
Main business responsibilities	Operator: • Management and meeting regulatory requirements for infrastructure investment, environmental protection, customer satisfaction standards, and water and effluent quality standards • Operations and maintenance • Investment and finance *Government:* No business responsibilities
Allocation of main risks	Main risks are allocated through the tariff adjustment formula: *RPI + K,* where *RPI* is the Retail Price Index or annual percentage change in the *RPI*, and *K* is the Adjustment Factor or the annual rate by which each licensed water company can annually increase charges annually on top of inflation. Ofwat sets *K* factors, companies can defer *K* factors, and both Ofwat and companies can seek interim adjustments of *K* factors. Setting the *K* factor occurs during periodic reviews and is based on the review of operator's performance of the previous five-year period and an analysis of anticipated costs and efficiency savings for future periods. Under this formula, customers between tariff adjustment periods (scheduled every five years with the possibility of interim determinations) bear inflation risk. Operators bear risk at the time of tariff adjustment as regulator decisions alter *K* values, thereby affecting the operator's levied tariffs and eventually, the gross operating revenue. Operators also bear increasing investment cost risks between adjustment periods, although operators can request that unexpected increasing costs be accounted for in future tariff reviews. The government bears minimal risk.
Provisions for unforeseen events and changes	Renegotiation and arrangement changes can be addressed in periodic reviews, interim determinations, and acts of parliament.
Managing the relationship with institutions	
Monitoring and enforcing performance	The operator's performance is monitored by three independent regulators: • The Office of Water Services (Ofwat), the economic regulator, is in charge of establishing price limits, encouraging efficiency by comparing the performance of all water companies in England and Wales, and protecting standards of service as set forth in the company's license and the Water Industry Act 1991. Ofwat provides public information on operator performance, demand for water services, and other indicators. Customer service committees, part of the Ofwat national consumer council, are appointed by the

	director general of Ofwat and act as informants to Ofwat on the companies' performance in meeting customer service standards. • The Drinking Water Inspectorate monitors water quality and takes corresponding enforcement actions when the company's water quality standards are violated. • The Environment Agency is responsible for protecting and improving the environment by regulating water quality and water abstraction licenses.
Role of independent experts	Independent experts play a role in tariff determinations, regular review processes, and company performance reviews.
Resolving disputes	Disputes relating to the license not resolved under the operator's or regulators' capacity are referred to the Competition Commission.
Adjusting tariffs	Tariffs are adjusted over time by the principles set forth in the company's license and according to the director general's calculation. Occurring at five-year intervals, the periodic review determines whether the company's adjustment factor, or *K* value, should be changed. Calculations of tariff adjustments in the periodic review are based on the overall level of tariff but also the relationship between different types of tariffs. In addition, tariff adjustments can also occur through interim decisions. As stipulated in the company's license, interim decisions are determined by Ofwat's director general after receiving requests submitted by either the companies or Ofwat.
Changes in the arrangements	Modifications to the license include: interim price determinations, ring-fencing of financial and accounting affairs between core and noncore company activities (1993 License Amendment), mandatory Periodic Reviews for every five-year interval (1995, 2000 License Amendment), and mandatory maintenance of investment-grade ratings (2001 License Amendment).
Designing legal instruments for the arrangement	
Legal instruments	The legal arrangements are set out in the 1989 License and subsequent revisions, in addition to national legislation with respect to water services and water resources.
Mechanisms for compliance	*Operator.* Incentives for performance improvement are included in the operator's license and tariff adjustment formula. The operator is required to deliver specified service levels. Failure to meet the standards results in the operator directly compensating customers. Major breaches of license obligations can result in termination of the license. *Government.* The government's responsibilities are carried out by the independent regulators as stipulated in legislation. *Customers.* There are no specific incentives since customers cannot, by law, be disconnected for unpaid bills.

Selecting an operator	
Operator selection	Licenses were granted to Thames Water and nine other existing water and sewerage companies, previously existing as publicly owned regional water authorities. Company shares were sold on the stock exchange.
Re-tendering	The government has not indicated the strategy it intends to adopt if the license is terminated.
Other comments and references	
Other contract information	The full divestiture of assets to private companies is rarely encountered elsewhere in the world: one case is in Chile (see example of private participation in Santiago).

Sources and references: Buckland and Fraser 2001, Competition Commission 2000a, Competition Commission 2000b, Department of the Environment 1999, Green 2003, Ofwat 1998, 2001, 2003a, 2003b, 2003c, and www.ofwat.gov.uk.

METRO MANILA (PHILIPPINES)

Contract overview	
Award date	1997
Type	Concession (two separate agreements)
Duration and possible extension	25 years. There is no possible extension.
Contracting authority	National government (Ministry and Metropolitan Water Works and Sewerage System, MWSS).
Operators	The city was divided into two service areas to promote diversity and comparative competition. For the West Service Area: Maynilad Water Services Inc., a consortium between the Philippine company Benpres (60 percent) and the French company Lyonnaise des Eaux, fully owned by SUEZ (40 percent). For the East Service Area: Manila Water Company Inc., a consortium between the Philippine company Ayala (60 percent) and the U.K./U.S. company International Water (40 percent). This case study mostly focuses on Maynilad's contract in the West Service Area although the institutional arrangements are applicable to both.
Setting upstream policy	
Market structure	*Horizontal structure:* The service area covers the area previously supplied by the publicly owned MWSS—32 cities and municipalities with a total of over 11 million people. In both areas, there were over 800,000 water connections and 90,000 sewerage connections. The West Service Area covered by Maynilad Water Services had a larger population than the East Service Area. The operators also serve a small number of communities by giving them a wholesale service with internal distribution to be provided by a homeowners' association.

	Vertical structure: Water and sanitation are jointly provided within each service area. The government was to build a major new water source. Delay in doing so has been cited as one problem with the concession. *Cross-sector structure:* Water is provided separately from other utilities.
Competition constraints	*Competition for the market:* The Philippine Constitution specifically mandates that all public utilities must be owned and controlled by Filipino citizens. As a result, the concessionaire needs to be at least 60 percent owned by citizens of the Philippines (or by corporations that are at least 60 percent domestically owned) in addition to having Filipino technical managers. Rules of minimum nationality govern the ownership of outstanding capital stock (these rules have been revised slightly at periodic reviews). *Competition in the market:* The two concessionaires were granted exclusive rights to provide services in their respective service area on the basis of several conditions: • Existing private water providers were allowed to remain if already legal at the date of the concession awards (that is, licensed by the National Water Resources Board and with the consent of the MWSS). • The contract includes provisions for granting licenses to new private operators (third parties) in the concessionaires' service areas if the concessionaire declines to provide the services as proposed by the third party or if they fail to provide the proposed services at substantially similar terms. These new third-party licenses cannot exceed 10 years and can be terminated with 60 days notice if the concessionaires notify the MWSS and the National Water Resources Board that they can provide the service covered by the third party. Many third parties (such as housing associations, community groups, or private companies) provide services, especially in poor areas.
Bulk water payment	Provisions for bulk water charges apply when the concessionaires transfer water to each other's service areas. Otherwise, there are no raw water charges.
Donor financing	The World Bank and the Asian Development Bank played a leading role in financing the development of the country's water supply and sanitation sector in general, as well as during the privatization transaction. The International Finance Corporation was hired to act as transaction advisors and the World Bank approved a loan financing the rehabilitation of sewerage networks and treatment plants and the first phase of sewerage management expansion. Maynilad and Manila Water both raised substantial debt packages to meet their investment needs. The packages were financed by various mechanisms, including limited-recourse Official Development Assistance financing.
Setting service standards, tariffs, subsidies, and financial arrangements	
Operator obligations	Input or output terms: Although estimates of capital investment requirements were provided before the bidding process (without a minimum requirement) and although both bidders informally committed to significant investments over the contract life, the investment obligations remain output-based in principle. The

	operators are dependent on MWSS for investments in some major bulk-water projects. *Coverage obligations:* • Achieve annually increasing coverage targets, with interannual targets defined by zone. Coverage targets were in respect to time, population served, and type of service. *Quality obligations:* • Achieve targets for percentage of water treated (water and wastewater). • Achieve continuity of supply (24 hour supply by 2000), pressure, meet national drinking water quality and environmental standards, and improve customer service quality. Detailed reporting requirements are specified in the contract. • Achieve targets for asset management obligations.
Cost recovery	Tariffs cover operating costs, capital maintenance and investment expenditures, a rate of return to finance such expenditures (referred to as the Appropriate Discount Rate), the concessionaire cost of borrowing for loans, financial costs of the performance bond, foreign exchange losses or gains, MWSS's operating budget, and concession fee payments.
Tariff structure	Customers are divided into four categories: residential, semi-business, business I, and business II. Tariffs are lowest for households and highest for large industrial or commercial users of water (business II). Both operators have special programs for poor communities. In some cases operators have arranged for a group of homeowners in these communities to pool their water usage and bill payments, thereby keeping down their connection costs.
Types of subsidy	Subsidies include: • *Consumer:* There are no subsidies, other than direct government subsidies for construction of shallow wells by certain poor communities. • *Operator:* No explicit subsidies are granted but the concessionaires are granted preferential treatment, including a six-year income tax break, preferential tariffs on the import of capital equipment, tax credits on locally produced equipment, and exceptions from local government and franchise taxes.
Donor financing	None
Allocating business responsibilities and risks	
Main business responsibilities	Operator: • Management • Operation and maintenance • Investment. *Government:* • Compliance with notification procedure for payment of fees • Monitoring of service provided and approval of tariffs • Operation and allocation of some bulk water • Functions associated with existing MWSS projects and loans that were not transferred to the concessionaires.

Allocation of main risks	Risks are allocated through tariff adjustment rules shown below. Due to the tariff formula's price cap, the operator bears risk in the short term. The general principles used by the Regulatory Office in tariff adjustments are: • A reasonable rate of return, as provided for under tariff adjustments • Affordability to customers • Justifiable economic efficiency gains (for example, seasonal-differential rates, marginal cost pricing) • Acceptable cross-subsidization.
Provisions for unforeseen events and changes	In addition to amendments allowed through written approval of all parties and acknowledged by the secretary of finance, changes are usually dealt with through the extraordinary price adjustments.
Managing the relationship with institutions	
Monitoring and enforcing performance	Monitoring occurs through the Regulatory Office and periodic independent audits. The Regulatory Office has independent financing but it must cooperate with the MWSS board of directors. The MWSS administrator reports to the board and the Regulatory Office reports to the administrator. The Regulatory Office has two main functions: • Responsibility for a range of monitoring activities including the operators' service performance, legal obligations, financial performance, asset management obligations, and rate adjustments • Making a range of determinations on both a periodic and an occasional basis.
Role of independent experts	The regulator utilizes independent experts to assist in rate rebasing, auditing, and monitoring, as necessary.
Resolving disputes	An appeals panel is set up for minor disputes, with the regulatory office, the concessionaire, and the appeal chairman each appointing one member. In the event of major dispute (for example, rebasing determination, determination of extraordinary price adjustments, and early termination), the chairman is appointed by the president of the International Chamber of Commerce. Procedures and timetable are strictly regulated in the concession agreement. The concession agreement does not establish arrangements for resolving disputes between the two concessionaires themselves.
Adjusting tariffs	Initial tariffs were determined by the concessionaires' bids. Thereafter, they can be adjusted annually in accordance with: • The annual rate of consumer price inflation • Extraordinary price adjustments on the basis of a number of specified factors • Rate rebasing, carried out every five years to adapt the financial aspects of the contract to changes in circumstances beyond the control of the concessionaires. The process and rules governing an equal rate adjustment (across all rates and categories of customers) is simple. But the process and rules

	governing unequal rate adjustments are more complicated because equity, efficiency, and cross-subsidization also need to be addressed.
Changes in the arrangements	Concessionaires obtained a special price adjustment that involved renegotiation as a consequence of the wide exchange-rate fluctuations that followed the Asian financial crisis. Negotiations between Maynilad and the concessionaires resulted in an amendment to the concession agreement, establishing a new mechanism called Foreign Currency Differential Adjustment (FCDA), which completely and immediately passes foreign exchange costs to consumers in addition to other extraordinary elements. Current tariffs incorporate this FCDA and an AEPA (accelerated extraordinary price adjustment).
Designing legal instruments for the arrangement	
Legal instruments	In addition to obligations under the concession contract itself, the concessionaires must comply with all Philippine laws, regulations, orders, and directives that may affect the concession.
Mechanisms for compliance	*Operator:* Mechanisms to ensure operator compliance are: • Penalties in the event of failure to meet service obligations • A performance bond in favor of the MWSS to cover performance failures with respect to the concessionaires' obligations (ranging from setting up the joint venture, through to rate rebasing, remedial works, costs of appeals, and the like). *Consumers:* The concessionaires require warrants from the courts to enter properties or to act against illegal connections.
Selecting an operator	
Operator selection	The operator was selected by competitive bidding that occurred in two stages, with a technical bid and a financial bid for all bidders that submitted qualified technical bids. Four consortia were prequalified. Each consortium was required to bid for both zones but could be awarded only one zone. The bidding criterion was a percentage to be applied to the existing tariff, not to exceed 100 percent, which would set the starting tariff. The bids were evaluated on the basis of a composite for both zones and the best combination led to contract award.
Re-tendering	The government has not specifically set out how it will re-tender the contract upon termination. The MWSS has the right to rebid or undertake any other action it deems appropriate with respect to the concessions. Negotiations between the government and Maynilad Water were underway regarding Maynilad's intention to terminate its contract.
Other comments and references	
Other contract information	The MWSS service area was split into two zones to establish independent benchmarking, level the balance of power between the concessionaires and the regulator, and ensure competition in the bidding process. Because it was not possible to completely separate the two zones, the concessionaires have to transfer bulk water across the zones. The determination of the price for this transferred water was left to agreement between the two concessionaires. This generated controversy. In addition, one of the major political discussions

	concerns the disparity in rates between the two service areas. At the time of bidding, no single bidder was permitted the award of a concession for both areas simultaneously. There is, however, a limited degree of horizontal integration as the two concessionaires share some MWSS facilities (and to some extent certain key data with MWSS, such as central records and the telemetry system that monitors the pressure and flow.

Sources and references: David 2000, Dumol 2000, Esguerra 2003, Masons 2003, National Economic Research Associates 1997, PPIAF and Water and Sanitation Program 2002d.

SAN PEDRO SULA (HONDURAS)

Contract overview	
Award date	2000
Type	Concession
Duration and possible extension	30 years. The contract can be renewed in the last three years of the contract by mutual agreement of the parties for further 10-year periods.
Contracting authority	Local government (Municipality of San Pedro Sula)
Operator	Aguas de San Pedro Sula, a consortium led by the Italian company Acea S.p.A. (31 percent of shares) and comprising four other Italian companies (65 percent of shares in total) and one local engineering firm (4 percent).
Setting upstream policy	
Market structure	*Horizontal structure:* The service area covers the municipality of San Pedro Sula with a population of over 500,000. *Vertical structure:* Water and sanitation services are jointly provided. *Cross-sector structure:* Water is provided separately from other utilities.
Competition constraints	*Competition for the market:* No constraints *Competition in the market:* The contract allows the Juntas Administradoras de Agua (providing services in rural areas) and private water systems to operate in parallel. Aguas de San Pedro Sula is required to establish a team to provide technical assistance to the Juntas (under the contract, areas operated by the Juntas and other small private operators can be potentially incorporated into Aguas de San Pedo Sula).
Bulk water payment	The operator does not pay for bulk water.
Donor financing	The Inter-American Development Bank was involved in the reform process, specifically in preparing the municipality for private participation in its water services.

Setting service standards, tariffs, subsidies, and financial arrangements	
Operator obligations	*Input or output terms:* Obligations are specified in output terms. *Coverage obligations:* • Achieve annually increasing coverage targets with eventual 100 percent coverage. Water and sanitation coverage targets were set to different time scales for completion. *Quality obligations:* • Achieve annually increasing performance targets including percentage of wastewater treated, installation of meters, and continuity of service.
Cost recovery	Tariffs are designed to cover all operating and investment costs.
Tariff structure	The tariff is based on a five-block structure integrating user type (domestic, jointly owned building, commercial, industrial, high consumption industry, and public sector) and consumption levels.
Types of subsidy	No specific subsidies
Donor financing	None
Allocating business responsibilities and risks	
Main business responsibilities	*Operator:* • Management • Operations, rehabilitation, and maintenance • Limited investment. *Government:* No business responsibilities.
Allocation of main risks	The operator bears most operations-related risks, including operating cost, billing and collection, supply, demand, construction cost, financing, and currency risks. These risks are allocated through the operator tariff formula established by the concession contract. The operator's remuneration is made up of customer tariff proceeds minus a concession payment to the municipality. The concession fee consists of a fixed fee (set in the contract and updated for inflation) and a variable fee equal to five percent of the total turnover in the previous year. The variable concession payment allows sharing of the operating risk between the municipality and the operator. The contract requires the municipality to remunerate the operator in the event that it or the state adopts any measures that adversely affect the economic and financial equilibrium of the company (as agreed on by the municipality and company).
Provisions for unforeseen events and changes	No information available.

Managing the relationship with institutions	
Monitoring and enforcing performance	A supervision unit in the municipality is responsible for supervision and control of the contract. The concession contract anticipated that a dedicated fund would be to set up secure financing independent of the municipality for the supervision unit.
Role of independent experts	An independent expert is used in the tariff review process, occurring every three years.
Resolving disputes	For any controversy between the municipality and the contractor relating to the interpretation, execution, scope, performance, or termination of the contract, the issue should be addressed by direct consultation between the two parties. If the parties disagree, they can turn to an arbitrator.
Adjusting tariffs	Tariffs are adjusted every six months or when inflation increases by more than 8 percent, according to the following formula: $T_n = T_{(n-1)}(1 + D_i)(1 + F_a)$, where T_n = Tariff to be applied in the new period $T_{(n-1)}$ = Tariff applied during the previous period D_i = Variation of the inflation from the last adjustment, expressed in decimals F_a = Adjustment factor determined by an independent consultant appointed by the municipality from a list of three candidates chosen by the operator. The adjustment factor is applied every three years. Individual tariff bands are calculated on the basis of different multiple factors of T_n. In addition, tariffs are to be revised every three years by an independent expert. An extraordinary increase of 20 percent was planned for the beginning of the third year of concession to allow for tariff reductions at the start of the concession. This was to be followed by other tariff increases after achieving significant quality improvements. There are no national or regional principles governing tariff setting. But in this contract the tariff increases are governed by the size of the adjustment factor (F_a), which includes investment and financial results.
Changes in the arrangements	No significant changes
Designing legal instruments for the arrangement	
Legal instruments	The contract is the primary instrument used to set out the arrangements.

Mechanisms for compliance	*Operator:* The concessionaire is self-monitored but has to provide the municipality with information and statistics to show it is achieving targets. *Consumers:* Consumers can be disconnected for nonpayment.
Selecting an operator	
Operator selection	The operator was selected by competitive bidding. The contract was let in two phases—prequalification and financial offer. • Prequalification. Bidders needed to demonstrate minimum net assets and a minimum of three years operating in a city with a stipulated number of people, and provide references. • Financial offer. This second phase was carried out in two parts. In the first part, a draft contract was presented to bidders and a series of meetings with each of the consortia was used to gather opinions that were used to design the final contract. The consortia were also asked to present a financial offer. The contract was awarded based on the lowest tariff for the restructured tariff system.
Re-tendering	The government has not indicated the strategy it intends to adopt after the contract concludes.
Other comments and references	
Other contract information	None

Sources and reference: Diaz 2003.

SANTIAGO (CHILE)

Contract overview	
Award date	In 1990, a long-term concession was granted to EMOS, an autonomous corporatized public entity or "open public corporation" jointly owned by the Ministry of Treasury and a public body, the Corporación de Fomento de la Producción (CORFO). In 1999, government stakes in EMOS were sold in an international bidding process and EMOS was renamed Aguas Andinas.
Type	Divestiture
Duration and possible extension	The operating agreement is granted in perpetuity.
Contracting authority	Central government
Operator	Aguas Andinas, fully owned by a consortium between French company SUEZ and Agbar (Inversiones Aguas Metropolitanas, over 50 percent), plus the Chilean government's economic development agency (CORFO, 35 percent), as well as pension funds, company employees, and other shareholders.

Setting upstream policy	
Market structure	*Horizontal structure:* The service area covers 18 mostly urban municipalities, with approximately 1.3 million connections. *Vertical structure:* Water and sanitation are jointly provided, although the law permits the separation of services. *Cross-sector structure:* It is forbidden to provide water and sanitation services jointly with other utility services.
Competition constraints	*Competition for the market:* No constraints *Competition in the market:* Exclusive concession areas were established in 1990. In Santiago 95 percent of the municipal area formed EMOS's concession, while the remaining 5 percent was divided between preexisting, private water-delivery providers. However, the concession areas defined in 1990 did not cover newly served districts, for which concessionaires have to compete on the open market. Aguas Andinas has not won the concession for all new areas. Small-scale informal providers do exist within the Aguas Andinas concession area.
Bulk water payment	Aguas Andinas does not purchase any bulk water, but it does have tradable raw water abstraction rights. These are treated as an asset and as such appear in the balance sheet.
Donor financing	None
Setting service standards, tariffs, subsidies, and financial arrangements	
Operator obligations	*Input or output terms:* Obligations are specified in both input and output terms. *Coverage obligations:* Coverage obligations are incorporated in the five-year investment plans with interim target dates. *Quality obligations:* Quality obligations are incorporated in national regulations and the five-year investment plans with interim target dates. Investment plans for a period of 15 years are prepared by Aguas Andinas and approved by the regulator, after which they become public documents. Aguas Andinas provides water and sanitation services to nearly 100 percent of the population in its service area.
Cost recovery	All costs are recovered through tariffs.
Tariff structure	Both a fixed charge and a variable charge apply. Tariffs vary with geographical location, seasonal factors, and levels of consumption. A separate volumetric charge is applied for wastewater disposal. A trade effluent charge is applied to industrial consumers, which varies with the level of effluent pollution.
Types of subsidy	Direct subsidies are provided to those identified as poor customers. The subsidies cover a maximum of 100 percent for the first 20 m^3 of monthly consumption for low-income households and range between 25 and 85 percent of the total water and sewerage bill. The municipalities identify low-income families on the basis of social registers. Companies make a discount to eligible customers; the company is

	then reimbursed by the respective municipalities. The subsidy is based on willingness to pay amongst poor households, and is targeted only to cover any shortfall between actual charges and willingness to pay. The subsidy, which is funded from the central government budget, uses 5 percent of household monthly income as a proxy for willingness to pay.
Donor financing	Although donor financing was not provided at the time of the transaction, World Bank and other loans had been used to finance investment plans before 1999.
Allocating business responsibilities and risks	
Main business responsibilities	*Operator:* • Management • Operations and maintenance (including rehabilitation) • Investment. *Government:* Few responsibilities associated with being a minority shareholder.
Allocation of main risks	The company bears all risks. However, through its share ownership, a portion of all risk is effectively still borne by the government. Tariffs are set to ensure that the company is able to generate sufficient income to cover the cost of operation, maintenance, new investment, and return to shareholders.
Provisions for unforeseen events and changes	There are only provisions for dealing with tariff changes between periodic reviews in exceptional circumstances, such as tax changes. In addition, the government can revoke the concession in the case of serious fault, although the exact procedures for doing so are unclear.
Managing the relationship with institutions	
Monitoring and enforcing performance	Performance is monitored by an independent regulator operating at the national level, SISS, the Superintendencia de Servicios Sanitarios. It is a decentralized body with independent staff, subject to supervision by the country's president through the Ministry of Public Works. The president appoints the director for an undetermined period of time. The budget is provided from the national budget; it is based on an agreed formula and justification and approved by the Treasury.
Role of independent experts	Independent experts are used in the case of tariff disputes. In addition, the regulator contracts out a range of functions to independent experts.
Resolving disputes	A panel of experts is used in the case of tariff disputes. In the case of a dispute the panel must choose either the solution proposed by SISS or that proposed by the company—there is no possibility of compromise. Courts. In the event that Aguas Andinas does not agree with the regulator's interpretation of the law, it is obliged to appeal to the national courts.

Adjusting tariffs	A two-step procedure is used, based on 15-year projections. First, tariffs are calculated based on marginal cost or efficient tariffs. The figures used are based on a model company and are calculated by aggregating the real information provided by all service providers. Second, these are adjusted upwards or downwards so that the financial self-sufficiency of the operator is guaranteed. The principles of self sufficiency, equal treatment of all customers, and consideration for seasonal variations, if they exist, are also used in the tariff adjustment process. Tariffs are set for 5-year periods and concessionaires have the right to appeal tariff decisions at the time of these decisions. In addition, the regulator can make interim adjustments to the tariffs in response to exceptional and unexpected circumstances.
Changes in the arrangements	No significant changes have occurred.
Designing legal instruments for the arrangement	
Legal instruments	Laws establish the general framework for regulation of the sector and for private participation. A statute grants rights to the company to operate in perpetuity, and is akin to a license. Finally, the shareholder agreement of Aguas Andinas organizes the relationship between the government as residual shareholder and the private sector, stipulating that the private sector will act as the operator, and granting the public sector certain controls and veto rights.
Mechanisms for compliance	*Operator.* Aguas Andinas must provide SISS with open access to all information. In addition, annual reports are prepared and routine audits carried out. In the case that SISS deems Aguas Andinas to be noncompliant with standards and other obligations, fines are imposed. *Consumers.* Consumers can be disconnected for nonpayment.
Selecting an operator	
Operator selection	The operator was selected by a sale of shares by limited public tender. Prequalification was based on specifying minimum technical ability, service coverage, and financial requirements. The contract award was based on price per share offered. No information is available on the technical criteria that were used.
Re-tendering	The government has not indicated the strategy it intends to adopt after the contract concludes.
Other comments and references	
Other contract information	In 2000 Aguas Andinas acquired 100 percent of Aguas Cordillera and Aguas Manquehue, two operators within its service area.

Sources and references: Alfaro 1997, Gómez-Ibánez 1996, Masons 2003, Pickering 1998a, Pickering 1998b, and Superintendencia de Servicios Sanitarios 2004.

SENEGAL

Contract overview	
Award date	1996
Type	Affermage-lease
Duration and possible extension	10 years. The contract is renewable every five years.
Contracting authority	Central government
Operator	Sénégalaise des Eaux (SdE), a consortium of the French company Saur International (over 55 percent), local investors (over 30 percent), employees, and the government of Senegal.
Setting upstream policy	
Market structure	Horizontal structure: The service area covers only urban areas, although a few villages next to the main water-transmission pipe are included. SdE is responsible for operating and maintaining water services in over 50 urban centers throughout the country, with nearly 300,000 connections. *Vertical structure:* Water and sanitation services are provided separately. *Cross-sector structure:* Water is provided separately from other utilities.
Competition constraints	*Competition for the market:* No information. *Competition in the market:* There is no formal exclusivity stipulated in the contract, although such exclusivity is effective in practice (SdE is the only private water operator in Senegal). Standpipe operators can buy water in bulk from SdE and resell it in the area, but this practice has remained fairly limited.
Bulk water payment	The operator does not pay for bulk water.
Donor fnancing	None
Setting service standards, tariffs, subsidies, and financial arrangements	
Operator obligations	*Input or output terms:* Obligations are specified in output and input terms. *Coverage obligations:* • Achieve network targets specified in the contract (kilometers of network, number of connections and meters, and replacement of electromechanical equipment) • Achieve additional network targets if the concession area expands. SdE's service area is the same as the concession area of public asset company Societe Nationale des Eaux du Senegal (SONES). SdE has no incentive or responsibility for increasing coverage outside this area.

	Quality obligations: • Achieve leakage reduction, water quality improvements, bill collection, and other customer service improvements. The operator tariff formula includes incentive payments linked to these improvements.
Cost recovery	The customer tariff covers the operator's fees for operation and maintenance of the system, fees paid to SONES and the Office National de l'Assainissement du Senegal (ONAS, the public utility responsible for sanitation for users connected to the sewerage network), and other fees.
Tariff structure	There are two types of tariffs: an increasing-block tariff for domestic customers and a single tariff block for nondomestic customers. The increasing block covers: • a subsidized social tariff for levels of consumption below 20 m3 in a 60-day period • a regular tariff for consumption over this • a dissuasive tariff for consumption above 40 m3 in a 60-day period. Tariffs are the same across the national territory, which implies cross-subsidization between regions.
Types of subsidy	The government, through SONES, subsidizes social connections, which are provided free to eligible households. Eligibility for social connections is based on location, including some areas of Dakar and most secondary cities. SdE is then contracted to install the connections.
Donor financing	Donor funding was provided and matched with private funds to finance the transaction. The World Bank provided consultants to assist the government to plan the introduction of private participation and to design the necessary contracts, incentives, and institutions.
Allocating business responsibilities and risks	
Main business responsibilities	*Operator:* • Management • Operations—including extraction, production, and distribution of water—and maintenance of all materials used in production and distribution, including the network. Certain renewals are also included • Limited investment responsibility for necessary network renewals, connection renewals, and electromechanical equipment. *Government:* • Asset ownership through SONES • Guaranteeing that infrastructure is available to the operator and that investments are made (including a three-year investment program, adjusted each year, which takes into account the operator's proposals) • Prompt execution of works relating to system investments • Responsibility for obtaining financing for the works • Adjustment of tariffs in accordance with the sector development contract.

Allocation of main risks	Risks are allocated by a contractual formula that determines SdE's remuneration and estimates the funds available to SONES for financing investment and repaying debts. SdE's revenues are made up of two parts, incorporating incentives to improve technical and commercial efficiency. The operator's remuneration *OR* in year *n* is the amount *C* it collects from customers less the amount *S* it must pay to SONES: $OR_n = C_n - S_n$ The amount it collects is given by $C_n = T_{avg\,n}\, Vp_n\, ATE_n\, ACE_n$ where T_{avg} = the weighted average customer tariff, net of taxes Vp_n = the volume of water produced ATE_n = actual technical efficiency, defined as water billed divided by water produced ACE_n = actual commercial efficiency, defined as water paid for divided by water billed The amount the operator must pay to SONES is given by $S_n = (T_{avg\,n} - OP_n)\, Vp_n\, CTE_n\, CCE_n$ where OP_n = the operator's tariff, which is adjusted each year according to an indexation formula in the contract CTE_n = contractual technical efficiency, defined as the contractual target for water billed divided by water produced CCE_n = contractual commercial efficiency, defined as the contractual target for water paid for divided by water billed It follows that the operator's remuneration is given by $OP_n = OP_n Vp_n\, CTE_n\, CCE_n + T_{avg\,n}\, Vp_n\, (ATE_n\, ACE_n - CTE_n\, CCE_n)$. Thus the operator bears risk related to technical and commercial efficiency.
Provisions for unforeseen events and changes extraction.	SdE's remuneration can be adjusted by negotiation every five years or in the event of external changes, or if there is significant change in the standard or quality of drinking water, in taxes, or in the cost of water
Managing the relationship with institutions	
Monitoring and enforcing performance	Overall responsibility for monitoring resides with a contract-monitoring committee comprising the president, a representative of the Ministère de l'Hydraulique (the ministry responsible for water), a representative of the ministry of finance, and the Director-General of SONES. SONES is responsible for overseeing SdE's performance, including: technical management, quality of water extraction and exploitation, economic and financial status, development, and state of infrastructure.

Role of independent experts	Independent experts can be requested to verify data used in calculating parameters for targets and remunerations and to help settle disputes between parties.
Resolving disputes	Independent experts are used to resolve disputes.
Adjusting tariffs	The Ministère de l'Hydraulique is responsible for adjusting customer tariffs according to the principles of financial viability and economic efficiency set out in SONES' concession contract. SONES is responsible for calculating annual customer tariffs based on a financial model prepared at the time of the transaction and updated annually. Tariffs are adjusted based on inflation parameters and real-term increases, forecast at the time of the transaction to be around 3 percent a year to enable the sector to reach financial equilibrium by 2003.
Changes in the arrangements	*Initial renegotiation of the value of the assets:* When SdE took over the moveable assets, it found substantial inconsistencies in inventory, which led the parties to revise the bid price. *Initial renegotiation of efficiency targets:* The baseline technical efficiency figure used in contract negotiations was renegotiated downward. In 1998 SdE renegotiated the efficiency targets again because SONES had not implemented scheduled investments. At that time, the indexation mechanism for SdE's remuneration was revised to reflect changes in the weights of SdE's cost factors.
Designing legal instruments for the arrangement	
Legal instruments	Laws and contracts set out the arrangements. A 1995 law governing the institutional reform of the urban water supply sector authorized the creation of the three key institutions: an asset-holding company (SONES), a national office for urban sanitation (ONAS), and a water operating company (SdE) destined to be privatized. Four interrelated contracts set out the regulatory arrangements for the sector as a whole: • An affermage-lease contract between three parties: SdE, the state, and SONES • A 30-year concession contract between SONES, the public asset-holding company, and the state, with an associated planning contract • A sector development contract (contract plan) between SONES and the ministry (Ministère de l'Hydraulique) that outlines SONES' investment obligations • A parallel 10-year performance contract between SONES and SdE, which was included as an Annex to the affermage-lease contract.
Mechanisms for compliance	*Operator:* Incentives for performance improvement are included in the operator's remuneration formula. In addition, SdE is also liable for penalties in circumstances specified in its contract, including technical and communication failures. *Government:* The government's responsibilities, carried out by SONES, are outlined in the concession contract and the performance contract. *Customers:* SdE is permitted to disconnect customers for nonpayment.

Selecting an operator	
Operator selection	The operator was selected by competitive bidding. The contract award was based on a two-stage process: prequalified companies were requested to submit a technical bid. Shortcomings in the bids were discussed with each bidder. Bidders then submitted a revised technical bid with a financial proposal. The final award was based on the lowest "operator price" per cubic meter.
Re-tendering	The government has not indicated the strategy it intends to adopt after the contract concludes, but the contract is renewable every 5 years after the first 10 years.
Other comments and references	
Other contract information	Preparation of the contract and setting of performance targets were greatly facilitated by a transparent financial model for the sector that enabled all actors to see the impact of policy decisions.

Sources and references: Brocklehurst and Janssens 2004, Trémolet and others 2002.

SOFIA (BULGARIA)

Contract overview	
Award date	2000
Type	Concession
Duration and possible extension	25 years. There is no possible extension.
Contracting authority	Local government (Municipality of Sofia)
Operator	Sofijska Voda AD (SV), a consortium between the U.K./U.S. company International Water Ltd. (50 percent) and the U.K. company United Utilities (50 percent), owns 75 percent of the total shares and the existing municipality-owned utility company, Vodosnabdajavne I Kanalizatsia EAD (ViK) owns the remaining 25 percent. The shares of International Water Ltd. were later sold to United Utilities.
Setting upstream policy	
Market structure	*Horizontal structure:* The service area covers the capital city Sofia, with a population of more than 1.2 million people in urban areas. The operator also provides potable supply to a limited number of settlements outside the Sofia area, which rely on the Beli Iskar dam for their water supply. *Vertical structure:* Water and sanitation services are jointly provided. *Cross-sector structure:* Water is provided separately from other utilities.

Competition constraints	*Competition for the market:* No constraints *Competition in the market:* The operator has exclusivity for its service area.
Bulk water payment	The operator pays for bulk water. If the cost of purchasing bulk water exceeds a certain level, customer tariffs can be adjusted to compensate the operator's increased payment for bulk water.
Donor financing	None
Setting service standards, tariffs, subsidies, and financial arrangements	
Operator obligations	*Input or output terms:* Obligations are specified in detail and are mainly output-based although a minimum amount of capital investment is defined in the concession agreement. The concessionaire is responsible for the operation, maintenance, servicing, and replacement of all pipes and other conduits. *Coverage obligations:* No extensions were included in the contract. *Quality obligations:* Quality obligations are output-based and include standards prescribed by Bulgarian law, international standards, and future obligations of the European Union Water Framework Directive.
Cost recovery	Tariffs fully cover the costs of service provision.
Tariff structure	No information available.
Types of subsidy	None
Donor financing	The European Bank for Reconstruction and Development (EBRD) played a key role in the entire transaction. After initial conception and assistance in mobilizing funds for an international advisory team, the EBRD reduced its advisory role so, for example, permission in respect to change of consortium ownership is required by the city and the EBRD.
Allocating business responsibilities and risks	
Main business responsibilities	*Operator:* • Management • Operation and maintenance, including rehabilitation and extension of existing infrastructure within the service area • Investment, including specific targets over the life of the contract. *Government:* • Asset ownership.
Allocation of main risks	The government's approach to risk allocation in the concession was to allocate to SV only those risks over which SV had considerable control, while bearing most other risks, with the important exception of demand, a risk that is heavily allocated to the concessionaire. According to the concession agreement: • SV bears the following risks: interest rate, revenue, demand, certain changes in law, and certain *force majeure* events (for example, increased costs due to war, civil disorder, and the like)

	• Customers bear the risks connected with inflation, foreign exchange, and tariff adjustments under certain eligible events (including qualifying change in law, grantor variations, and *force majeure* events as specified in the contract). • Customer contracts can provide for further risk allocations. For example, SV's contracts with industrial customers contain provisions ensuring unlimited liability for loss or damage arising from unacceptable discharges. • The government and the operator bear foreign debt exposure. The Bulgarian government formed a currency board to minimize exposure and stabilize investment. The concessionaire could seek compensation if the government abandoned or significantly altered the currency board.
Provisions for unforeseen events and changes	The contract provides a mechanism for adjusting the tariffs due to eligible events. The contract does not contain any specific rules regarding renegotiation.
Managing the relationship with institutions	
Monitoring and enforcing performance	The Municipality of Sofia set up a special concession monitoring unit (Omonit) to control tariffs and monitor the concessionaire's performance. Omonit is a private company, selected through bidding, that acts on behalf of the municipality and consumers. It has a series of short-term renewal contracts with the city. According to the 1997 Water Act (and the revised act) there are no specific regulators; the relationship between public authorities and private operators is left to the contract.
Role of independent experts	When procuring the concession contract, the municipality created a bidding commission dedicated to the transaction and supported by an international advisory team (financial, legal, and technical), appointed through a bidding organized by the municipality and the EBRD. The municipality also appointed a Bulgarian law firm as an "in-house" project manager to link the parties. Omonit uses independent experts to support its monitoring work in the contract.
Resolving disputes	There is a nonbinding mediation procedure set out in the contract and a Concession Dispute Resolution Board with three members: a chairperson (a lawyer trained in arbitration), a technical expert, and a financial expert. There is also an appointing authority in the event the parties cannot agree on the selection of these members. If either party disagrees with a board decision it can take the case to arbitration in Bulgaria within 30 days; otherwise, the decision automatically becomes binding. Arbitration is conducted under rules of the United Nations Commission on International Trade Law.
Adjusting tariffs	Tariffs are adjusted annually to take account of price inflation using a cost-reflective indexation mechanism based on agreed price indices. Tariffs may also be adjusted due to certain eligible events. These adjustments are calculated with a financial model that takes into account

	changes in applicable parameters in order to preserve the concessionaire's projected internal rate of return. A comprehensive scheduled review is undertaken in the third year of the concession as part of a revised concession term investment plan to be prepared by the concessionaire. No other scheduled or periodic reviews are provided for under the concession agreement.
Changes in the arrangements	The arrangements have not been significantly changed.
Designing legal instruments for the arrangement	
Legal instruments	Arrangements are set in the contract, laws, and regulations. Fundamentally, the 1999 Water Act paved the way for existing government or municipally owned water supply and sewerage companies to enter agreements with private operators.
Mechanisms for compliance	*Operator:* Failure to achieve operator obligations can result in contract termination by the government. *Government:* The operator can terminate the contract, subject to criteria stated in the contract, if the government fails to pay any sums due to the concessionaire. Omonit ensures compliance from the concessionaire; the concessionaire ensures compliance of the city and customers. *Customers:* Failure of payment entitles the concessionaire to disconnect supply except for customers that provide critical medical facilities.
Selecting an operator	
Operator selection	The operator was selected through an international competitive bidding process within a multistage procurement process involving prequalification, preparation of detailed bids, and negotiations with preferred bidder. During the bidding process, a draft of the concession agreement was circulated twice to bidders and the EBRD for written comment before issue of the final agreement. Final bids were submitted on the basis of a willingness to sign the contract without material amendment after the selection of a preferred bidder. The contract was awarded on the basis of a technical and financial evaluation with the preferred bidder selected on the basis of a weighted combined score. Financial evaluation was based on a smoothed average tariff, expressed in real prices, over the concession period.
Re-tendering	The government has not indicated the strategy it intends to adopt after the contract concludes.
Other comments and references	
Other contract information	At the time of the contract, no national regulator existed for water utilities in Bulgaria. The transaction took over two years, from the start of the preparatory studies through to the final close.

	Costs associated with maintenance and operation of the Beli Iskar dam (the main water source) were not included as part of the concessionaire's bid but could be covered under tariff adjustments.

Sources and references: Mandri-Perrott 2003, Pricewaterhouse Coopers 2001a, Public Services International Research Unit 2002, and Shugart 2002.

TANGIERS (MOROCCO)

Contract overview	
Award date	2001
Type	Concession
Duration and possible extension	25 years. After 10 years, the government authority can terminate the contract. In this event the private operator would be compensated for previously agreed-on fixed asset investments and other forms of compensation. The operator can propose renewal of the contract after 10 years from the contract signing date.
Contracting authority	Local government (Communauté Urbaine de Tanger and surrounding municipalities)
Operator	AMENDIS, a consortium of Veolia Environnement (51 percent), the Canadian company Hydro-Québec International (16 percent), the Moroccan financial group ONA (16 percent), and the Moroccan-United Arab Emirates group Societe Maroc Emirates Arabs Unis de Developpement (SOMED) (15 percent).
Setting upstream policy	
Market structure	Horizontal structure: The service area covers the city of Tangiers and some surrounding rural areas. As of 2002, the operator served approximately 111,000 water connections. *Vertical structure:* Water and sanitation services are jointly provided. *Cross-sector structure:* Water is jointly provided with electricity distribution services.
Competition constraints	*Competition for the market:* No constraints *Competition in the market:* The operator has exclusive right for service delivery within the service area.
Bulk water payment	The operator pays the Office National de l'Eau Potable for bulk water.
Donor financing	None
Setting service standards, tariffs, subsidies, and financial arrangements	
Operator obligations	*Input or output terms:* Obligations are specified in input terms (for example, investment guidelines broken down by categories of works and time increments) and output terms (for example, quality standards).

	Coverage obligations: Improve network output as stipulated in the contract. *Quality obligations:* Improve service standards.
Cost recovery	The contract states that the operator has all of the necessary rights to recover costs, keeping in the bounds of the tariff guidelines.
Tariff structure	Three types of water use are defined with differentiated tariffs: domestic, preferential, and industrial. Different tariff structures apply to each water use category. For domestic use, there are four blocks, with a subsidized tariff for the first consumption block (less than 8 m^3 a month). For preferential and industrial use, a two-part tariff is in place, with a fixed rate and a variable rate.
Types of subsidy	The tariff structure allows for a cross-subsidized low-consumption block for domestic use.
Donor financing	None
Allocating business responsibilities and risks	
Main business responsibilities	*Operator:* • Management • Operations and maintenance • Investment. Programs specific to potable water, sewerage, and electricity are specified in the contract and are stated as requirements by decade. *Government:* • No business responsibilities.
Allocation of main risks	Main risks are allocated partly through the tariff adjustment formula: $TVA_n = \frac{TA_n}{\bar{R}_n} \bar{M}e_n Ke_n + \bar{M}i_n [\alpha_n Ki_n + (1 - \alpha_n) Kidr_n]$ where: TVA_n is the actual tariff for a given portion of consumption for a given type of user in year n of the contract TA is the average price of bulk water purchased from ONEP $\bar{R}$ is the contractually assumed fraction of water purchases billed to clients $\bar{M}e$ and $\bar{M}i$ are contractually specified margins between the bulk and retail price of water relating, respectively, to operations investment Ke is a price index related to operating costs Ki is a price index related to investment costs and $Kidr$ is the Ki index applied at the last revision year n. α is a weight. According to the formula, risks are allocated in the following ways: • Network output risk. The operator bears the risk of actual losses as the tariff adjustment formula accounts for theoretical losses.

	• Demand risk. The operator bears the risk of demand changes (changes are not accounted for in the tariff adjustment formula). • Inflation risk. If inflation is low (causing the price index to change by 3 percent or less), the operator bears the risk. However, if inflation is high, the operator and government authority must determine a solution based on the circumstances. • Operation risk. The government can benefit from excess operator returns when the operator's EBITDA exceed a specified threshold within a given time frame. In this event, the concessionaire returns 50 percent of the amount above the threshold to the contracting authority.
Provisions for unforeseen events and changes	The contract can be modified upon request of one or more contractual parties. If not requested by the parties, reassessment of the contract occurs automatically every five years.
Managing the relationship with institutions	
Monitoring and enforcing performance	A *comité de suivi* monitors performance of the operator in both the Tangiers and Tétouan arrangements (a similar contract for Tétouan was let simultaneously with that of Tangiers). The president of the Urban Community chairs the committee. The comité comprises six members representing the Tangiers local government, six members representing the concessionaire, and two members representing the Ministry of the Interior. Decisions regarding, for example, work programs and allocation of investments are reached by consensus of the *comité*. The Ministry of Finance carries out financial supervision and a National Audit Office audits the accounts.
Role of independent experts	There is no explicit role for independent experts.
Resolving disputes	The Supervision Authority, l'Autorité de Tutelle, hears contract disputes that have not been resolved between the parties after 30 days. The Authority has 90 days to help the parties reach a mutually agreeable solution. If no agreement is reached after 90 days, arbitration can be filed with the International Centre for the Settlement of Investment Disputes.
Adjusting tariffs	Tariffs are evaluated annually according to a formula as specified above. If the variation in tariff index is greater than 3 percent of the previous year's tariff, the contractual parties decide on tariff changes. If the tariff index changes by 3 percent or less, there is no corresponding change in tariffs.
Changes in the arrangements	The contract has not been changed.
Designing legal instruments for the arrangement	
Legal instruments	The concession contract is the primary legal instrument setting out the arrangements.

Mechanisms for compliance	Operator. The contract provides that every five years, or by request of any one of the contractual parties, all parties will meet and review the contract, obligations, and any new requirements. In the event of operator noncompliance, the operator will incur a penalty immediately payable to the government authority. Penalties, for example, for delayed infrastructure construction completion, correspond to a percentage of the operator's gross revenue. The contract includes detailed penalties of breakdowns for types of activities.
Selecting an operator	
Operator selection	The contract was awarded by competitive bidding. The Tangiers and Tétouan contracts were simultaneously let with identical bidding and selection procedures: • Publicized prequalification: Criteria for consortia included an operating partner and minimum conditions for professional experience and financial capacity • Submission of bidding documents from seven consortiums • Bid evaluation phase: technical and financial evaluation of six of the seven bids • Selection of a preferred bidder with whom ultimately the contract was signed.
Re-tendering	The government has not indicated the strategy it intends to adopt after the contract concludes.
Other comments and references	
Other contract information	While let simultaneously, Tangiers and Tétouan are distinct contracts.

Sources and references: Ministère de l'Intérieur: Direction des Régies et Services Concédés 2002, Ministre de l'Intérieur 2001, and Nouha and others 2002.

TRINIDAD AND TOBAGO

Contract overview	
Award date	1995
Type	Performance-based management contract, also called the Interim Operating Agreement
Duration and possible extension	36 months, with a possible extension to 60 months. The contract concluded in 1998.
Contracting authority	Central government. Ministry of Finance and the Water and Sewerage Authority (WASA) which is the national public water and wastewater operator.
Operator	Trinidad & Tobago Water Services (TTWS), a joint venture between U.K. company Severn Trent Water International Ltd. (50 percent) and Tarmac Caribbean Ltd. (formerly Wimpey Caribbean Ltd.) (50 percent).

Setting upstream policy	
Market structure	*Horizontal structure:* The service area included all of Trinidad and Tobago for WASA's 132,075 water connections and a slightly smaller number of sewerage connections. It encompassed urban, peri-urban, and rural areas, although rural areas were usually not networked. *Vertical structure:* Water and sanitation services were jointly provided. There were many small-scale, separate wastewater treatment systems built by housing developments which were not part of the contract. *Cross-sector structure:* Water was provided separately from other utilities.
Competition constraints	*Competition for the market:* Bidders needed to be international companies; local companies were required to associate with an international company. *Competition in the market:* WASA, the public service provider, had exclusivity over network services. WASA also had responsibility for licensing abstractions from other uses.
Bulk water payment	The operator did not pay for bulk water.
Donor financing	None
Setting service standards, tariffs, subsidies, and financial arrangements	
Operator obligations	*Input or output terms:* Obligations were specified mostly in output terms, with detailed performance objectives. *Coverage obligations:* • Expand service coverage (water and wastewater) and improve continuity of supply. *Quality obligations:* • Improve the level of service to customers and create customer service centers • Improve collections of revenue owed • Provide cost-effective services through operational efficiency gains • Introduce computerized systems for recordkeeping • Reduce nonrevenue water • Reduce operating plant downtime.
Cost recovery	The tariff did not cover all operation and maintenance costs, investment costs, or asset depreciation.
Tariff structure	Domestic tariff structures were based on property values rather than amounts of water consumed; there was very little metering. Specific lower standpipe charges were also in place, and discounts were granted to schools and religious institutions. Industrial water tariffs were higher than domestic and commercial tariffs. Wastewater tariffs were approximately 50 percent of the water tariff.
Types of subsidy	The government provided operating subsidies to WASA and investment subsidies for coverage extension programs.

Donor financing	The World Bank provided assistance through its Water Sector Institutional Strengthening Project (1994-1999). The assistance was conditioned on private participation and covered the bidding process through the procurement of an operator. The contract was also predicated on a proposed World Bank loan to WASA for capital investment, which was to help the operator fulfill its performance requirements. This loan did not materialize, however, because the government and the World Bank could not agree on loan conditions, including a tariff increase.
Allocating business responsibilities and risks	
Main business responsibilities	Operator: • Management • Operations. *Government:* • Provide investment guarantees, if necessary, to facilitate borrowing by WASA, and support WASA in meeting its short-term financing needs • Permit WASA's accounts to be audited by a private auditor appointed by WASA • Assume WASA's trade liabilities and loans • Appoint members to and participate in the Consultative Committee (see below) and approve persons nominated by TTWS for management positions.
Allocation of main risks	The government retained most of the business risk; the operator assumed some risk through the performance element of the remuneration formula. Performance payment indicators included deliverables for growth in customer base, continuous supply of water, performance of customer meters, compliance with effluent discharge permits, treated water production capacity, potable water quality, cleaning and servicing of service reservoirs, and the ratio of nonrevenue water to water supplied. Upon meeting the performance objectives by established deadlines, TTWS was paid specified sums at the end of each respective quarter. If the performance indicators were not met, TTWS was not paid. According to the contract, 60 percent of operator fees were to be paid through performance deliverables.
Provisions for unforeseen events and changes	Standard provisions existed for *force majeure.* The contract was expected to extend into a long-term arrangement, but there were no specific provisions in the contract to govern an extension.
Managing the relationship with institutions	
Monitoring and enforcing performance	The Consultative Committee was established in the agreement to monitor the contract and facilitate consultation on its implementation. It comprised members from the contracting parties, with the chair nominated from those members by the government. It met at least monthly and reported quarterly to the government. Its main purposes and responsibilities were as follows: • Monitor the implementation of the agreement • Be a forum for consultation on specific areas of policy and key issues concerning the agreement

	• Make recommendations for changes to agreed-on practices to suit the needs of all parties • Provide a forum for dispute resolution between the board and TTWS on matters relating to the agreement • Be a consultative body for the long-term plans of WASA • Address other matters referred to it by the government of Trinidad and Tobago. WASA was effectively in charge of monitoring, because the Consultative Committee did not have sufficient staffing for similar monitoring.
Role of independent experts	There were no provisions for independent experts in the arrangements, but independent experts were used to evaluate the contract's midterm progress.
Resolving disputes	According to the management contract, any dispute between TTWS, WASA, or the government in connection with the agreement would first be addressed through the Consultative Committee. If that failed, the dispute was referred to the International Chamber of Commerce and resolved under its Rules of Conciliation and Arbitration. Arbitration took place in Trinidad.
Adjusting tariffs	There were no specific guidelines for setting tariffs.
Changes in the arrangements	There were no changes throughout the arrangement's 36-month term. The contract was not renegotiated although TTWS requested an extension to the agreement in order to give time to both parties to prepare for negotiations for the long-term arrangement. This request for an extension was denied by the government.
Designing legal instruments for the arrangement	
Legal instruments	The management contract, a standard common law contract, was supported with the Water and Sewerage Act and its associated amendments and the arrangement.
Mechanisms for compliance	*Operator:* Penalty amounts could be withheld from the fixed management fee or the performance-related amount. *Customers:* Customers could be disconnected if they failed to pay their bills.
Selecting an operator	
Operator selection	The contracted was awarded by both competitive bidding and negotiation. Using a shortlist procedure, five international operators were invited to tender over three months. A preferred bidder was selected to negotiate and develop the final contract form. Bids were evaluated with a three envelope system: Envelope 1 addressed details of the operational approach; contractors receiving sufficient points in Envelope 1 proceeded to Envelope 2, which included presentation of a financial plan for WASA and a finance package to cover financing during the arrangement. Envelope 3 was a proposal for providing water to industry and to areas in South Trinidad, in addition to other proposals for the development and operation of WASA.

Re-tendering	The government did not indicate the strategy it intended to adopt after the contract concluded. However, the incumbent management contractor was to be given preference for negotiations relating to the anticipated long-term arrangement. At the end of the arrangement, the government decided not to enter into a long-term arrangement and reverted to public-sector management.

Other comments and references

Other contract information	The contract relied on uncertain information about the state of WASA's operations, due to a lack of management information systems. This had an impact on the effective monitoring and evaluation of performance indicators in the first year of the arrangement, particularly with respect to nonrevenue water targets and continuity of supply indicators.

Sources and references: Stiggers 1997, Water and Sanitation Authority 1995, Water and Sanitation Authority 1999, World Bank 1999.

Appendix B: The policy simulation model

The policy simulation model, set out in the Excel spreadsheet in the CD-ROM accompanying this book, illustrates some issues discussed in the *Toolkit,* suggests outputs that the government's modelers might produce, and illustrates possible approaches to the modeling. In particular, it shows, in a simplified setting, how the analysis of three crucial policy issues can be integrated into standard financial modeling:

- Balancing of tariffs, subsidies, and coverage targets (Chapter 5)
- Choosing the distribution of costs and benefits among stakeholders (Chapter 3)
- Allocating risk (Chapter 6).

The core of the model is a simplified standard financial model of a water utility. Some of the inputs to the model are facts about the utility and the world, such as

the number of customers, demand per customer, operating costs, inflation, and the exchange rate. Other inputs are policy choices, such as coverage targets, rules for adjusting tariffs, and whether the operator is responsible for financing investment. Combined, the inputs generate the outputs such as the average tariffs, the number of people connected to the network, and the profitability of the operator. (See the Introduction sheet of the model.)

The model cannot be used to analyze any real-world arrangement. For one thing, it is too simple: it ignores taxes, for example, assumes there is only one type of customer, and lumps operating costs into just two categories (fixed and variable), rather than separately identifying labor, chemicals, electricity, and other inputs. It also ignores many economically important linkages, such as feedback from tariffs to demand and from demand to required investment. Nor does it generate a full set of financial statements for the operator or utility.

The reader should keep in mind that every arrangement needs a model that is built with the particular arrangement in mind and that none of the policy choices (or modeling techniques) are intended as recommendations.

POLICY CHOICES

In the "Policy choices" sheet, the model allows the user to design the illustrative arrangement, choosing coverage targets, subsidies, financing responsibilities, the tariff reset period, and the length of arrangement.

If existing coverage (the proportion of connected to total households) is less than 100 percent, the user sets a target for increased coverage and chooses the year in which this target is to be reached. The model then assumes that coverage will reach the target following an S-shaped curve.

Given the choice of coverage target and other assumptions, the model calculates a tariff that is sufficient to cover the utility's future costs, including the investment costs of increased coverage. The more ambitious the coverage target, the higher the cost and—given certain other assumptions—the higher the tariff that is needed to cover costs.

The model allows the government to lower the required tariff, however, by providing as a subsidy.

Negative subsidies are possible.

The model allows the user to choose the share of investment financing provided by the operator, from zero (for a pure affermage-lease) to 100 percent (for a pure concession or divestiture). The tariff-setting mechanism ensures that the parties financing investment in the model expect to earn a return on the capital they invest.

The model also treats as a policy variable the proportion of financing that comes in the form of debt and whether the debt is denominated in the local or a foreign currency.

The model assumes that tariffs are indexed to consumer prices (just one of the choices discussed in Chapter 6), but allows the user to set the frequency of the reset (for example, every five years).

The tariff reset adjusts tariffs so that, over the reset period, the present value of the operator's future costs equals the expected present value of its revenues.

A tariff reset is also automatically carried out at the beginning of the arrangement to ensure that the prospective revenues are sufficient to cover costs.

Finally, the model allows the user to set the length of the contract, which among other things limits the maximum term of borrowing by the operator.

FACTUAL ASSUMPTIONS

Other assumptions involve the state of the utility and the environment in which it operates.

Most of these factual variables are modeled in a standard way: the initial value of the variable is specified and some assumptions are made that determine its future values. Sensitivity analysis can test how the model's outputs change with different assumptions about the variables, but the outcomes are always deterministic.

Among the deterministic variables are the following:

- The proportion of households that are currently connected to the network
- The existing average tariff
- The cost of making a new connection
- The proportion of nonrevenue water
- Fixed and variable operating costs in real terms (that is, adjusting for inflation)
- The interest rate in real terms.

To illustrate a more complex form of modeling useful for analyzing risk, three variables are not deterministic; as well as having trends, they are allowed to vary unpredictably. These variables are demand per household, the exchange rate, and inflation.

Demand per household has a fixed starting value and a rate at which it is expected to grow. But it is also allowed to vary randomly (see the appendix for the Excel equation that does this). For example, it might be expected to grow at 3 percent a year, but in the modeling actually grow at 4 percent in the first year, 3 percent in

the next year, and then fall in the third year. See Figure 6.2 and the model. The exchange rate—defined as the number of local pesos that can be bought with one foreign dollar—also has a fixed starting value and a rate at which it is expected to depreciate (or appreciate). Again, it also is allowed to vary randomly.

Inflation is modeled differently. It has a fixed starting value, but instead of increasing or decreasing indefinitely, it is assumed to have a long-run average level to which it tends to converge. If it is above the long-term average level, it tends to fall. If it is below, it tends to rise. But its path is also subject to random fluctuations that can temporarily take it away from its long-run average level.

Uncertainty about inflation creates uncertainty about the nominal level of operating costs and the interest rate. Uncertainty about the exchange rate creates uncertainty about the local-currency value of debt service and further uncertainty about the nominal level of operating costs. The nominal rate of a variable is given by the Fisher equation:

$$1 + n = (1 + r)(1 + i),$$

where n is the nominal rate (such as the nominal interest rate), r is the real rate (the real interest rate), and i is the inflation rate.

ANALYSIS OF TARIFFS, SUBSIDIES, AND COVERAGE TARGETS

Although the model is too simplistic to be used to model any particular arrangement, it illustrates three types of analysis that a government may want to undertake.

The first is the analysis of the relationship between tariffs, subsidies, and coverage targets. As discussed in Chapter 5, a government may want to test the implications of various targets for coverage (among other things) for the required average tariff. If the required average tariff is too high, it must choose between lowering the target and providing a subsidy. The model provides a simple example of the type of analysis of this issue that governments might undertake (see the graph in the policy simulation model on tariffs and coverage).

ANALYSIS OF STAKEHOLDER EFFECTS

Second, the model illustrates the analysis of the distribution of the costs and benefits of different arrangements. Most basically, for a given set of factual assumptions, the model shows a hypothetical arrangement's expected effect on the average tariff and the present value of the operator. It also illustrates a slightly finer-grained analysis of the effects of different arrangements on stakeholders.

To do this, the model assumes two types of households. Some households are connected to the network; the others obtain water from alternative providers at a different, probably higher, average tariff price and incur additional coping costs, increasing their "effective" average tariff (Table A1).

Table A.1 **Illustrative approach to stakeholder analysis**

Costs	Existing customer	Currently unconnected
Average tariff	Average tariff charged by water utility	Average tariff charged by alternative providers
Coping costs	None	Time spent fetching water, the costs of poorer health, and so on
Effective average tariff	Existing average tariff	Tariff charged by alternative providers + (coping cost / average consumption)

The model illustrates how a coverage target affects the two groups. For example, suppose existing coverage is 30 percent and the government's target for coverage in 5 years is 50 percent. The model calculates the average tariff increase necessary to pay for the required investment and compares this tariff with the average tariff currently paid by existing customers and the effective average tariff paid by unconnected households. The model also illustrates the estimation of changes in consumer welfare associated with the changes in average tariffs and coverage.

For the currently connected, the estimated welfare change is the amount they pay now less the amount they pay after prices change:

Welfare change (connected) = Amount paid for old service
– Amount paid for new service.

(The model ignores any feedback from price to demand, so demand is unaffected by the price change.) If the average tariff has to go up to pay for expansion, the welfare of the currently connected falls according to the model. (In practice, their welfare might increase if there were sufficient improvements in the quality of their service, but such changes in quality are not modeled.)

For the currently unconnected who get connections, the welfare impact depends on their total cost of their existing service, the amount they pay when they have the new service, their willingness to pay (WTP) for their existing service, and their willingness to pay for the new service:

Welfare change (unconnected) = WTP (new service)
– Amount paid for new service
– (WTP (old service)
– Amount paid for old service).

The total change in consumer welfare in a given year is given by:

Total welfare change = Welfare change (connected)
× Number of existing customers
+ Welfare change (unconnected)
× Number of currently unconnected customers that get connections.

The total consumer welfare change over the period of the arrangement is given by the discounted sum of the consumer welfare changes in each year. To simplify, willingness to pay and the effective average tariff paid by unconnected households are assumed to remain constant in real terms.

ANALYSIS OF RISK ALLOCATION

Because the model allows demand, inflation, and the exchange rate to fluctuate randomly, it can illustrate the analysis of risk relating to these variables, including the analysis of different allocations of these risks. For example, the model can estimate the extent to which the operator's cash flows or value varies with fluctuations in these variables and the probability of those fluctuations leading to the operator defaulting on its debt.

In the model, the allocation of risks related to demand, inflation, and the exchange rate is affected by the rules for adjusting tariffs (Chapter 6). Risks relating to default are also influenced by the proportion of investment financed by debt and whether the debt is in local or foreign currency. For example, if foreign currency debt is chosen, the risk of default rises. Given a set of factual assumptions, the model can estimate the probability of default given different choices of tariff reset period and different assumptions about the operator's debt, coverage targets, and so on. Using the same techniques, the model also illustrates the risks of tariff changes faced by customers.

APPENDIX: MODELING THE RISK VARIABLES

In the model, demand D in year t is assumed to evolve according to the following equation:

$$D_t = D_{t-1} \exp\left(\alpha - \frac{\sigma_D^2}{2} + \sigma_D \varepsilon\right)$$

where D_{t-1} is the demand in the previous year, α is the forecast rate of growth of demand, σ_D is an estimate of the volatility of demand growth, and $\varepsilon \sim N(0,1)$ is a standard normal random variable (generated by Excel's NORMSINV(RAND) function).

The use of this equation means that demand is expected to grow exponentially at a rate equal to α, but will fluctuate, the expected size at of the fluctuations at a given time being proportional to demand at that time and the volatility parameter.

The exchange rate, ER_t is assumed to evolve according to the same type of equation:

$$ER_t = ER_{t-1} \exp\left(\mu - \frac{\sigma_{ER}^2}{2} + \sigma_{ER} \varepsilon\right)$$

where μ is the expected rate of depreciation of the local currency against the foreign currency, σ_{ER} is the volatility of the exchange rate, and ε is (another) standard normal random variable.

Inflation is given by the following equation:

$$I_t = I_{t-1} \exp\left[\beta(\bar{I} - I_{t-1}) - \frac{\sigma_I^2}{2} + \sigma_I \varepsilon\right]$$

where $\bar{I}$ is the long-run average level of inflation, β is a parameter that determines the speed with which inflation tends to revert to its long-run average level, and σ_I is the volatility of inflation. The use of this equation means that inflation is more likely to rise when it is below its long-run average level and more likely to fall when it is above its long-run level.

More information **Financial modeling**

On financial modeling generally: Benninga 2000.

On modeling a water utility: PPIAF and World Bank Institute 2002.

Glossary

This glossary defines technical terms used in the *Toolkit.* Definitions may diverge from practice elsewhere because some terms are used in different senses by different people.

Capalized and italicized terms are defined elsewhere in the glossary.

Affermage Fee	A fee received by an *Operator* in an *Affermage,* typically expressed as an amount per unit of water sold. Compare *Customer Tariff.*
Affermage	As traditionally used in France, a contract under which a government delegates management of a public service to a company in return for a specified

	fee.[1] As used here, a particular type of *Affermage-Lease* in which the *Operator* receives an *Affermage Fee* based on the volume of water sold. Under an Affermage contract, as defined, the *Operator's* profit is equal to revenue from the *Affermage Fee* less operating and maintenance costs. Compare *Lease.*
Affermage-Lease	A class of *Arrangement* under which the *Operator* operates and maintains water assets at its own expense, but does not finance investments in *Infrastructure Assets.* See *Affermage* and *Lease.*
Alternative Provider	A *Provider,* other than a *Utility,* that supplies water services in or around an area covered by the *Arrangement.* Includes water vendors, water truckers, and cesspit emptiers. Often operates in the informal sector. Sometimes called a small-scale independent provider.
Arrangement	Rules and institutions establishing and enforcing the rights and obligations of the *Provider* (generally, the *Operator*), customers, the *Contracting Authority,* and other *Government* authorities, with respect to water services. The rules are set out in contracts, laws, regulations, licenses, and related documents. For specific examples, see *Management Contract, Affermage-Lease, Concession,* and *Divestiture.*
Asset-Holding Company	A company, typically owned by the *Contracting Authority,* that owns the *Infrastructure Assets.* Common in *Affermage-Lease Arrangements.*
Average Tariff	Revenue from *Customer Tariffs* divided by the volume of water sold. Compare *Tariff Structure.*
Business Risk	Risk other than *Policy Risk.*
Benchmarking	Comparison of an organization's performance with that of similar organizations, to assess efficiency, for example.
Comparative Competition	Comparative analysis performed for example by a *Regulator* to determine *Operators'* efficiency to replicate the effects of actual competition. See *Benchmarking.*
Competition for the Market	When companies compete for the right to be the *Operator* serving a particular area.
Competition in the Market	When more than one *Provider* offers services to consumers (illegal under *Exclusivity*).
Concession Payment	A payment made by the *Operator* to the *Contracting Authority* in a *Concession.* Sometimes called a *canon* in Spanish.
Concession	An *Arrangement* in which the *Contracting Authority* is the legal owner of the *Infrastructure Assets* (at least after the contract ends), but the *Operator* is responsible for financing and managing investment, as well as operating and maintaining the business. Compare *Divestiture.*

[1] According to Dicodroit 1998, a "convention aux termes de laquelle l'administration concède à un particulier la gestion d'un service public, à charge pour le cocontractant de reverser à l'administration une redevance déterminée à l'avance." While diverging from traditional French usage, this definition is consistent with, for example, PPIAF and Water and Sanitation Program 2002 and Water and Sanitation Program 2002.

Contract Monitoring Unit	A body set up by the *Contracting Authority* to monitor whether the *Operator* is meeting its obligations under the *Arrangement.* Compare *Regulator.*
Contracting Authority	The local, provincial, or national authority that contracts with, or issues a *License* to, the *Operator,* and which typically designs aspects of the *Arrangement,* selects the *Operator,* and monitors aspects of its performance.
Contracting Authority Tariff	The part of the *Customer Tariff* received by the *Contracting Authority,* which may help the *Contracting Authority* finance investment and provide a return on investments. Compare *Operator Tariff.*
Convertibility Risk	Risk caused by the uncertainty of whether the *Government* will permit local currency to be converted into foreign currency.
Cost of Capital	The rate of return required by providers of capital (debt and equity). Often calculated as a weighted average of the costs of debt and equity, weighted by the relative importance of debt and equity in the company's (optimal) capital structure.
Cost of Service	The full cost of providing a service, including the cost of *Depreciation* and a return on capital (equal to the *Cost of Capital* multiplied by capital employed).
Cost Recovery	The point at which the sum of *Customer Tariffs* and *External Subsidy* equals the *Provider's Cost of Service.*
Cost-Recovery Tariffs	*Customer Tariffs* that provide revenue equal to the *Provider's Cost of Service.*
Cross-Subsidy	Low prices paid by some customers made possible by high prices paid by other customers.
Currency Risk	Combined *Convertibility Risk* and *Exchange Rate Risk.*
Customer Tariff	The price customers pay for water services. Compare *Affermage Fee, Operator Tariff,* and *Contracting Authority Tariff.*
Delegated Management	A class of *Arrangement* in which the *Contracting Authority* delegates the management of *Water Services* to an *Operator,* including a *Management Contract, Affermage-Lease,* and *Concession,* but excluding *Divestitures* and *Service Contracts.*
Demand Risk	*Risk* caused by unpredictable variation in demand for *Water Services.*
Depreciation	A measure of use, consumption, or deterioration of an asset over a period of time.
Divestiture	An *Arrangement* in which the *Operator* is the legal owner of the *Infrastructure Assets* for an indefinite term and is responsible for financing and managing investment, as well as operating and maintaining the business. As traditionally used, divestiture refers to a transfer of ownership. As used here, it also refers to the situation in which *Infrastructure Assets* have always been owned by the *Operator* (as in the case of investor-owned utilities in the United States). Compare *Concession.*
Economies of Scale	When average costs decline as more of a service is provided.
Economies of Scope	When the cost of providing two or more services together (such as water and sanitation or water and electricity) is less than the cost of providing them separately.

Exchange Rate Risk	*Risk* caused by unpredictable variation in exchange rates.
Exclusivity	When only one *Operator* has the right to provide services in the area covered by an *Arrangement* and *Alternative Providers* are not permitted.
External Subsidy	Subsidy provided as cash or other resources by the *Government* or a development agency to the *Operator* or customers. Excludes a *Cross-Subsidy.* Includes an *Output-Based Subsidy,* in-kind grant, tax exemption, loan at concessional interest rates, and a *Government Guarantee* provided at no charge.
Externality	Costs or benefits of providing water and sanitation services that don't accrue to the customer or *Operator*.
Financing Risk	*Risk* caused by unpredictable variation in interest rates and in other terms and conditions of financing, including its availability.
Government Guarantee	A *Guarantee* provided by the *Government.*
Government	National, state, and local political authorities, including the *Contracting Authority*.
Guarantee	An agreement by one party to bear a *Risk* that would otherwise be borne by another party.
Horizontal Market Structure	The way the market at a given level in the *Value Chain* is structured: for example, the number of *Providers* in one city. Compare *Vertical Market Structure.*
Independent Regulator	A *Regulator* independent of the *Contracting Authority*, other Government entities, *Operator,* and other interested parties.
Infrastructure Assets	Immovable assets used for the provision of water and sanitation services including pipes, sewers, mains, water and sewerage treatment plants, and pumping stations. Compare *Operating Assets.*
Interest Rate Risk	*Risk* caused by unpredictable variation in interest rates.
Investment-Related Risk	*Risk* associated with investing in *Water Services.*
Joint Ownership	An *Arrangement* under which the *Operator* is partly owned by the *Contracting Authority* and in which the two parties jointly bear most of the *Risks.* Creates a company called a "société d'économie mixte" in French, an "empresa mixta" in Spanish, and—occasionally—a "mixed-economy company" in English. In principle, *Management Contracts, Affermage-Leases, Concessions,* and *Divestitures* can all involve Joint Ownership of the *Operator.*
Lease Payment	A payment made by an *Operator* to the *Contracting Authority* in a Lease.
Lease	A particular type of *Affermage-Lease* in which the *Operator* retains revenue from the Customer Tariff and pays the *Contracting Authority* a specified *Lease Payment.*
License	A document issued by a *Government* entity giving an *Operator* the right to provide services and usually setting out its obligations.
Lowballing	Bidding to provide services at low cost (for example, a low tariff) to win a contract, with a view to negotiating a more favorable *Arrangement* once selected as the *Operator.*
Management Contract	An *Arrangement* under which the *Operator* provides management services to the utility in return for a fee.

Market Structure	The number and roles of *Providers* in the *Value Chain;* the combination of *Horizontal Market Structure* and *Vertical Market Structure.*
Natural Monopoly	When it is cheaper to have one efficient company than two or more efficient companies serving an entire market. Piped water transport and distribution are likely examples, as competing parallel networks are usually inefficient.
Operating Assets	Assets of the water and sanitation business, such as computers, motor vehicles, and office furniture, that are easily moved. Compare *Infrastructure Assets.*
Operator	The private, partly private, or foreign-state-owned company providing services under an *Arrangement.* May be a joint venture between a company specializing in running water and sanitation businesses (and often known as an operator in a sense different from that used here) and a finance or construction company.
Operator Tariff	The price the *Operator* receives for providing water services in an *Affermage-Lease* or *Concession.* The *Operator Tariff* may be higher or lower than the *Customer Tariff* because of payments to or from the *Contracting Authority*. See *Affermage Fee* for an example. Compare *Contracting Authority Tariff.*
Output-Based Subsidy	Subsidy linked to the provision of specified outputs (such as the provision of water services of specified quality to a certain class of households by the *Operator*).
Policy Risk	*Risk* caused by unpredictable government action or inaction (for example, expropriation, change of law, cessation of convertibility of the currency, and failure to permit a contractually agreed tariff increase).
Private Participation	Involving an *Operator* in the provision of Water Services through a *Management Contract, Affermage-Lease, Concession, Divestiture,* or other *Arrangement.* Encompasses *Arrangements* known as private sector participation, public–private partnership, and privatization.
Provider	An entity providing water and sanitation services. Includes an *Alternative Provider* and a *Utility.*
Regulator	A specialist agency of the Government responsible for controlling the *Tariff* and customer service standards and for monitoring and enforcing the performance of the operator. Compare *Contract Monitoring Unit.*
Risk	Unpredictable variation in value. Risk can be viewed either from the point of view of the water services business as a whole or from the point of view of a particular party or stakeholder, such as customers, the *Government,* the *Operator*, or lenders.
Service Contract	A contract under which a company provides selected services (such as meter reading or billing and collection, but not management) to a *Utility* in return for a fee. Not included among the *Arrangements* discussed in this *Toolkit.*

Subsidy	*Cross-Subsidy* and *External Subsidy* taken together.
Tariff	*Customer Tariff* or *Operator Tariff.*
Tariff Indexation	Typically frequent adjustment of the *Tariff* according to a mathematical formula referring to an index (such as the consumer price index). CPI-X is an example.
Tariff Reset	Typically infrequent adjustments of the *Tariff* according to rules usually designed to bring the *Provider* or *Operator's* revenue closer to its costs, requiring more judgment to apply than *Tariff Indexation.*
Tariff Structure	The schedule of *Customer Tariffs* detailing the prices paid by customers for different components of service (for example, connection fees, fixed monthly charges, and prices per cubic meter for different blocks of consumption). Compare *Average Tariff.*
Utility	A formal *Provider* of water or sanitation services through a network. Compare *Alternative Provider.*
Value Chain	The set of activities performed in sequence from collecting raw water to delivering treated water to customers and from collecting wastewater to disposing of treated wastewater. See Figure 4.3.
Vertical Market Structure	The number of providers with different positions in the *Value Chain* and their respective responsibilities. An aspect of *Market Structure.* Compare *Horizontal Market Structure.*
Willingness to Pay	The amount households and businesses are prepared to pay for *Water Services.*
Water Services	The provision of water and sanitation services. Includes the delivery of potable water to homes and businesses through pipes and water vendors and the collection and treatment of wastewater.

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Index

Approaches to Private Participation in Water Services will aid governments in developing countries that are interested in private participation in water supply and sanitation. Written for an audience that includes officials, consultants, and donors, the toolkit illustrates options for the design of policies that facilitate the delivery of good quality water and sanitation services to the poor and discusses the main advantages and disadvantages of the options. Among other things, it discusses stakeholder consultation; the trade-offs among tariffs, subsidies, and service standards; the allocation of risks and responsibilities; and the selection of the operator.

In addition to nine chapters that set out and analyze options for private participation, the toolkit includes an appendix of examples that illustrate the choices made by sixteen governments, a spreadsheet-based policy simulation model that illustrates three of the issues discussed in the text (stakeholder analysis, balancing tariffs and service standards, and the allocation of risk), and a CD-ROM that includes documents that offer different perspectives and more detailed advice.

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