

ECONOMIC AND SOCIAL COMMISSION FOR ASIA AND THE PACIFIC

**GUIDEBOOK
ON PRIVATE SECTOR PARTICIPATION
IN WATER SUPPLY AND SANITATION**



UNITED NATIONS

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Front cover: Quest for water. Courtesy of Damrong Juntawansup, Thailand.

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FOREWORD

Many countries in the Asian and Pacific region need far greater funding and managerial resources for the development, expansion and improvement of their water supply and sanitation infrastructure than the respective governments have available. Significant additional investments, several times larger than the financial resources devoted to this sector at present, and enhanced managerial capacities are required in order to ensure the supply of safe water and adequate sanitation to several hundred million people throughout Asia and the Pacific who still have no access to these basic services.

In a number of countries, efforts are being made to involve the private sector in the delivery of these services. Although in most countries the public sector remains traditionally responsible for water supply and sanitation, there is a steadily growing recognition of the important role that the private sector could play in meeting significant unfulfilled water supply and sanitation infrastructure needs. There are examples of successful private sector involvement in Australia, China, Macau, Malaysia, Thailand and several other countries and areas. However, many governments face serious problems in encouraging private sector participation in projects related to infrastructure because of emerging complex requirements for legal and institutional reforms, creation of a regulatory mechanism, tariff restructuring, financial viability of water and sewerage utilities etc..

Therefore, it is intended that this guidebook will contribute to greater awareness and better understanding of the issues and problems concerning the involvement of the private sector in delivering water and sanitation services, while promoting effective communication between the public and private sectors with a view to creating a spirit of partnership.

The guidebook has been prepared under the auspices of the Economic and Social Commission for Asia and the Pacific (ESCAP) with financial support from the Government of the Netherlands. The concept and contents of the guidebook were discussed and agreed upon at an expert group meeting held in Bangkok from 28 February to 1 March 1996, which was attended by government-nominated experts from 16 countries and representatives from six private sector companies dealing with water supply and sanitation. A second meeting, held in Jomtien, Pattaya, from 30 October to 1 November 1996, also with public and private sector representation, reviewed and finalized the draft guidebook and approved it for publication.

The contributions and guidance provided by those experts who participated in the meetings or who made their contributions to the guidebook by correspondence are gratefully acknowledged. Special acknowledgement is due to Mr. Roger L. Brown, ESCAP consultant, for his invaluable assistance to the ESCAP secretariat in preparing the guidebook.

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I. INTRODUCTION

A. Reasons for producing the guidebook

The water supply and sanitation sectors have to compete with other infrastructure sectors and services for limited public funds. In many countries, public funds have to support a large number of diverse development programmes, some of which have a strong social orientation. Unfortunately, even where the water supply or sanitation sectors enjoy strong political support, public funds are these days usually severely limited, unless services deteriorate to the disaster level. This contrasts with the last century when public health engineering had a high profile because of the very poor public health conditions which existed at that time in many urban areas. The social and economic benefits that were obtained from providing safe piped water supply and sanitation were then clearly recognized.

This guidebook shows how the demands on the public purse may be reduced by greater involvement of the private sector, while still retaining public ownership of assets and also by increasing accountability for operation. Many of the concepts and approaches that are presented and discussed in the following chapters are equally applicable whether the utilities providing the services are within the public or private sector. The recommendations should lead to greater efficiency, transparency and better value (or reduced costs) for the chosen level of service. Therefore, the guidebook is intended for use by staff of water and sanitation services which are run by the public sector, the private sector or a combination of both, either separately or in partnership. It also applies whether the water service and sanitation service are provided by the same or different organizations. For example, the provision of sewers and wastewater disposal is often handled by the organization that has been responsible historically for drainage facilities to remove rainwater.

In this guidebook, the term "sanitation" is used in the sense of collection, treatment and disposal of wastewater resulting from use of water drawn mainly from water supply systems, i.e. domestic sewage and industrial effluent. However, many of the approaches and techniques described could also be applied to drainage and solid waste collection and disposal services.

B. Operation of public services

Urban water supply and sanitation are usually categorized as public services because of their impact on public health, the quality of life and the social aspects of the community as a whole. For these reasons, both now normally fall within the direct responsibility of the public sector, with the government maintaining full control. Interestingly, some early systems of water supply were installed originally as private commercial ventures, particularly to improve public health and, therefore, the productivity of the work force of local factories. In addition, over the past few decades deliberate steps have been taken towards greater private investment and involvement in water supply and sanitation projects. A range of different options for handing over responsibility to the private sector have been applied in the water supply and sanitation sectors, and various techniques through which to achieve them have been developed. The main objectives are to improve the levels of service that are provided while maintaining the concept of a public service, i.e., serving the community, and treating consumers as "customers" whose wishes should be heeded.

The reasons for this trend to greater "formal" private sector involvement are numerous and complex. They are addressed in this guidebook, together with descriptions of mechanisms and approaches that have been successful in involving the private sector in the delivery of water supply and sanitation services.

Many of the approaches detailed in this guidebook are equally beneficial even if the services are provided almost entirely by the public sector. In fact, the majority of public utilities already rely, to a greater or lesser extent, on the private sector for the provision of certain services (see box 1). Privately run utilities also involve other private sector organizations in numerous operations which require specialist equipment and skills, especially where the activity is a small part of the total operation and establishing in-house capability would thus be uneconomic.

Industries often choose to provide their own water supply because they want a better and more reliable service that can be obtained from the public system. They may be also able to obtain such a service at lower cost. Increasingly, industry is also required to provide partial, or full, treatment of wastewater before discharging it into water courses or sewers.

Box 1. Specialist services often provided by others for water supply and sewerage utilities

New works and major facilities rehabilitation:

- Planning
- Design
- Supply of components and parts
- Construction
- Supervision of construction

Supply and regular servicing of equipment and machinery:

- Computers
- Photocopiers
- Vehicles

Communication:

- Postal services for billing
- Telephone links to central customer services centres
- Reporting of faults

Revenue collection:

- Commercial banks
- Postal services for collecting dues

Staff catering:

- Canteens
- Social and sports facilities

Most of these services are paid for through an annual or specific charge requiring no capital investment by the utility itself.

Rural water supply is generally of a small scale and has tended to be developed more on an individual landowner basis, i.e., privately. Community, or beneficiary, participation in water supply and sanitation projects is an extension of this tradition.

Traditionally, community sanitation and sewerage schemes have been developed in the public sector. Also traditionally, the provision of on-site facilities of treatment has been the responsibility of the landowner or householder, i.e., by private, or non-public owners. Collection and treatment of wastewater is not a commercially viable activity and some charges are normally made for the service. However, the treatment process can yield methane gas for domestic or industrial use, plus treated water which is suitable for irrigation of parks and recreational areas and for other purposes such as industrial uses, and sludge which can be sold as a fertilizer. In water-short areas, the treated water can have a high value as a water resource.

Figure I is a diagrammatic representation of the water supply and wastewater cycle, showing some of the possible points of sale or charges and, therefore, those activities which can be attractive to private organizations as providers of services and as investors.

C. Private assistance in public services

In many countries, even if the overall system is under public sector control, a major part of the total investment in providing satisfactory water supply and sanitation systems within private property is from outside the public sector. Where the service is inadequate, individual householders or a small group may take measures to improve their own service, while at the same time, probably reducing the service to others. These measures include attaching suction pumps to house connections and installing storage facilities within houses. The householder makes his own "private sector" investment in his own water supply. In this guidebook, these roles are designated as "informal" private sector involvement.

Some of the most fruitful future developments are likely to be in the joint involvement of the private and public sectors, when the complementary strengths of each can be utilized fully.

Unfortunately, ambitious claims have sometimes been made for the benefits of greater involvement of the private sector in water supply and sanitation, and difficulties have been understated. This has led to disillusionment and, perhaps, some opposition to any future attempts to hand greater responsibility to the private sector. A realistic approach is essential, with a sound understanding of the mutual benefits of partnerships between the public and private sectors, in the interests of the consumers. Well-planned strategies will lead to short-, medium- and long-term benefits.

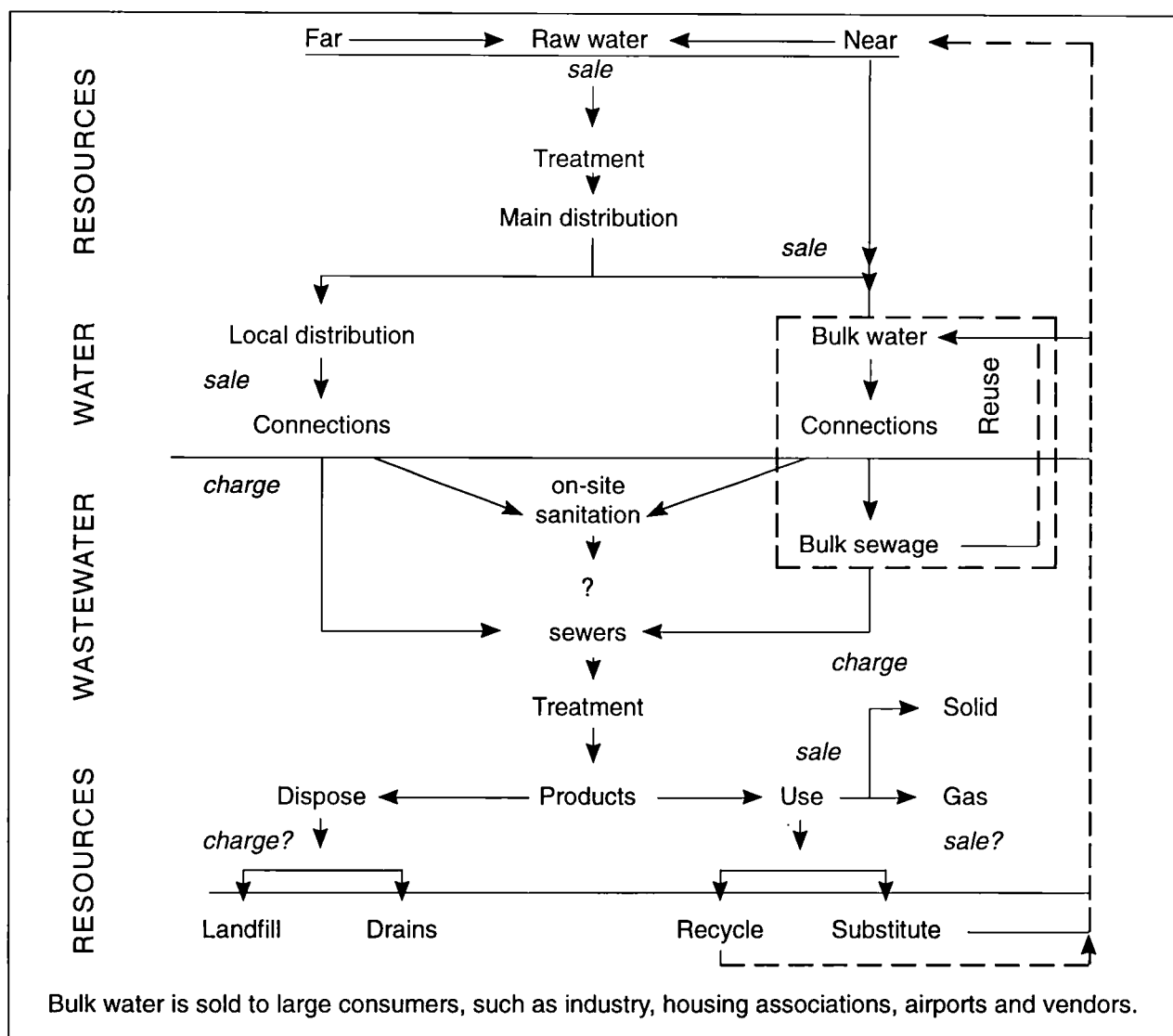


Figure I. Outline of urban water use

D. Layout of the guidebook

The guidebook describes various roles for private sector investment and involvement, demonstrates that many are not really new and, therefore, do not require radical new procedures or thinking, and suggests how the greatest overall benefits can be achieved in the future.

The guidebook also provides a description of the basic framework of the water and sanitation sectors in order to explain what needs to be achieved, how this can be arranged and the objectives that can be reached. It then leads the reader through the processes of involving the private sector and setting up safeguards through regulation.

Chapter II suggests reasons for involving the private sector in what has, until recently, been handled mainly by the public sector. Chapter III gives a brief outline of the degrees of private sector involvement that result from a range of established organizational and contractual options. Chapter IV sets out the factors and constraints that have to be balanced in a successful service for water supply and sanitation.

Chapter V discusses the stakeholders who can be affected by changes. Chapter VI introduces both the concept of identifying risks that could impact on the success of the operation and the means for handling those risks.

Chapter VII suggests a logical step-by-step evaluation procedure leading to some form of private sector involvement. Chapter VIII presents some key contractual aspects that need to be decided.

Chapter IX describes possible mechanisms for public private partnerships (PPP), while chapter X covers community or beneficiary participation.

Chapter XI discusses regulation in general, whereas chapter XII addresses price regulation mechanisms in particular.

Chapter XIII draws conclusions and sets out important basic rules.

II. REASONS FOR PRIVATE SECTOR INVOLVEMENT IN RUNNING A PUBLIC SERVICE

A. Public sector utilities

The majority of water supply and sanitation utilities or organizations have been developed by government within its own public sector. A number of reasons and advantages for this approach can be cited, including:

- (a) Water supply is often treated as a “basic need” that should be provided by a government to its citizens, in order to maintain the good health and quality of life of the population. Both water supply and sanitation are strongly social services because of their impact on individuals and also on the “public health” of the community at large. Consistent with that concept, in many countries, the government has also made zero or very low charges for such a service, especially in the case of domestic consumers. Some religions also consider water to be a free gift for life. Although water supply may be considered in this sense as a public service, this does not mean that it must necessarily be provided entirely by the public sector.
- (b) Piped water supply and sewerage systems are “natural monopolies” as there are no real options for consumers to choose who will provide them with such services. Once pipes and sewers have been laid near properties, the cost of using them is low compared with that of a competitor trying to establish an alternative system.
- (c) Piped water supply and sewerage systems require large initial investments in infrastructure, but most of their components have a long useful operating life. However, consumers prefer to pay for services at rates which are relatively constant thereby giving a steady income to the utility (preferably in real terms, having allowed for inflation). Initially, the high cost of investments and repayments can exceed the annual income earned as a result of the investment. This difference can cause an adverse cash flow, with large imbalances in early years. Often these deficits can be bridged more easily by the large public sector rather than by a smaller commercial organization.
- (d) Most pipes and sewers are buried under roads and in other areas belonging to government.
- (e) Historically, a good water supply and sanitation scheme was considered a measure of the high level of city development and thus became a symbol of local and national pride. The provision of a better water supply is still a political platform in a few areas (but usually a free or highly subsidized service is promised). The environmental benefits of better wastewater disposal can attract political support, especially in the more developed countries.
- (f) Providing these services in the public sector gives continuity of ownership, responsibility and operations, whether the services are with central or local government.

These factors may be considered as advantages in providing water and sewerage through the public sector.

However, there are also certain disadvantages. The relative weights of these factors depend on the local situation:

- (a) Most governments have limited funds available from their annual incomes plus restrictions on the levels of borrowing for public spending (public sector borrowing requirement or PSBR). On the other hand, the same governments have ambitious programmes for providing services and development in many sectors. Some of those sectors are social in nature, requiring funding in excess of direct income that they can generate. Therefore, a government may seek other ways of funding developments, which are financially viable, from outside its annual budget. This additional funding may be obtainable from the private sector. Water supply and sanitation are sectors that can attract private funds for capital works.
- (b) With few exceptions, improvements to water supply and sanitation are not well-supported financially by governments unless conditions have reached a disaster level. Improvements in operations are not clearly visible. In fact, rehabilitation of networks and the repair of leakage may cause considerable inconvenience to the public, with no obvious improvement in levels of service. Development of the sectors do not result in beneficial

landmarks, with the exception of impounding reservoirs which can also be recreational amenities. Opportunities for wide, and ongoing, publicity are limited compared with prestige developments such as new international airports. For these reasons, allocation of government funds for development and rehabilitation of water supply and sanitation infrastructure is often limited.

- (c) As well as under-investing in infrastructure for water supply and sanitation, many governments seek to keep water and sanitation charges too low for the utilities to operate efficiently and carry out adequate routine and preventive maintenance. Therefore, although tariff levels are a highly political issue (often with pressure to keep them unrealistically low) the provision of better services, or even in maintaining existing services, does not attract much political support.
- (d) Often the levels of service that a public utility has to provide are not well defined or known to consumers, so they do not complain. In many areas, services are variable and not very satisfactory. For instance, in systems with intermittent supply, the period of supply may vary from a few regular hours at convenient times of the day to completely irregular and infrequent supplies, possibly only at weekends or at certain times of the year. Consumers located at the far end of distribution systems often have much poorer services than those near the beginning of the systems. Information on discrepancies in levels of service is often kept within the utility, and may not even be disclosed as a basis for justifying more funding, for fear of being accused of inefficiency or deficient operation. This process of self-regulation can lead to substantial deterioration of services, even to the point where consumers themselves complain openly because the service is clearly unacceptable. In many areas, the lack of development or poor maintenance of existing water sources has little impact until hydrological shortages occur during a severe drought. At such times little can be done except to introduce harsh usage restrictions, hopefully on a temporary basis.
- (e) The levels of performance of publicly operated utilities are often not published and are known only to the government. This lack of transparency in divulging information means that the consumers are not able to check that they are obtaining value for money for the services provided and that funds are being allocated properly, in a pre-defined manner.
- (f) For many reasons, most governments have detailed procedures with numerous checks and counterchecks. Decisions are often made only at the highest levels. Little responsibility is given to, or accepted by, middle management. Staffing levels are generous and inflexible. Promotion is difficult in static situations where staffing levels are not expanding. Many employees are reluctant to take responsibility or risks that could jeopardize their eventual slow promotion to a satisfactory final pensionable level. It is unusual for initiative to be encouraged or rewarded. In many cases, the government working environment does not lead to flexibility and efficient working. It is often difficult to introduce changes that would improve operations and reduce costs.
- (g) Governments work on annual budgets. Often the annual budget is not agreed until well into the financial year that is being covered. Generally, funding is less than requested. Spending levels are not known until it is too late to modify development plans. All funds have to be disbursed within the financial year or returned to the government. Therefore, there is a tendency to undertake small schemes that can be implemented rapidly. Large schemes taking many years are more difficult to agree because that involves a commitment from the government to include adequate funding in later budgets, when economic conditions may have deteriorated. Annual budgeting is not the best approach to large water supply and sanitation projects which are generally not usable until fully completed, but which have a high construction cost.

B. Private sector companies

Private sector companies also have some advantages and disadvantages compared to government utilities. Many of these features are the converse of those already discussed for the public sector. Clearly, the balance of advantages and disadvantages is the key factor in deciding how best to use the private sector in the particular set of conditions in each situation.

The advantages of private sector participation include:

- (a) The private sector can obtain or provide funds (equity and debt) which are outside, and additional to, those funds available to a government under ceilings of expenditure. These dedicated private funds will be available on commercial terms. The details of the terms will depend on the approach of a government to risk-sharing and offers of waivers on taxation, duties etc.. Direct hand-over to the Government of new infrastructure paid for by

private funds is, in effect, increasing government expenditure in that sector. It could be construed as a breach of government spending limits. This has been a major obstacle in the United Kingdom in devising mechanisms for using private financing of water supply and sanitation in Scotland, for example, which remained public when those sectors were privatized in England and Wales.

- (b) Clear regulatory procedures can be introduced. Governments are generally reasonably relaxed about controls on the levels of service when the whole operation is within the public sector. It is accepted that the utility is performing as well as it can and is setting its own performance standards, through self-regulation. However, governments are open to criticism if private sector profits are thought to be excessive, especially if this results from unreasonable exploitation of a monopoly situation. Following privatization, particular attention has been paid in England and Wales to open and independent economic regulation. The economic regulator, the Director-General of the Office of Water Services (OFWAT), has a duty to ensure that the water and sewerage companies are financially sound and viable as commercial companies operating in a low-risk sector. In addition, OFWAT has to look after the interests of consumers, by seeing that the companies are providing the required service at sustainable tariffs. OFWAT is responsible for regulation of the whole of the privatized water and sewerage industry in England and Wales, comprising many separate companies. The regulator is able to use comparison of performance to assess reasonable levels of operational efficiency, allowing for physical differences in locations. All findings are published in order to make the regulation process clear and transparent. By comparison, the regulation of the water industry in France is at the local level and it is not so transparent. Tariffs are agreed with local community leaders.
- (c) Consumers are kept better informed by publication of performance data. In England and Wales, the process of regulation through OFWAT has been made transparent without breaching commercial confidentiality. As public companies, the water and sewage undertakings, also have to publish conventional financial accounts to keep investors informed and to meet stock market regulations. Companies also inform their consumers (now referred to as "customers") of the policy, aims and achievements of their organizations, including levels of service and cost data. Generally, the greater transparency in England and Wales has helped to explain why charges are at their current levels and to demonstrate the potential impact of higher water quality and effluent discharge standards being introduced by European Union legislation. However, disclosure of salaries of directors (as required by company law) has attracted some adverse criticism in the media and from consumers.
- (d) Private companies can respond quickly to changed circumstances and are more flexible in their approach to problem solving. Management also requires better information on which to make decisions, such as the appropriate level of automation and manning. Greater efficiency leads to greater profitability. Staff can be moved more easily, retrained quickly and reduced in numbers, when appropriate. New and improved technology can be introduced rapidly. Certain operations can be run by separate, but related, companies (out-sourcing) which in turn can offer their services to others, thereby reducing costs to the parent company.
- (e) Remuneration packages to staff are not fixed, and thus can be flexible in order to reward the learning of new skills successfully. Incentives can be introduced through bonus schemes. These measures can instil a greater team spirit and higher output per employee which exceed the additional staff costs.
- (f) Private companies generally work to a plan lasting a number of years. In the case of a long-term private sector arrangement for, say, 20 to 30 years, the first five years would be planned in detail, with a well-defined strategy up to the full term. The procurement of funding would be based on that plan. The plan also gives confidence to lenders and investors.
- (g) The private sector can bring in specialist skills rapidly. How fast will depend on the selection procedures that are used, but company policy can ensure that, where necessary, specialist advice can be obtained very quickly. For certain aspects, full-time specialists can be (i) employed by the private sector, (ii) obtained from out-sourced companies, (iii) be retained permanently, or (iv) be known advisers used only for periodic inputs.

The involvement of the private sector can also bring some disadvantages, including:

- (a) Some form of control is required to prevent exploitation of a monopolistic situation. Generally, the transfer of a function of a public utility to the private sector will be on the basis of some form of price competition against specified on-going services or goods to be provided. The larger the task, the greater the level of care used to define exactly what is required, together with conditions of payment and regulation. The main element of competition is entirely at the start of the activity. Once a task has been assigned to a private company, it is

difficult to establish on-going conditions that maintain as much competitive pressure. In small, short-term activities, the private sector entity will wish to obtain further tasks or to continue beyond the end of the present arrangements; thus the company is in competition to maintain its reputation. In large concessions, a proxy for competition is the economic regulator, who puts reasonable pressure on the operator to improve efficiency and to pass the savings to the consumers. Besides the advantages of regulation, there are some potential disadvantages which need to be recognized and minimized:

- (i) The regulator can become too involved in the day-to-day operation of the company. Operation activities should be handled by the management of the company within broad guidelines agreed with the regulator periodically. For example, say every five years, tariff levels in real terms (i.e., excluding inflation) could be negotiated and agreed with the regulator;
 - (ii) Considerable time and effort are required for a company to collect and present data to the regulator which may be in excess of the data required for normal efficient management of a water or sewage utility;
 - (iii) Approval of planning proposals and tariff levels by the regulator takes some time to achieve, so that planning strategies may have to look further ahead than ideal for a quick response to changing conditions;
 - (iv) Periodic tariff reviews (e.g., every five years) can give variations in annual construction activities with a concentration of work just before the next review, especially where works being constructed do not lead directly to increased revenue from more consumers or greater measured and paid-for water consumption.
- (b) The duration of contracts for the private sector is always limited by, and usually related to, the complexity of the operation and the level of funding to be provided. Clearly, the duration must be sufficient for a new organization to become established and to work efficiently for an appropriate time, especially if substantial investments have been made. Large private sector involvement in funding requires a long contract to give sufficient time to earn a profitable return. The private sector will be looking for a financially viable deal with an adequate return on investment during the contract. However, a government will wish to test the market from time to time to reassure itself, and consumers, that the private sector deal is still competitive. A compromise has to be reached which balances the wishes of government and the private sector. In every case, sooner or later, the end of the contract will be reached and some new form of arrangement has to be made.
- (c) The hand-over process at the end of a private sector arrangement needs to be defined, at least in outline, when the initial deal is made. Some minor details may be left open, to be agreed upon at the time of expiry of the contract. Generally, the simplest procedure would be to continue the arrangement through an extension of the existing contract, or to negotiate a new contract. However, this procedure does not test the market and is not transparent. The other extreme is for a government to take over the particular operation with its own staff, but this method may lose some of the advantages of the private sector as technology and equipment become out-dated. One possible compromise at the end of one contract is to hold a new tender competition for the same services, provided that other bidders can be pre-qualified and are prepared to compete with the incumbent private organization. Bidders would need to be given sufficient data to enable them to price services accurately. The existing operator is likely to put in the most realistic price, but could be undercut by a keenly competitive bid. Price may not be the only basis for bid evaluation.
- (d) The taking over of part of a public service by the private sector will require a well-defined contract in order to safeguard all parties, including the government, but primarily the consumer who would be the main beneficiary. Contracts need to be specific in detail. The contract must be attractive to both the government and the private sector. Risks must be handled fairly. If it is biased towards the private sector the consumers could suffer; if it is biased towards the government the private sector may add a high premium to cover risks and may bid, but with many conditions, or may even decline to bid. Risk handling is one of the key issues that need to be addressed in establishing successful private sector involvement in a public service (see chapter VI).

III. BRIEF DESCRIPTIONS OF THE RANGE OF PRIVATIZATION OPTIONS

The procedures covered in this chapter and in figure II involve different degrees of hand-over of responsibility from the public to the private sector. Figure II shows where the private sector would assume responsibility for certain activities with a solid circle. Government responsibility is shown with an open circle. The figure is a useful quick reference to give a grasp of the range of options and some of the key issues that have to be considered.

The figure lists basic factors in the column on the left side. The top two rows show different degrees of private sector responsibility that are described in this chapter. Some of these factors involve well-tried conventional arrangements that are already standard in the water and sanitation sectors, so that they do not require new methodologies, e.g., contracting out services, and design and build through turnkey construction. Others also use conventional procedures but need some additional contractual agreements, mainly covering finance where appropriate.

As figure II shows, there is a spectrum of options available that should be considered when planning a strategy for involving the private sector in water supply and sanitation. The arrangements on the left of figure II introduce some techniques used in the private sector that can give greater autonomy, particularly to management but with responsibility remaining within government control. The extreme right-hand side is full divestiture to the private sector which has been used successfully in England and Wales since 1989. The options in between these extremes are all generally applicable to the water and sanitation sectors. Some further minor variations have also been used successfully.

The choice of initial option need not affect future policy and the ultimate level of private sector involvement. A gradual transition can be made from minimal private sector involvement to a relatively major hand-over of responsibility. In fact, in many ways, this progressive privatization has some advantages as it allows both private and public sectors to develop their techniques jointly. Many experts recommend that converting government departments to corporations (known as "corporatization") should be the first step towards more private sector involvement.

The duration of contracts also varies depending on the type of contract, but all should have a fixed duration. Those that involve a large investment by the private sector should be long enough for the construction costs to be repaid and to generate suitable returns to equity participants. If the construction costs are incurred early in the contract, a shorter contract period could be used than where large investments are still needed after, say, 10 years. A shorter contract duration can be used where investment by the private sector is small. The time limit in such cases could be that needed to make adjustments to management and to train staff.

The planner should decide what the main objectives are that need to be achieved, both in the short and medium/long term, and in particular what funding is required from the private sector and what responsibilities will be handed over. Figure II can be used to select which methods of involving the private sector could be most appropriate. For example, for the operation of a complete system a lease would be appropriate if capital funds were to come from the government. A longer concession would be better if funding of capital works were to come from the private sector. A form of public private partnership (PPP) is probably the most constructive manner in which to combine the advantages of the public and private sectors. This is discussed at length in chapter IX.

One aspect of private sector involvement which often causes concern is the possibility of the private sector exploiting any monopoly by setting unreasonably high tariffs, in order to maximize its profits. Safeguards are clearly required, but in all the possible options the government always has the ultimate responsibility for tariff levels.

Inevitably, all these options require some regulation and control of (a) standards that are to be provided, and (b) the remuneration earned, whether this comes through direct tariffs charged to many individual consumers, from sales agreements with a few bulk purchasers or a government subsidy. Ideally, regulation should be administered by an independent regulatory body that follows documented procedures within a well-defined regulatory framework. This very important aspect is discussed in chapter XI.

Where appropriate, the French term for types of contracts is also given. Boxes 2 to 5 describe experiences in Malaysia, Thailand, the Philippines and the United Kingdom (England and Wales).

Activity	Privatization level										
	Full government department	Public		Service agreements		Lease			Franchise		Full privatization
		Board	Corporation	Contract out	Management contract (gerance)	Lease	BOT	Turnkey	Concession	BOOT	Divestiture
Legislation	○	○	○	○	○	○	○	○	○	○	○
Regulation (See Note)	○	○	○	○	○	○	○	○	○	○	○
Tariff levels	○	○	○	○	○	○	○	○	○	○	○●
Ownership:											
(a) existing fixed assets	○	○	○	○	○	○	○	○	○	●	●
(b) replacement	○	○	○	○	○	○	○	○	●	●	●
(c) new fixed assets	○	○	○	○	○	○	○	○	?	●	●
Finance:											
(a) expansion	○	○	○	○	○	○	○	○	?	●	●
(b) use of funds	○	○	○	○	○	○●	○	○	○●	○●	●
(c) working capital	○	○	○	○	○	●	●	●	●	●	●
System:											
(a) planning/design	○	○	○	○	○	○●	○●	○	●	●	●
(b) construction	○	○	○	○	○	○	●	●	●	●	●
(c) rehabilitation (long-life assets)	○	○	○	○	○	○	○	○	●	●	●
(d) maintenance (short-life assets)	○	○	○	○	○	●	●	-	●	●	●
(e) operation	○	○	○	?	●	●	●	?	●	●	●
(f) revenue collection	○	○	○	○	●	●	?	?	●	●	●
Risks:											
(a) commercial construction/operation	○	○	○	○	○	●	●	●	●	●	●
(b) legal (main)	○	○	○	?	●	●	●	●	●	●	●
(c) efficiency	○	○	○	●	●	●	●	●	●	●	●
Financial autonomy	NO	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES
Management autonomy	NO	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Duration (years)	-	-	-	2.5	5	7/20	7/20	-	25/30	25/30	25/30

KEY: ○ = Government, non private, ● = Private, ? = Either, ○● = Both

Note: Regulation has to be stronger for greater degrees of private involvement. Public bodies can be partly self-regulating.

Figure II. Responsibilities under private sector involvement options

Box 2. Privatization of water supply and sanitation services in Malaysia

Malaysia appears to have advanced further in the involvement of the private sector in the provision of water supply and sanitation services than other countries in the Asian and Pacific region. Under the Federal Constitution, water is a State matter and, consequently, the provision of water supply is the responsibility of the State governments. So far, the States of Johor and Kelantan have corporatized and then privatized their respective water authorities. There are plans to transform water authorities in all the remaining States into registered companies operating under the Companies Act, with ownership of the facilities by the Government, or to proceed with the next stage of privatization if it is more appropriate. In several States, contracts have been awarded to the private sector to operate and manage existing facilities, while privately funded projects of a build-operate-transfer (BOT) type have been initiated in the island of Labuan, the city of Ipoh, and the States of Sabah and Selangor. Thus, a private company has been awarded a 25-year contract to operate 26 water treatment plants in the State of Selangor which surrounds the capital city, Kuala Lumpur, and it is now responsible for the supply of all of the drinking water in that State.

With regard to sanitation, in order to accelerate the implementation of sewage collection, treatment and disposal projects, the Government signed a 28-year concession agreement in 1993 with a consortium of companies to undertake the National Sewage Project. Under that concession, the consortium will take over, upgrade, operate, manage and maintain some 2,000 existing sewerage systems in 144 local authority areas and will design, build, finance and operate new sewerage systems within those areas.

In order to facilitate private sector involvement, a Privatization Master Plan has been prepared to provide guidelines for the orderly and effective implementation of the policy for increasing private sector participation in the country's development. The policy has also been supported by adoption of the relevant legislation. For example, the Sewerage Services Act was enacted in 1993 for the purpose of providing for the privatization of sewerage services. Appropriate State legislation has also been enacted to allow for the privatization of water supply projects.

A. Government organizations

The main government organizations are described very briefly. They all remain closely attached to the government but, in theory at least, may have some autonomy.

The real degree of autonomy will depend on the actual situation and the personalities involved. In practice, the government can exert pressure on the organization in many direct and indirect ways. In particular, senior managers will wish to avoid conflict with the government, especially if this could cost them a good pension.

Accounting systems in all cases would follow government rules. Budgets are agreed yearly and may be substantially reduced when only limited funds are available to the central government. The water supply and sanitation sectors have to compete with other government sectors which may be able to argue a more pressing political or social need. Under those circumstances, projects with a long construction period are less attractive because their initial acceptance inevitably means a commitment for significant funds for many years in the future.

Routine maintenance is usually the first casualty when funds are short. Management may choose to reduce maintenance for a short period because the rate of deterioration of most components of a water supply or sanitation scheme is very slow. The full impact of neglected maintenance may not be felt for many years. Deterioration could be detected by monitoring performance.

Operation may also be impaired by lack of funds to purchase chemicals. This could be reflected in checks on the quality of output water. Regular checking of processes and of the final product show up the consequences of poor operation.

Independent and transparent regulation could improve operations in the public sector as it would clearly demonstrate the consequences of under-funding.

Although the more independent government organizations may have some flexibility in remunerating their staff, the scope is very limited. Generally, civil service conditions apply to all major aspects of employment.

Government organizations do not necessarily have to run all their operations fully by themselves. They can use one or more of the full range of privatization options to hand over appropriate operations to the private sector. Contracting out services (as explained in box 1) is one very common means of government using the private sector to provide a service that it cannot arrange as well, or as cheaply, or both.

Forms of government organizations are briefly described below for completeness.

1. Government department

The management of a government department is responsible to more senior government officials. Self-regulation of quality is usually carried out by the department to standards set by the government.

The tariff structure and levels are set by the government. The revenue collected goes into the government's general accounts. The department is allocated funds annually, which may or may not be related to the income generated and revenue collected. Often the service provided is highly subsidized to meet social objectives. The service may be deficient because of lack of funds, but this is normally considered as an internal government matter.

In a government department, all staff are government servants. They are paid by the government and are subject to its full regulations and procedures.

2. Government board

Managers are responsible to a board of management for the proper conduct of the utility, but they have autonomy on day-to-day matters. The accounts of the board remain included within those of the central government.

All the members of the work force are civil servants, but some extra privileges or favourable conditions may be permitted as a means of giving some additional reward.

3. Government corporation

A government corporation is similar to a government board except, primarily, that a corporation has an accounting system that is separate from the central government. In addition, it publishes annual accounts which are audited. Annual budgets for capital works and operation and maintenance are agreed upon with the government.

Tariff levels can be proposed by a government corporation but must be approved by the government. The government would also normally set and agree standards of service and would monitor performance against the levels of specific parameters.

The members of the work force remain civil servants. There is some scope for minor changes in their employment terms in order to reward extra effort.

B. Service agreements

Government organizations (described in section A of this chapter) may wish to employ private organizations to assist in running certain aspects of their utility. These are normally specialist activities for which the government organization does not see a need to have its own in-house facilities. This applies particularly to intermittent activities or services, or to those activities with a large variation in work load, where the peak load could be covered by others.

These arrangements can be made through some form of service agreement. They usually lead to lower overall costs than if the activity is undertaken by the government organization itself. Although the private sector usually provides such additional services there is no reason why other government or semi-government organizations should not be used. In that case, they should compete with the private sector in an open manner.

The government organization would still retain full control of all its main operations. It would also retain all its responsibilities, both to the State and consumers, for providing the specified levels of service.

One example of such an approach is Bangladesh, which is experimenting with service agreements for billing and revenue collection.

1. Contracting out

A government-owned body can contract out services to a private organization for a specific package of work, or for assistance on a specified phase of operation, for a fixed duration.

The option is used extensively for professional services, where consulting engineers (national and international) are employed to carry out services which cannot be handled as efficiently or with the same skill by in-house professional technical staff. This option particularly applies to detailed planning, design and supervision of construction of new works. The government staff, working for the utility, are occupied full time with operational and maintenance matters and that is where their expertise lies.

Certain operating services can also be contracted out. The reading of water meters and billing can be undertaken by the private sector. In Chile, staff employed previously by the government have set up small private companies to continue their old tasks within the government organization, but now under an agreement to provide a given service for a price or fee.

The basis for payment for consulting and contracting services is selected to match the particular services required. The methodology also takes account of the degree to which the services can be defined at the time of signing a contract.

A contract for well-defined work could be a lump sum payment, possibly paid in a number of instalments. An advance payment may be appropriate where setting-up costs are high. Final payment is due when it is agreed that the service has been completed satisfactory.

A flexible contract is appropriate for tasks which are ill defined, complex, open-ended or risky (such as during emergencies), or where data are scarce. This is because the effort and cost required cannot be assessed with sufficient accuracy to be the basis of a fair deal between the parties to the contract. Risks could be over-valued and the sum agreed could be too high. Alternatively, the risks could be under-valued and the sum inadequate to cover the costs. In both cases, the government runs the risk of losing, either because it pays more than necessary in the first case or because the lack of funds leads to some deleterious cost cutting in the second case.

A number of standard procedures exist to give a fair deal between parties for both consulting services and contracting. These include:

- (a) Time-based contracts for consultants where rates are agreed upon for staff members and expenses. The rates for staff include basic salary plus social charges, overheads, special allowances and fees (or profit). The level of these factors is normally supported by an independent audit. Payment is made for actual time spent and for supported expenses;
- (b) Remeasured contracts for construction, where payment is made for the actual quantity of each measured item in the permanent works, e.g., concrete, steel etc.;
- (c) A percentage fee for engineering design which is fixed as a percentage of the cost of the resulting works. This is more appropriate where the contracted-out design work leads directly to construction or supply of materials, at a clear price based on a competitive tender. If, for some reason, the work does not proceed, the cost would be estimated;
- (d) A cost plus fee contract which covers the total costs incurred but with an additional fee which may vary depending on the final costs, relative to a pre-agreed cost target. If the work is completed well within the cost target, a higher fee would be due than if the work exceeded the cost estimate. This can be applied to both construction and consulting;
- (e) A fixed fee can be used rather than one related to pre-agreed cost targets.

The responsibility of the private company is limited to its contracted task.

2. Management contract (*gerance*)

In a management contract for a water supply or sanitation operation, the private company takes over the operation and maintenance of a particular part of the system, for example, treatment works, or all of the system; the company then operates it to meet agreed standards of performance and operational efficiency. Targets may rise as the management contract progresses.

The public authority retains responsibility for the overall system, including expansion and major rehabilitation, but probably not for routine maintenance which is closely connected to operational efficiency.

The private company would normally collect revenue on behalf of the government organization. Payment to the private company is based on agreed rates for specified items which could be related to the expenses associated with water sources, treatment, distribution, sewage disposal and dealing with consumers. Payment items should be selected in a way that rewards efficiency and good operation, against present standards and future targets.

Normally, the private company does not share in any profit (or loss) of the government body, that is, the difference between income and expenditures over the financial year. The income is the revenue collected, which is primarily controlled by the tariff levels which themselves are controlled directly by the government. The expenditures include the agreed payments to the private company for management, plus other operating and expansion costs borne by the government. However, a variation of a management contract with the inclusion of profit sharing has been used, but this form is unusual.

C. Leasing

Leases do not normally involve the lessee in providing large finance. The government will make the necessary funding arrangements; in fact, it may be able to obtain better financing terms than the private sector.

Normally, leasing arrangements are used for running a utility. The private organization in a leasing operation is more involved in the management aspects, makes a larger financial input to cover working capital and bears more financial risk than in a management contract. On the other hand, in a leasing contract the private sector has a greater degree of autonomy compared to service agreements. It has greater opportunities for profit, compatible with the risks that it is taking. The main tasks of the private sector are in operation and routine maintenance.

A lease agreement does not cover the funding of the overall capital investment for rehabilitation and expansion, which would remain the responsibility of the government. Even if the lease covers implementation of certain components of a development programme, under some form of construction contract, all or most of the funding is provided by others. Often the lessee will encourage the government to invest in expansion and rehabilitation as these improvements will reduce the lessee's operation costs.

Box 3 describes the setting up of East Water in Thailand which is initially a lease arrangement for operating existing assets. Future investment will be financed by East Water, which would be more like a concession contract (see below, section D, subsection 1: Concessions).

Certain common procedures for implementing capital works projects can be incorporated within the category of leases. These procedures include arrangements where the contractor has greater than normal autonomy and choice. For instance, the contractor may be contracted to provide a facility which meets certain specified performance standards. An example would be a water treatment works that is required to meet statutory conditions. In this case, it is essential to specify also the range of the quality of raw water that is to be treated and, possibly, a percentage compliance rate of the treated water to the quality standards.

The distinction between a lease arrangement and a conventional construction contract is that in a lease arrangement the contractor is responsible for ensuring that the works operate satisfactorily over a specified range of conditions. The contractor also operates for a given period, usually long enough to ensure that the works will continue to operate satisfactorily once the contractor has left. For example, in the case of a treatment works, where the treatment processes may take some time to develop, the operation will be refined as experience is gained; in addition, the full range of raw water types that require treatment may not be experienced during a normal short commissioning period. The private sector operator will also give comprehensive training to the water utility operators so that they can take over when the operating lease expires.

A range of different options have been devised for construction of new facilities and have been used successfully. These options include arrangements where the private sector builds a facility and operates it for a given period, during which the contractor would be responsible for any repairs, especially if these are due to faulty design, poor construction or maloperation on the part of the contractor. The government would provide all or part of the finance. The ownership of the facility is always with the public sector. Such a contract is a lease where the contractor does not fund capital costs but will cover working capital.

Box 3. East Water, Thailand

The Government of Thailand has, over the past two decades, tried to stimulate the industrial development of the country's eastern seaboard region. However, one of the major development obstacles has been the lack of fresh water in many parts of the region. In order to tackle the problem of water shortage in that region, the Eastern Water Resources Development and Management Company (East Water) was set up in 1992 as a subsidiary of the Provincial Waterworks Authority of Thailand (PWA) with the objectives of: (a) increasing the efficiency of water management to facilitate and stimulate the industrial growth in the eastern region; and (b) expanding raw water supply coverage as quickly as possible without creating a financial burden for the Government.

In order to achieve these objectives, the Government took back all the water supply facilities it had invested in, and which were under the control of various government agencies, and leased them to East Water for 30 years. Under the lease terms, any further extension of the water supply systems would be the responsibility of East Water, which should raise the necessary funds from the private sector.

East Water started its operations on 1 January 1994. With exemption from most of the rules and regulations governing the activities of a government agency, it has been run like a private company. As such, it is more service-oriented, more flexible, quicker to respond to the needs of customers, more efficient in management and delivery of water and, above all, ready to make investments without financial assistance from the Government.

In 1995, the total volume of water sold was around 46 million m³ compared with 36 million m³ in 1994 and, prior to the existence of the company, 24 million m³ in 1993. Of these amounts, about 80 per cent was distributed to industrial users and the rest to waterworks, where water is treated and distributed to domestic consumers by PWA. The demand for water continues to grow, reflecting a boom in industrial development in the region. The percentage of non-revenue water has been greatly reduced and kept below 5 per cent. Due to the significant increase in the volume of water sold and the effort to keep operational expenditures to a minimum, East Water posted a net profit of US\$ 1.7 million in 1994, US\$ 3.8 million in 1995 and some US\$ 6.3 million in 1996.

East Water plans to raise some US\$ 200 million over the next four years, to be invested in the development of new water sources and the expansion of main water distribution systems. The company intends to raise funds through equity and debt financing. East Water plans to be listed on the Stock Exchange of Thailand in the first half of 1997, when it hopes to raise around US\$ 48 million from the public by selling its shares. It also expects to acquire syndicated loans of around US\$ 60 million from various commercial banks in 1998. By 1999, a second public share offering through the stock market is proposed.

After the listing on the Stock Exchange, East Water will become a fully private company responsible for water deliveries in the eastern seaboard region. So far, the experience of East Water has proven that the provision of water services could be improved in a private setting, while government spending could be greatly reduced and eventually diminished, particularly in the case where users can afford to pay the full cost of water.

Contributed by: Wanchai Ghooprasert, Deputy Governor, Provincial Waterworks Authority, Thailand.

Various options are used for leasing arrangements. The term build-operate-transfer (BOT) tends to be used loosely, whether the funding is from the government or the contractor. A distinction can be made by using BOT where the government is the prime financier, and build-own-operate-transfer (BOOT) where the contractor provides finance (see section D of this chapter). An alternative is a build-transfer-operate (BTO) option where the facility is transferred to the water utility on completion (and paid for), but where the contractor still operates it for a certain period under a lease contract. All these arrangements include a period of operation.

A further leasing alternative is a build-lease-transfer (BLT) arrangement, but in this case the private sector provides the facility and then leases it to the public utility for a fixed period, followed by transfer. This is sometimes called a reversed BOT.

In a turnkey contract, the contractor designs and builds a facility but may also have limited operating responsibility, possibly only during training of operating staff from the government organization. This procedure is included here because it is well tried and has been used successfully for many years. A lease arrangement is, therefore, very similar to a turnkey contract but with a longer operating period.

1. Leasing (*affermage*)

The consumers are the clients of the lessee who has responsibility for providing the agreed level and standard of service using the technical means that the lessee selects. At the end of the lease, all equipment and facilities will be handed over to the public water utility or the government in good repair. The government would then assume responsibility for organizing continuing operation, perhaps by returning the operation to the public sector. Alternatively, a further lease could be let, either to the existing lessee by negotiation, or to a new lessee selected in competition. The existing lessee would not normally be prevented from competing for a new lease.

The lessee is not responsible for financing any infrastructure expansion, reinforcements and rehabilitation; that responsibility remains with the government. However, the lessee would be responsible for providing working capital and funds for routine repair and replacement of components with short lives. Clearly, close liaison must be maintained between the water utility and the lessee in case of major expansions planned by the water utility, which should ensure that the proposed new work is the most appropriate for the lessee to operate. This split of responsibility for new work and operation means that a lease contract is most effective in a relatively stable situation where there is little increase in demand and no need for major new infrastructure.

The lessee would collect revenues which, ideally, should cover charges as well as any surcharge which the government wishes to add to cover its costs. The government costs could include expenses of financing new capital works and any outstanding debt on existing works, the cost of regulatory bodies and other miscellaneous costs such as overall planning and design services, public relations, and customer services and administrative costs.

2. Build-operate-transfer (BOT)

Under a contractual arrangement of a BOT type, the contractor builds (and possibly designs) the facility, operates it for a specified period and then hands it over to the government in good condition. The contractor may not provide finance, in which case he does not own the facility as he does in the case of a build-own-operate-transfer (BOOT) contract (see section D, subsection 2 of this chapter). A BTO arrangement means that the contractor would hand over the facility when it becomes operational rather than at the end of the contracted operation period, but would continue to operate it for a specified period under a lease arrangement.

These approaches are most appropriate where the performance of the facility is assessed by the quality of the end-product. In the case of water treatment, the maximum level of each contaminant can be specified and the operational procedures, rates of flow and chemical dosing would be adjusted by the operator to respond to changes in raw water quality. Success, in terms of quality and efficiency, depends on establishing good operational procedures over a few seasons.

3. Turnkey (design and build)

The contract and the documentation required are similar to those used in BOT type arrangements (without finance). However, under a turnkey contract, operation is not a large element of the contracted task and may be limited to training of staff of the newly built project over a short period.

The contractual framework for construction is the same as for BOT, with a contract arranged by competitive bidding of prequalified contractors or by negotiation. Competitive bidding is more appropriate where the task can be closely defined. Negotiation could be more effective where specialist or high technology techniques are required. The client can then work jointly with the specialist during the negotiation in order to produce exactly what the client wants (and can afford).

The turnkey arrangement does not normally include full contractor finance.

D. Franchise

Franchising involves the private sector financing all, or most, of the investment costs of the system. For this reason, governments seeking to reduce the burden on their own budget find this type of private sector involvement particularly attractive. It is most beneficial where government budgets are severely limited. In effect, the private funding releases public funds for other activities, including the many social programmes that are required but which would not attract private funds themselves.

Substantial funding could be provided by the private sector and its financiers. The terms of funding with local currency will depend on the state of development and conventions in the local financial market. Loan terms may be for short periods, compared with the life of new structures. International financiers will probably be prepared to offer longer terms, provided risks are not excessive. The duration of a franchise is normally 20 to 30 years.

The potential errors in trying to forecast franchise conditions 30 years ahead could be very serious for all the parties concerned. In order to reduce that risk, some mechanism of economic price review is essential (see chapter XII). Normally, large capital expenditures are made early in the franchise. Income has to be sufficient to cover capital costs, debt repayment and equity returns, in addition to covering operating costs and generating profit. However, income may be low initially, especially if the facility provided by the investment is sized to meet higher future demands and does not operate at full capacity in the early years.

The cash flow is critical to the financial viability of a franchise. Various means are used to improve the cash flow as an incentive for private sector involvement. Improved cash flow to the private sector will be an additional cost to the government. However, in many cases these incentives are essential to attracting the interest of the private sector. Without incentives, the project may not be as attractive as other projects elsewhere in the world that are competing for the same type of investments.

Common incentives include:

- (a) Free use of existing facilities;
- (b) An initial grant or soft loan for immediate rehabilitation and replacement of old facilities;
- (c) Free land provided by the government;
- (d) Tax holidays, although profit may be low in the initial years;
- (e) An explicit subsidy over the initial years;
- (f) Low fees charged by government initially and then increased when debt repayments have fallen and income has risen.

Figure III gives simplified illustrations for a cash flow of a medium-term concession type contract with high initial expenditures and constant income. The annual profit or loss is the difference between the cumulative income and expenditure. Cash flows are adverse in the early years, with an annual operating loss which is financed by the concessionaire (but passed to consumers through tariff levels). The impact of various conditions on cash flow is shown, namely: an advance or sweetener compared with selling the assets through a bid price; change in income streams (plus or minus); cost saving on expenditures; delay in non-income generating expenditure; and extension of the contract period.

In some countries, where water supply and sanitation systems are in good working order and profitable, the respective governments may still wish to involve the private sector in future operations. A government may sell a franchise to the highest bidder (bid price). The payment boosts that government's annual budget income, and reduces the need for raising revenue through general and other taxation. Such an injection of capital into the budget can be politically attractive. The process is likened to "selling the family silver" or disposing of assets.

However, selling a franchise (with an upfront payment) can create a very unfavourable cash flow to the franchisee (figure III c). For sound commercial reasons, the amount that the franchisee will be prepared to pay at the start of the franchise may be rather low.

The ongoing financial viability of the franchise depends largely on the fairness and realism of the economic regulation process.

A franchise is the preferred mechanism for a close partnership between the public and private sectors, possibly with the setting up of a jointly-owned special project company (SPC).

Various franchise contractual arrangements and terms are in use. BOOT is similar to a BOT and its variants, except that the BOOT contractor also provides finance. An alternative term for BOOT is design-build-finance-operate (DBFO).

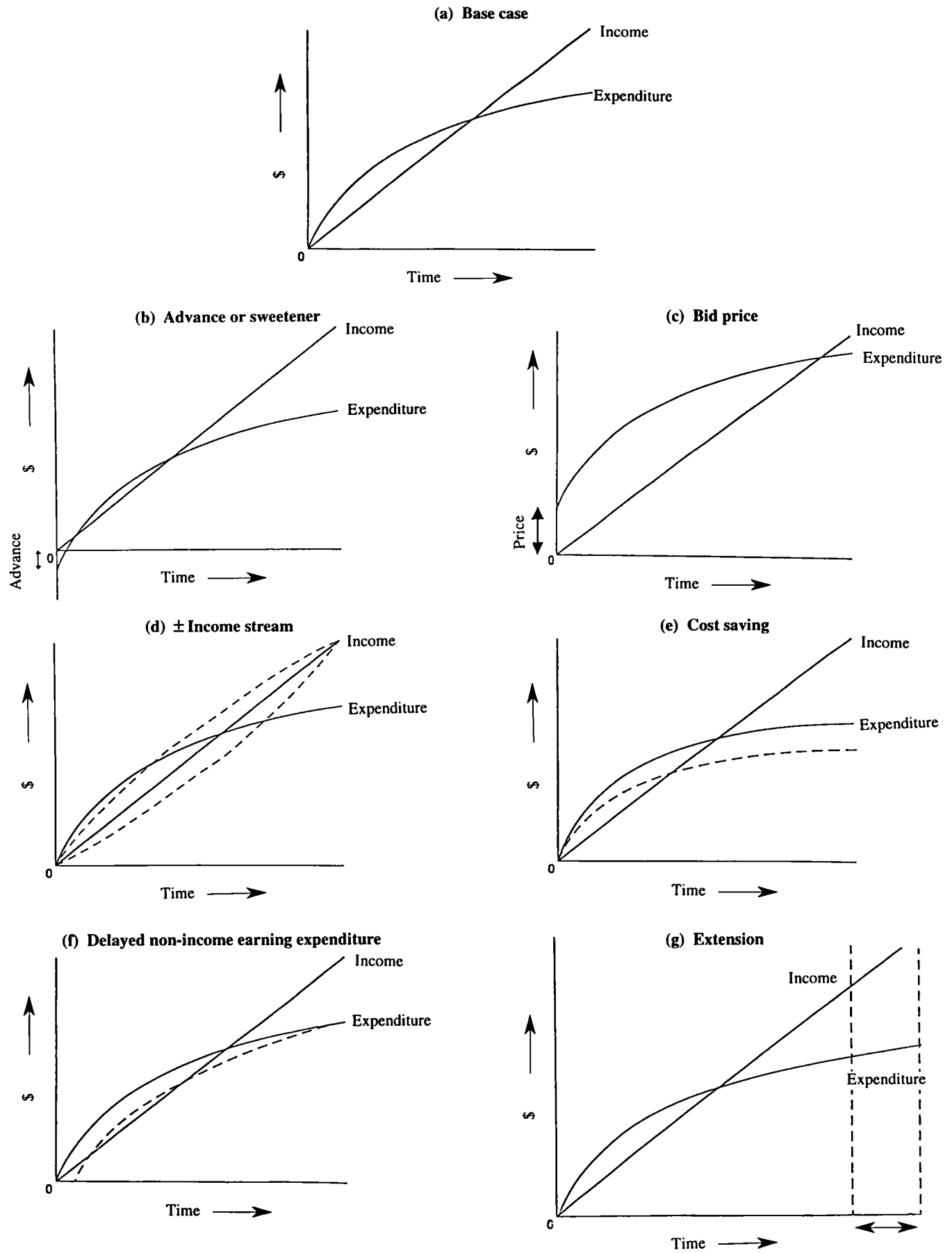


Figure III. Impact of finance on cash flow during a concession contract

1. Concession

The concessionaire finances the investment costs including replacement costs, agreed expansion costs and working capital. The concessionaire's revenue from consumers could be based on a pre-defined tariff formula to allow for agreed costs of running the system (price cap) or on a return on investment (rate of return), or a combination of these methods (see chapter XII). The government may still provide a subsidy in kind (by providing the existing works free of charge) or cash. It may or may not seek to recover those costs through tariffs.

At the end of a contract of 20 or 30 years, the concessionaire must hand over the system in good order. The concessionaire should either have been paid in full for the infrastructure provided or compensated for the residual value of the facilities. This aspect can be particularly important for any items constructed within the final few years of a concession. The concessionaire will wish to be compensated through tariff levels for the difference between the original construction cost and financing costs, and any residual value paid by the government at hand-over. It is unlikely that the concessionaire will be able to obtain funding that will extend beyond the end of the concession, especially when the concessionaire is a joint venture of various companies formed specifically for the purpose and dissolved at the end of the concession.

If the residual value of recently constructed assets is assumed to be low at hand-over, a higher tariff would be necessary than in a case where a higher residual value were allowed. On the other hand, the asset probably has no intrinsic market value because it can be used for no other purpose than originally intended. A water pipeline has no other use than to carry water, but an office or workshop could be sold for use by other concerns than the water or sanitation utility. The value of a dedicated asset is its capacity to earn income which, in turn, depends on the level of tariffs. Therefore, most infrastructure in water supply and sanitation cannot be valued except by its capacity to be operated profitably. Book values allowing for depreciation do not reflect earning capacity unless they themselves are used as the rate base on which to calculate a rate of return.

The potential problems that can arise on hand-over, at the end of a long concession, are not usually addressed thoroughly when the concession is set up. This may be reasonable, as conditions are likely to change drastically over the duration of the project. However, in a competitive bid for a concession, some firm guidance should be given on the procedures that will be employed. This is particularly critical as the main profit is usually made over the final few years of a concession (see chapter VIII, section C).

The approach to setting up concession contracts in Manila, Philippines, is described in box 4.

2. Build-own-operate-transfer (BOOT)

A BOOT contract is very similar to a concession. It is used for the provision of capital works where finance comes entirely or mainly from the contractor, who then earns his return through operation over a period of years. Generally, this mechanism is used where a large new facility is to be purpose-built, such as a water or sewage treatment works. Residual value is not relevant in such cases as the operation period is long enough for the capital costs, debt repayments, equity earnings and profit to be recovered from income.

The income earned can be based on a variety of arrangements, ranging from a fixed annual fee (i.e., flat rate) to the measured quantity supplied (i.e., unit rate). However, as demand may be uncertain, the fairest, most equitable and cheapest arrangement could be a "take-or-pay" contract where the consumer pays an agreed amount for any quantity up to a specified level so that a minimum income is assured for providing a certain quantity. Higher supplies could be charged at a lower unit rate, reflecting the lower marginal cost of supplying additional water.

In a conventional BOOT contract, income would be earned by selling water to one bulk buyer (the public water utility) or a limited number of large consumers (industrial supply). A concession would be used where the intention is to serve numerous individual consumers (urban supply).

BOOT contracts (or BOT with finance) are the main means of providing infrastructure components that can be built and operated relatively easily as separate entities, and where financial constraints prevent a government from carrying out the work itself. The cost of the facility is repaid over a period of years, thereby avoiding temporary cash shortages for the government. The mechanism is attractive politically as it provides a facility at little or no direct cost to the government and with deferred payment terms.

Alternatively, a build-own-operate (BOO) contract can be used. The BOO contract has a specified duration but the assets are not transferred to government when it expires. At that time, either the current arrangement could be renewed or the responsibility could be passed to a new operator. This may be advantageous where the value of the facilities would normally

Box 4. Privatization programme for water supply and sanitation services in Manila, Philippines*

In view of competing demands for scarce public funds, the Government of the Philippines decided that the private sector would be tapped to provide the capital funds and to introduce improved management practices at the Metropolitan Waterworks and Sewerage System (MWSS) serving the Metro Manila area. The response from potential local and foreign investors and operators was very high. About 50 investors expressed keen interest in participating. The reasons for this extraordinary response are examined here with a view towards learning from this experience (see also boxes 10 and 11).

The Metropolitan Waterworks and Sewerage System

MWSS is a government-owned public utility which was established to provide adequate water supply and sewerage service to the Metro Manila area. Its current service area consists of eight cities and 29 municipalities with an estimated total population of 10.5 million (1994). The service area population is growing annually by about 300,000 persons (3 per cent).

MWSS currently produces about 3 billion litres a day of potable water serving about 68 per cent of the target population, while sewerage facilities are provided for only 7 per cent. In 1994, the water supply deficiency was estimated at 700 million litres a day. To address production deficiencies, an estimated investment of about 44 billion pesos (US\$ 1.68 billion) in new facilities will be required by the year 2003. The 1995-2000 programme to reduce non-revenue water (NRW) will require 16 billion pesos (US\$ 610 million) in capital expenditures. NRW is estimated at 52 per cent (April 1995). The current financial condition of MWSS appears to be healthy; however, its annual net income has been on the decline in recent years. Fixed assets, which account for about 81 per cent of total assets, were financed from equity or long-term liabilities. MWSS maintains about 8,000 employees.

The MWSS privatization plan

The concession option similar to the concession for Buenos Aires was selected to be the most appropriate model to follow. The service area was divided into two concession zones: east and west. The sizes of the zones were deemed sufficiently attractive. Bidders were required to submit proposals for both areas; however, different bidders were selected for each area. In the MWSS case, no government guarantees were offered to potential investors.

The International Finance Corporation (IFC), the private sector lending arm of the World Bank, was appointed as the external adviser to MWSS. To a large extent, IFC participation served as a guide for MWSS and lent more credibility to the process. Consultants were recruited to prepare the initial technical and financial studies and formulate the privatization plan.

* as of October 1996.

Contributed by: Wilfrido C. Barreiro, Consultant, Manila, Philippines.

be charged to the public sector account if they were handed over to government at the end of a fixed operating period. In a BOO concession, the facility would remain in the private sector although the ownership could change.

E. Full private company

In England and Wales, the water supply and sanitation services have been transferred from public utilities to private companies, with their shares quoted on the stock exchange (see box 5). This arrangement involves transfer of existing assets from the public to the private sector, referred to as divestiture.

Under a divestiture option, the private company purchases the right to operate the public services and compensates the government by purchasing the existing works and assets. The valuation of the assets will reflect their condition and adequacy to serve future needs and their potential earning capacity within the regulatory framework. In England and Wales, OFWAT (the economic regulator) assessed the value of the assets on transfer as the valuation of the shares in the company soon after flotation. This has been used as the rate base for fixing tariffs on the basis of rates of return and price caps (chapter XII).

Box 5. The process of water industry privatization in the United Kingdom (England and Wales)

The Water Act 1973 brought the functions of water supply, sewerage and sewage disposal in England and Wales into ten Regional Water Authorities. While these authorities were not a nationalized industry they were still effectively subject to the Treasury's Public Sector Borrowing Requirement. The mid 1970s to the early 1980s were a period of severe strain for the economy in the United Kingdom and, as capital spending in the water authorities became limited, their performance deteriorated.

The privatization process

The Water Authorities and Government began to explore a range of possibilities to improve the situation and in May 1987 it was announced that a decision had been made to transfer to the private sector the functions of water supply, sewerage and sewage disposal, with the regulatory and river management functions of the authorities to remain in the public sector and to be taken over by a new National Rivers Authority (NRA), now part of the Environmental Agency (EA).

The Water Act 1989 established the NRA as a new body and provided for the appointment, by licences, of public limited companies (PLCs) as water undertakings in England and Wales. The newly restructured undertakings took over the water and sewerage functions of the old authorities. Water PLCs were floated on the stock market in late 1989. The Government adopted the asset-sale format for privatization – selling assets wholly to the Water PLCs, which then became owner, investor, operator, setter of prices etc.. The Water PLCs were given a clear responsibility to meet their performance obligations from their own resources.

The rationale for privatization

A central feature of government policy in the 1980s was the privatization of publicly-owned assets. Privatization was seen as the means of bringing about important goals such as reducing the size of the public sector, extension of share ownership, efficiency gains (by unleashing market forces) and the introduction of consumer choice. Privatization would also allow the freeing of enterprises from state control so that decisions were taken for sound business reasons.

An additional consideration was the growing need to finance the large investment programme being dictated by the European Commission's 1976 and 1980 Directives on the quality of bathing waters and of drinking water. In order to meet the necessary standards, considerable infrastructure improvements were required. In the public sector, the Regional Water Authorities were restricted in the level of investment they could carry out by the external financing limits imposed by the Treasury. Privatization, it was argued, would free the water industry from these restrictions, allowing water companies to increase their levels of loan capital. In addition, shareholders would act as a new source of equity capital.

Annual charges

To assist the Government in setting the formulae for charges to customers, and hence of income following privatization, the water authorities were required to prepare Asset Management Plans (AMPs) which set out robust estimates of the costs of meeting their long-term obligations. This formula took the form of $R + K$, where R is the retail price index and K is a factor decided by OFWAT, the Government Economic Regulator, which was established under the Water Act 1989.

OFWAT announced a periodic review of the charging mechanism after five years; this involved the companies in extensive preparations for their second asset management plans referred to as "strategic business plans" (SBP) which, as in 1989, were audited and certified. The result of the review was the setting by OFWAT of revised K -factors which took effect from April 1995 and which are to be effective for 10 years, unless OFWAT or the water companies again call for another review after five years. The estimates of both capital and operating expenditure contained in AMPs and SBPs were audited by independent Certifiers engaged by the water companies.

The structure of water service PLCs

The Government has provided for a company structure that allows for "enterprise" activities alongside regulated, statutory activities. A three element company structure now exists within which companies can operate. At the top, the company quoted on the stock exchange is little more than a holding company for a group. Each group has the water

Box 5. The process of water industry privatization in the United Kingdom (continued)

supply and wastewater service company subject to regulation as a monopoly carrying out “core” activities and a separate sub-group comprising any number of subsidiaries carrying out “enterprise” activities free of regulation and governed only by the laws applying to all commercial companies.

All 10 water and sewage service PLCs have adopted this company structure.

The continuing role of the Government

The Government, in the form of the Secretary of State for the Environment, exerts control over the water PLCs and has overall responsibility for the obligations placed on the water industry and how these obligations are implemented. Control is exerted through the following regulatory mechanisms:

- **Water quality:** The Secretary of State, through his Drinking Water Inspectorate (DWI), regulates the quality of water supplied by the companies. Any deficiencies in this area require the companies to enter into formal undertakings with DWI to put the deficiency right in the shortest practical time;
- **Environmental:** The prime regulator in this area is the Environment Agency (EA) which controls discharges to the water environment through specific consents and is also responsible for granting licences for the abstraction of water;
- **Economic:** OFWAT regulates the amount that companies may charge for their services, while also remaining responsible for ensuring that the companies’ charges are reasonable, and that prudent and efficient companies can remain financially viable.

Contributed by: Roger B. Sawdon, Chief Engineer, WS Atkins International Ltd., United Kingdom.

Levels and standards of service, economic efficiency and levels of profit are controlled by one or more regulatory bodies covering the interests of customers, the government, the private company and the shareholders. OFWAT has developed a comprehensive system of reporting by each company which allows the regulator to monitor the implementation of agreed improvements and to ensure that levels of expenditure are consistent with the allowances included in the permitted tariff adjustments.

The transfer of assets from public to private ownership is the maximum degree of private sector involvement that can be achieved; the procedures involved have to be most thorough to avoid creating an unfair arrangement, which would not be in the interests of consumers. The procedures were evolved over a number of years during preparations for the privatization of the English and Welsh water and sanitation utilities; these procedures are still being refined as experience is gained and tariffs are controlled more closely.

The water and sanitation sectors in England and Wales were two of many public sector operations which were privatized during the 1980s and 1990s in the United Kingdom. Much experience was gained through procedures used in other sectors, not least of which was the generation of greater interest from the general public in owning even a few shares in those private companies which were running public services.

Flotations on the stock exchange were over-subscribed and shares were allocated in favour of small investors. Those members of the public who applied for a few shares received a full allocation, whereas others seeking larger blocks of shares were allocated severely reduced amounts or none at all. Preference was also given to investors buying shares in those companies that supplied them with services, thereby increasing the interest of the consumers in the performance of “their” company. The spread of share ownership to small investors in relatively safe companies was a deliberate government policy towards creating an enabling environment for the privatization (chapter V, section B).

The management of private water and sanitation companies has to balance the interests of shareholders and consumers. The financial strength of such companies is reflected in the share prices. In turn, the share price reflects the expected earning capacity and the dividend that each company will pay periodically to shareholders. The companies fund new capital works partly by borrowing. If the shares fall in value, the capacity of the company to borrow is reduced. It is in the interests of consumers for the company to remain sufficiently viable, financially, in order to meet its borrowing needs. It is in the interests

of the shareholders that the dividends are generous. Therefore, up to a certain level of profitability, the interests of consumers and shareholders coincide. However, if profits and payouts are excessive, the consumers feel that they are being over-charged for services and that the shareholders are being over-rewarded for investing in relatively safe companies providing a monopoly service. This criticism is strongest where company chairmen and top directors receive substantial bonuses based on profitability, especially if they are in the form of future share option allocations which would become more valuable should share prices rise.

Many major benefits have resulted from the privatization of the water and sanitation industry in England and Wales, including a large increase in investment (from outside government) to meet increasing standards of water supply and sewage disposal; the introduction of modern technology including extensive automation leading to greater efficiency (cost savings); and an improved relationship with consumers who are now treated as customers whose wishes should be heeded.

F. Regulation

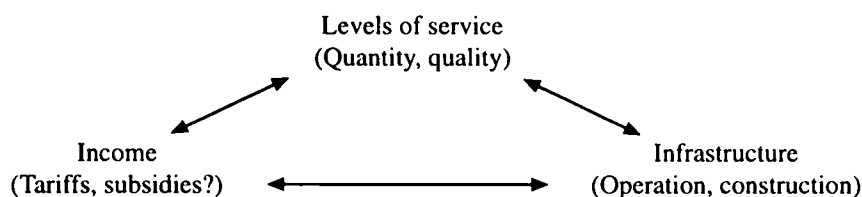
The benefits from the privatization of the water and sanitation industries in England and Wales have been achieved with constructive control through economic and quality regulation of the industry. Although the complete divestiture of water supply and sanitation services may not be the option which should be chosen initially in the Asian and Pacific region, many of the lessons learned from regulation in England and Wales, and the procedures devised, certainly do have direct relevance to any type of private sector involvement in a public service (chapter XI).

An effective regulatory framework should be established and applied, irrespective of the procedures for involving the private sector in a public service. In fact, independent and transparent regulation would be beneficial even when these services are provided from within the public sector.

IV. REQUIREMENTS FOR WATER SUPPLY AND SANITATION UTILITIES

A. Sector strategy

A water and sewage utility operates within a triangular set of parameters with strong interrelationships and complete inter-dependence:



These parameters, which apply to both water supply and sanitation, are constrained by factors described in box 6.

Box 6. Development constraints

In an ideal water utility, a balance needs to be obtained between levels of service, tariffs and infrastructure development (as detailed above). The situation for a particular location at a particular time would be a point on a series of curves similar to that shown in figure IV. These curves have the same vertical axis which represents the standard. The horizontal axes can be: time i.e., year; cost of services per year; wealth of the country (GNP); and affordability of consumers. In a balanced situation, the standard of service should plot at the same relative point on all the curves. If conditions change for the better and wealth factors increase then the level of service could improve over time, with an increase in costs. Achieving high standards can take many years and the tendency is to try to raise standards periodically. This approach will lead to higher costs and is only feasible provided that the country is wealthy enough for consumers to carry that cost.

Levels of service must meet acceptable standards in terms of quantity, form of delivery and quality. The standards may be set by the government but should reflect the current wishes of consumers (figure IV). If the service is below the standard required by consumers they may be unwilling to pay for it. They may delay payment, make illegal connections, and break or interfere with water meters.

In addition, consumers may make their own provisions for acquiring the water supply they want in their houses. These measures could include installing their own private wells, in order to ensure adequate water supplies where the total quantity delivered by a water service is too low. Where the water supply is intermittent, consumers may construct underground storage to collect water during delivery periods for pumping into their premises later. If the delivery pressure is low, suction pumps are installed to pump water out of the main up to higher floors. If the quality of water is poor, consumers may boil water or use bottled water. All these actions incur a significant cost.

Having spent their own money on improving the services, consumers are less willing to pay more for an improved service from the utility, such as increased quantity or longer hours of water supply. Therefore, a utility must try to maintain a level of service at which consumers will not install their own facilities. In a sample survey in Kathmandu, it was found that per capita consumption was similar if the duration of supply was 24 hours per day or 5 to 6 hours per day because, in the latter case, consumers had installed underground water storage tanks. However, where the supply was 12 hours per day consumers did not install such facilities but instead used less water. Presumably those consumers did not consider the additional investment to be worthwhile compared with the marginal improvement in service that they would receive.

Levels of service should be defined and agreed by representatives of consumers (box 7). The water utility users, or consumers, should become its customers.

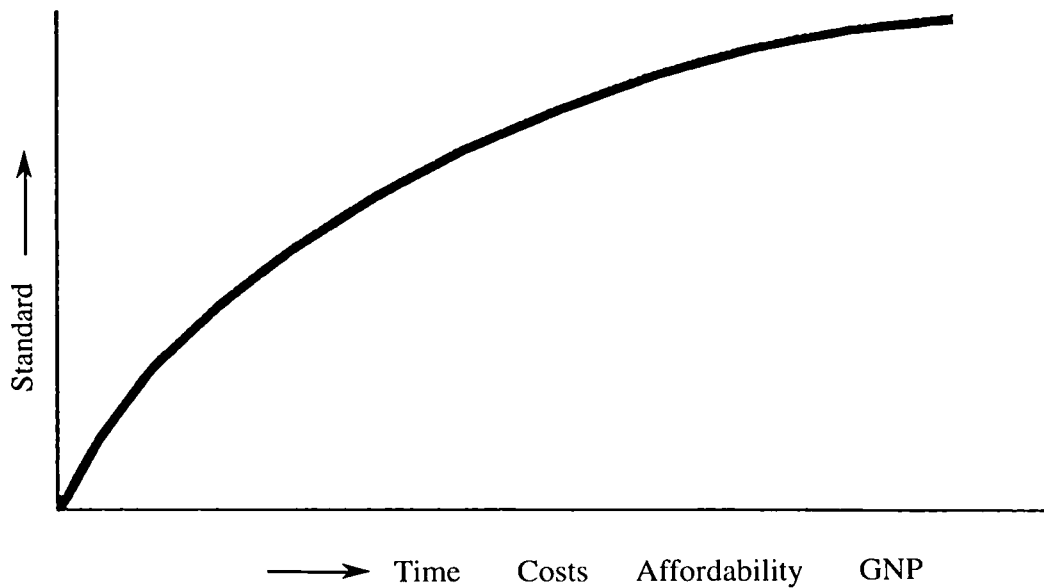


Figure IV. Operational parameters for a water utility

Box 7. Levels of service

Levels of service should be set out clearly and unambiguously. They should be agreed upon by all parties, including consumers, as being acceptable at the present time; however, targets for higher standards in the future could also be set out.

Levels of service targets for water supply should cover such factors as:

Quantity	–	Represented by pressure in a water pipeline at the property boundary. Note that for intermittent systems, the number of hours of supply per day should also be stated.
Reliability	–	(a) Frequency of unplanned interruptions to water supply;
	–	(b) Frequency of restrictions in supply, for example, prohibition of certain uses such as garden watering during a drought;
	–	(c) Flooding from sewers.
Quality	–	(a) Compliance with agreed standards for bacteriological water quality and chemical content affecting health;
	–	(b) Compliance with aesthetic parameters.
Administration	–	Speed of response to complaints.

Infrastructure must be adequate to deliver the levels of service required, and the service provided should be good enough to prevent consumers deciding to make their own investments in improving the water supply within their premises. The funds for providing and running the infrastructure efficiently must come from the revenue earned by the company, its financial standing and its capacity to obtain private or government loans.

Income earned by the company must be sufficient for it to operate efficiently, maintain assets and undertake expansion in order to properly serve more customers. Customers are prepared to spend only a certain amount to obtain the water service they want. The level is related to their incomes, i.e., the higher the income, the more people will be prepared to spend in absolute terms. It is generally accepted that a reasonably comfortable level of expenditure on water supply and sanitation is between 3 and 5 per cent of household income. Consumers will use the money either to buy water from the utility or, if the service is not adequate, to install their own facilities, or a combination of both. In a simple example, if the water supply is intermittent, consumers will store water in their houses so that they can have water all day. The cost of providing such storage is significant and reduces the willingness of consumers to pay for the inadequate piped supply.

It is critical for the utility to provide and operate the infrastructure in a way that will deliver the full level of service which consumers want, and are willing to pay for. This will make it unnecessary for consumers to spend their own money on other supplementary water facilities. The utility can then charge the full amount that consumers should be willing to pay for water and sanitation out of their income.

B. Management

The ultimate objective of management is to maximize the earning capacity of the company by providing the right service at a fair price which, in turn, will allow it to continue to operate efficiently.

However, the price level at which a company can levy a charge is normally controlled by one or more separate organizations. This is because water is a basic need for survival and public health. Also, a conventional supply through pipe networks creates a natural monopoly which does not allow any real competition.

In order to earn adequate income through charges to consumers, the utility has to be able to justify its future tariffs (whether they are kept constant, need to be raised, or even lowered) to a number of bodies including some or all of:

- (a) The board of the utility;
- (b) Local government;
- (c) Central government;
- (d) An independent economic regulator.

The water supply organizations should be able to:

- (a) Set future levels of service (preferably with steady improvement);
- (b) Plan and implement the infrastructure development needed to meet the targets;
- (c) Calculate the income required to run the system efficiently.

These factors should be set out in the form of a commercial business plan in which each element is properly balanced. Clearly, the better the case that is made for future income levels and tariffs, the more likely it is to gain approval.

C. Commercial business plan

Ideally, a business plan for a water or sanitation utility should cover 10 or 15 years in total, with greater detail for the first five years. It should give equal emphasis to the organizational and operational aspects as is given to finance and infrastructure development. Linkages and dependencies between the departments concerned should be shown.

Tariff rises should be timed to coincide with improved services or the promise of such improvements in the immediate future. The levels of tariffs would be negotiated using the business plan as a clearly defined and justifiable starting point. The utility should accept that because the approving organization may wish to limit tariff rises for political reasons, some cost-saving measures will also be necessary. In extreme circumstances, the economic regulator may suggest short-term measures such as:

- (a) Making a short-term reduction in expenditures in order to reduce development costs (thereby probably delaying improvements in levels of service);
- (b) Borrowing more to cover a cash shortfall and to avoid an operational deficit (thereby increasing later financing costs);
- (c) Subsidizing from other sources (thereby smoothing rises in tariffs).

In the longer term, measures may be necessary to make the utility operationally sustainable such as:

- (a) Improving overall efficiency further by introducing cost-saving measures and economies, such as staff reductions (thereby reducing expenditures);
- (b) Alternative and, possibly additional charging methods that are acceptable to consumers. One such method could be the introduction of connection charges that include a surcharge as a contribution to overall infrastructure development, in addition to the actual cost of the connection (thereby increasing income);
- (c) Staged development of infrastructure with smaller, but more frequent, steps in expansion (thereby spreading expenditure);
- (d) A review of target dates for achieving improved levels of service and standards, especially with regard to those elements which do not contribute to meeting basic needs, and which are primarily aesthetic or can be considered as luxuries (thereby delaying achievement of higher, but non-essential, levels of service).

The consequences of any such revisions must be reflected in the business plan, together with their impacts on consumers.

Once the business plan has been agreed upon, the performance of the utility can be monitored relative to the three basic parameters: levels of service, the provision of infrastructure to provide the levels of service, and generated income to pay for them. These relationships should be explained to, and discussed with, representatives of customers.

D. Performance of the utility

The agreed business plan becomes the management tool with which to operate the utility. Its overall objectives are the goal of top management, but with clear allocation of responsibility to lower management levels for plan components. All staff should be accountable at their various levels of responsibility and encouraged to use their own initiative. The consequences of not meeting reasonable targets of service, together with the benefits of achieving a good service, are detailed in box 8.

This management process can be accelerated by incentives and penalties which should be introduced in a manner and at a rate which strengthen the organization, but which are sensitive to the local working culture. Techniques used in other countries under different situations may need to be adjusted for current local conditions elsewhere.

All employees of the utility need to be aware of the overall operational and development strategies within the business plan. Staff should clearly understand their roles and the need for positive interaction with other sections of the utility, in order to create a corporate approach to problem solving.

These objectives can be achieved within both the public and private sectors, but the stronger commercial attitude and greater flexibility of the private sector offer great advantages over the tighter but restrictive procedures in the public sector (box 3).

Box 8. Impacts of levels of service**1. Impacts of poor levels of service****(a) Consumers**

- Dissatisfaction with the service, leading to possible disruptive activities including non-payment of dues, water meter tampering, lack of response to measures of water demand management through persuasion
- Personal investment to obtain a better service, which reduces the willingness of consumers to pay for improved services by the water utility
- Major consumers in particular may establish their own alternative water supply and opt out of the public service or use less water, including the introduction of water recycling
- In extreme situations, industry and commerce may move away to areas where water supply is better and more reliable

(b) Utility

- Inefficiencies due to unbalanced or part operation, such as inadequate chemicals
- More difficult control and monitoring of systems, especially where the supply is intermittent
- Inability to raise tariffs because of consumer objections, therefore resulting in reduced income
- Poor publicity and lowered morale

2. Impacts of good levels of service**(a) Consumers**

- No need for personal investment
- Acceptance of higher charges for good service, especially if no personal investments have been made
- Attractive to new industrial consumers

(b) Utility

- Operating savings through full utilization of infrastructure and good monitoring and control achievable with a well operated system
- Confident future planning based on satisfactory operating experience
- Public support and better response during unforeseen water shortages and service interruptions

V. STAKEHOLDERS IN PRIVATE SECTOR INVOLVEMENT IN WATER SUPPLY AND SANITATION

A. Main stakeholders

Numerous stakeholders could be affected by the transfer of some, or all, components of water supply and sanitation services from the public to the private sector. Each stakeholder has at least one role when operations are within the public sector. Many roles will change on the transfer to the private sector. Some changes will be radical, whereas others may require no more than a change of emphasis or importance. Unless these adjustments are made, the success of any transfer could be less effective than what could be achieved, or even jeopardized completely.

The main stakeholders who will be affected are:

- (a) Government, central and local;
- (b) Managers;
- (c) Trade unions;
- (d) Employees;
- (e) Investors;
- (f) Bankers;
- (g) Consumers;
- (h) Community at large;
- (i) Regulators, for economic and service levels.

Many of the changes may need to be supported by new legislation and will be agreed upon only after lengthy discussions and negotiations. Generally, in the private sector, decision-making is decentralized and transferred to a lower level. Accountability increases. Communication and transparency should improve.

In this chapter, the changes in roles and emphasis are discussed, together with the positive and negative consequences that are often encountered.

B. Government

When water supply and sewage disposal are within the public sector, the government is responsible for providing the full service. It can decide on levels of service, investment programmes and tariffs within the government itself, without needing to account for its actions on a day-to-day basis. One test of consumer opinion can come at elections where unsatisfactory services could become a political issue. However, this is a very crude indicator as water supply is not usually a top priority for communities, provided that the water supply and sanitation services do not deteriorate rapidly. Consumers become used to a certain level of service, even if it is not very good. Only a dramatic and sudden change for the worse is likely to trigger significant complaints. This can occur during a drought, if rationing measures have to be introduced to conserve water reserves (box 9).

Box 9. Consumer reaction to shortages

One interesting result of privatizing the water sector in England and Wales shows that consumers are less willing to accept the same level of poor services from a private water company than when the water utilities were in the public sector. This applies particularly during droughts when consumers are asked to restrict their water use voluntarily and bans are imposed on using a hosepipe for garden watering and car washing. The belief appears to be that any under-investment by the Government will, at least, have saved some taxation, even if it was ill-considered. In contrast, a private company in the same position will be thought to have made excessive profit through savings in expenditure. The public response to requests for water conservation and restrictions on water use, is poorer and these requests can even cause an angry reaction. In fact, with proper regulation, investment plans can and should be designed to meet agreed levels of reliability of supply, with their inherent hydrological risks. Often the difficulty is to be able to explain why certain risks should be accepted by consumers, in order to keep charges low.

Water quality guidelines and standards are published internationally, for example, by the World Health Organization (WHO) and regionally, for instance, by the European Union and by national agencies. Considerable debate in Europe has centred on the cost of meeting newly introduced higher standards against the estimated benefits to be received. This debate is equally applicable to other regions, especially where the current levels of water quality are somewhat lower than those in the relevant guidelines. When operating within the public sector, the government itself can decide internally where to strike the balance between quality and charges. In Europe, a government may have to justify its case before the courts. A government may decide that standards will be improved steadily until the published targets are reached, but over an extended period. Once those same standards have to be met by a private company, more transparent control is necessary in defining the actual levels to be achieved (possibly with gradual improvement) and ensuring that consumers are getting what they are being charged for.

Therefore, when the private sector is involved, the government has to define targets more clearly, and it must establish a quality regulation system which gives confidence to consumers that they are receiving value for money.

The Government becomes a facilitator in meeting its desired policies rather than an implementer. This objective is often referred to as creating an “enabling environment” in which the private sector can operate at its best to achieve and provide the necessary levels of service. All other aspects of private sector involvement are directly related to the way in which this task is tackled. The greater the degree of private sector responsibility, the greater the scope and importance of aspects covered by the enabling environment; however, the interest of the private sector diminishes if deficiencies or faults in the enabling environment are detected.

Government policy for water supply and sanitation should be well defined. The policy may include a number of ways of running the sectors, which can be applied in different situations. For example, the approach in urban areas can differ from that in rural areas. Urban areas can be served most conveniently by piped water schemes run by a public or private utility which charges consumers for supply. Simple schemes in rural areas can be organized as a joint government and community activity, with shared implementation costs and with responsibility for day-to-day operation and routine maintenance of the system with the community itself (chapter X). Disputes arise where policies are not clear, especially if some stakeholders think that by objecting they will be able to alter decisions in their favour.

Factors which will contribute to an ideal enabling environment include:

- (a) Political stability and general political agreement on strategy. The private sector will be cautious if opposition parties threaten to renationalize the sectors handed over to the private sector by their predecessors. The more successful the private sector operation, the less likely that it will be transferred back to the public sector. The threat of renationalization may initially lower private sector interest, or require the government to counter the potential threat by offering larger incentives to the private sector, in order to generate its interest. However, once the private sector has established itself, the threat of renationalization for poor performance can be an incentive to improve and maintain good services;
- (b) Well-developed infrastructure and services in other sectors will enable the water and sanitation sectors to operate properly and will provide reasonable expectations, for example, of a reliable electricity supply (to avoid the expense of alternative or standby power sources), uninterrupted supplies of chemicals and reliable labour;
- (c) A clear distinction between commercial aspects of water supply and sanitation and the social aims of the government, such as providing a minimum service to meet the basic needs of poorer consumers. These social aims should be achieved by providing direct assistance from the government to consumers in other forms. The water utility should be paid its normal charges in full;
- (d) Sound overall economic policies which are likely to avoid excessive unforeseen conditions such as high inflation (especially if this is not reflected in official cost indices), large exchange rate fluctuations, general labour unrest and disruptive procedures for raising wages, and restrictions on imports or high customs duties;
- (e) Effective legal mechanisms for establishing private entities and for settling disputes rapidly and at reasonable cost. For example, India has set up a national arbitration authority rather than referring cases to international arbitration bodies. This new national arbitration body may need to be tested before gaining full acceptance by international private organizations;
- (f) Effective regulation mechanisms with guidelines from the government for levels of service and economic aspects. The regulation process should be transparent and independent of government interference;

- (g) A private sector which is adequate for the level of responsibility that is being transferred to it. This is important, especially for the countries in transition from a central command economy to some form of market economy;
- (h) A well-developed capital market and financial institutions, especially when local funding is required from the private sector;
- (i) Consumers who are informed of the services that they should receive, and who may have organized themselves into water user groups or something similar as a means of expressing their interests.

Ideally, all these factors should be met in order to ensure the most effective private sector involvement in water supply and sanitation. Any weakness, or lack of some or all of these factors, may initially limit the scope for transfer from the public sector. Many of the factors will develop as a direct result of greater involvement of the private sector. For example, in England and Wales, the development of economic regulation and the evolution of reporting techniques have taken place mainly since the privatization of industries. In Buenos Aires, the regulator was established soon after a 30-year concession was let, but the rules and methodologies for regulation had been already established and set out clearly within the contract documents.

The steps taken by the Government of the Philippines to establish an enabling environment are detailed in box 10.

If conditions are attractive, the private sector will develop and expand itself in order to take the opportunities provided by the government. Consumers are better informed through a transparent privatization process and will take more interest in tariffs and levels of service. Publicizing performance standards can discourage unreasonable or excessive exploitation of the natural monopoly situation.

Box 10. Confluence of factors and events promoting the attractiveness of the MWSS privatization plan in the Philippines

The ongoing privatization process in Manila may be viewed in the context of the general resurgence of economic growth in the country. Private sector participation, *inter alia*, is a public policy enunciated in the Medium-Term Philippine Development Plan. The pace of development has put a strain on infrastructure and the environment in general.

During the 1980s, the Government was actively engaged in many areas of production and services which competed with (and, in most cases, frustrated) the private sector. The initial attempts at privatization directly competed with the private sector, and usually involved selling off assets. Another significant area of policy reform focused on deregulation and "levelling of the playing field", and the removal of cartels. The successes met in those initial attempts laid the foundations for reforms in the other traditionally government-provided services like power, transportation and water supply.

Legislative and executive measures have been passed. Republic Act 6957 (the BOT Law) was enacted, and was enhanced by Republic Act 7718 in 1994. The law now includes variations to the standard BOT arrangements (with finance), sets the conditions for unsolicited BOT proposals, and has improved access of BOT proponents to overseas development assistance funds and such other enabling provisions. In addition, the Omnibus Investments Act provides incentives for certain types of investments. In 1992, a water sector reform study was completed, calling for rationalizing and restructuring the sector and emphasizing the gains which could be achieved with increased private sector participation.

With increasing concern over the water resources situation and the slow construction of water facilities, the Water Crisis Act (1995) was passed; the Act granted wider powers, but for a limited period, to the President for addressing the water supply issues, including the entry of the private sector into water utility activities. Those powers have generally not been used; rather, the major impact was to impress upon the public the gravity of the water situation and to focus on new and creative solutions, such as privatization. It should also be pointed out that previous success with various BOT projects in the power sector aimed at addressing the "power crisis" that crippled the economy in the early 1990s, to some extent created public confidence in private sector participation as an effective approach. Political support for MWSS privatization is generally high (see also boxes 5 and 11).

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C. Managers

The role of managers in the private sector is commercially orientated. Salaries and incentives may be high to compensate for additional pressures and risks, and loss of security compared with the public sector. Managers will be accountable for their actions.

The corporate attitude to consumers should be more businesslike, with greater incentives to provide the service that consumers want. In England and Wales, the privatized sector refers to users or consumers as “customers”, in order to change the orientation of the companies from providing a certain level of service at a given price to providing customers with what they actually want.

In practice, it is not possible for each domestic consumer to choose a particular level of service at a particular price because of the method of water distribution through a single pipe system, serving all those in a particular area. Often the service is well below that required by consumers (for example, intermittent supply hours) and they make their own improvements by installing water storage facilities in their houses. Where the water supply is metered, consumers can restrict usage if they wish or, conversely, they can pay for water they use for non-essential purposes, such as garden watering.

Management in the private sector should have greater flexibility in striving to meet the needs of consumers. In Kathmandu, the cost of installing household storage tanks and pumps in areas of infrequent supply amounted to a four-fold increase in the cost of water to households compared with that charged by the water utility. By utilizing this extra investment, an intermittent supply in the public system was converted into a 24-hour supply in houses, which is what the consumers actually wanted and for which they were prepared to pay. A substantially higher tariff can be charged if the level of service can be raised to make these investments by the householders themselves unnecessary. This would be an objective of private sector management.

One of the most important roles of management is to be able to prepare and justify a commercial business plan which will support future capital investment programmes, establish the level of adequate operation and maintenance funds, and justify tariff levels. The plan should be prepared in detail for at least the first five years and in outline for 20 years. This approach, in turn, requires sound basic data on operational aspects such as leakage levels, the condition of the infrastructure (particularly underground assets), maintenance needs, water resources, and operational strategies to meet possible, but rare, events such as severe droughts or failure of key infrastructure components.

D. Trade unions and employees

Government employment terms are generally fixed centrally and are uniform over many different organizations and areas. Job security is good, and staffing levels are high. However, staff mobility is low, so that advancement depends on retirement of senior staff. Promotion is often controlled by a rigid system of seniority rather than achieved through the demonstration of ability. Incentives are low or non-existent. Independent action is not encouraged and is often restricted by rigid scales of responsibility and authority, with little delegation to middle management grades. Bureaucracy governs the pace of development, which can be extremely slow. All these government procedures are measures which were originally intended as safeguards and guidelines to minimize the risk of errors, but they are not so appropriate where major or rapid changes are required. More and better information is required in order for rapid processing to provide up-to-date management information.

The private sector has more flexible employment terms and can offer a range of incentives to employees, either directly or through their representatives from the trade unions. In exchange, private sector employers will probably require significant reductions in manning levels, greater skills from their employees, and the abolition or phasing out of any outdated restrictive practices in task allocation and staffing levels.

In some countries, trade unions have tried to safeguard the employment of the full existing work force in the short term by including agreements in private sector contracts that staff will not be reduced within a given period of, for example, one year after transfer to the private sector. This arrangement is of limited real benefit to the community because the cost associated with it will be included in any financial deal and passed on to consumers through higher tariffs. More importantly, it may be a factor which discourages the private sector completely because it suggests an inflexible approach by labour. This could create problems for future attempts to improve staff skills through training as a more skillful labour force could also lead to reductions in staffing levels.

Labour safeguards restrict the ability of management to increase efficiency as soon as possible by developing a smaller but better trained and more productive work force, using an appropriate level of labour-saving automation. Pay levels should rise to reflect new skills, higher productivity and better outputs. Although staff levels may be reduced, the average income per

employee should rise. Any redundant staff should be given compensation in accordance with specified norms so that the cost of staff reductions can be evaluated by the private sector.

An alternative which has been used in Latin America is for the government to give all public sector employees at the public utility to be privatized redundancy severance pay before the hand-over to the private sector. The new private management can then: (a) select the number of staff that are to be taken on to carry out new duties; (b) specify the skills needed; (c) arrange training to achieve those skills; and (d) negotiate the new terms of employment.

In order to gain the full support of employees, it is crucial to safeguard the labour force from dismissal, without fair compensation, during any staff trimming. Any contract documentation should also make clear the duties of the new private sector employers. In particular, it should detail any agreements that the government may have made with existing employees, prior to privatization, concerning possible re-employment terms with the new employers. The process of negotiation, or bidding, for a private sector contract would normally include statements on the future employment terms to be offered.

The approach to involving management and labour in the privatization process in Manila is described in box 11.

Box 11. Investor support activities for MWSS privatization in the Philippines

As a pioneering effort in introducing private sector participation in a major water supply system, the MWSS case has a strong modelling effect on other cities in the country. A careful and transparent strategy was laid out. Taking a marketing stance, the Government recruited an international public relations firm to carry out an information dissemination campaign. An MWSS data room was established to serve as a one-stop office where all relevant technical and financial information was made available to all potential investors.

Investor confidence was boosted by the support shown by both labour and management of MWSS. The generally positive attitude can be traced to several factors. Orientation workshops were held for policy-makers, managers and labour representatives, and were attended by MWSS and other water utilities staff. The discussions presented experiences in other countries. Separation and retirement packages were prepared for employees who chose not to work with the new concessionaire or who were not offered a position under the new arrangement. A field visit to Buenos Aires (Aguas Argentinas) was organized to observe, first hand, the impact of privatization on operations, staff and service delivery.

Investors generally believed that a viable, practical technical solution was possible. Many investors sensed that if they could do something about the non-revenue water (NRW) supplies, the operation would be profitable.

Local newspapers carried numerous articles and series, which ranged from simple explanations and illustrations to highly technical analyses of the overall water supply situation, addressing audiences in all income brackets (see also boxes 4 and 10).

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E. Investors and bankers

The financial partners in private sector operations will look very carefully at the risks involved. Generally, a private sector operation should be set up so that risks are minimized and allocated to those who can handle them best, or shared where they affect various stakeholders (chapter VI).

Financiers will not give support if they consider that the overall investment is too risky compared with the returns that can be expected. If the risks are acceptable, but on the high side, they will at least expect a high potential return and profit.

The piped water supply and sewerage services are natural monopolies, in that it is not easy for others to provide the same service to all consumers through an alternative system in direct competition. However, certain activities of water supply and sewerage services may be more attractive than others, such as services to major industrial consumers and hotels. Separate individual schemes, serving individual major consumers and based on dedicated sources, could be possible where adequate groundwater is available locally. Generally, a private sector operator covering a large area should be safeguarded against competition trying to serve a few of its more desirable consumers.

Once the monopoly is preserved, profitability depends not only on the operational efficiency of the private sector company but also on the tariff levels that the regulator will allow. The robustness of the regulation system is a key element in the assessment of financial risks and the economic viability and bankability of a project.

Normal market considerations, such as the strength of the competition, do not arise in a protected but regulated monopoly situation. This eliminates the commercial risk so that an acceptable return on investment should be about the same as that provided by safe government bonds. A return of a few percentage points over the inflation rate would be reasonable. That percentage would then be the return that is earned in real terms.

Financiers may seek some form of government guarantee that contractual conditions will be met. This particularly applies where the private sector is selling a product as a monopoly supplier (for example, treated water) to a bulk buyer in the public sector (for example, to a water distribution company), who is probably also a monopoly buyer. The government may be asked to give some form of payment guarantee if the risk of default on payment of dues is considered excessive, or where redress through normal legal processes would be lengthy and expensive. International donors may also provide guarantees in the event of failure of government safeguards. Generally, where such guarantees are required, it indicates a lack of confidence in the enabling environment. Guarantees are a palliative to, rather than a cure for, a lack of mutual confidence.

F. Consumers and the community at large

Consumers are not very sensitive to the levels of service that they receive unless conditions deteriorate to the level of virtually no service at all.

Consumers become accustomed to the conditions that they experience on a daily or frequent basis, especially as they do not normally have the opportunity to compare their service levels with other better or worse situations. They become used to their current conditions and to current charges for water and sewerage, and consider them to be “normal”, at least for the current levels of service. In many countries, charges levied on domestic consumers utilizing the public water supply are much less than the costs involved. The deficit can be made up partly by a direct or indirect subsidy from the government or by a cross-subsidy from commercial and industrial consumers. Domestic consumers may resist higher charges either directly, by complaints or disruptive actions, or by passing signals through their political representatives. In some countries, the politicians themselves are responsible for fixing water tariffs and they try to keep charges low, sometimes unreasonably low.

An historically underfunded public utility, which is providing a poor water supply, and which is forced to use low tariffs, is not attractive to the private sector because of the risk of political influence against charging more realistic rates.

Where water supplies are poor, most household consumers make their own provision for improving the domestic service by increasing the availability of water through on-site storage; they may also improve water quality by boiling. They are aware of the additional costs of those operations and are normally willing to pay more for an improved service which will make those additional expenditures unnecessary.

Awareness promotion programmes and real improvements in the standard of service will encourage greater willingness among politicians and consumers to face higher tariffs. Unfortunately, the acceptable upper limit of tariffs cannot be predicted with certainty; however, regular small percentage increases (for example, annually) cause less adverse reaction than infrequent but larger percentage increases (for example, every five years). Consumer groups or associations can assist in planning increases in levels of service and also in explaining to their members the reasons behind the inevitable increases in tariffs.

Tariff structures should also be reviewed with all types of consumers. Major consumers may argue that their tariffs should be relatively lower than tariffs for domestic consumers because of economies of scale. However, in many areas, industrial and commercial consumers are often charged a much higher unit rate than domestic consumers.

G. Regulators

The regulatory framework is an essential element in administering the monopoly situation in the water supply and sewerage sector. Levels of service must be specified, including such elements as quality standards, quantity and delivery conditions, reliability and administrative speed. These parameters are most effective when applied as targets which are to be achieved over a period of time, through a gradual improvement in services. A requirement for 100 per cent compliance with targets can initially be achieved only by setting more modest targets which are then raised progressively. Allowing for some failures and a gradual improvement to a higher level is likely to give greater flexibility and more efficient development.

Clearly, the relationship between levels of service and charges is fundamental to responsible regulation. Setting a high standard of services will lead to high charges. Imposing penalties on the private sector for non-compliance strengthens its case for better infrastructure or more expensive operation and, therefore, higher tariffs.

The regulator should not become involved in the day-to-day operation of any private company; that is the role of the management of the company. The regulator should monitor directly or indirectly the levels of service and compliance with the contract terms, and advise the government or others who set quality parameters of the possible financial impacts on consumers of raising standards.

The economic regulator may be a different entity from the quality regulator(s). In England and Wales, the economic regulator, OFWAT, is separate from the Drinking Water Inspectorate (DWI), which reports on compliance with drinking water quality standards, and the Environment Agency (EA), which includes within its many duties the monitoring of quality of treated effluent discharges.

The quality regulators should be complementary to the operating companies, acting as an independent checking organization; however, this does not necessarily mean having to establish a separate large laboratory network. Each operating company should monitor all its operational processes in order to check that they are working as intended and to adjust them for changing conditions. The results are needed quickly as part of normal operational control and management information, and they must include the quality of the final product. Independent checking and monitoring does not necessarily mean taking and analysing many samples. Because of the scale of testing by the operators, quality monitoring can consist of checking the procedures and professionalism of the laboratories run by the water and sanitation utilities, and then analysing trends in the results obtained by the utilities themselves.

VI. THE APPROACH TO RISKS

A. Identification of risks

The fundamental objectives of involving the private sector in water supply and sanitation schemes are to attract private sector skills and, possibly, investment in the project. It must be recognized that any project will be competing for:

- (a) Local funds with other local infrastructure projects in both the water supply and sanitation sectors, as well as other sectors;
- (b) International funds and construction capability with all other sectors worldwide;
- (c) International operational skills with other projects in the water supply and sanitation sectors worldwide.

The level of competition to attract private funds and skills worldwide is high because: (a) the number of competent international operators of water supply and sanitation schemes is limited; and (b) interest is strong in many countries in seeking private sector assistance. Any project should be considered in both the local and international contexts. Compromise may be necessary in some aspects in order to prepare a viable project.

The factors which contributed to the successful letting of a large 30-year concession for water supply and sanitation for Buenos Aires are summarized in box 12. Most of the features also apply to other projects with private sector involvement.

An ideal contract structure should create a framework which is acceptable overall to all parties that would be affected. They should all feel comfortable with the arrangements for private sector involvement. Their main individual priorities and objectives in any particular project could be:

- (a) Consumers – guaranteed reliable water supply at a fair price;
- (b) Water utility – improved performance and efficiency;
- (c) Government – better water supply or sewerage without cost to public budgets;
- (d) Equity holders – management role and long-term return;
- (e) Financiers – low risks for good return in the medium term;
- (f) Private company – profit, reputation;
- (g) Regulator – compliance with contract, and fairness;
- (h) Donors (if any) – sustainable sector and social development;
- (i) Employees – better employment terms and career opportunities.

Each party should be able to balance the overall impacts on themselves and to conclude that the concept is beneficial to them.

B. General types of risks

One procedure which is useful for structuring the overall balance of a private sector contract is to consider the risks under a number of general headings, as described below:

- (a) Political risks, in the general sense of the complete political framework and climate, for example, with regard to the availability of:
 - (i) Support for private sector involvement in “public services”;
 - (ii) An acceptable approach to social aspects of water supply;

Box 12. Water supply concession for Buenos Aires, Argentina

Factors that contributed to the successful letting of a large 30-year concession for water supply and sewerage in Buenos Aires included:

- High-level political commitment
- Being part of comprehensive economic reforms
- Consensus among stakeholders
- Risks assessed and alleviated
- Credibility from support by multilateral agencies
- Analysis of all options, with public ownership retained
- Careful preparation with adequate time
- Contract terms backed by developing full regulatory framework
- Technical and financial feasibility established
- Experienced consultant involved in preparation process
- Adequate and increased water rates
- Prequalification and specified bid evaluation process
- Joint approach to reduce staffing levels
- Strong regulator with specialist advisers
- Orderly transfer of responsibilities over a period
- Clear conditions for extraordinary increase in tariff rates
- Borrowing the initial financing
- Realistic, specific contract, but with some flexibility.

(iii) Acceptance of independent regulation;

(iv) Willingness of the government to commit to the project through joint participation with the private sector.

(b) Construction completion risks connected, for example, with:

(i) Inadequate knowledge of physical conditions of existing infrastructure;

(ii) Lack of access to land;

(iii) A choice of too-advanced technology;

(iv) Insufficient local construction skills;

(v) Loose cost control and overruns.

(c) Operational risks, i.e., risks of failure to provide the expected service levels, for example, associated with:

(i) Insufficient raw water supply;

(ii) Unreliability of raw materials, energy and fuel supplies;

(iii) Poor performance of existing infrastructure;

(iv) Possible government intervention.

- (d) Financial risks, i.e., risks of collecting insufficient revenue which might be caused, for example, by:
 - (i) Excessive inflation;
 - (ii) Unfavourable movement of currency exchange rates;
 - (iii) Unreliability of income;
 - (iv) Poor payment of dues.
- (e) Legal risks, for example, caused by the absence of clarity in contract conditions regarding:
 - (i) Rights and powers for raw water, discharge of treated sewage, occupancy of land and restrictions on operations;
 - (ii) Resolution of disputes;
 - (iii) Ownership of infrastructure.

C. Handling of risks

The approach to minimizing and handling risks is detailed below.

1. Minimizing risks

Risks can be minimized by:

- (a) Publishing accurate basic information in sufficient detail;
- (b) Identifying and ranking all risks;
- (c) Devising strategies to solve or avoid most, if not all, risks.

2. Handling risks

Risk handling can be undertaken by:

- (a) Allocating each risk to the party who can influence that risk most effectively;
- (b) Sharing risks where no individual party has clear responsibility;
- (c) Balancing risks and penalties.

Risk handling means considering the complete contract structure, covering such diverse aspects as:

- (a) The timing of project implementation;
- (b) The degree of partnership between the public and private sectors;
- (c) Ownership framework;
- (d) The length of concession;
- (e) Hand-over or rebidding at the end of the initial contract;
- (f) Flexibility and revision mechanisms for development plans and tariffs;
- (g) Bidding and award process for competitive bid;
- (h) Negotiation strategy.

The recommended procedure is for all contracts to be awarded through a competitive bid process. All bidders should be required to price a tender design.

Any new ideas from bidders should be presented in a separate priced bid. If a competitive bid is not used, the process lacks openness and transparency. However, in special situations a full package can be negotiated with a chosen contractor.

This chapter is based on the assumption that the private sector organization would be selected through a competitive bidding process. However, if the organization is to be appointed by negotiation, the same procedures should be used but with the additional task of agreeing a contract price.

In addition, the contract should state the procedure by which the bids would be evaluated, or give very clear indications of project priorities. Bid evaluation is most transparent if a single or only a few simple parameters are chosen as indicators for ranking. However, the simpler the evaluation parameters, the greater the documentation required to specify exactly what is to be provided in a compliant bid.

Some of the factors which are considered by bidders in evaluating a project and deciding whether to bid are:

- (a) Specified key terms of regulation;
- (b) Credible procedures for settling disputes;
- (c) Achievable technical objectives;
- (d) Tariff policies which are able to give cost recovery;
- (e) Time to phase in any tariff increases, with protection against default;
- (f) Review and amendment of laws to protect long-term investments;
- (g) Minimized bureaucracy, which otherwise adds to bidding costs;
- (h) Size of contract and profits sufficient to cover bidding costs;
- (i) Support of consumers and workers (especially current consumers/staff);
- (j) Use of reputable independent professional advisers;
- (k) Early involvement of local banks in reviewing contracts and helping in negotiations;
- (l) Minimized cost of bidding, especially for small contracts.

When considering whether to provide financial support to the project, lenders will assess their risks separately and independently but generally by using the same broad headings: political, construction (completion and costs), operation, financial and legal risks. Even if these risks are properly handled within the project so that they are minimized, the lenders may well look for additional guarantees from the government. The guarantees will be easier to obtain from the government if the perceived exposure of the lenders is small, and if the likelihood of the guarantees being invoked is negligible. However, the government should not be asked to give guarantees for factors over which it would have no direct control or reasonable way of effecting recovery. For instance, the government should not be asked to guarantee payment of water bills unless the customers' purchase contracts are tight, and with resort to the government as the ultimate option.

D. Project-specific risks

Each project will also present risks which are specific to that project. The success of any project will depend mainly on how such details are handled so that an acceptable balance of risks is created between all participants.

Some specific risks, and possible solutions or actions to reduce their impacts on various aspects of a project, are given below as examples.

1. Revenue risks

There are a number of areas which pose revenue risks:

- (a) Fewer customers.

The solutions include:

- (i) Entering into an understanding on water purchase or effluent disposal agreements for the long term with large consumers;
- (ii) Providing good service;

- (iii) Preventing others from providing an alternative supply;
- (iv) Including periodic reviews of total income against expenditures, with an adjustment mechanism if sales are lower than forecast.

(b) Lower consumption.

The solutions include:

- (i) Charging on the basis of an agreed allocation and the infrastructure provided, as well as actual use;
- (ii) Expanding the consumer base if under-usage takes place;
- (iii) Conducting periodic price reviews and allowing for total sale levels.

(c) Bad debt.

The solutions include:

- (i) Establishing realistic penalties for default on payment of dues;
- (ii) Setting up an independent redress mechanism.

(d) Excessive inflation.

The solutions include:

- (i) Defining a realistic inflation adjustment mechanism for local and foreign currency costs;
- (ii) Establishing an independent review procedure with an option to appeal to arbitration;
- (iii) "Cost pass through" of critical unpredictable items. These are specific costs that can fluctuate because of outside influences. For example, the short-term rise in cost of aviation fuel is often "passed on" to passengers as a separate and specific addition to the air fare. Costs of similarly specified items, which may rise (or fall) more than general inflation, can be allowed for separately and in addition to general inflation.

(e) Foreign exchange fluctuations.

The solutions include:

- (i) Ensuring availability and convertibility of foreign exchange;
- (ii) Indexing some specified costs to exchange rates.

2. Operational risks

The main operational risks:

(a) Lack of raw water.

The solutions include:

- (i) Establishing clear and reliable water rights;
- (ii) Monitoring upstream water users, storage reserves and releases during critical periods;
- (iii) Establishing an independent river basin authority to control water users;
- (iv) Issuing warnings to consumers if water shortages are expected;
- (v) Passing some hydrological risk to consumers.

(b) Poor quality raw water.

The solutions include:

- (i) Controlling upstream pollution;
- (ii) Establishing a credible raw water management organization;

- (iii) Specifying expected maximum levels of pollution at which the operator has to meet levels of service for quality;
- (iv) Allowing some short-term exceedance of water quality standards.

(c) Interrupted power supply.

The solutions include:

- (i) Establishing supply priority status for water and sanitation schemes;
- (ii) Providing excess capacity to compensate water supply and sanitation schemes for lost hours per day, i.e., larger works (which could be used to full capacity later) and more storage at or near consumers.

(d) Breakdowns.

The solutions include:

- (i) Providing standby equipment;
- (ii) Duplicating critical components;
- (iii) Ensuring good quality designs.

3. Legal risks

Among the legal risks are:

(a) Insufficient rights and powers.

The solutions include:

Establishing robust legal framework for

- Operating licences
- Water abstraction rights
- Treated effluent disposal right
- Access to land
- Ownership rights
- Taxation conditions.

(b) Contract uncertainties.

The solutions include:

- (i) Preparing clear and comprehensive contract conditions;
- (ii) Obtaining and publishing basic data on which a contract is founded;
- (iii) Defining mechanisms for clarification within the substance and spirit of contracts.

(c) Disputes.

The solution includes incorporating an arbitration process to speed up settlement of disputes and reduce settlement costs.

As the legal conditions differ considerably between countries, the actions suggested to limit potential legal risks are indicative only and are not exhaustive. In particular, various means of allocating water rights apply in the Asian and Pacific region; some are based on historic use which establishes a right, whereas others allow for a more modern approach to river basin management.

4. Implementation risks

The implementation risks are those that could affect the viability of the project altogether:

(a) Political opposition.

The solutions include:

- (i) Commitment by the government to support proposals;
- (ii) Transparency.

(b) Non-agreement of major consumers.

The solutions include:

- (i) Establishing and agreeing upon demands for water;
- (ii) Providing least cost solutions;
- (iii) Demonstrating the commitment of lead agency or sponsor;
- (iv) Involving major consumers in the planning process;
- (v) Offering an equity holding and management role;
- (vi) Keeping major consumers informed on progress.

(c) Non-availability of local debt funding.

The solutions include:

- (i) Demonstrating acceptable (low) risks to capital holders;
- (ii) Showing government support;
- (iii) Establishing a strong management structure;
- (iv) Demonstrating capacity to meet repayments;
- (v) Arranging adequate financial security.

(d) Lack of competent bidders.

The solutions include:

- (i) Pre-qualification on well-defined objectives;
- (ii) Preparing a thorough project implementation schedule;
- (iii) Compiling well-supported documentation of basic data;
- (iv) Demonstrating ability to resolve and solve critical issues;
- (v) Avoiding the imposition of inappropriate risks;
- (vi) Selecting a project size which will attract a good level of private sector interest and have a sufficiently large turnover to cover the private sector's bidding costs, but which is not too large for them to handle;
- (vii) Indicating evaluation criteria;
- (viii) Limiting bid preparation costs;
- (ix) Publicizing the project to potential bidders and financiers (box 11).



Photo I: Groundwater from an ancient “stone tap”, Kathmandu, Nepal. *Courtesy of Roger Brown.*



Photo II: Water vending – a private enterprise, Manila, Philippines. *Courtesy of Roger Brown.*

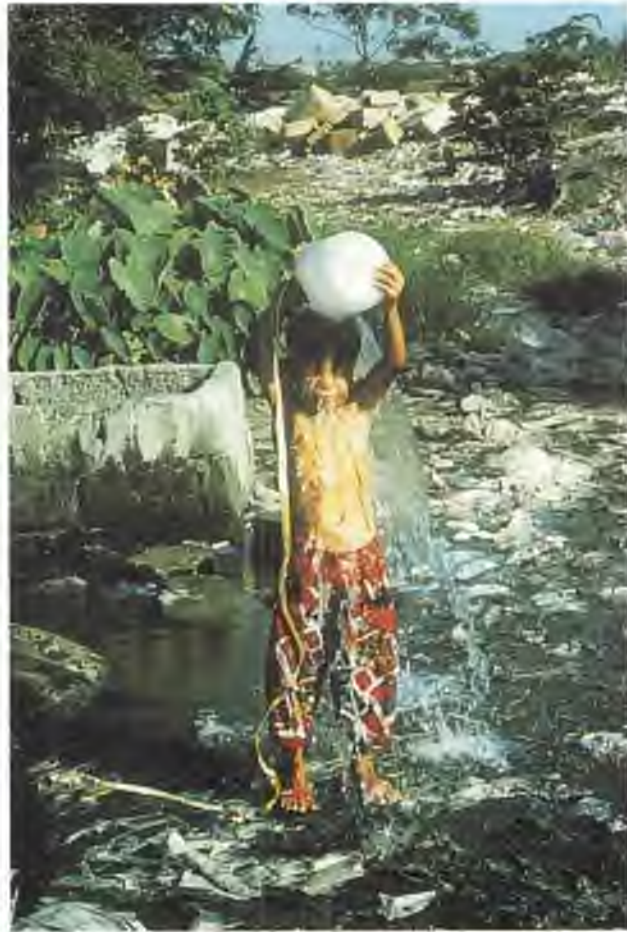


Photo III: A bather, Manila, Philippines.
Courtesy of Roger Brown.



Photo IV: Laundering at a public standpost, East Nepal. *Courtesy of Roger Brown.*



Photo V: A public wash-house and toilet, New Delhi, India. *Courtesy of Roger Brown.*



Photo VI: Rural water supply, Son La Village, Viet Nam. *Courtesy of That Peel.*



Photo VII: Water fetching, Lombok Island, Indonesia. *Courtesy of Claude Colomer.*



Photo VIII: Allocation of shared costs for water supply, Beijing, China. *Courtesy of Roger Brown.*

VII. PLANNING PRIVATE SECTOR INVOLVEMENT IN WATER SUPPLY AND SANITATION

A. Approach

This chapter describes strategies for developing greater private sector involvement in water supply and sanitation. A widely differing range of physical, political, financial and technical conditions exist between countries, in different parts of each country and even between water and sanitation utilities in the same country. There is clearly no single set of rules that can be followed that will guarantee success. However, a progressive series of steps are suggested below that will assist in moving successfully towards a level of private sector participation in public services which is appropriate in each set of circumstances.

The steps suggested should avoid some of the overambitious targets that have previously been unsuccessfully attempted by some privatization proposals. Successful experience in specific instances is always of interest but is not necessarily directly relevant elsewhere. However, an unsuccessful experience should always be assessed in order to identify key failure points and to evaluate their likelihood or relevance in other situations.

The planning process is multi-faceted with, inevitably, many compromises being made before a successful project is achieved. The planning objective is to prepare a policy statement and strategy which can be supported by all stakeholders, and which they consider will meet their own prime objectives and provide a fair balance between each of them. This may lead to progressive development with staged objectives.

The development of such a strategy is probably the key task in involving the private sector. It demands:

- (a) Broad knowledge of the technical, financial and political issues;
- (b) Professional skills for collecting sound data and developing realistic compromises that satisfy all stakeholders;
- (c) Good communication to present the proposals and findings in ways that are understood by professionals with different skills;
- (d) An ability to resolve differences.

The preceding chapters have discussed the factors which need to be covered.

B. Definition of broad policy objectives

The initial step is to set down the primary and, possibly, secondary objectives for introducing the private sector into the water supply and sanitation sectors or increasing its current involvement.

Primary objectives for the government would include (but not in order of importance) aspects such as:

- (a) Sale of assets to increase government income. This is very unlikely to occur unless the present systems are already operating to a high level of proficiency and can be handed over without major expense to the new private sector operator (which, in turn, would be reflected in the price that they would be prepared to offer for the assets). Governments are more likely to have to write off debts of existing utilities; in addition, a cash contribution may be required to assist the start-up of private operations. International donors may assist in providing loans for urgent rehabilitation, in order to improve the cash flow and reduce the initial financial exposure and risk which a new private company faces;
- (b) Attracting private sector funds to reduce the burden on the public budget for future capital expenditures. This enables government funds to be diverted to other more social sectors, which may also have higher political profiles;
- (c) Achieving good efficiency and levels of services. This will be more difficult where service levels are poor; as a result, the interest of the private sector could be low, and major incentives may have to be offered to enhance that interest;

- (d) Eliminating political interference and constraints to allow the water supply and sanitation sectors to grow to the level that can be supported by consumers;
- (e) Promoting political dogma for the transfer of public services that do not have to be run directly by the government in the public sector.

In drawing up the policy, the government should consider how much responsibility will be handed over and what, if any, safeguards should be retained and for how long. The greater the controls and the less the freedom of action that is allowed, the lower is likely to be private sector interest.

Mechanisms that should be carefully considered by governments include the regulatory framework and the control of certain private company actions:

- (a) Regulatory framework (chapter XI) with certain features and functions, including:
 - (i) The degree of its independence from the government, preferably with no direct government control except for setting out the framework and through an appeal mechanism;
 - (ii) The level of its interference in day-to-day commercial and operational aspects of water and sanitation companies. Minimal involvement or “arm’s length” regulation (not management) is preferred;
 - (iii) Transparency, with competitive bidding, publication of regulatory processes and action in response to consumers’ complaints;
 - (iv) The setting of levels of service;
 - (v) Decision-making on the type of economic regulation (rate of return or price cap) and mechanisms for tariff adjustments for inflation and in real terms (chapter XII).
- (b) Control of certain private company actions (which are normally controlled by market forces) and responsibility for:
 - (i) Prevention of undesirable political developments, through power of veto over certain aspects, at least for a fixed duration. For example, by the use of a “golden share” (i.e., a share which has certain special voting rights, or power of veto, which can be held by the government for a defined period or indefinitely);
 - (ii) Disposal by sale of certain assets, particularly land, for short-term financial gains;
 - (iii) Diversification to businesses which are not directly involved within the private sector activities of the particular water supply and sanitation businesses (see box 5 for non-core businesses of water companies in England and Wales), and ensuring accounting mechanisms for allocation of an appropriate proportion of main company overhead costs to the core business;
 - (iv) Mergers with and take-overs from both within the water and sanitation sectors and organizations in other sectors, such as electricity supply, especially where this could lead to a blurring of accounts and charges.

C. Evaluation of local conditions

1. Capacity of the private sector

Involving the private sector in water supply and sanitation will be easier and more successful if this is undertaken as part of a general multisector privatization programme. Many countries have embarked on programmes for greater private sector participation in large industry, transport and energy. Some regulatory experience may already exist in those countries.

Local private companies that have the necessary management skills and financial substance to contribute to the water and sanitation sector may already be established, but they may lack the detailed knowledge to operate complex water supply and sewerage systems. Often overseas specialists and local firms combine. The overseas specialist provides technical expertise to organize the work, to set up management systems and to train local staff before handing over day-to-day operation to the local organization.

The capacity of the local private sector should be evaluated in detail. The roles that can be undertaken by local companies should be clearly set out. Those local companies may be adequate for an initial stage of involving the private sector in certain aspects of operations.

Internationally-active companies will not be interested in small contracts.

2. Corporate culture

The existing utility and its staff should also be evaluated to assess how they can be integrated within a private sector organization with different types of work orientation and motivation. The private company will work on results achieved against targets, whereas the old public utility will have been more orientated towards application of rules and systems. The corporate culture and attitudes will need to change over to treating "consumers" as "customers" who provide the income that enables the organization to function. The satisfaction of customers should be the prime objective of staff throughout the organization. More responsibility will need to be delegated to appropriate lower levels, while staff will become accountable; however, some errors will have to be accepted as an inherent consequence of developing initiative by staff.

3. Regulation

Any regulatory system that is already in place, with control over monopoly public services being run by a government, is unlikely to be independent enough to clearly demonstrate the proper handling of those services when the services are in the private sector. With private sector participation, the degree of transparency needs to be greater and consumers will look for safeguards and reassurances that profits are fair, but not excessive. Any existing regulation frameworks should be reviewed critically.

In addition, the regulatory frameworks and operation of other sectors should also be evaluated. Lessons can be drawn from the public reaction to regulation, its transparency, checks and balances, and the degree of government interference. Generally, regulation in water supply and sanitation will need to be even more effective than in most other sectors. Alternative suppliers of energy can compete for certain uses, such as heating, which gives an element of market competition. Different modes of transport are in direct competition, while piped water supply and sewerage are monopoly public services.

4. Legal

The legal framework for operating public services should also be evaluated. For various reasons, the public sector may have more powers than a private company. It should not be assumed that a change of ownership will automatically transfer traditional rights and powers. For instance, in India, State organizations have powers to allow them to make compulsory land purchases (i.e., against the wishes of the owner) for certain types of public service projects. The private sector does not have similar rights. Sanctions against mal-operation and bad service may need to be strengthened in order to boost consumer confidence.

D. Existing utilities

1. Evaluation

A careful evaluation should be made of the present performance of the water supply and sanitation utilities in the public sector. This should cover all aspects of technical and financial operations as well as the governmental and institutional environments in which the utilities function.

It is usually difficult, if not impossible, to obtain a truly thorough and objective evaluation of a utility by its own staff. Also, they may have become inured to its deficiencies and thus unable to identify areas where improvements could be achieved through private sector participation. An experienced consultant group of national and international professionals is best able to make an independent evaluation. However, the group should work closely with those staff of the utility who are most knowledgeable about the existing system. Cooperation will be enhanced if the existing staff can see benefits for themselves after private sector involvement.

The evaluation should cover all those aspects that are normally required for a thorough analysis of a utility that is seeking funding for development from international donors. In addition, the evaluation should present findings in commercial

terms, with identification of all present and future risks. The findings will be the basis for deciding on the best procedures for involving the private sector and the benefits that can be obtained.

The evaluation should identify the weaknesses and strengths in the performance of the existing utility in terms of:

- (a) The amount and reliability of basic information on the existing infrastructure and its performance;
- (b) Water quality compared with target standards;
- (c) The quantity of water supplied and duration of supply;
- (d) The methods of charging for water use and piped sanitation, and the history of tariff increases;
- (e) The mode of supply to poorer consumers and charging mechanism, if any;
- (f) Debt collection performance;
- (g) The planning procedures in the short and medium term for engineering and financial (commercial) aspects;
- (h) Mechanisms for tariff revisions;
- (i) Staffing levels;
- (j) Financial performance indices;
- (k) The level of debt;
- (l) Consumers' perception of performance.

The overall performance should be clearly stated, including identification of those aspects that could be improved by the private sector. The composition and grouping of activities for private sector involvement, how they are supported by sound documentation, what incentives are offered and how they are presented are all critical in generating keen private sector interest.

2. Condition of infrastructure assets

The results of the performance assessment of the existing utility and its assets form an essential part of the documentation to be presented to the private sector as basic data for deciding on their future involvement, through competitive bidding or negotiation.

The condition of the assets will affect the amount of expenditure needed for rehabilitation and replacement of those assets where necessary. This may be funded by the private sector under certain contractual arrangements (for example, in a concession) or by the government (for example, in a management contract). Clearly, where the private sector is taking commercial and operational risks it will make very carefully assessments of future capital expenditure levels.

The condition of accessible surface infrastructure assets can be established relatively easily by direct observation and inspection. Short- and medium-term rehabilitation needs can be evaluated and costed with some accuracy. This is not possible with underground pipework and other buried infrastructure. Indirect assessments are necessary, based on: past performance and maintenance expenditures; measurements and modelling of the distribution systems; evaluation of leakage levels and frequency of pipe bursts; and other information. Asset conditions should be documented on an area-by-area basis in order to identify particularly poor areas, to assess reasonable levels of expenditure and to prioritize rehabilitation.

The assessment of asset conditions is extremely time-consuming and will never be completely accurate in the case of buried assets. There is a major risk that inaccurate basic information could cause, at best, inefficient planning of future rehabilitation and, at worst, serious claims by the private sector that misleading information has affected its costs. Where there is insufficient time or resources are inadequate to carry out a detailed survey of asset condition before passing control over to the private sector, there are strong arguments for the government to accept some of the risk of errors in assumptions made for planning and commercial purposes. A compromise may be necessary between the time available for acquiring information and the level of knowledge regarding the condition of the various assets.

3. Performance parameters

It would be very convenient if a simple set of indicators could be prepared for assessing and comparing the performance of different water and sanitation utilities. Unfortunately, the variation in performance parameters can be substantial between countries and even between areas within a country. Factors causing differences in performance include:

- (a) Location, quality, reliability and proximity of raw water sources. A complex system which uses many small water sources in conjunction could be more expensive than a system using one single large water source;
- (b) The amount of water pumped to reach consumers. Energy costs are rising worldwide, and a gravity system will become cheaper in the long term;
- (c) The levels of service provided. Good service from the water utility will be more expensive, but householders may save overall because their own investments in improving services in their homes will be lower;
- (d) Economies of scale. Staffing ratios per unit of production or per the number of customers served will be relatively lower with large facilities;
- (e) Variations in seasonal demand. High summer peak demands require substantial infrastructure which is not fully utilized for the rest of the year;
- (f) The age of an existing system. Old systems are likely to have more bursts and leakage, and to be in need of rehabilitation and replacement, but will have a low book value based on historic costs;
- (g) The quality of existing infrastructure and ground conditions. The useful life of pipes depends on the ground conditions, pipe materials, corrosion protection of pipes, and ground movements which can increase because of more and heavier traffic;
- (h) Losses, such as leakages, unaccounted for water (UFW), non-revenue water (NRW). Levels of losses will depend on the effort and investment in active leak detection, i.e., searching for leaks underground before they become visible on the surface, and their elimination;
- (i) The level of automation. Staff numbers are generally much higher where wages are low;
- (j) The proportion of contracting out and in-house activities. Contracting out such aspects as vehicle maintenance, disposal of sludge and revenue collection can reduce staff levels substantially and can be arranged on a competitive basis.

The charges for water vary widely between countries and within countries. In England and Wales, where each water company charges about the same rate to all types of consumers, the rates per cubic meter vary by a factor of three in different companies. Higher charges do not mean that the company is necessarily less efficient or is making more profit than others who charge less. Worldwide potable water charges vary from a few US cents to a few US dollars per cubic meter.

The variation of water charges contrasts with electricity which has a relatively uniform international cost. Other factors also make involvement of the private sector in water supply and sanitation more complex and site-specific than electricity generation (see box 13).

However, in order to provide some basis for evaluating performance levels of a particular utility in absolute terms, comparisons can be made with other similar organizations in the same and similar countries. In November 1993, the Asian Development Bank published a useful set of operational parameters (Water Utilities Data Book) based on replies to their questionnaire which were received from a number of cities within the Asian and Pacific region.

4. Future development plans

The evaluation of a utility should also cover the expected rate of increase in demand and the status of development plans to meet that demand. It is particularly important to demonstrate that suitable sources of raw water can be tapped for future needs and to establish that adequate water rights are allocated. The private sector will not be interested in assuming substantial hydrological risks (such as dry periods or years of abnormal high flows) or the uncertainty of the capital expenditures that might be required to develop a large new water source.

Detailed costing is necessary for future expenditures on rehabilitation, expansion and quality improvement. Expansion will increase income by serving more consumers. Raising quality will increase costs but will not lead directly to more income,

Box 13. Differences between piped water supply and electricity supply

There are a number of significant differences in the provision of treated piped water supply through private funding and electricity supply:

- There is no real alternative to piped water, whereas electricity is only one of the forms of energy and so must compete on price and service, at least for certain purposes
- Water supply schemes usually serve consumers in one specific area (unless alternative water sources are available such as private wells or recycled water), whereas electricity is distributed through a grid serving a large area so that any local deficit or failure can be covered by transfer of electricity from more distant power stations
- The cost of water supply can vary by a factor of 3 to 5 (and even higher) within one country depending on proximity of source, differences in elevation, treatment needed, economies of scale and customer density, whereas electricity can be generated at the cheapest locations at more or less international prices and transferred to consumers over large distances at minimal cost.

although overall tariff charges could be raised as the level of service improves. The aim of refinement in water and sewage treatment processes is to meet higher quality standards required for preserving health in the long term and for improving the environment. Consumers are unlikely to notice any difference in taste. Rehabilitation will lead to lower operating costs through reduced losses and greater operational efficiency. Development plans should show how these costs can be met and their implications for tariffs levels.

These development plans will help identify the risks that are to be handled. They will also give an idea of the potential charges that will have to be made if the company is to be commercially viable. In addition, they will be the basis for planning how and where private sector assistance will be most useful, what (if any) prior investments should be made and the organizational procedures that should be adopted.

E. Specific risk assessment

The importance of identifying risks has been covered in chapter VI in general terms. The evaluation of a specific situation now allows an assessment of specific risks and a weighting in terms of their importance for each of the stakeholders. Each of the broad categories of risk should be considered both for the present and the future when conditions may have changed. For example:

- (a) The political party in power may favour private sector involvement, whereas opposition parties may prefer the public sector;
- (b) Future water sector development and expansion of water demand may depend on the strength of the national economy and strategies for encouraging industry into the service area being considered.

Many of these uncertainties would also exist if the public sector were running the utilities. However, failing to meet planned expansion conditions does not have the same direct commercial consequences. The public sector works on a shorter time scale than that which is appropriate for the private sector, especially if large investments are to be made from which the benefits will be obtained sometime later.

F. Specific contributions from stakeholders

Each stakeholder will be able to make some contributions to a specific project. Those contributions may either be considerable and, therefore, essential to a viable investment package, or they may not have a high impact and would be no more than a token gesture of participation.

The relative importance of potential contributions is a factor in developing a workable strategy for private sector involvement. This includes assessing how best to obtain or generate the essential components of a project, including mutual

confidence, appropriate professional advisory skills, specialist expertise, capital and operating finance, levels of service, adequate income and appropriate regulatory controls. Some of these components will be enhanced by the private sector after a project is handed over. For example, staff operating expertise would be improved through training.

Confidence in the project is the least tangible aspect. It is related to the support from general government policy, the strength of the private sector, the availability of funds and the effectiveness of the enabling environment.

The use of national and international professional advisers generates confidence that proposals will be thoroughly prepared and detailed within any constraints of time or funds. The advisers should be independent of organizations that could be part of the private sector operation and which could continue up to or after the time of the hand-over.

The advantage of international advisers is that they are able to apply their broad direct experience from other situations elsewhere in the world. This is particularly useful at the strategic planning stage when the type and scope of private sector involvement are being developed, all aspects evaluated, their advantages and disadvantages assessed and balanced, and possible scenarios developed for consideration.

The advantage of national advisers is their knowledge of the existing environment, local procedures and language. A joint advisory team can therefore be highly effective. Specialist expertise can be available in the immediate locality, from elsewhere within a country or internationally. Generally, local expertise should be used to the maximum extent in order to encourage enhancement of local skills and the development of national human resources. The potential maximum contribution of local experts should be assessed and compared with perceived overall needs. Requirements for meeting any shortfall should be sought from overseas. National skills training could be an objective of private sector involvement, which would also lead to improved public sector services.

Advisers may recommend against over-ambitious political aims and may have to suggest a way that those aims may be adjusted in order to be more realistic. Unfortunately, in some situations where professional advice was not sought, or was not heeded, the process of private sector involvement has not been completed successfully.

The financing requirements for private sector involvement in water supply affect the choice of procedures. If public funds are not available and the private sector is to be asked to provide substantial capital for major works, a long-term arrangement will serve best, for example, BOT with finance, BOOT or a concession where the private sector can earn a return on investment over a reasonable period. If the government can provide funds, or can obtain attractive loan terms from international financial institutions, the private sector could have a role as an operator only, for example, in the form of a lease or management contract. The government would finance all new capital works to an agreed programme. The contract length would depend on factors other than finance.

In fact, a private sector operator undertaking a BOOT or concession will borrow to finance the capital works. The contribution from local bankers will depend on their resources, the attractiveness of the project (generally meaning the financial risk), the terms that can be paid by the private sector working in water supply and sanitation, the balance of types of investment that the bank is seeking and the alternative investment opportunities for the banks.

Companies and individuals may contribute by taking a share in equity if a joint company is established.

Levels of service, income and regulation are interrelated and should be considered together. The levels of service that can be provided now can be compared with those levels of service that might be achieved by the private sector after better investments, more training and more commercially oriented management control. The detailed study and evaluation of the existing utility will show what contribution it can make towards improving levels of services and general operation. Commercial viability will also have to be assessed.

Normally, one major reason for involving the private sector is because it is expected to give all-round improvements in many aspects of operation. The price of those improvements will probably exceed efficiency savings, especially where large investments in long-life assets are required to improve infrastructure to meet higher standards than are being met currently. Tariffs will probably rise and consumers must be able to make the necessary contribution to cover costs properly. Many components of the system will have useful lives in excess of the length of a private sector contract. If full costs are to be recovered by the end of the 20 to 30 year contract, higher charges will be made than if the private sector were compensated in some way by payment for the remaining useful life of assets, i.e., a "residual value" allowed for in the final settlement on completion (see chapter III, section D1: Concession).

The contribution of the regulator is to balance levels of service with overall tariffs. If the public sector has relied on self-regulation, the current system is likely to be too weak.

G. Specific needs of stakeholders

The specific needs of stakeholders are almost the reverse of the contributions that they can make. Limits should be placed on the degree of meeting ideal conditions. The balance between levels of service, infrastructure and tariffs needs to be maintained at an acceptable level. For example, meeting new higher aesthetic standards of water quality may be highly desirable but not of extreme importance. Other levels of service may be more easily attained with less expenditure and could provide better value for money. A list of short-, medium- and long-term needs should be drawn up. Some short-term aims may over-ride long-term objectives. Depending on the view point, a particular action could lead to consequences that are considered as advantageous or disadvantageous. For example, pressure on public spending may make private finance essential, whereas the risk of consequent loss of direct government control might be considered as: (i) a disadvantage because of loss of public control over a public service, unpopular tariff rises; or (ii) an advantage because of improved service with more realistic tariffs for that improved service.

The main conflicts are in development against change in the environment. A successful scenario will meet a succession of interrelated advantageous needs and minimize the perceived disadvantages, all for a reasonable and affordable cost. This will receive greatest support (and the least opposition) and is most likely to be implemented.

Clearly, balances have to be struck by the government in deciding what level of public health it can provide and by consumers in deciding what level of service they need and can afford. As service conditions approach an ideal, the cost of incremental improvements will rise sharply. At the same time, the perceived need for that extra level of service may be low and, in that case, so too will be the consumers' willingness to pay any extra tariff (box 6).

Once a basic level of needs has been satisfied, further additional improvements may be less easily justified. The problem is in deciding what are the basic needs levels. Most governments would look for adequate quantity of water, preferably available for 24 hours per day, which is bacteriologically safe and free from seriously harmful chemicals. To this can be added some other requirements such as no colour, adequate capacity to allow garden watering under most dry weather conditions and avoidance of rationing even in severe droughts. The service may also have a few unplanned interruptions to supply, plus conservation of water resources through proper use of water including achievement of low leakage levels, administrative efficiency and speed, and customer confidence. The appropriate target levels must be decided locally.

H. Public private partnership

The discussion in this chapter and the preceding chapter has shown how the private sector cannot operate completely independently of the government in water supply and sanitation, as both are public services whose malfunction could have serious public health and commercial consequences.

The concept of a joint approach by the government and the private sector is referred to as public private partnership. This clearly illustrates their interdependence. However, there are various degrees of partnership as discussed in chapter III. The closest arrangement is for the public and private sectors to work together within the same overall organization that would be responsible for all aspects of the operation. In many situations, this has numerous advantages over a more separate and contractual arrangement. Ideally, the strengths of the combined operation are greater than the sum of separate operations. A joint company can be set up, i.e., incorporated, with board representation of both the public and private sectors.

The public sector may contribute:

- (a) Control over legislation;
- (b) Certain priority powers awarded to the government, such as rights of access to, and compulsory purchase of, land;
- (c) Water rights which may reside with the State;
- (d) Part or all of the existing water supply and sanitation organization.

The private sector may contribute:

- (a) Greater autonomy;
- (b) Improved skill levels;
- (c) Detailed long-term planning;

- (d) Greater flexibility in day-to-day operations;
- (e) More stable budgeting and forward planning;
- (f) Greater emphasis on operating commercially;
- (g) Improved efficiency and outputs through incentives.

Mechanisms for public private partnership are discussed in more detail in chapter IX.

VIII. KEY CONTRACT CONDITIONS

General agreement has to be reached on the mechanisms for involving the private sector. The following fundamental decisions need to be made:

- (a) What will the private sector be invited to undertake?
- (b) What type of arrangement for private sector participation will be used?
- (c) Will a contract be awarded through competitive bids from prequalified groups or by negotiation with one group only?
- (d) Will the government form a risk-sharing partnership with the private sector and, if so, which government organizations?
- (e) Will this be the only contract of its type or could it be a model for use elsewhere in the country?
- (f) What independent professional advisors should be appointed?

These points have already been discussed. However, whatever conclusions are reached, a number of key contract conditions must be addressed. Some of the conditions are considered in this chapter, together with suggested approaches to handling them within a contract framework. The order does not reflect the importance of the issues or the effort required to deal with them.

A. Ownership of the assets

The tradition in many countries is for water supply and sanitation infrastructure to belong to the government. This should be maintained for all the types of private sector participation except for full divestiture to a private company. Two options for ownership of the assets are possible:

- (a) New assets funded and constructed as part of the contract (i.e., BOT, BOOT and concession contracts) could be handed over to the government at the end of the contract period in an acceptable state of repair. The operator or concessionaire would be responsible for maintenance during the contract period, and would have an incentive to ensure a reasonable standard of design and construction of the facilities because of his responsibility for paying for any significant or unforeseen deterioration during the contract period. The hand-over would follow detailed survey of the asset conditions, the correction of faults and the required repairs. In effect, the ownership of the asset would remain with the operator or concessionaire until the formal hand-over. This would be a BOOT type contract.
- (b) The asset could be handed over to the government at the start of the operating period. Although the operator or concessionaire would still be responsible for maintenance during the contract period, the termination procedure would be a formality. However, the government could claim full ownership from the start and avoid any criticism that a private company has any form of rights to such a basic public service as water supply or sanitation. The contract would be a BTO type.

Additional aspects related to ownership are:

- (a) Land acquisition by a private company, which is often not realistic within a reasonable time frame. The government may need to arrange for purchase, lease and easements of land for such structures as intakes, pipelines, pumping stations and treatment plants as part of pre-contract activities. In BOT, BOOT and BTO contracts, the government would hold the rights of access to the land but could share that right with the private sector operators during the contract period.
- (b) Tax laws, which may not allow the operator or concessionaire to offset depreciation against profit unless some element of ownership of the assets is retained on the books of the operator or concessionaire.

B. Duration of contracts

Where capital works are to be funded, the usual duration of a BOT/BOOT contract and the operating concessions for water supply varies from 15 to 30 years, with some going up to 50 years. The longer periods are more appropriate where capital investments are large and in phases, or are spread over a period of time, say 15 years, as water demand and sewerage coverage increase. A number of considerations need to be taken into account for determining the duration of a contract:

- (a) The concession period should at least be similar but slightly longer than the duration of debt financing. In many countries, the generally available terms from local specialist development banks and other lenders are 10 to 12 years with a grace period of no more than a few years. In those cases, the debt could be repaid within a 15-year concession. Equity holders will also be able to earn a return on their investment within a reasonable time horizon.
- (b) A concession period which is much longer than the planning time horizon will have to include robust and fair mechanisms for adjusting to the greater uncertainties in demand growth and for the services to be provided. The greater the flexibility in a contract, the less certain are future tariff rates.
- (c) The hand-over of the facility at the end of the contract should take place while the facility has a substantial useful life, so that the new owner is not faced with high maintenance costs almost immediately. The majority of the components of a water supply project should have a useful life of 50 years or more. The value of the assets depends not only on their remaining useful life but also on their earning capacity within the regulatory framework.

Where private sector involvement does not include funding of capital works, the duration of contracts can be fixed by considerations other than debt terms. The factors that should be considered include the time to establish the private sector operation, that is, the time required to equip the utility, introduce new systems, train staff, reorganize it as necessary and operate the utility profitably for a reasonable period.

Most contracts will involve some significant establishment costs, while some will include costs for major capital works. In all cases, a longer contract will allow such costs to be recovered over a greater number of years and, therefore, at a lower rate per year.

C. Hand-over process

At the end of a contract, the responsibility for continuing operation and maintenance could be:

- (a) Taken over by a government organization;
- (b) Awarded to another private operator through negotiation or a competitive bid;
- (c) Negotiated as an extension to the initial contract.

The initial contract should address how the hand-over is to be accomplished, but only to the extent of showing that a mechanism would be workable and would not involve large unpredictable costs to the initial private sector participant. The procedure should be the same, irrespective of who takes over.

The contract should state how the private sector company would benefit financially at the time of the hand-over, which could be accomplished in the following ways (in ascending order of compensation to the operator or concessionaire):

- (a) Free of charge;
- (b) On payment of a residual value of the assets, possibly the initial capital cost less accumulated depreciation allowed for tax purpose;
- (c) On payment of a specified amount, possibly reflecting the remaining useful life of the facility assets at current costs.

Once the government has assumed ownership, the assets could be included in a competitive bid for expansion and continued operation of the system through another private sector contract.

The choice of hand-over valuation is likely to be related to the financing and tariff strategies that are adopted.

D. Tariff revisions

Tariff revision mechanisms must be described in detail in the contracts as they affect financial viability and risk. Ideally, the private sector company should be given a free hand to operate the facilities as it wishes, within the price and general conditions of the contract, while meeting the specified levels of service. This is only reasonable if all the aspects of the contract that affect costs and income over the full duration of the contract can be fixed with reasonable accuracy at the time of bidding or negotiation, such as a BOT or BOOT contract. The degree to which this can be achieved for a concession to operate an existing system depends on many factors, such as: (a) the amount of information available on service coverage; (b) the levels of demand and supply now and in the future; and, particularly, (c) on the accuracy of forward planning for the development of the area to be served.

A BOT/BOOT contract for the provision and operation of a particular new component of specified size can be costed, preferably through a competitive bid. Payment terms can be derived to cover both fixed and variable costs, depending on actual output. Generally, the utility is the sole purchaser of the service.

In spite of trying to forecast conditions over the duration of a long contract, it is very likely that some factors will change in ways which cannot be predicted. Even if some possible changes are identified in general terms, for example, changes in taxation structure and levels, staff employment conditions and demand levels, their impact on financial viability would be difficult to predict. Two basic options can be adopted for the contract:

- (a) An attempt can be made to define all future changes for all possible eventualities and to try to draft the contract documents accordingly. The temptation may be to pass unknown risks to the private sector but, if this is too onerous, bidders will decline to bid, quote a high price or qualify their bids;
- (b) Mechanisms can be included in the contract for negotiation of economic aspects once specific changes have occurred. Some of those conditions can be defined in detail (for instance, inflation), but others should be left open in order to share risks more equitably (for example, changes in taxation structure).

Generally, water and sewerage tariffs are allowed to rise with inflation or at a level just below inflation. Although the consumer takes most of the inflation risk, wages also rise with inflation. Industrial consumers can recover inflation rises through increased charges for their products.

In a contract that is awarded through competitive bids of prequalified tenderers, the initial deal offered by the successful bidder will be the most favourable that can be obtained and the best value for money. The deciding factor in awarding the contract could be the initial tariff levels offered by bidders. Once the project is underway, the operator or concessionaire will be looking for ways of maximizing the profit consistent with providing the contracted level of service. The operator or concessionaire, who would like to be able to negotiate increases in tariffs for real or imaginary changes in conditions, is in a strong negotiating position to the extent that he is a monopoly supplier. On the other hand, excessive rises will lower support from consumers and politicians; in addition, major consumers could reduce their consumption by recycling more water or even establishing their own private water supply and sewage disposal, if they are permitted to do so.

One basic question related to the viability of a private sector contract is the economic regulatory framework that is to be used and the credibility given to it in the contract. One of the main factors in the unsuccessful attempt at privatizing the water supply in Caracas, Venezuela was that the mechanisms for regulating the concession were based on expected future agreement between municipalities who had shown little inclination to cooperate in the past. The mechanism did not give the bidders adequate safeguards against future exploitation or problems in adjusting tariffs. A regulatory body that deals with one project has direct experience of that project only. It cannot compare performance and tariff levels on its single project with other projects, because it neither has control over the bases on which the performance data are presented nor access to detail.

The methods for tariff revisions should be described in the contract documents. At the planning stage, it should be assumed that provisions for inflation and non-inflation related tariff revisions will be included in the contract, but with the following restrictions:

- (a) Exclusion of certain risks under the control of the private sector (for example, construction costs), if enough basic information is provided for the bidder to assess costs accurately;
- (b) An initial period during which only inflation increases would be allowed (at least five years);
- (c) Inflation increases allowed only under specified conditions (for example, annually), or triggered by a certain increase in inflation (say, 10 per cent) since the last rise;

- (d) An option for non-inflation related tariff changes to be reviewed every five years at the request of the regulator or private company (see chapter XII, section C).

As well as allowing for local inflation, special provision could be made in the contract for moderating exceptional exchange rate fluctuations for a proportion of the contract costs.

Detailed planning may identify some items that could be handled most equitably by a “cost pass through” mechanism. This is a procedure that is used to increase tariffs at more than the agreed rate, in the event of cost increases in excess of inflation for large components. Covering the costs of electricity and other fuels could be a charge that rises at a much higher rate than inflation.

A contract based on an annual review of tariffs, using a target rate of return on investments, involves the regulator too closely in the day-to-day operation of the system. This does not give the operator any incentive to achieve high efficiency and to fully use his skills to minimize costs consistent with meeting specified levels of service.

The approach should be to:

- (a) Specify tariff revision conditions within the contract;
- (b) Minimize uncertainties by detailed information gathering, detailed design and careful drafting;
- (c) Define mechanisms for tariff review and revision which are quick and transparent, but with an ultimate option of some form of arbitration or legal redress.

Regulation is discussed in more detail in chapter XI.

E. Design of specified infrastructure

In a contract which is mainly for the funding and construction of major new works (such as a BOT/BOOT contract), a sufficient level of design and/or performance specification of the infrastructure must be available to bidders at the time of tender. This is vital to ensuring that bidders understand clearly what is needed for preparing a compliant competitive bid. As part of that process, bidders may prepare more detailed designs themselves in order to price more competitively or accurately, but while generally following the conceptual model of the basic design. An independent designer should prepare the performance specification and a basic design in advance of the bidding. The design could be detailed, jointly with the successful private sector company, during the negotiation stage. The whole bidding process for BOT projects for the Philippines is shown schematically in figure V.

In many cases, it would be advantageous if a number of activities were undertaken in advance of awarding the contract in order to show exactly what is required, save time and avoid unnecessary expenditures in bidding. For instance, the preparatory work could cover such aspects as:

- (a) Alignments of pipelines, locations of river crossings and other infrastructure components which should be selected and fixed;
- (b) Land requirements should be established and arrangements should be made by the government for use or acquisition of that land, so that construction can start immediately after award of the contract;
- (c) Topographic surveys and site investigations should be completed in advance of bidding in order to inform bidders and to reduce construction risks.

All bidders should be required to bid on a proposed design so that all bids can be compared directly. However, they could also offer priced modifications within the performance criteria defined in the contract documents. Using a common design makes bid evaluation simpler, quicker and transparent.

It is not recommended that bidders should be required to carry out their own designs from scratch. This could deter potential bidders as it would substantially increase their bidding costs. It would also prolong the bidding process. In addition, it could delay the start of construction while land was obtained.

Any modifications to the tender design which bidders offer should be considered in detail during tender evaluations. Any points of doubt should be discussed with the originators, and price impacts clarified and agreed. These procedures would ensure that the optimum detailed design of a scheme is achieved without excessive delay and cost.

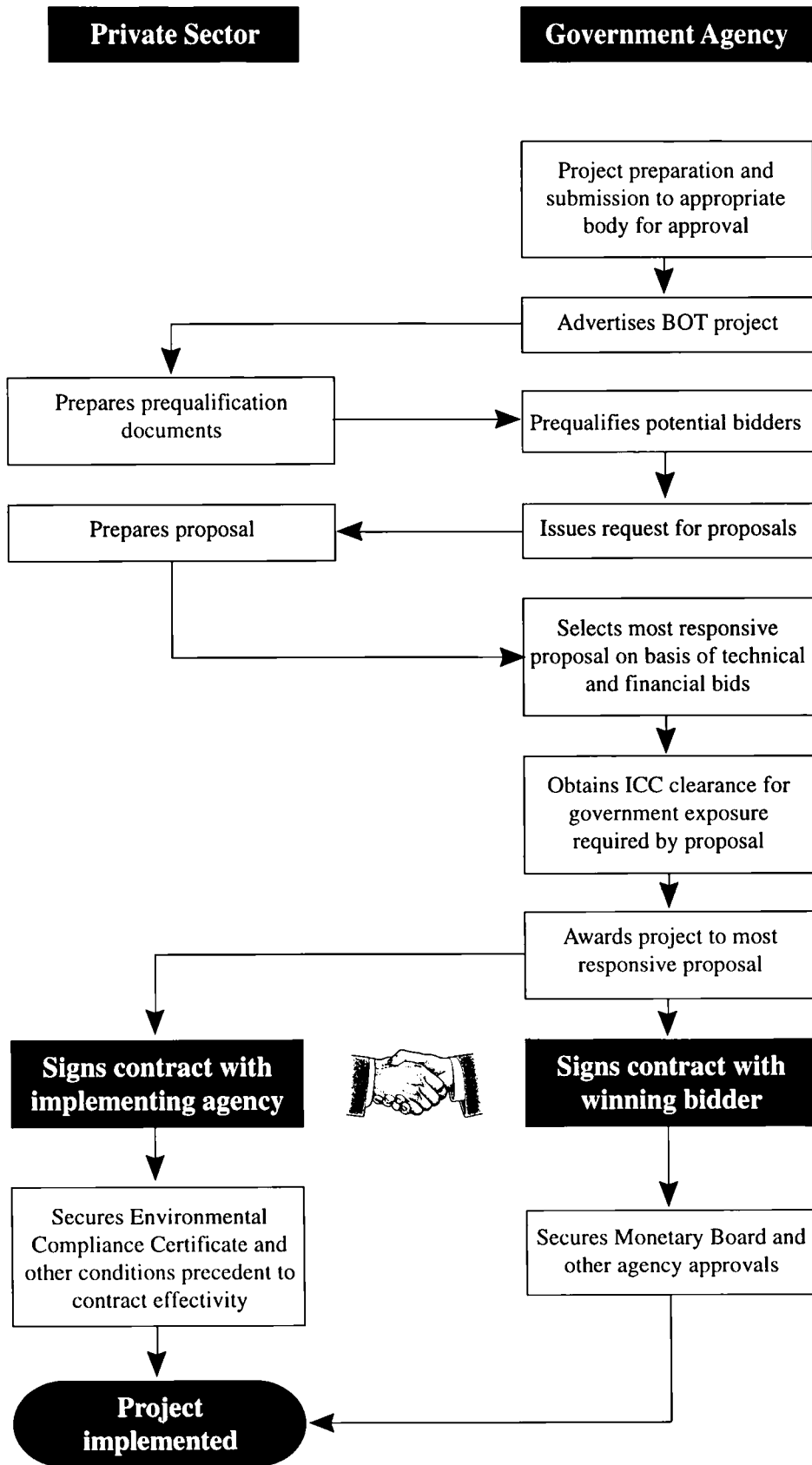


Figure V. The public bidding process under RA 7718 (“the BOT Law”), Philippines

F. Basic data affecting construction costs

Sufficient information should be provided by the basic data in the contract documents supplied to tenderers to enable an experienced contractor to estimate construction costs within a few per cent deviation. If that information is not provided, tenderers will either raise their prices or decline to bid, or a much more flexible contract will be necessary with, possibly, some form of target price or even a cost-plus-fee contract will be needed. Either of these arrangements will virtually destroy the transparency and benefits of the bidding process. Also, the government is likely to carry a high share of construction risks under such arrangements.

G. Protection for the private company

The private company that is appointed should have certain exclusive rights to provide the contracted services for a specified period. Initial investments will be significant. Therefore the private company must be reassured that its investment can be recovered by giving it exclusive rights within the designated services and area. Clearly, consumers may change their consumption patterns, particularly if tariffs are raised significantly, but this would be a normal commercial risk. In any case, some adjustment in charge could be made during periodic tariff reviews.

At the start of private sector operations the system may be deficient and it may take some time to improve it to a reasonable standard. During this period, there is a risk that some major consumers will establish their own independent water supply or wastewater collection scheme. This is most likely where shallow groundwater can be exploited through boreholes on the properties of the private companies. Consumers should not be permitted to make alternative arrangements themselves, or through others, as this will change the basic conditions of level of demand and income assumed in the contract.

An exception may apply in the case of sewage disposal by the private sector (or public sector), when large industrial consumers may be encouraged or required to make their own arrangements for pretreatment of effluent before discharging it into the public sewers.

IX. PUBLIC PRIVATE PARTNERSHIPS

A. Objectives

The preceding chapters have described the water supply and sanitation industry environment in which the private sector could be involved. Irrespective of how this is to be achieved, it has been established that the government will play an important role in any private sector project, which can vary from facilitator to direct partnership. This chapter describes mechanisms which involve close commercial relations between the government and the private sector.

Certain fundamental government policies may constrain the degree of responsibility that is given to the private sector. This can be achieved by combining the government and the private sector in a joint operation. The ideal objective is to try to use the best elements of both the public and private sectors.

There is no standard solution that can be used in all situations, as many details will be specific to each project and will need to be addressed in each case. However, experience from other projects can be very useful as an indication of what to do or what not to do.

B. Company structures

A major private sector operation requires the setting up of a special purpose company (SPC) that acts as the principal or coordinator for a number of contributors. This company is the point of contact with the government and other organizations. The commercial viability of the SPC is the cornerstone of the whole transaction.

The company can comprise some or all of those stakeholders who would cooperate and participate in providing the services including those in:

- (a) The field of infrastructure –
 - (i) Consulting engineers for planning, costing and design;
 - (ii) Civil engineering contractors for construction;
 - (iii) Raw material suppliers;
 - (iv) Capital goods (mechanical and electrical) suppliers;
 - (v) Operator for systems.
- (b) The field of finance –
 - (i) Financial advisers;
 - (ii) Banks providing loans, which is a “debt” that has to be repaid by the SPC under specified terms;
 - (iii) Shareholders taking a stake in the company as an investment in the performance of the company. They have an equity share or holding in its ownership, which earns a return on the investment when the company is profitable;
 - (iv) A private consortium, which forms part of the SPC, and which also invests in the project. It is given a share of the equity proportional to its financial investment, which earns a return when the company is profitable.

The private consortium that provides the equity investment would be the group that has been selected to carry out the assignment.

The method of appointing the private consortium affects how other services and goods are obtained. For example, if the private consortium is selected by a transparent priced competitive bid that includes providing new construction, then the

construction and materials supply costs will already have been minimized by the bidder in order to be competitive; further tendering is therefore unnecessary. On the other hand, a negotiated contract could include estimates of construction costs initially, with the contractor being selected following later competitive bids to obtain the best price for construction current at that time.

The equity share of each participant in the company can be related to the service and commitment provided, together with the risk and responsibility allocated.

The professional advisers could be appointed to provide specific services for a fee with no more than a nominal share or equity holding, or with no holding at all.

C. Direct government partnership

The government can participate directly by being a shareholder in the special purpose company.

In Nepal, a joint company (Melamchi Water Limited) has been incorporated to provide raw water to Kathmandu valley (box 14). The Government of Nepal is participating both directly and indirectly through the existing water and electricity utilities. Local government is also contributing through the Kathmandu municipality. Also, international donor agencies have expressed a willingness to support the contribution to equity by the Government.

The government may also wish to ensure that it still has overall control of certain aspects of the water supply and sanitation sectors. This control could be reduced by its very participation in the special purpose company, especially where it has a minority holding only. Various mechanisms have been used to maintain government control, including:

- (a) More than 50 per cent of the shares held by the government (not feasible without a large equity contribution);
- (b) Giving higher voting power to each government-held share;
- (c) Ensuring, where two other parties also have shares, that neither one holds more than 49 per cent so that the government can hold the critical casting vote with only 2 per cent of shares;
- (d) The creation of a golden share to be held by the government which can be used to block certain actions which are not politically welcome. For instance, for the first five years after privatization of the water industry in England and Wales, the Government held a golden share in the private water companies, which precluded actions such as their take-over by foreign companies. That gave the newly formed companies time to become established as efficient private entities before being subjected to the full rigours of the business environment. Since those shares have now expired, a number of water companies in England and Wales are now owned by overseas companies; however, this is less politically sensitive now than it would have been shortly after the initial privatization.

Although these safeguards may have very sound objectives from a narrow government viewpoint, they can all reduce the attractiveness of projects to the private sector and can be detrimental overall.

D. Financial arrangements

The financial arrangements that are available depend on the level of development of the country's financial market. Given a choice of alternatives and options, a mix should be devised which makes best use of the available funds, as well as the aims and aspirations of the lending organizations.

Potential sources of funding include government, international lending agencies, banks and private investors. The following factors can affect the choice.

1. Duration of loans

Short-term loans are more readily available from commercial banks, whereas international lending agencies can offer long-term loans, especially to countries that are eligible for preferential soft terms. Some local development banks are supported by international loan agencies, sometimes in order to target specific types of development. Generally, these local development banks are looking for relatively rapid repayment in order to be able to finance other new development projects.

Box 14. The Melamchi Project, Nepal

In Nepal, in order to improve the drinking water supply for Kathmandu, the capital and largest city of the country, a scheme for water transfer from the Melamchi River, situated north-east of Kathmandu, has been proposed. About 170 million l/day could be diverted through a 28 km tunnel to the Kathmandu valley to alleviate a severe drinking water supply crisis there. Currently, water demand in the Greater Kathmandu area is estimated at 130 million l/day, while water supply potential varies from 110 million l/day in the monsoon season, with mostly surface water abstracted, to 60 million l/day in the dry season, when groundwater is used predominantly. With water demand annually increasing at the rate of around 6 million l/day, the deficit in water supply in 2001 is expected to be around 80 million l/day.

The cost of the implementation of a water diversion component of the project is estimated at US\$ 60 million, which is beyond the financing capacity of the Government. Therefore, it is intended to implement this component on a BOOT basis with the mobilization of funds from various sources, including the private sector. With this aim, it has been proposed to establish a public limited company as a public private partnership. It is planned to cover some 34 per cent, or US\$ 20.9 million, of the water diversion project cost through a group of the shareholders in the proposed company, which would include the Government and several Nepali public and private companies. The Government has pledged to invest US\$ 10 million or about 50 per cent of the share equity. The remainder of the required funds is expected to come from commercial and soft loans, and from grants. The World Bank has indicated that it could support the project provided that the participation of the private sector is secured. The Asian Development Bank has also advocated the involvement of the private sector.

The proposed company will get revenue from the bulk sale of raw water, delivered by the tunnel to the Nepal Water Supply Corporation (NWSC) which is responsible for water supply to Greater Kathmandu. NWSC would buy about 60 per cent of the water delivered for further treatment and distribution to consumers. Some 20 per cent of the water will be allocated at a fixed charge for release into the rivers crossing Kathmandu, in order to improve the aquatic environment.

The Government of Nepal, which has attached top priority to the Melamchi Project, has set up the company and is now making every effort to mobilize financial resources and implement the project.

2. Risks affecting required funds and their repayment

There are a number of risks that could affect the amount of funds that are required and their repayment.

Construction can have high risks of expenditure over-runs from factors such as unexpectedly adverse ground conditions. Any time overruns may not only increase the cost of works but may also delay use of the facilities and, therefore, their ability to earn income from which to start repayment. The cost of finance from banks will be directly related to their perception of risks. This leads both the lender and borrower to favour using short-term funding for high-risk elements. Once the high-risk aspects have been covered, longer-term funds at lower interest rates could be obtained during facility operation.

3. Source of funds for repayments

Most water supply and sanitation projects will have high initial capital costs, a long useful life and relatively low operating costs. In a large water utility, development will be continuous, so that at any particular time there are always some projects at all stages of development: planning, design, construction, operation, routine maintenance and replacement. The need for construction funds will remain but repayment can come from income earned by the utility. Where tariff levels are specifically related to inflation by some agreed formula, it could be advantageous for repayment terms to be indexed as well. This makes commercial sense to the operator while giving the lender a degree of assurance, especially if the mechanisms for tariff increases allow for automatic adjustment for inflation.

The lenders (among others) will also assess the likelihood of default on payment of dues by consumers, including:

- (a) Debt recovery mechanisms and history, as poor debt recovery clearly indicates a high risk of default;
- (b) The type of purchase contracts, especially with any large consumers. "Take or pay" contracts give more safeguard, as full payment is due even if usage is lower than expected.

Domestic metering with payment for quantity, rather than a flat rate payment, is more risky for operators and lenders because income falls if consumption falls or if it is restricted by rationing introduced during a drought. For example, in England and Wales, the charge for the use of hosepipes is refunded if their use is prohibited, thereby reducing income but with very little cost saving to the utility.

4. Government financial policy

Taxation and financing rules can impact on choice of funds. For example, in the United States of America long-term debt bonds are used to finance infrastructure. These bonds have certain characteristics:

- (a) Long-term, with 20- to 30-year maturities;
- (b) Tax exempted, i.e., no tax is due on their earnings, making them attractive to high-tax payers;
- (c) Reliant for their security on the strength of the underlying cash flows of the project, that is, the reliability of the steady income that the company generates each year to pay returns;
- (d) Fully amortizing.

The tax exemption can be particularly attractive in water supply and sanitation if the private company is not expected to be profitable in the initial years, and interest repayments do not therefore earn tax relief. This effectively allows the transfer of the lost tax relief to the lender. The higher the rate of tax paid by the lender, the greater will be the tax relief benefit and the lower the rate of interest charged by the lender.

Many countries have State pension and superannuation schemes which receive funds that have to be invested. For those schemes, restrictions are often placed on the risks that can be taken and on the minimum returns that are to be earned. Investment in some form of infrastructure bonds can be attractive for them because:

- (a) It is a relatively safe and low-risk form of investment;
- (b) Reasonable returns can be afforded (or arranged with social subsidies to special and poor consumers);
- (c) The investment into infrastructure meets the development targets of the government.

Where a country has large outstanding debts, those debts can be traded in a secondary market. The original lenders will accept partial repayment as a proportion of the face value rather than continue with the risk of no repayment at all. The purchaser of the debt can then convert it, at face value, into an equity holding in an infrastructure project. The attractiveness of this form of equity funding depends on the price that is paid for the debt relative to face value. This price can fluctuate depending on political and economic conditions and factors. Countries themselves can oppose or restrict the debt/equity swaps because they are basically inflationary.

In England and Wales, shares in the water companies were sold in the United Kingdom and internationally (box 15). Likewise, shares in East Water, Thailand, will be sold (box 3).

Box 15. Privatized water industry in the United Kingdom (England and Wales)

In the United Kingdom, the water industry in England and Wales was privatized in 1989. Under the Water Act 1989, the 10 multifunctional publicly-owned regional water authorities were restructured. Their water and sewerage services were transferred to 10 commercial companies – Public Limited Companies (PLCs). Shares in the PLCs were simultaneously floated on the stock market in December 1989 and successfully sold in the United Kingdom, the rest of Europe, the United States, Canada and Japan. By the end of 1989, the ownership and management of water and wastewater companies were in the hands of the private sector within a comprehensive system of regulation. Since then, the new companies vigorously undertook programmes to improve water and sewage treatment processes and to replace or refurbish ageing water mains and sewers, because they had sufficient capital gained from selling their shares. Some of the companies have also become active worldwide and have received many contracts to design, build, manage and administer various water projects throughout the world, including the Asian and Pacific region. See also box 5.

E. Special purpose company development

The special purpose company (SPC) can be established as the first step in public private partnership. An SPC can comprise the public and, possibly, private entities who wish to participate in the equity holding. Initially, it could operate on relatively modest funds which would be used to:

- (a) Establish its legality;
- (b) Appoint management staff and advisers;
- (c) Formulate strategies for attracting private sector consortia to undertake the project;
- (d) Assemble data on the present infrastructure, if appropriate;
- (e) Prepare forecasts of future water demands and sewage disposal;
- (f) Produce comprehensive contract documentation;
- (g) Reach an understanding with large consumers on water sale and sewage disposal agreements;
- (h) Invite and evaluate bids for BOT/BOOT or concessions.

Some of the above activities might be carried out jointly with a potential private consortium if a contract is to be arranged by negotiation, rather than by competitive bids from prequalified groups. The tendency is to favour a bidding process because this is transparent and clearly demonstrates the market value of the package being contracted.

The private consortium that is appointed would form part of the SPC. The SPC would change in nature once the equity holding is increased by the contribution from the private consortium, which would normally now have a majority equity holding. The private consortium will normally have a majority of members on the governing board of the SPC and will be responsible for all operations on a day-to-day basis. The private consortium can operate with an equity holding of less than 50 per cent.

The government will earn income from the equity holding, which could be used to purchase more equity from other holders including the private consortium. The government share of equity would gradually increase. By the end of the contract period, the government could be the majority shareholder. This could make it simpler to set up another operator to continue the activity, possibly with another concession.

F. Strategies for economies in transition

This guidebook is intended for use throughout the Asian and Pacific region which includes some countries of the former Union of Soviet Socialist Republics (USSR). In their transition from a command to a market economy, those countries are facing many new and difficult adjustments in all government activities, including provision of water supply and sanitation. Huge levels of investment are needed in those countries for their infrastructure and social development programmes on rehabilitation and expansion, and governments are seeking financial support from international donors. In addition, the private sector has been willing to take on some schemes, provided the incentives are sufficient to balance the particular risks. So far, few water supply and sanitation services have attracted the private sector.

As control of the process of economic transition is the responsibility of the government, it has a strong influence on how public private partnerships can develop. The private sector will want partnership with the government during the transition because of the high economic risks. The partnership may also help the government in the transition process.

By its very nature, the transition from a centrally-controlled economy to some form of market economy has a strong element of uncertainty. Although targets may be set, their realization will depend on many new factors for which there is no historic behaviour or policy pattern. Therefore, the private sector cannot draw on past experience in order to assess possible future conditions that could affect a long-term contract. Economic conditions may deteriorate before improving. These uncertainties impact on the assessment of almost all the types of risks, but particularly on those related to financial aspects and political risk. On the other hand, one component of the transition process towards a market economy should be the greater involvement of the private sector in helping to finance the development process and introducing a more commercial approach.

It follows that in a transition situation, the private sector will be looking for greater guarantees than might be acceptable elsewhere. This points strongly to some form of close partnership between the public and private sectors, probably a jointly-owned SPC. In addition, support from an international donor agency would have considerable benefits in providing

funds and also in underwriting some risks. Funding from international donor agencies could form part of the equity contribution by the government to a joint SPC or as seeding finance in essential and urgent rehabilitation.

1. Specific factors in transition economies

There are a number of factors that may apply specifically to countries of the former USSR. These factors need to be recognized and addressed in planning how to introduce the private sector into water supply and sanitation and for structuring a workable partnership. Water supply and sanitation were entirely within the public sector, either with central or local government or both.

Some of the characteristics that may affect the strategic planning process are detailed below:

- (a) As some other government activities are becoming more autonomous, or are passed to the private sector, the water supply and sanitation services are now serving large consumers who are becoming more aware of the costs of their operations than previously. Those customers will seek the water supply and sanitation services that they want and will demand value for money. They may even install their own private systems.
- (b) Numerous government organizations have, or had, roles in the planning, construction, operation, and funding of infrastructure. Responsibility can be fragmented and not clear. Accountability is required.
- (c) Infrastructure is often in poor condition and not functioning to the design level due in part to:
 - (i) Installation of technology which was relatively too sophisticated, with little regard for running costs. This is particularly the case with chemicals and electricity, which may have been cheap when subsidized by the government but are now expensive, especially when imported;
 - (ii) The use of standard designs which were not fully modified to meet special local conditions;
 - (iv) Deficient construction which often used inappropriate materials and featured ineffective supervision of construction standards;
 - (v) Annual financial constraints which prolonged the construction period and sometimes resulted in partly finished works and exposed metal surfaces which deteriorated rapidly because they were left unprotected;
 - (vi) Inadequate routine maintenance, and little preventive maintenance.
- (d) Water was, and often still is, highly subsidized and supplied at a nominal rate or no charge, at least to domestic consumers. Industry may be charged many times more per cubic metre than domestic consumers, in order to raise the total income to the water utility to a minimum level. This cross-subsidy can reach a factor of 40 times. Domestic consumption is usually estimated based on household size and consumption norms for the number and type of water-using facilities. A fixed monthly payment per household is calculated from consumption multiplied by the unit charge rate. Industry may pay an assumed usage based on the diameter of delivery pipes. Where large consumers are charged a high rate for water they may install water meters, at their own expense. Measurements may then show an overall saving because consumption was previously over-estimated.
- (e) Details of the infrastructure and the condition of assets are often largely unknown. Replacements are scheduled based on an assumed useful life, not the actual condition that is assessed from performance records and condition surveys.
- (f) Some statistics are well known, for example, the location and number of consumers, but others are often based on simple estimates in accordance with norms.
- (g) Quality regulation is often based on the rigid application of previous norms which may neither be reasonable for particular local conditions, nor affordable during the period of economic transition. The current economic regulation is through allocations out of budgets for funds and materials. It can involve a number of organizations dispersing limited resources.

2. Private sector involvement in economies in transition

The above specific factors in a transition economy will increase the challenges to the planning and execution of some form of private sector involvement in water supply and sanitation. However, the needs for efficiency improvements, cost savings and new finance are often critical. Therefore, substantial benefits can be achieved through appropriate private sector partnership with the public sector, compared with the public sector acting on its own. Many of the organizational improvements and efficiencies that will result from private sector participation will also attract donor funds. A commitment to a long contract period will show sustainability.

The process of planning the use of private finance anywhere includes making accurate forecasts of income and expenditure. It includes assessing factors which could impact on those forecasts. In the former USSR, those same factors will apply but may be more critical; they are listed below. Some possible measures that could be taken by a government in setting up a public private partnership are also suggested.

(a) Income revenue

- (i) The historically low pricing of utility services. Low water and sanitation tariffs must clearly rise if an SPC operator is to receive a fair and reasonable income.

Two possible solutions to this problem are:

- (a) A social subsidy or payments to the SPC can be part of the public sector contribution, especially during the initial years as tariffs are gradually raised to properly reflect actual running costs;
- (b) The earlier practice by the central government of providing new infrastructure as a grant to operating companies who, in effect, held a lease for operation could be continued for major investments.

- (ii) Large uncertainties exist in demand forecasts, especially in economically weak areas.

Two possible solutions to this problem are:

- (a) Agreement on, and periodical reviews of, demand forecasts, and the adjustment of development programmes and tariff levels to reflect any unforeseen under-utilization of infrastructure;
- (b) Arrangement of contractual safeguards against any loss of income through lower growth rates.

- (iii) Untried or underdeveloped regulatory framework.

A possible solution to this problem is, before finalizing the private sector involvement, to begin establishing transparent regulatory systems that could apply to all water and sanitation services, whether operated by the public or private sectors.

- (iv) Unreliable inflation indicators, especially where high rates occur during transition, with under-recovery unless full tariff indexation is achieved.

Two possible solutions to this problem are:

- (a) Sharing the risk of a short-fall in income resulting from inflation;
- (b) Arranging the financial contract with cost pass-through of certain large items, i.e., the full cost of the increase would be directly reimbursed by the government or consumers.

- (v) Non-payment for services provided to large consumers.

Two possible solutions to this problem include:

- (a) Negotiating "take-or-pay" contracts with large consumers, including the government, in which consumers contract to pay for a given quantity whether they use it or not and, in addition, to pay for further consumption above that level, but possibly at a lower rate;
- (b) The government taking a share of the risk of the consumers not paying (counter-party credit risk) and underwriting all government organizations that are consumers.

(b) Expenditures

- (i) The historically low pricing of utility services. This is particularly relevant as the costs of services used by the water and sanitation sector could increase rapidly, such as electricity supply.

A possible solution would be to include direct cost pass-through of major expenditure items.

- (ii) The high foreign exchange risks associated with transition. All income would normally be in the local currency, but repayment of foreign loans would be in hard currency.

There are two possible solutions:

- (a) Guarantee a fixed rate of exchange for a period;
- (b) Include retroactive adjustment during tariff adjustments ("claw back" of past losses).

- (iii) The existence of uncertainties in the enforceability of the legal framework.

Three possible solutions to this problem are:

- (a) Anticipate possible legal issues and introduce new legislation;
- (b) Allow international arbitration or set up a robust independent local arbitration system;
- (c) Accept certain legal risks through indemnification of the private partner.

- (iv) Weak local capital markets which may not be able to assist in financing local costs through local currency loans.

Three possible solutions are:

- (a) Encourage the local finance market;
- (b) Allow investment of State pension funds and other government fund-holding agencies to invest in debt funding;
- (c) Persuade international lending agencies to issue or guarantee bonds for the local currency market.

Box 16. Market-oriented reforms in the water sector in Uzbekistan

Uzbekistan, located in Central Asia, is in transition from a centrally planned economy to a market economy. Until the early 1990s, when the country initiated market-oriented reforms, the Government had been responsible for the construction, maintenance and operation of water supply and sewerage systems. At that time, revenue received by collecting water charges covered only a small part of the State budget allocations for the water supply and sanitation sectors.

The negative effects of the centrally planned approach policies in the water sector were:

- Excessive central control, with urban and rural water supply under different ministries;
- The absence of economic regulation, plus low water tariffs and high subsidies to the sector;
- No local administration involvement in regulating the level of water supply and sanitation services;
- No consumer participation in the process of setting up the level of services;
- Low priority for public services such as water supply and sanitation;
- Neglected and underfunded maintenance of water supply and sanitation systems.

Since the early 1990s, some practical measures have been implemented in order to:

- Develop new water supply and sewerage systems and improve existing ones;
- Decentralize management in the water sector to the provincial level;
- Adjust water tariffs set by local authorities with the objective of recovering operation and maintenance costs, while retaining for the time being cross-subsidies to domestic consumers;
- Withdraw gradually most operation subsidies by the year 2000, except for the operation of inter-provincial long water pipelines;
- Introduce water demand management, including the installation of water meters for new consumers.

In order to make the provision of water supply and sewerage services more attractive, both to the international and rapidly developing local private sectors, the Government is moving towards:

- Increasing tariff levels to domestic consumers as subsidies are reduced, in order to reduce the cross-subsidy factor from supplies to industrial and institutional consumers who could be charged well in excess of costs;
- Institutional restructuring with (a) combining operation and management of services for both urban and rural areas, and (b) the introduction of economic regulation in this sector;
- Economic self-sufficiency of utilities, with greater service coverage and consumers consultation;
- Attracting international investors by offering incentives through tax exemptions and privileges, and by appropriate changes in country's legislation.

Progress in the implementation of these reforms is being kept under review and adjusted as necessary.

Contributed by: Alexander P. Mironenkov, Head of Department, Goskomprognostat, Uzbekistan.

X. COMMUNITY PARTICIPATION IN WATER SUPPLY AND SANITATION PROJECTS

A. Urban water supply compared with rural water supply

Piped water supply and sewerage systems were developed for urban areas where, without them, living conditions would be unpleasant and unhealthy. The tradition also developed that those systems should be provided as public services, usually by the public sector, and consumers would be charged. Such approaches have been appropriate and successful for the following reasons:

- (a) A large number of consumers are served by large-size infrastructure and extensive distribution systems, giving economy of scale;
- (b) Consumers are diverse, and include domestic, commercial, institutional and industrial users, which allows different tariff rates to be charged with some opportunity for cross-subsidy;
- (c) The areas are relatively densely populated so that the length of distribution pipe per head is not excessive (usually around 2 m/head);
- (d) Acceptable raw water sources are not usually available locally for use either by individual households or as a community source because, often, as a result of poor wastewater disposal, local water sources are polluted;
- (e) Community systems are needed for the collection of wastewater and its treatment prior to disposal in ways that limit pollution;
- (f) The risk posed to public health from the spread of waterborne diseases is high if services are poor;
- (g) The population in urban areas operates almost entirely on a cash economy for the purchase of all needs. Because the population has a cash income, urban residents have the ability to pay for water and sanitation services in cash;
- (h) Relatively easy collection of dues for water supply and sanitation;
- (i) Weak urban community bonds, except in those urban areas occupied by closely-knit groups from the same areas of origin or with many relatives.

By contrast, in rural areas, and especially in non-nucleated settlements, the characteristics of water supply and sanitation schemes and communities are:

- (a) Small-size schemes with few consumers, small installations and small diameter distribution systems;
- (b) Mainly domestic consumers;
- (c) Large areas have to be covered, involving long lengths of pipe per head and a high relative cost per head;
- (d) A normally low level of local pollution so that local surface water and groundwater sources can be used safely for water supply;
- (e) Proper on-site sanitation which is acceptable for wastewater disposal;
- (f) A lower risk to public health from waterborne diseases;
- (g) A low level of wages and little cash circulation, with greater reliance on locally produced food and barter trade, meaning that less cash is available to pay for water supply services;
- (h) Difficulty in collecting dues, especially in remote and spread out areas;
- (i) Community bonds, which are often strong, based on religion and clan relationships with a tradition of joint community activities and assistance from the whole community to support those in need.

In many rural areas, the small scale of water supply schemes and the acceptability of on-site sanitation mean that there is less opportunity for the involvement of private companies unless a number of communities are covered together. Cost recovery and maintenance can be difficult for an outside organization because of the distances between dwellings.

B. Community-based projects

For the reasons discussed in section A above, rural water supply schemes are often undertaken with participation of the beneficiaries in the planning, design, construction and, later, the operation and maintenance stages. The involvement of the community is, in effect, a direct private sector contribution in the sense that they are non-governmental.

In a community-based project, the community itself can make certain choices that affect the level of services and the cost of those services. The community should also contribute in one or more forms, such as through making a cash contribution, providing labour free of charge, and by donating land or allowing access over land without payment. The community should take over the completed scheme and collect money from consumers to pay for the operation and routine maintenance. However, not all communities are the same or act in the same way, or are responsive to a community-based approach. Community-based projects are likely to be most successful where:

- (a) The present water supply is of poor quality, unreliable and inconvenient, so that an improved water supply is a top priority for the community;
- (b) The community settlement is integrated, with its dwellers coming from one social group or clan, so that cooperation within the community is good. Many communities combine their resources for harvesting, house-building and other tasks where the total effort of the community is more effective than the sum of their members individual contributions;
- (c) Village organizations already exist that arrange other community activities, and which can therefore form the basis for water-users committees;
- (d) There is no large landowner, or farm organization or government organization that has traditionally provided infrastructure for the development of the settlement;
- (e) A rural water supply scheme uses simple technology that is easily operated and maintained. Preferably, the scheme should not incur high running costs for electricity, chemical inputs and spare parts;
- (f) Operation and routine maintenance are within the capacity of a local skilled worker, after training has been provided;
- (g) The government will provide support for major repairs and unforeseen expenses;
- (h) Both men and women are involved in the development and maintenance of water supply and sanitation systems.

C. Approach to community-based projects

Even with the ideal conditions described above, considerable effort is required to develop a water supply project with the help of the community. In many cases, the development of a water supply scheme is combined with on-site sanitation programmes and hygiene education projects. Engineers and extension specialists (sociologists, anthropologists, hygiene education specialists and trainers of trainers) are involved in those activities, in order to generate the interest of the community and to guide its members through the whole process (see box 17 on Sri Lanka).

The cost of professional services for training and setting up community bodies, as well as for conventional engineering, is greatly in excess of that for urban areas when expressed as a percentage of total construction costs. This is partly because of the effort expended in working with the community and involving them as key members of the project team, and partly because of the small scale and low overall cost of the works compared with urban schemes. Professional services for technical assistance can account for 25 to 50 per cent of the total project costs. The higher figure is reached when the project is a pilot scheme which includes a large training programme for local professional staff by international specialists. Follow-on schemes will have a lower percentage cost for technical assistance, as local skills will now be used more extensively and all processes will be more rapid.

The main benefits of a community-based approach should derive from the greater sustainability of a scheme that has been implemented with the close involvement of the community. Community members will understand the scheme and have a sense of ownership because of their direct contributions. All these factors should encourage the community to run the project more effectively than would be possible with a remote public sector water utility.

The community often provides free labour for construction, but this is not available throughout the year because of seasonal farming activities, which are crucial to survival. Clearly, the indirect cost of diverting labour from sowing and

Box 17. Community participation in water projects in Sri Lanka

Private sector participation is encouraged in service-oriented organizations, with the expectation of increasing efficiency through private sector management. Efficient management by receivers is as important as the efficient management by providers. Therefore emphasis is placed on community participation, especially in rural areas where the Government has failed to provide sufficient services.

The main objective of the community organizations is to provide the service within specified standards, and with the least expenditure and minimum revenue collection.

Three districts in Sri Lanka (Badulla, Ratnapura and Matara) were selected for the implementation of a community water supply and sanitation pilot project. The main objective of the project is to enhance sustainability of rural and small-town water supply schemes. The Government plays the role of the facilitator and coordinator, arranging funds, carrying out training, and monitoring the programme and the quality of work. Lessons learned in this project will be used to implement community water projects in other areas of Sri Lanka. Under the pilot project, some 650,000 families will eventually receive water through gravity-piped water schemes, hand-dug wells, handpump/tubewells, etc.. The project commenced in 1993 and is expected to cover 2,500 villages and 17 small towns in the three districts within five years.

The project is focusing on needy villages and is demand-driven. The main phases of the project are:

1. Project development
 - (a) Village/village centre identification and activation;
 - (b) Community mobilization;
 - (c) Participatory survey;
 - (d) Self-assessment;
 - (e) Participatory planning process.
2. Project implementation
 - (a) Final design;
 - (b) Construction.
3. Project operation and maintenance
4. Monitoring and evaluation
5. Consolidation.

Community facilitators and technical officers, who are specially trained for this purpose, activate and strengthen communities to enhance their ability to plan and implement their water supply schemes and, thereafter, to operate and maintain them. Communities contribute at least 20 per cent of the capital cost.

The operation and management of village schemes are fully looked after by local organizations appointed by the community. In small towns, either cooperatives or private companies are formed with directors and shareholders appointed from the community. Training village artisans and establishing workshops in small towns also promote private sector participation in rural areas.

The community water supply is still in the experimental stage. However, the ownership feeling acquired by the community will be the main driving factor towards achieving the goal of sustainability.

Several shortcomings identified in projects promoted and maintained by the Government can be resolved with the participation of the private sector. In addition, the participation of community-based organizations in providing water supply facilities especially in rural areas, has added advantages.

Contributed by: Tamara P. Lamabadusuriya, Assistant General Manager, National Water Supply and Drainage Board, Sri Lanka.

harvesting would be very large and unacceptable to the community. At other times of the year, the weather may make construction difficult, if not impossible. Programming should allow for those factors. The whole process, from initial contact with the village leaders to completion and operation, can take from two to three years, even for small schemes. The pace is almost entirely governed by the community.

The development of a community-based project can go through many stages over a period of several years, and includes the following activities:

- (a) Assessment of existing water supply and community needs; contact with the community; explanation of the project approach, and discussion on the allocation of responsibilities, costs and contributions;
- (b) The evaluation of possible water sources, possibly with the community measuring spring or stream flows throughout the dry season to assess reliable yields, together with a survey of terrain and distances and an agreement with the community on the type of supply (stand posts, yard taps, house connections etc.), including cost implications;
- (c) The establishment of water-users committees. In some communities, social convention requires separate committees for men and women who have different roles within the community. Women are particularly interested in a good, convenient water supply and, in several cases, have organized their own project; one example is the Barangay Waterworks and Sanitation Association in the Philippines;
- (d) The preparation of engineering designs, discussions and agreement with the community. A formal agreement on the contributions in cash, labour and land from the community and the contribution from government;
- (e) The procurement of construction materials and implementation by skilled local construction teams, with unskilled assistance from the community, all under supervision of the government to ensure proper standards of workmanship and financial control;
- (f) The testing of the completed scheme, instruction on its operation and its hand-over to the community by the government;
- (g) Periodic reviews by the government to check that the operation remains satisfactory.

The speed of these activities is governed mainly by the enthusiasm of the community. Projects are often most effective in the poorer communities which are prepared to put in more of their own effort and cannot afford to contribute cash. Many communities may show little enthusiasm initially. However, this attitude improves when the community members begin to see the full impact of their contributions, or when they visit other communities that have successfully completed similar schemes.

Often politicians will try to reduce the financial burden on villagers by negotiating greater support from the government. It is essential that the planning of a community-based project sets out very clearly the parameters for operation and maintenance.

Various options for community contribution to capital costs are incorporated in donor-supported projects, including:

- (a) Community contributions, which can range from 20 to 40 per cent of the total construction costs. The allocation of land for pipelines, for example, can be part of the community contribution;
- (b) The collection of cash by communities and the application for a matching or proportional grant from the government.

There is no doubt that the success of community-based projects depends on the strength of the community, and the presence within that community of educated leaders who can organize the necessary decision-making and contributions from the villagers. Often the social structure is such that contributions are assessed by the community, so that each household contributes in a way that it can best afford. Some of the more wealthy villages may choose to contribute cash, whereas others who are poorer may opt to provide labour. The elderly or disadvantaged may be supported by the rest of the community.

Any approach to involving the community in water supply and sanitation activities needs to take full account of the existing culture, local administration and social organizations. It takes time for professionals skilled in social sciences to understand the functioning of the community, to gain their confidence and to give guidance to their leaders. In particular, outside assistance should ensure that all the members of the community are included in the project, and not just a few close associates of the local leaders or strong local groups.

In Bangladesh, the Grameen Bank has been successful in providing small, short-duration loans for shallow tubewells with handpumps in areas where the groundwater table is high and the total cost of the installation is low and affordable. Women have been particularly prominent in taking loans (box 18).

Community-based projects should not be considered only for rural areas, although that is where they are normally developed. Similar methods could be used in urban areas, especially where a close community has grown up. This may be most likely in poor peri-urban areas of squatters or semi-permanent housing.

Often a public water utility cannot, or is reluctant to, install a local water distribution system in poor areas because of doubts concerning land ownership and the legality of housing, plus difficulties in access and formal revenue collection. However, it could provide a bulk-treated water supply (preferably metered) to a point near to the outside of the area, from which the local community itself could arrange its own informal distribution system which should be reasonably leak-proof. A system of flexible hosepipes could be acceptable and appropriate in a congested area. The community itself would check that leakage from the pipes was not excessive and that households used water properly.

The community would accept responsibility for paying the water fees and would collect dues from community members. Small communities can arrange their own ways of charging users, based on their own assessment of usage, for example, by the number of members in each family. The photograph VIII shows the allocation of infrastructure charges for a small community in Beijing which is calculated each month by heads of households in rotation. Families in blocks of modern apartments in China also share water bills.

It must be emphasized that, in community-based projects, the standard of materials and construction of pipework should be good. This is especially important where water has a high value, either because of shortages of pumping and chemical treatment costs, or because it has been purchased in bulk from a supplier. Poor workmanship can cause continuous and substantial leakage. The workers making pipe connections should be properly trained and supervised, and the completed system should be tested at least under normal working pressure.

Box 18. How the Grameen Bank finances rural water supply in Bangladesh

The Grameen Bank is well known as a provider of credit to more than 2 million poor and landless people in Bangladesh. A large proportion of the clients of the bank are women. The greatest innovation of the bank has been to find an alternative to traditional forms of collateral. The key principle is to form small groups of borrowers who support each other. If any borrower defaults, the group to which that borrower belongs is no longer considered creditworthy and is no longer eligible for loans.

In recent years, lending by the Grameen Bank to rural water suppliers has risen dramatically. The nominal annual interest rate charged on loans for tubewells is around 20 per cent, repayable over two years in weekly instalments. The handpumps are procured locally by the borrowers, either from the Public Health Engineering Department or from local private manufacturers.

The relevant recent statistics are listed below:

Zones:	14
Grameen Bank branches:	105
Villages:	35,753
Number of tubewells:	447,528 (up to June 1996)
Number of persons taking a loan:	447,528
Male:	26,860
Female:	420,668
Total amount of loans disbursed:	US\$ 3.00 million
Total amount of loans recovered:	US\$ 2.75 million
Percentage of recovery:	92 per cent
Number of trainees:	Over 130,000 (all women)

Sources: United Nations Children's Fund (UNICEF) data, and Md Lutfor Rahman Chowdhury, Ministry of Local Government, Rural Development and Cooperation, Bangladesh.

XI. REGULATION OF PRIVATIZED WATER AND SANITATION UTILITIES

A. Reasons for regulation

Piped water supply is a natural monopoly which serves a basic need and which has a profound effect on the health of the whole community. Sanitation also affects public health, but a sewerage system is not necessarily a monopoly since alternative on-site sanitation methods of sewage disposal are acceptable in many circumstances.

In most countries, both services have normally been undertaken by the government because of its responsibility for the general well-being of the whole population. The government has implicitly, or explicitly, chosen the level of service that it will provide and has decided how much consumers will be charged. Often, tariff levels for water have been kept low so that the charge is affordable by the poorer strata of the community, and the government has subsidized the service. Charges for sewerage are normally added to the water rate.

The greatest benefits of market forces are realized where competition ensures that both the service provided and the price which is paid for it are right for each consumer. Some consumers may like a good product at a high price, whereas others may prefer to pay less for a poorer item. In theory, this choice can be incorporated in the water tariff structure by charging at a higher rate for greater use.

In a monopoly piped water supply situation, there is no real direct competition between suppliers. Customers do not have the opportunity to choose from whom to obtain their piped water. Most do not have the freedom to opt out of the service if they are not satisfied. Their only recourse is to complain. The only exceptions are large consumers who may prefer to provide their own services because this option would be more reliable or cheaper. They are more likely to opt out if they are also charged at a high rate in order to cross-subsidize domestic consumers.

A monopoly supplier may be tempted to try exploiting his strong position to either raise prices unreasonably or reduce the service, or to do both. In many areas, the public water and sanitation utility has let the services deteriorate because of inadequate funding for expanding the system at a rate to match the increase in demand. Economic and quality regulation is essential to ensure that the private sector provides an acceptable service at a fair price, but regulation is equally applicable to the public sector.

The aim of the economic regulator is to create a proxy for a competitive environment, in order to obtain a fair balance between the service and charges that could be achieved if true direct competition existed. The regulator should be sensitive to the views of the consumers. Where a number of organizations are providing the same product but in different areas, their performance can be compared in order to show which ones appear to be performing better. Some competition by comparison is thus created.

When the first one or two water supply operations are handed over to the private sector, no mechanism such as competition by comparison will exist; but if other water corporations are privatized, valid comparisons will be useful in demonstrating their relative performance and achievements. Initially, greater reliance has to be placed both on the analysis of detailed information provided by the private sector and on comparison with similar organizations elsewhere in the world.

To be credible, the economic regulator must not be closely linked to the government, the private operator or consumers, although he will work with all. A balance has to be struck which is equivalent to creating quasi-commercial conditions, but within a relatively low-risk environment. Clearly, the introduction of excessive commercial competition, or even the risk of fair or unfair competition, could either discourage the private sector entirely or increase the general risk levels. This, in turn, could raise the cost of borrowing by the private sector and, eventually, the cost that consumers would have to pay for services.

Regulation is normally associated with private sector operations of water supply and sewerage. However, the same concepts of independent control through transparent regulation are equally valid where operations are in the public sector. Many countries already have quality regulation for drinking water, bathing water and treated effluent, but economic regulation would also be beneficial to public sector operations. Therefore, establishing a regulatory framework and organization can, and should, precede private sector involvement.

B. Aims of regulation

The main aims of economic regulation are to ensure that:

- (a) The consumer receives a proper service;
- (b) The private sector operates efficiently;
- (c) The private sector makes a reasonable profit.

Private sector arrangements can be operational for 20 to 30 years, so obviously a creative working relationship must be developed between all parties. If the private sector is prevented from earning a fair return, it will not receive the support from bankers which is essential to the continued financing of operations. The service would deteriorate. The private sector should be allowed to retain at least some of the savings made through increasing efficiency.

In addition to the main objectives, the regulator could also:

- (a) Advise the government on how to incorporate its social objectives, if any, into water supply and sanitation policies;
- (b) Encourage the proper use of water, including a reduction in avoidable wastage;
- (c) Stimulate the interest of the consumers, the water utilities and the government in water and sanitation affairs, with creative suggestions;
- (d) Review water supply and sanitation expansion and improvement programmes;
- (e) Liaise with those government organizations responsible for granting water abstraction and sewage/industrial effluent disposal licences;
- (f) Review routine checks made by government organizations on water and effluent quality.

C. Status of regulator

The relationship between the government, the private sector and the regulators must be one of mutual understanding of their respective roles and respect for their objectives. The principles of regulation should be clearly stated and published in order to achieve transparency. Detailed information on the commercial aspects of operation and performance will normally not be made accessible by the public, while statistics on technical performance would be available. The economic and quality regulators should publish annual reports.

The regulator should work at 'arms length' to both the government and the private sector company, although it will be necessary to work closely with both on certain aspects of the operations. The regulator must, therefore, have a 'professional approach' and be able to separate his functions when needed. The regulatory body could be headed by one person, as in the case of the Director-General of OFWAT in England and Wales, or a Board. In Buenos Aires, the regulatory board has six members, two each from different central and local government organizations, with the chairmanship rotating annually. The director-general or the board of the regulatory body should normally be appointed for a fixed period (for example, five years), which could be renewable. The regulatory body should be an independent, autonomous and non-ministerial government department with designated powers in its own right, plus the ability to assume powers delegated from ministers.

The regulatory body can be funded out of the tariffs or licence fees for abstraction or from other sources. Annual budgets should be prepared which would be incorporated in the annual tariff review in the case of a direct levy, or passed to licensing bodies. In reality, the consumer will pay for regulation either directly or indirectly.

D. Staffing

The size of the full-time staff in the regulatory body will depend on:

- (a) The methods adopted for measuring the performance of the utility, and the complexity of the technical and accountancy checks involved;
- (b) Its role in quality checks of water and effluent discharge;

- (c) The extent of the delegation of duties from the government such as licensing abstraction of water and discharge of effluent;
- (d) The extent to which independent professional services are used for technical and financial audits;
- (e) The extent to which independent certifiers are used for verifying data submitted by the private sector and possibly received from government.

The economic regulatory body for the water industry in England and Wales (OFWAT) is small. Systems of reporting by private water companies have been developed by the regulator which are standardized and computer-based, so that data can be analysed and compared easily. In addition, independent professionals are used to:

- (a) Provide independent opinions and audits of data submitted by water companies;
- (b) Broaden the experience that the regulator can draw on;
- (c) Avoid variable work loads for the regulator, caused by peaks at audit and tariff review periods;
- (d) Avoid creating a large organization to handle the considerable tasks of setting up the regulatory framework, as it would have to be reduced in size once procedures are established and are working;
- (e) Compensate for the scarcity of suitably qualified and experienced professional staff prepared to undertake a long-term regulatory role;
- (f) Demonstrate transparency in the regulatory processes;
- (g) Make maximum use of experience in countries with similar conditions.

The initial size of the regulatory body will also depend on government plans to privatize water and sanitation utilities, and the subsequent annual work load.

A range of skills will be required within the staff of the regulatory body or within its professional advisers, covering:

- (a) Management;
- (b) Overall planning;
- (c) Financial planning;
- (d) Engineering;
- (e) The operation of water and sanitation utilities;
- (f) Accounting;
- (g) Public relations.

E. Setting up the regulatory body

The activities involved in setting up the regulatory body are:

- (a) Selecting and appointing a full-time director-general or board of management (whose members may not be full-time staff). The staff should be respected senior professionals with no conflict of interests, who would serve for a designated period and could only be dismissed for non-political reasons;
- (b) Planning the regulatory organization, including the preparation of job descriptions for senior posts;
- (c) Preparing budget estimate and obtaining initial funding from the government;
- (d) Obtaining suitable offices and facilities;
- (e) Recruiting key support staff, who would then recommend and recruit members for their sections;
- (f) Appointing foreign and local advisers for specific tasks;
- (g) Establishing working procedures for interaction with the government;
- (h) Obtaining copies of all performance records of the existing systems and, if necessary, taking measures to improve the records;

- (i) Identifying long-term planning issues;
- (j) Drafting directives on preparing and submitting data for regulation.

F. Operation of the regulatory body

The operation of the regulatory body will depend on its role in a number of key areas, including:

- (a) Monitoring the standards of water supply and effluent disposal;
- (b) The expansion of the systems;
- (c) Making improvements in the systems;
- (d) Advising the government on the overall strategy for water and sanitation matters.

These tasks may be better handled by ministerial departments than by the regulator; however, the regulator should work closely with the government on issues that could affect regulatory aspects, such as the need to provide for increasing water demands or improvements to the environment.

If the intention is to privatize a number of water and sanitation utilities, there are considerable advantages in having those organizations all reporting to the same regulator on certain specified performance parameters.

The regulator will work on an annual cycle covering:

- (a) Technical performance as specified in the private sector agreement;
- (b) Planning to short-, medium-, and long-term time horizons;
- (c) Financial performance (not all aspects will be reviewed annually);
- (d) Tariff levels;
- (e) Reporting.

A possible programme is given as figure VI to illustrate how the annual regulation cycle could be phased, if the regulation process starts at about the same time as the private sector operation. The review and adjustment of the process each year reflects the need both to allow for local experience and to respond to changing conditions as operations improve. It has been assumed that the regulatory year coincides with the calendar year. One constraint on timing may be a need to phase in with the government's annual budgeting process.

G. Programme for establishing a regulatory body

A possible programme for setting up the regulatory body is given as figure VII. When the operation is in the public sector there is often no satisfactory regulatory framework, with sufficient independence and transparency, which will be effective when the operation is transferred to the private sector. Under these circumstances, quick action is needed to define regulation procedures and to establish a regulatory body. The programme has to be compressed as much as reasonable. In Buenos Aires, for example, the establishment of the regulatory body was spread over about three years.

Professional advisers are valuable in initiating and guiding the process.

Activities	Months	Concession Year 1												Concession Year 2												Concession Year 3												Regulator	Government	Concessionaire
		1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12			
A. TECHNICAL PERFORMANCE																																								
Reporting procedure		— (1+)												— (2+)																						✓				
Audit data										— (1)						— (1)						— (2)													— (3)				✓	
Analyse concession data																	— (1)																		— (2)				✓	
Analyse water quality data																— (1)																			— (2)				✓	
B. PLANNING REVIEW																																								
Rehabilitation					— (1+)													— (3+)																	— (4+)				✓	
New works					— (2+)													— (3+)																	— (4+)				✓	
C. FINANCIAL PERFORMANCE																																								
Reporting procedure		— (1+)												— (2+)																							✓			
Audit data																— (1)																			— (2)				✓	
Analyse concession data																	— (1)																		— (2)				✓	
D. TARIFF LEVELS																																								
Prepare budget for Regulator						— (2)												— (3)																	— (4)				✓	
Review government budget							— (2)											— (3)																	— (4)				✓	
Review total budget										— (2)												— (3)													— (4)				✓	
Approve tariffs											— (2)												— (3)												— (4)				✓	
E. PUBLISH REPORTS																																								
Technical performance																		— (1)																	— (2)				✓	
Annual																		— (1)																	— (2)				✓	

(...) applicable year

Figure VI. Regulatory cycle for water supply and sanitation projects

Activities	Duration in months										Advisers	Government	Water utility	Regulator
	2	4	6	8	10	12	14	16	18					
Prepare outline of regulation	—										✓			
Document system	—	—									✓			
Prepare database for regulator	—	—	—	—	?						✓		✓	
Appoint Director General		—									✓	✓		
Prepare organization, job description		—	—								✓			✓
Prepare budget estimate	—	—									✓			✓
Obtain funding	- - -	- - -	—									✓		✓
Obtain office facilities		- - -	—									✓		✓
Recruit key staff		- -	—	—							✓	✓		✓
Appoint specific advisers	- - -	—	—	—	—	- - -	- - -	- - -	- - -		✓	✓		✓
Set up database				—	—	—					✓		✓	✓
Accept delegated powers						—					✓			✓
Prepare regulation directives						—	—				✓			✓
Agree interaction with the government						—	—				✓	✓		✓
Establish Management Information System (MIS)				—	—	—	—				✓	✓	✓	✓
Planning, demand/supply forecasts					—	—	—	—			✓	✓	✓	✓
Establish audit procedures					—	—	—				✓			✓
Set up data analysis procedures							—	—			✓		✓	✓
Prepare financial model			- - -	- - -	- - -	- - -	- - -	- - -	- - -		✓	✓	✓	✓

Figure VII. Programme for establishing a regulatory body

XII. TARIFFS

The activities of the economic regulator are primarily related to balancing the needs of the utilities and the interests of the consumers. The main requirement is to generate sufficient income for operating the water utility at a reasonable level of efficiency. This means the regulator will have to fix the total income, but not necessarily how that income is generated from different types of consumers.

A. Tariff structures

The objective of any tariff system is to allow the private sector (or public sector) to earn a fair return on, say, the operation of a water supply and sanitation system, while ensuring that consumers have access to an adequate supply of high quality, fairly priced water or to adequate wastewater disposal.

The overall tariff rates must be set in such a way that they generate the revenues required to operate and maintain the systems, while also providing for a reasonable expansion of services. In a mature water and sanitation system, the cost of expansion would be minimal; however, this is not the case in many rapidly developing countries and expanding cities, especially where the development of infrastructure has lagged behind population growth. In addition to servicing new consumers, existing consumers may also require more and better quality water as their living standards rise and as they install more water-using facilities. Total demand can, in fact, increase rapidly.

Generally, existing water supply and sanitation systems require rehabilitation, improvement and expansion. Rehabilitation activities are required to bring deteriorated facilities back to adequate levels of operating capabilities. Improvements cover the upgrading of existing facilities to provide greater and more reliable supplies of water as well as to improve water quality. Expansion requires investment in new facilities to enable the provision of water supply services to areas not previously served, or the provision of new services such as sewage treatment where sewage is currently collected but discharged without treatment. Some of these activities will generate increased income directly through serving more consumers, while some activities may improve the quality of service to each consumer, which could justify an increase in price. Other activities may benefit the general environment, which could be passed on to consumers as an overall charge.

The tariff rates must be set in such a way as to ensure that operators will provide a good level of service and, at the same time, that they are provided with an incentive to operate more efficiently. If the tariff rates were set such that private sector operators would lose money on the operation, they would probably try to cut costs, thereby causing a deterioration in service quality. If, on the other hand, the tariff rates are simply on a rate of return or cost pass-through basis, i.e., all costs are paid in full, the operators would have no incentive to operate efficiently. The resolution of these issues requires that the initial tariff rates be carefully set and a sound methodology for an annual adjustment be established.

It is the role of the economic regulatory body to oversee and approve the tariff rate level and its adjustment. Adjustments can be made on an annual or five year basis. However, if inflation is high, or could become high, a further safeguard is to have an automatic re-evaluation of tariffs if the cost of living rises by a specified amount following the previous review.

The tariff rate structure should cover the following cost components:

- (a) Operational and regular maintenance costs. These costs are determined by the operator;
- (b) The cost of agreed rehabilitation. This cost should be met by the operator and a rehabilitation plan should be approved annually by the regulatory body;
- (c) Taxes. These are the taxes (if any) that the government may charge the operator;
- (d) Profit. The private sector must be permitted to earn a profit on its operations;
- (e) Current financing costs associated with the expansion and improvement programme. These costs are determined as part of the annual programme for new investments. The actual costs may be incurred by the operator or by the government, depending upon who is responsible for the implementation of the investment programme (see chapter III). In some cases, the government may have better access to low-cost financing (for example, low interest loans from international donors), in which case these costs could be met by the government;

- (f) Future investments reserve fund. It may be appropriate to include in the tariff rate a component that would finance a reserve for future investment. This component may be set at zero in the first few years, especially where there is a large requirement for current investments;
- (g) Regulatory body operating costs. These costs are associated with the operation of the regulatory body, which would estimate them for inclusion in the annual tariff adjustment.

B. Overall tariff rates

The average tariff rate is set within the general tariff framework to cover all cost items. Various methods of assessing a reasonable profit are in use.

In the United States of America, the profit level would normally be determined by a regulated rate of return on the rate base, i.e., the value of assets (cash, receivables, inventories, plant and equipment, and construction in progress) in use by the utility in the provision of the service. In a lease or concession, the private sector is not buying the existing assets. In a concession, any new infrastructure assets provided and paid for by the concessionaire are normally owned by him until hand-over to others at the end of the contract period. In any case, an accurate valuation of the current rate base does not normally exist and may not exist for several years. Consequently, charge rates should be part of a competitive bid by tenderers. Those rates of the successful bidders would then be fixed for several years. Over time, as accurate values of the rate base are established, the regulatory body may apply some form of the rate of return methodology.

In England and Wales, the water and sewerage economic regulator, OFWAT, has completed one review of tariffs five years after privatization. In that review, the rate base was taken as the valuation implied by the early share prices soon after privatization. That valuation was considered to be more realistic than a much higher value based on current replacement costs or the cost of a modern equivalent asset, i.e., one that met the same performance requirements but used modern technology. The historic construction costs of old assets from many years ago, with adjustment for depreciation since their construction dates, would be unrealistically low.

In fact, the infrastructure of a water supply and sanitation utility has virtually no intrinsic value outside its original purpose, because the great majority of the infrastructure components do not have any alternative use. Exceptions could include impounding reservoirs which may be used for recreation or irrigation, spare land that could be sold, and offices and work shops. The value of the infrastructure to the private sector is solely the income that can be earned through efficient use of the whole facility.

C. Tariff reviews

In a system of tariff review based on a rate of return principle, a new tariff rate is established each year. This means that the regulator is very closely linked with the annual budgeting and forecasting process of the utility. He can become too closely involved in day-to-day decision-making to maintain an independent opinion. In addition, he would be asked to confirm tariffs at a level which achieved the agreed profit each year. This gives no incentive to the private utility to improve its efficiency while maintaining the contracted level of service. Without this incentive the customers will not benefit in the long term.

The costs associated with the rehabilitation of the system would be identified in an annual rehabilitation plan that would be approved by the regulatory body. Often these expenses could lead to an adjustment in the efficiency of operation because the rehabilitated facilities would be more efficient. The investment programme costs and the cost of operations of the regulatory body would be determined annually.

Thus, the determination of the annual tariff rate would require some interaction between the regulatory body, the private sector company and possibly the government in the event of no agreement being reached. The tariff structure would have components that are adjusted on the basis of inflation, and components which are subject to annual adjustments based on the plans that are approved by the regulatory body.

An alternative approach is to have less frequent periodic reviews, say every five years, in order to fix an upper limit to the price adjustment that would be permitted in addition to any adjustment for inflation. All costs, including expansion and operations and maintenance costs, as well as the profit factor, would be set to a price cap adjustment system. That is, those costs would be increased by a factor that consists of a measure of inflation (an appropriate, independently published price index) modified by an efficiency factor. In that manner, the concessionaire has an incentive to operate efficiently because his income is fixed and any cost saving is a gain.

The scope for major technological innovation is limited in the water supply and sanitation industry under normal conditions of reasonable levels of service. This contrasts with younger technologies such as telecommunications, where rapid technology advances are consistently improving performance and reducing costs. As water quality standards are raised, new and better technology is being developed, but this is a small part of the overall systems. The scope for cost reduction from innovation is limited. In developed industrial countries, efficiency gains are achieved by using automation to improve control and allow some reduction in staff, who are relatively expensive.

The price cap system sets a maximum annual rate of increase in tariffs as

$$T = RPI - X$$

where T – annual overall tariff rise,
 RPI – increase in retail price index,
 X – the efficiency saving expected.

However, in England and Wales, by the time of water industry privatization, historic capital investments had been lower than ideal. Refurbishment was necessary. In addition, major works and improvements were also necessary in order to meet new quality standards of water and for effluent disposal. The tariff adjustment formula was modified to

$$T = RPI - X + Q = RPI + K$$

where Q – the cost of meeting new levels of service and standards,
 K – an overall factor combining efficiency savings and quality expenditures.

Factors, expressed as a percentage change, and set by OFWAT in the last periodic tariff review, and agreed on by water companies in England and Wales, show some (small) efficiency savings up to a few per cent. However, they highlight the increases in tariffs to adjust the balance between levels of service, infrastructure development and tariffs. K factors are positive but differ for each company because of local conditions.

D. Tariffs by type of consumers

The agreed K factors in England and Wales now limit the overall tariff increase that each water company can make in tariffs each year for the five year period, up to 1999. The water companies have discretion on how the charges are allocated to types of consumers, with the exception that the regulator will not allow one category of consumers to be favoured over others, and the unit rate (per cubic metre) charged is kept uniform within each company.

In many countries, the present charging pattern is not uniform. Often, industrial and commercial consumers are charged at unit rates which are higher than those used for domestic consumers by a factor of 3 to 5. In countries with a tradition of free water or very low domestic charges, the factor can reach 40 times. In some industrial countries (for example, the Republic of Korea), major industrial consumers are charged less than domestic consumers. This could reflect a logical application of economies of scale. Some more relevant information is available in another ESCAP publication on pricing policies and structures for urban and rural water supply.

The regulator should review the impact of any distortions of charge rates. This is particularly important where charges to major water consumers may become so high that it is cheaper for them to install their own dedicated system and to opt out of the public water supply. The loss of those large customers could leave the utility with over-capacity and certainly with a loss of income.

XIII. SUMMARY AND CONCLUSIONS

A number of countries in the Asian and Pacific region have already involved, to a certain extent, the private sector successfully in the delivery of water supply and sanitation services. Others are actively trying to bring projects to fruition with the participation of the private sector, and many are keenly interested in the potential of this development route.

It is widely recognized that governments are under extreme pressure to make improvements in the water supply and sanitation sectors, but also that public funds are limited and must serve many other sectors. It is also recognized that the private sector might assist in providing those services by making additional skills available, together with some contribution towards funding needs.

Regional experience in involving the private sector is described in the various text boxes in the body of the guidebook. They give the situation in several countries as of mid-1996, but conditions are changing fast. Some specific projects are mentioned here to illustrate the range of regional experience. The list is not intended to be comprehensive nor to include many countries.

The Coordinating Council of the Philippines Assistance Programme (CCPAP) has published a handbook of detailed procedures for all types of BOT projects in all sectors. It sets out the conditions under which BOT contracts can be let in the Philippines, including the degree of local ownership. China held a large seminar entitled "BOT in the Water Supply Sector", in October 1996. These activities indicate the importance of BOT-type contracts and mechanisms within a general policy for involving the private sector more in the water supply and sanitation sectors. The BOT approach applies mostly to funding and operating new infrastructure components.

Some countries also have, or are close to having, concession contracts for the operation and expansion of old systems. Malaysia has let long-term concessions for water supply and sanitation. In 1985, Macau entered into a 25-year concession with a joint foreign consortium for full water supply services. In 1994, the Provincial Water Authority of Thailand established an autonomous company, East Water, to operate the existing bulk water supply system in eastern Thailand under a lease-type contract. This will be converted to a concession shortly to include expansion of infrastructure, to be funded by offering shares in the company on the stock market.

Bangladesh has started pilot tests of service agreements with private companies for billing and revenue collection for water supply. India and Bangladesh provide local public toilet, bathing and washing facilities which are operated by contracting out to the private sector. Pakistan and Sri Lanka are actively undertaking community-based rural water supply and sanitation projects. In Bangladesh, the Grameen Bank has provided short-term loan funds for almost 500,000 shallow tubewells with handpumps in rural areas. The great majority of funds have been lent to women, who have no land rights. Turkey is establishing public private partnerships for water supply with jointly-owned special purpose companies, including the government and private companies. Countries in transition from a command economy to a market economy are studying the requirements for legislation in advance of actually introducing the private sector.

The reasons for, and benefits of, involving the private sector are explained in this guidebook, with emphasis on introducing the private sector in a manner, and at a rate, that suits each specific situation. This leaves the possibility of progressively greater responsibility being passed to the private sector if local experience is good.

In order to reflect the existing scope of private sector involvement, the coverage of this guidebook has deliberately been made broader than the common BOT arrangement. The guidebook covers a wide range of options, from small-scale rural schemes implemented on a community basis to major long-term concessions let by international competitive bidding to large consortia. In fact, many of the procedures recommended for running water supply and sanitation services in the private sector are equally applicable to the public sector. These procedures include detailed forward planning, greater emphasis on providing the service required by customers, and independent economic and quality regulation.

A few basic policies and procedures for the good management of a water supply and sanitation service are described too. In particular, it is pointed out that the levels of service provided, the state of infrastructure development and the income to the utility must be in balance if the service is to be sustainable. The recommended approach highlights the importance of sound operational data, good forecasting and the advantages of a robust business plan, for at least five years ahead, which must include realistic targets of levels of service, expenditure and income level from tariffs. Even where there is no immediate plan

to involve the private sector, the introduction of these techniques in public utilities would improve their performance and, in addition, would later make them attractive to the private sector.

The importance of considering the interests of all stakeholders is also explained. The government has a key role to play in creating the political, legal and financial conditions (enabling environment) in which the private sector can be most effective. It can act solely as a facilitator or participate directly as an equal partner with the private sector in joint companies. The importance of the consumers is emphasized, whether they are domestic, commercial or industrial, together with the need to provide the service that they want and can pay for. The possibility of the provision of selected subsidy for social aims is discussed.

The recommended approach to planning the involvement of the private sector in water supply and sanitation is to consider the possible risks in alternative scenarios. Strategies should aim at avoiding or minimizing risks as far as possible, allocating any remaining risks to those stakeholders who can influence them, and sharing those that remain. Tariff revisions and economic regulation are critical to defining and sharing financial risks. The private sector companies will not support a proposal that is unbalanced, with too much risk passed on to them. The steps in developing a planning strategy are also covered. This concludes by showing the potential benefits of a joint public private partnership as a mechanism for risk sharing.

The key contract conditions are also discussed, with an explanation of the need to specify those aspects clearly within contract documents. The contract should describe the safeguards that can be provided to the private sector.

The guidebook covers the formation of special-purpose companies as a mechanism for close public private partnership. A section is devoted to the special and particular treatment of economies in transition. The special case of private sector participation through community-based projects is also covered, with details of direct experience and significant success from major projects.

The need for transparent economic and quality regulation is a theme running throughout the guidebook. Suggestions are given for procedures for setting up a regulatory body. The importance of the independence and integrity of the regulators is emphasized. The guidebook also covers periodic tariff reviews with control by rate of return and price cap mechanisms. The requirements for sound planning are stated.

The guidebook concludes that experience to date in the region is consistent with findings elsewhere, namely that:

- (a) The involvement of the private sector successfully in the provision of water supply and sanitation services in the Asian and Pacific region has led to:
 - (i) Better services;
 - (ii) Access to funds outside government budgets;
 - (iii) Improved cost awareness;
 - (iv) Greater transparency;
 - (v) A better and clearer understanding of the relationships between levels of service, infrastructure development and tariffs;
 - (vi) Recognition, evaluation and better handling of risks;
 - (vii) Greater value for money through improved operational efficiency and managerial flexibility.
- (b) The approach to involving the private sector into water supply and sanitation services should be based on:
 - (i) A thorough knowledge of the existing systems and organizational arrangements;
 - (ii) Risk evaluation and a strategy for risk handling;
 - (iii) Open-minded analysis of private sector participation options;
 - (iv) Realistic targets;
 - (v) Development of a sound overall strategy;
 - (vi) Dialogue between the main stakeholders to arrange details with which all of them are satisfied.

The process will take time because of the adjustments that will have to be made. Those directing a project should draw on national and international independent professional experience and advice on the many special factors to be addressed.

The guidebook is intended to assist those involved in the water supply and sanitation sectors in developing a constructive and effective approach to private sector involvement in their sectors. The managerial approaches that are set out should also be considered for operations that remain within the public sector.

The task of providing adequate water supply and sanitation services in the region for the future is a huge challenge which will require all the skills and dedication of professionals from many different disciplines. It is hoped that this guidebook will contribute something towards a better mutual understanding of the scope of activities and their professional roles, and that it will lead to closer cooperation between the public and private sectors, which is essential in devising and implementing realistic and effective solutions for water supply and sanitation services.

