

APPENDIXES

DETAILED CASE STUDIES

Three in-depth country studies have formed an integral part of this towards best practice study. This Appendix presents detail of and lessons learned from the experiences of private sector investment in water supply in Macau, China; Johor Bahru in Malaysia; and Manila in the Philippines. These case studies help to identify best practices that can be replicated in Asian Development Bank's other developing member countries (DMCs).

A. Macau, China Concession

This part of Appendix 1 presents detailed information on the Macau Water Supply Concession (MWSC). This concession, which has been in operation for around thirteen years, is one of the most successful examples of private sector participation (PSP) in water supply in the Asian region. The following presents background on Macau, China and the underlying factors that led to the concession; details of the concession; important outcomes; and lessons from the experience for other countries.

1. Background

Macau, China has a total area of just under 21 square kilometers, which includes the Macau peninsular and the islands of Taipa and Coloane. It is situated on the western edge of the delta formed by the Pearl River Delta (Zhu Jiang) and the West River (Xi Jiang). Macau, China borders province of Guangdong Province. In 1995, Macau, China's resident population was 425,000. Until 1995, Macau, China's population was growing at around 3.8 percent per annum, population growth was stagnant in 1996, but increased somewhat in 1997. Some areas of Macau, China are considered to have the highest population density in the world. Macau, China has one of the highest per capita incomes in Asia, it reached US\$16,184 (around 129,000 Patacas) in 1994.

Macau, China's political and legal system is based on the western system with the separation of executive, legislative, and judicial powers. On 20 December 1999, it became a special Administrative Region of the People's Republic of China (PRO). Under this arrangement, it retains its own political and legal system.

2. The Need for Private Sector Participation

Unlike many other countries, water supply in Macau, China has had some form of PSP since 1905. From 1936 until 1982, Macau, China's water supply was owned and managed by Mr. Ho In. Water supply was only a minor part of Mr. Ho In's commercial and industrial activities in Macau, China. He is reported to have managed the water utility in a governmental manner. By the early 1980's, Macau, China's water supply had deteriorated to the extent that:

- Water quality was extremely poor with high salinity and turbidity. This was due to the poor quality of the raw water drawn from the eastern tributary of the Pearl River, a treatment plant working at overload capacity and a lack of scientific management and technology.
- Some areas of Macau, China only received water at night — this was due to a lack of water supply capacity and pressure.

In addition, unaccounted-for-water was at high levels and the water utility was operating at a loss. As might be expected, Macau, China's water supply customers and the government were extremely dissatisfied with the level of service. The situation of Macau water supply was then rather similar to the situation in many, if not most, DMC urban areas in Asia today. For this reason, and others, the Macau transformation to universal access to potable water supply is of great signal value.

3. The Macau, China Concession

New World, a Hong Kong, China based development company, took over the operations of the Macau Water Supply Company, commonly known as Sociedad de Abastecimento de Aguas de Macau (SAAM), in 1982. The Government accepted this take over on the condition that tariffs could not be increased. New World set to work replacing meters to increase income. New World also put in place improvements in the utility's management and financial systems.

The replacement of water meters reduced the unaccounted-for-water from 40.3 percent in 1982 to 24.5 percent in 1984. However, leakages and poor quality water persisted. The company, which had little previous experience in the water supply business, realized it lacked the expertise to improve water quality. In 1984, the Government and New World invited Lyonnaise des Eaux to help them improve water quality.

The Government commenced negotiations for a water concession contract in 1984. The concession contract, which was not put out to commercial tender, was signed in 1985 and runs for 25 years to 2010. This water supply concession was the first concession of its type in Asia.

As a consequence of the concession, SAAM was restructured. 85 percent of the company is now jointly owned by the joint venture (JV) company Sino-French Holdings Ltd. — comprising Lyonnaise des Eaux and New World — the remaining 15 percent is held by shareholders in the old water company. The operation of SAAM is the responsibility of the Sino-French JV.

After the concession was introduced in 1985, equity in SAAM was P51m (million Patacas, P1=approximately \$HK1.0) — P3m from the old company and P48m from the concessionaire (Lyonnaise 50 percent and New World 50 percent). Since then, a further P400m of capital funding has taken place primarily through bank loans.

The 25-year concession contract created a formal legal relationship between the Government and SAAM. The contract includes the following features:

- Annual payments to government of a rental fee and a sales tax based on the gross sales value of water supplied.
- Water supply quality to be improved to meet European Union Standards.
- Water supply quantity must meet specified levels - water supply availability is to be universal
- Uniform water tariffs based on volumes consumed — government receives a small discount and water used for fire fighting is supplied free of charge.
- A tariff revision formula - based on operating costs.

- Detailed regulations governing the utility's relations with customers — provision is made for water supply to be disconnected for non-payment of water bills 45 days in arrears, in this instance a reconnection fee applies.
- Government delegate to act as a regulator of SAAM (see Box A1 .1).
- Submission to government delegate of annual and five year forward investment plans for approval.
- Dispute resolution procedures (see Box A1 .1)
- Specified ratio of shareholders funds to net fixed assets.
- Partial compensation for rehabilitation of existing SAAM assets — implemented in early years through the tariff revision formula.
- Macau, China's general company taxation laws apply to the utility's profits.
- SAAM is prohibited from investing in other countries including PRO.
- A Government right of early redemption of the concession contract subject to two years notice after the expiration of the first half of the concession's term.
- Provision for extension of the concession contract by mutual agreement.
- Transitional arrangements for asset transfer at the end of the concession.

Box A1.1: The Role of the Regulator in the Macau Water Supply Concession

The Government delegate is the supervisor/regulator of the concession. The supervisor reports to the undersecretary of the economic and financial affairs department who is under the governor. The delegate:

- Must balance the interests of the utility and the public.
- Negotiates tariffs every November for introduction the following January.
- Monitors the utility's investment plans to ensure water demand is satisfied.
- Reviews the revised tariff and capital cost recovery applications.
- Reviews technical data on quality and quantity monthly.
- Reviews financial data six monthly.
- Has meetings with the MWSC approximately every two months.
- Attends MWSC board meetings as an observer.
- Consults with the public works department and the government chemist on technical matters.
- Imposes penalties on the utility if it fails to comply with the duties set out in the contract.

Disputes are referred to a conciliation commission made up of three people – one person is appointed by each party with the third being a mutually acceptable person. If the dispute is not settled within 60 day, then the parties can resort to legal means of resolution. To date this has never happened.

4. Investments and Cooperative Ventures

The concessionaire has undertaken a substantial investment in addition to the initial injection of equity. In accordance with the investment plan, which is required under the concession contract and approved by the government delegate, SAAM invests approximately 40 to 50 million Patacas per annum in expanding and improving Macau, China's water supply. These investments have been primarily funded by loans from local lending institutions.

Because of the poor quality of Macau, China's raw water supply, the concessionaire as part of the contract requirements needed to develop quickly a new raw water source. The most appropriate source of water supply was the Modaomen estuary of the West River situated in PRC (see Box A1 .2 regarding long-term raw water security).

As the concession contract geographically restricted SAAM's investments to Macau, China, the company needed to develop a relationship with a third party to supply it with this new source of raw water. The Water Supply to Macau Company (WSMC) was formed to undertake this role. The WSMC, which is 100 percent owned by PRO, supplies water under contract to Macau, China and to nearby Zhuhai in PRC. SAAM has a close association with the WSMC providing loans and ongoing technical and management expertise. The contractual arrangements between WSMC and SAAM specify that raw water tariffs can only increase in line with retail water tariffs.

Box A1.2: The Long-Term Security of the Modaomen Raw Water Resource

The Modaomen estuary currently has an abundance of fresh water with low levels of pollution. This water source has a high capability for self-purification and only a limited intrusion of salinity. The level of salinity increases in the winter-spring dry season. However, a system of storage reservoirs constructed in PRC is used as a stand-by if salinity increases to unacceptable levels.

Unfortunately, as in many other countries, there is currently no mechanism in place to ensure the long-term quality or quantity of this important source of raw water. There is currently no single authority responsible for the management of the Pearl River or the West River catchment areas. In addition, water rights in PRC are not tradable. Hence, there is no mechanism for balancing competing uses for monitoring or controlling pollution, should industry develop in the catchment area. Thus, the long-term security of this and other important sources of raw water is not assured.

The threat of upstream pollution to Macau, China and the nearby Chinese city of Zhuhai has been recently highlighted. A number of cylinders containing cyanide fell from a truck and remained submerged in the West River 125 miles upstream from the two cities raw water intake. It is not clear whether this accident led to any leakage of cyanide into the Modaomen estuary. Indeed, extensive laboratory tests identified no trace of cyanide in Macau, China's raw water. Nonetheless, the incident demonstrates the importance of upstream water quality in any water supply system.

As development and economic activity increase in and around the catchment areas, the issue of raw water quality and quantity is likely to become more critical for the communities supplied by the West River. The introduction of a Pearl River Water Commission, which has responsibility for the overall catchment, would help ensure the long-term security of the raw water source. The introduction of tradable water rights would also help ensure that the raw water is directed to its most valuable uses as economic activity in the area increases and competitive demands for the resource increase.

In addition to securing a new source of raw water, the concessionaire has undertaken an on-going program of investments. These include:

- Upgrading and extending water treatment plants.
- Replacement of major pipelines.
- Reservoir construction and post-chlorination stations.
- Leakage detection activities and related investments.
- Introduction of a computerized Supervisory Control and Data Acquisition (SCADA) system.
- Introduction of an automated water production control system.
- On-going upgrading or replacement of meters.
- Construction of a new head office.
- A fully-fledged purpose-built laboratory.

5. Tariffs and Tariff Revision

Prior to the concession contract, the water tariff had remained unchanged for a long period and did not fully reflect the cost of supply. Consequently, the Government agreed to a tariff revision at the commencement of the concession contract. Over the period from 1980 to 1985, tariffs increased twice from P1 .80/m³ to P2.30/m³ in 1983 and then to P2.50/m³ in 1985. The concession contract stipulates that water tariffs should be set at a uniform rate for all customers.

As discussed in the main text, a number of approaches can be utilized to regulate monopoly price and profits; these include rate of return regulation, cost-plus regulation, and Price Index minus X regulation. The Macau, China water concession contract does not stipulate a minimum rate of return but uses a form of cost-plus tariff regulation.

Under the concession contract, there is an annual revision of the tariff. The tariff formula specified in the contract allows for tariff increases based on changes in the costs of

- raw water.
- energy.
- labor.
- specified repairs and maintenance costs.

The annual revision of water tariffs has not led to a full pass through of the cost increases associated with the tariff formula. In large part, this was due to the economies of scale in water supply and the positive impact these had on costs, as demand for water in Macau, China increased in line with substantial increases in the population and economic activity. Thus, SAAM has implemented a lower tariff increase than they were entitled to under the concession contract.

Representatives from SAAM have said that the lower tariff increases were accepted by the utility because they were making a reasonable profit. In addition, the good relations SAAM had with the Government would have been jeopardized if the utility earned excessive profits.

6. Outcomes

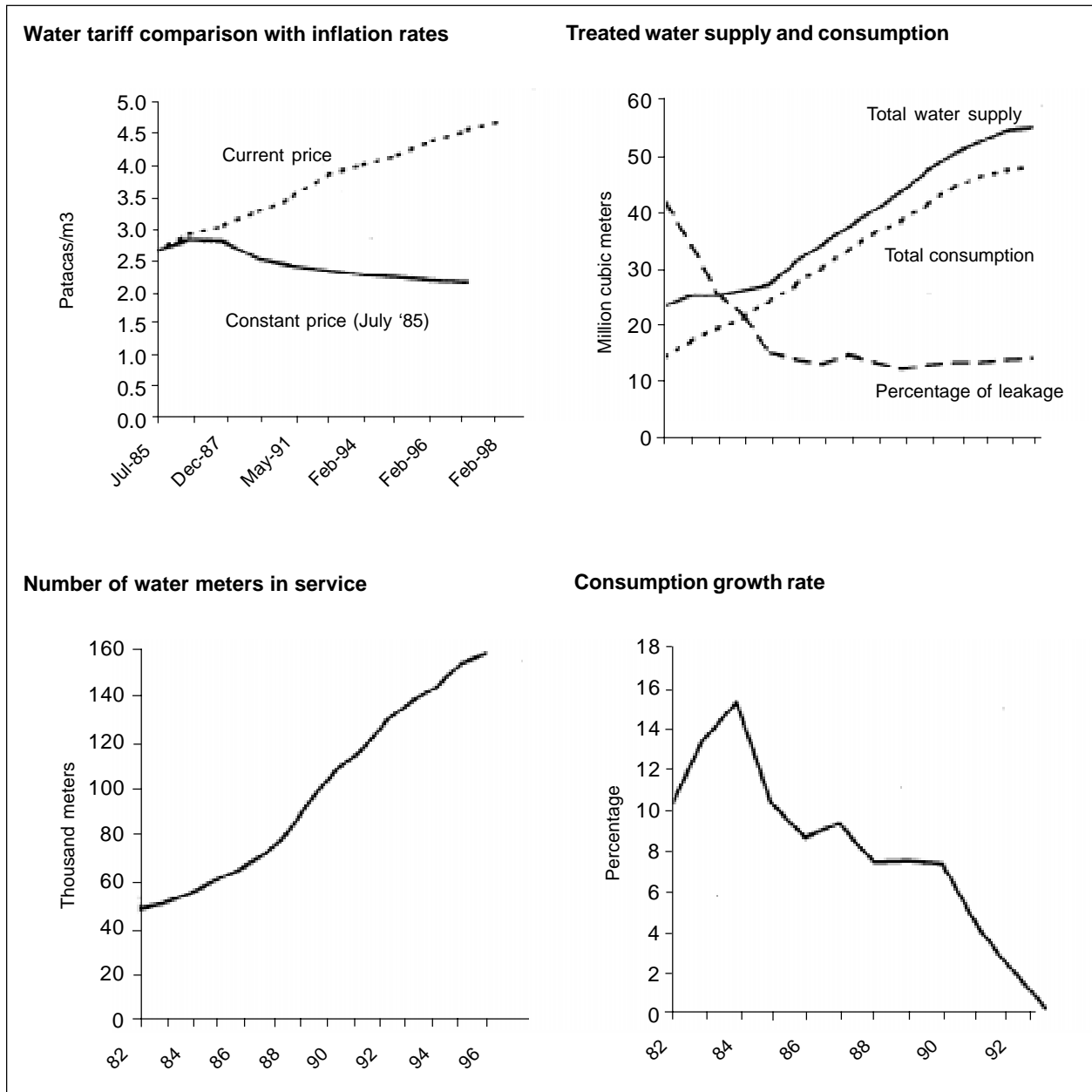
The Macau, China water supply concession has been an outstanding success for the citizens, the Government, and the concessionaire.

Within three years of signing the concession contract, Macau, China's water quality was brought up to the European Union standard. In sharp contrast with the situation in 1985, all of Macau, China citizens now receive consistently good quality potable water at a pressure and output that meets all customers needs 24 hours a day. Customers can drink tap water — a situation unusual in Asia and dangerous in nearby Hong Kong, China! This situation has been achieved with a real reduction in the water tariff (see Figure A1.1).

Despite total consumption more than trebling between 1982 and 1998, designed water treatment capacity now exceeds maximum daily demand by over 20 percent. By way of contrast, maximum daily demand exceeded treatment capacity by 36 percent in 1982 (Figure A1.1)

Unaccounted-for-water from leakages has also declined. The program of meter installation and repair instigated by New World prior to the concession led to a dramatic reduction in unaccounted-for-water from 40.3 percent in 1982 to 20.2 percent when the concession commenced in 1985. At that stage, leakage was a major contributor to the remainder of this unaccounted-for-water. The replacement of pipes (70 percent of distribution pipes have been replaced) and a range of leakage detection activities by the concessionaire have seen the level of leakage decline. Since 1986 leakage has ranged between 13.8 percent and 11 percent. The concessionaire believes that the major share of remaining leaks are inside customer boundaries.

Figure A1.1: Some Outcomes from the Macau, China Concession



In May 1998, SAAM had 250 staff — two of these were expatriates. The level of staffing has remained fairly constant since the concession commenced in 1985. Although no data on productivity is available, SAAM management reports that productivity has increased significantly since 1985. This increase is demonstrated by the large increase in customers and the quantity of water supplied. A number of current staff are also engaged in a range of activities not previously undertaken by the old water utility — the work undertaken in SAAM's state of the art laboratory and research center highlights these new activities (see Box A1 .3).

Box A1.3: Macau, China's World Class Water Laboratory and Research Center

A purpose built laboratory and research center is an important part of SAAM's water supply operations. The center provides the utility with a comprehensive analytical service which links with the Government's laboratory and the European laboratory facilities of Lyonnaise des Eaux. The center has two divisions: the Water Analysis Division and the Research Division.

The Water Analysis Division undertakes daily analysis of Macau, China's water supply at various stages of its collection and treatment. The division also undertakes a wider monthly analysis across 60 parameters. As part of the concession's regulatory arrangement, all daily and monthly results are submitted to the Government laboratory for comparison and record. Since 1996, the water analysis has been extended to cover:

- radioactivity in raw water (due to the construction of a number of nuclear power stations in neighboring regions); and
- detection of Giardia and Cryptosporidium (to determine background level and potential risk).

The Research Division undertakes a research program in collaboration with Lyonnaise des Eaux Group's Central Laboratory. Research undertaken in Macau, China includes research into membrane ultrafiltration and microfiltration techniques (the most advanced water treatment technique in the world) with the assistance of pilot scale plants installed at Macau, China's Coloane Water Treatment Plant.

Commensurate with Macau, China's growth in economic activity and population, SAAM's annual turnover increased in real terms by 68 percent from 1986 to 1996.¹ The utility's net profit after tax also increased in real terms over this period. However, in 1986, net profit as a proportion of turnover was 21 percent in 1986 compared with 14 percent in 1996. Reducing operating costs has now become a major issue for the utility as growth in Macau, China's economic activity has slowed considerably.

The water supply concession is now a showpiece for Macau, China, the Sino-French Holdings consortium and for the Lyonnaise des Eaux Group. Representatives from a number of countries and organizations, and many from PRC, have visited Macau, China to learn from the experiences of government and the concessionaire. The laboratory and research unit's staff are playing an important role in technical conferences and seminars in PRC; Hong Kong, China; and France. In addition, the experience gained by the Sino-French Holdings consortium is now being transferred to a number of JV water supply opportunities in PRC.

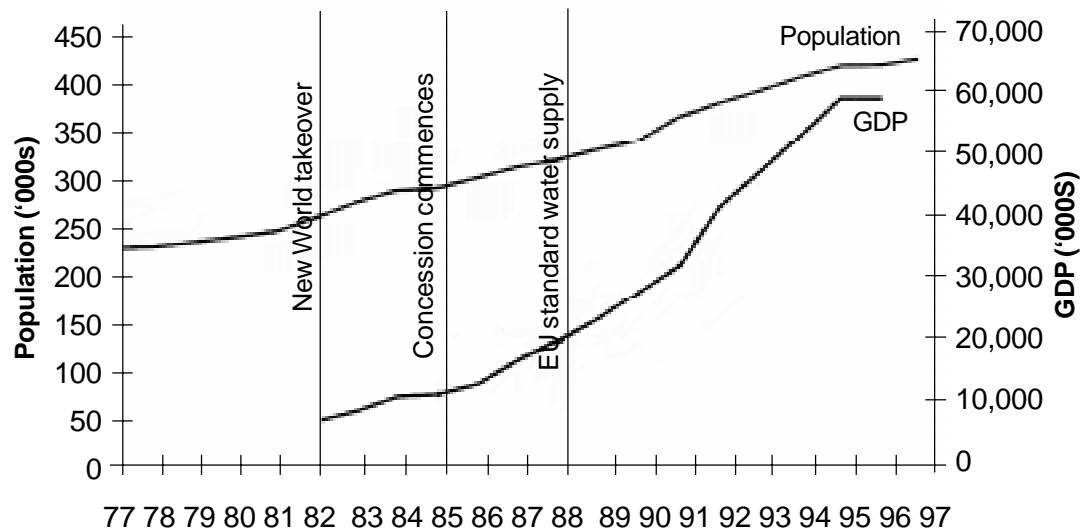
7. Lessons Learned

A number of lessons can be learned from the MWSC. These include:

- Private sector investment does not in itself ensure success. Macau, China's water supply has been in and out of private hands since early this century and yet the network fell into disrepair, the company was unprofitable and water quality, both raw and treated, deteriorated to unacceptable levels. The 1982 takeover of the utility by New World led to some improvements in metering and profitability. However, because of a lack of technology and experience in water supply, water quality, water pressure, and leakages remained problems. The JV between New World and Lyonnaise des Eaux brought together a successful combination of capital, local knowledge, world best practice technology and expertise in water management and treatment.

¹ 1 SAAM's 1997 Annual Report had not been publicly released when the consultant visited Macau, China.

- Asian countries can achieve high quality water supply. The Macau, China Government's clear statement of its objectives — European Union Standard water quality and universal availability of water supply - in the concession contract and the involvement of a competent qualified concessionaire were important in achieving this goal.
- Macau, China's long history of PSP in water supply and the Government's and citizens' acceptance of the continuing need for private sector investment in water supply facilitated the transition to a concession arrangement.
- It is difficult, even impossible, to account for all variables in a contract. SAAM's senior management believes it would have been impossible to envisage the massive increase in Macau, China's water demand when the concession contract's tariff revision arrangements were being negotiated. Thus, flexibility in the application of the concession contract's terms has been critical to the Macau, China concession's success.
- A cost-based tariff regulation formula may not take into account the potential for cost savings emanating from economies of scale in water supply. Similarly, in a larger utility, the concession contract requirement for uniform tariffs across all customer groups may not be a viable or efficient option for resource allocation.
- There is a positive two-way interaction or relationship between water supply improvements and economic growth. A good quality water supply encourages, or at least facilitates, growth in economic activity. It is highly unlikely that Macau, China's current economic circumstances and population growth would have been achieved if water supply had remained at the pre-concession levels of quantity and quality (see Figure AI .2). Conversely, the growth in population and economic activity has improved the viability of the concession and reduced the level of tariff increases associated with the higher levels of investment in water supply.
- The existence of a new high quality and abundant source of raw water helped contribute to Macau, China's water supply achievements.
- Increased economic activity upstream from a high quality raw water source can put the resource in jeopardy and this risk needs to be managed. In Macau, China's case the quality and quantity of its water supply could be under threat in the longer term from increases in economic activity in PRC. Discharges into the Pearl River are one potential source of degradation in the raw water supply. To manage this threat responsibility for the water catchment should be in the hands of one authority. As competing demands for the water supply increase, tradable water rights should ideally be introduced, creating desirable incentives to optimize the use of bulk water.

Figure A1.2: The Relationship Between Good Quality Water and GDP Growth

B. Johor Bahru, Malaysia

This section presents detailed information on a private sector venture to restore, build, operate, and transfer water supply facilities in the Malaysian State of Johor. The project falls into the category of a build-operate-transfer/rehabilitate-operate-transfer (BOT/ROT), it involves bulk water supply and raw water treatment for the city of Johor Bahru. The following presents background on the enabling environment in Malaysia; details of the water supply utility operating in Johor and the underlying factors that led to the Johor Bahru contract; details of the BOT arrangements and outcomes flowing from these arrangements; and outlines some lessons we can learn from the Johor Bahru bulk water supply arrangements.

1. Background

Malaysia is a federation of states. Responsibility for water supply is within the jurisdiction of state governments. However, constitutional responsibility for sewerage rests with the federal government. Malaysia's legal system is based largely on the British common law system.

Foreign investment in property in Malaysia is subject to approval from the Foreign Investment Committee (FIC), in addition to approval from the relevant state authority. Conditional FIC approval for initial foreign residential purchases is usually forthcoming. However, subsequent residential and any commercial/industrial property purchases are normally contingent on the purchase being made through a Malaysian company. This company should comprise not less than 70 percent Malaysian citizenry, 30 percent of which is to be Malaysian indigenous, or *Bumiputra*. Additionally, approval from the relevant state authority is required for acquisition of real property by non-citizens or foreign companies (excepting industrial properties), otherwise such acquisitions are rendered void under provisions of the National Land Code 1965. The FIC and the state authority operate as separate entities within such a transaction.

PSP in water supply is negotiated and organized at the state government level. However, the specifics of the arrangements and the final approval for the arrangements are given by the Federal Economic Planning Unit of the Prime Minister's Department.

Malaysia has a national policy to privatize all of the country's water supply services. Sewerage services were privatized in 1993. The move towards privatization of water supply is at different stages in different states. Currently, eight states have PSP in bulk water supply, through various forms of BOT arrangements. However, government policy has shifted away from BOT bulk water supply arrangements as they are considered to transfer little risk to the private sector. The government is now tending to focus on PSP in the entire water supply network including distribution, management, and revenue generation. In 1996, the organizations supplying Malaysia's retail water ranged from water utilities within a state public works department to a private company operating under a management/concession contract (see table below).

Table A1.1: Characteristics of Malaysian Water Supply Utilities by State, 1996

Organization	State
State Public Works Department	Kedah, Perlis, Phang, Sarawak
State Water Supply Department	Selangor, Negeri Sembilan, Trengganu, and Sabah
State Water Board	Penang, Melaka and Perak
Corporatized Body	Johor
Privatized Company	Kelantan

2. Johor Bahru

Johor Bahru is a southern city in the state of Johor. The water requirements of the city, like the remainder of the state, is supplied by the Johor Water Company (JWC). The Johor water utility became a corporatized company under the Companies Act in February 1994. The State government holds 100 percent of the company's equity. The board of the JWC is made up of state government officers.

The JWC has full autonomy in all but three areas. These are the water supply contract with Singapore, the Malacca water supply contract and the two bulk water supply contracts which supply the JWC with its treated water. These contracts are implemented by the JWC but they are not permitted to deviate from agreement conditions without reference to the federal government.

The JWC as a corporatized company can borrow from non-government sources. Under the corporatization arrangements, the company is not permitted to retrench staff for the first five years (Staffing levels are expected to be trimmed when this period expires in 1999).

Under the utility's corporatization, legislation a regulator reviews proposed tariff increases, etc. The water tariffs currently charged by the JWC were introduced in 1991 (see Table A1.2). These tariffs apply to the whole of the state of Johor although costs, supply constraints and demand differ between regions.

Table A1.2: Current Retail Water Supply Charges in Johor, Effective Since 1 April 1991

Residential	Government	Commercial/Industrial	Shipping – special rate
0-15m ³ @ 0.3 RM per m ³	1.15 RM per m ³	0-20 m ³ @ 1.20 RM per m ³	3.70 RM per m ³
16-30m ³ @0.70 RM per m ³	Minimum charge 5 RM per month	20 m ³ @ 1.60 AM per m ³ .	
31-45m ³ @ 0.95 RM per m ³		minimum charge 10 RM per month	
45 m ³ @1.15 RM per m ³			
Minimum charge 3 RM per month			

Source: The Malaysian Water Association

Johor Bahru's average monthly consumption by residential customers is 32.3 cubic meters. In 1995, the average family's monthly water bill was RM18.65 or US\$7.39, by way of comparison the average electricity bill was RM39.30 or US\$15.57 (ADB 1997). In 1995, per capita Gross Domestic Product (GDP) for Malaysia as a whole was RM 10,570. Thus, a Johor Bahru family's average annual water bill of RM 224 is around two percent of Malaysia's per capita GDP.

Submissions have been made by the JWC to increase its tariff rates, but by May 1998 new tariffs had not been announced. However, newspaper reports indicate that the Government of Johor has announced that water tariffs will need to rise in the future. In 1997, it has been reported that the Johor government awarded a six months exclusive contract to a private water company to examine various options for the privatization of the utility. By May 1998, the details of this study's findings or any government decision arising from the study's recommendations had not been released.

3. The Need for Private Sector Participation

The state of Johor, and particularly the city of Johor Bahru, has experienced substantial population and economic growth, which has led to increased demand for water. A study undertaken by the JWC in 1991 indicated that water shortages would be imminent unless bulk water supplies were expanded. Failure to expand water supply capacity was becoming a threat to future economic growth. At that stage, the JWC had not been corporatized and all funding came from federal and state government sources. In response to the urgent need for capacity expansion, the utility requested funding from the federal government. However, this request was not successful. As demand for water supply was quickly going to exceed available supply the utility, in agreement with the state and federal governments, decided to seek PSP in the supply of bulk treated water for the city of Johor Bahru. In addition, a second tender was advertised for the private sector provision of bulk supply in another part of the state.

4. The Johor Bahru Bulk Supply Contract

Tender documents for the Johor Bahru bulk supply project were issued in August 1991. The three bidders for the project were pre-qualified consortia made up of local and international companies. Competing bids were submitted by December 1991. By the end of June 1992 a 20-year concession contract had been negotiated and signed between the State of Johor (supported by independent specialist advisers) and Equiventures.

Equiventures is a JV company comprising Kembangan Dinamik – a diversified Bumiputra company supplying 49 percent of the equity, Pilecon Engineering Berhad – a Malaysian publicly listed engineering and construction company, and Lyonnaise des Eaux. Pilecon and Lyonnaise supplied the remaining 51 percent of the equity. The JV consortium has delegated responsibility for operation, rehabilitation, and management to Strategi Tegas, a company jointly owned by the joint venturers. Strategi Tegas employs 85 people of which one, the general manager, is an expatriate.

The main objective of the contract is to guarantee sufficient supply of drinking water to Johor Bahru. The contract requires the:

- Operation and maintenance of existing works (encompassing a catchment area, intake tower, treatment plant, pumping station, pipelines and reservoirs).
- Rehabilitation and modernization of existing works.
- Financing, design, construction and operation of new works.
- Transfer of all assets to the state of Johor at contract expiry.

The contract thus falls into the category of a BOT/ROT, both of which were discussed in the main text. It requires a three stage program of investments, stages one and two have been successfully completed. Commencement of the third stage will be triggered when consumption reaches a prescribed level. Negotiating the timing and phasing of the project's capacity expansion is reported as being the most difficult negotiating point in the contract. This was because:

“The government was concerned about insufficient water capacity, while the concessionaire was concerned about investing in capacity that might not generate revenue in the near term. ... To deal with the uncertainty, it was agreed that the project development would be in three phases. In determining the level of demand to target, the government and the concessionaire split the difference between their demand projections.” (Haarmeyer and Mody 1997, p. 90)

The contract also includes the following features:

- Water supply quality to meet World Health Organization (WHO) standards.
- Water supply quantity must meet specified levels - the contractor must supply bulk treated water to the JWC within plus and minus ten percent of a water demand curve derived by a JWC consultant.
- Weekly monitoring by Johor state government for compliance with certain water quality parameters.
- Penalties are prescribed if water quality fails to meet specifications.
- Payments are made by the JWC for bulk water. These payments are in two parts: (i) a fixed monthly payment based on fixed cost of the concessionaire; and (ii) a bulk water supply variable rate which is based on a decreasing sliding scale.
- A tariff revision formula - the variable component of the bulk water tariff is adjusted annually with adjustments based on inflation, costs of energy, chemicals and labor.

- The fixed monthly payment is adjusted annually in line with inflation with minimum increase being four percent. The maximum tariff increase is to be less than
 - five percent for the first five years;
 - six percent until 2001; and
 - seven percent for the last ten years.
- An arbitration clause.
- Penalties for late payment.
- Re-negotiation of contract provisions is permitted after ten years.

5. Financing and Investments Under the Bulk Water Supply Contract

Malaysia has relatively strong capital markets. Reflecting this, the financing for Johor Bahru's bulk water project was entirely in Malaysian Ringgit. The ten-year loan to cover the first two stages of investments was arranged with the Public Bank Bhd within only three months of signing the contract. The Permata Merchant Bank Bhd became the underwriting bank and provided a bank guarantee facility. Box A1.4 presents details of the financing arrangements. No government guarantee or comfort letter was required. Haarmeyer and Mody (1997, p.92) report that:

“The banks were satisfied that the concession and financing agreements properly allocated project risk and gave sponsors appropriate incentives to perform. Lenders also drew comfort from the ability of the project to immediately generate cash flow from on-going operations and the reputation of the sponsors and their significant shareholder undertakings.”

Box A1.4: Financing Details for Stage One and Two of the Johor Bahru BOT/ROT (as at 1992, US\$ equivalents)

Equity	\$US40m	23%
Cash generated from operations	\$US49m	28%
Ten year loan	\$US88m	49%
Total financing	\$US 1 77m	100%
Loan Draw down period	December 1992 to December 1995	
Repayments schedule	June 1992 to December 2002	
Bank Guarantee facility	\$US18m	

The build-own-operate-transfer (BOOT)/ROT contract for Johor Bahru's bulk water supply involves investments of RM 750 million (\$US284 million) spread out in three stages (see Box A1.4).

- Stage one works were undertaken from mid-1992 to 1993 and included
 - an expansion of the existing 182,000 cubic meter per day Sungai Layang Plant with an additional 136,000 cubic meter per day treatment capacity;
 - construction of a new intake/pumping station to transfer up to 170,000 cubic meter per day raw water from Sungai Johor to the Upper Layang reservoir;

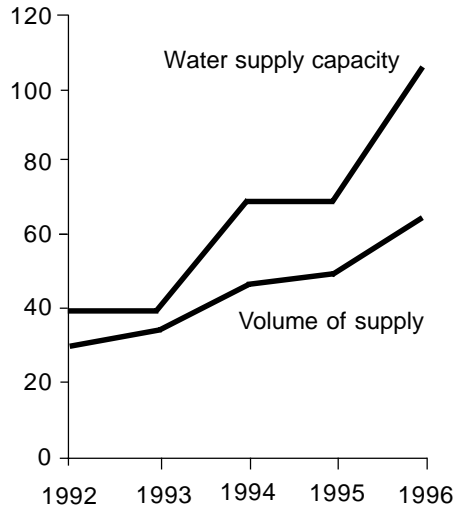
- construction of a 25 km raw water pipelines between Sungai Johor and Upper Layang Reservoir;
- expansion of the storage capacity of the existing Upper Layang Reservoir by using Hydroplus equipment on the spillway and
- modernization of the operational control system of the Sungai Layang production facilities.
- Stage two works were undertaken in 1994 to 1995 and included
 - construction of phase one of a new treatment plant at Sungai Johor;
 - construction of raw water and treated water pipelines for the Sungai Johor plant; and
 - construction of two service reservoirs.
- The commencement of stage three of the project is triggered when Johor Bahru's water consumption reaches a level specified in the contract. Stage three works will include
 - construction of phase two of the Sungai Johor treatment plant;
 - construction of associated pipelines; and
 - construction of the Jengelli Dam — construction may be rescheduled depending on certain circumstances.

6. Outcomes

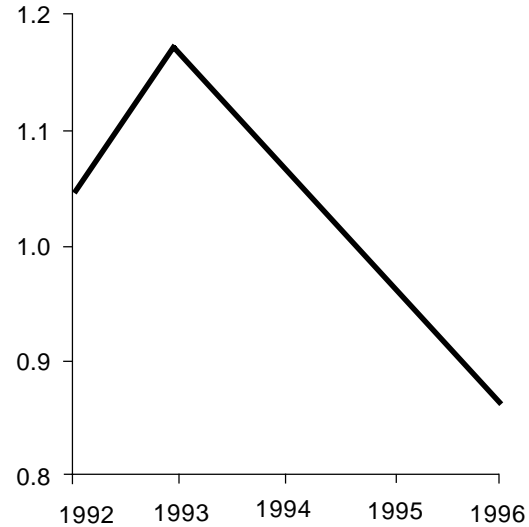
The Johor Bahru bulk water supply contract has been in operation for six years. As noted above, stage one and two of the rehabilitation and construction program have been completed within the initial budget and the contract timetable. The successful completion of these projects has permitted a substantial increase in the quality and quantity of bulk water supplied to the city of Johor Bahru.

Figure A1.3: Johor Bahru Water Supply Capacity, Volume and Real Bulk Tariffs^a

Water supply capacity & volume of supply (MGD)



Tariff real ringgits(1 995) per cubic meter)



^a The contract was signed on 28 June 1992 and construction and restoration began in December 1992. Source: Lyonnaise (South East Asia) Sdn Bhd reported in Haarmeyer and Mody 1997.

As Figure A1.3 illustrates, the bulk water supply capacity had increased by 75 percent within 30 months of signing. By 1996, capacity had more than doubled. The volume of bulk water supplied under the contract had increased from 30.4 MGD in 1992 to 65 MGD in 1996. Until the recent Asian economic downturn production continued to grow, with demand increasing by approximately 11 percent in 1997. Demand growth is expected to be zero in 1998.

The increase in bulk water supply reflects the substantial increase in economic activity and population growth that would not have been sustained in the absence of the bulk water supply investments.

While demand has been strong, it has now stabilized due to the deterioration in economic conditions. The State of Johor, like the rest of Malaysia, has experienced a severe drought over the last few years and water capacity in the Layang Reservoirs, which supply Johor Bahru, is low. In the six-year life of the Johor Bahru contract, the Upper Layang Reservoir, which had its capacity expanded by 15 percent as part of the Equiventures contract, has only reached full capacity once. In May 1998, the reservoir held only 30 percent of its possible capacity. However, despite the severe drought demand has always been met. This is in marked contrast with other parts of Malaysia where rationing has been necessary.

Johor Bahru's retail water tariffs have not changed to reflect this water shortage. As noted earlier, the JWC has not increased its water tariffs since 1991. As the following discussion highlights, this rigid tariff has had a number of implications for the JWC.

Although the JWC's water tariffs have not changed since 1991, the bulk water costs associated with supplying retail water have increased in nominal terms. This is because under the contract with Equiventures the price of the bulk water purchased increases annually. (The contract stipulates the minimum increase - four percent per annum — and the maximum increase - eight percent per annum.) This situation means that the disparity between the average retail tariff revenue per cubic meter earned by JWC and bulk water charges paid by JWC are increasing over time. In 1995, for example, Johor Bahru's average bulk water tariff was RM0.96 per cubic meter, whereas the average retail water tariff per cubic meter for domestic consumers was RM0.6 and RM1 .6 for industrial consumers (Haarmeyer & Mody 1997). It has been reported that the JWC has not been profitable in recent years. The failure to link retail water tariffs to the bulk water charge has contributed to this situation.

The bulk water charge relates to all water supplied by Equiventures to the JWC, including unaccounted-for-water, which generates no revenue for the utility. This has created an incentive to reduce the level of unaccounted-for-water. As a consequence, the JWC awarded a performance contract to a third party to reduce Johor Bahru's leakages. Payment under this performance contract is made only when non-revenue water is reduced to less than 20 percent. In 1995, the level of non-revenue and unaccounted-for-water in Johor Bahru was 21 percent. This compares with 29 percent in the remainder of the state (ADB 1996).

There has been no demand management associated with the water shortages arising from the recent drought in Johor Bahru as bulk capacity was sufficient to meet current demand. However, as demand trends upwards towards capacity, the need for demand management will become more urgent. The absence of a link between the bulk water supply charge and the retail tariff will make the implementation and co-ordination of demand management a difficult task. The breaking of the nexus between bulk and retail supply means that the potential for the bulk supplier to be involved in demand management at the retail consumer level is low.

The need for management of Johor's water resources extends further than retail supply. Catchment management and even inter-catchment management are important issues for the supply of bulk water. Water quality and water quantity are both areas of concern. In Johor Bahru, the major competing claims for water are the Johor state and Singapore — which has a contract with the Malaysian government to extract and treat water for Singapore to the year 2060. However, in other parts of Malaysia there are also competing demands from the agriculture sector for irrigation, from the energy sector for hydro-electricity as well as demands for water to be transferred to drier interstate areas.

Currently, no formal body in Malaysia is responsible for these water catchment issues. It has been reported that the federal cabinet voted for a national water council. The council, once established, would aim to resolve these problems through political means. However, the ability of the council to operate depends on amendments to the Malaysian Constitution.

7. Lessons Learned

The experience with private sector investment in bulk water supply in Johor Bahru provides a number of lessons for governments considering PSP in water supply:

- Access to a reliable bulk water supply facilitates growth in population and economic activity.

- When faced with escalating retail demand and limited public sector funds for investment, a BOT/ROT contract can be a successful approach to increasing supply of bulk water.
- Contracts with the private sector to undertake bulk water investments can often be negotiated more quickly than contracts for retail concessions. This is because risks are more clearly defined and can be managed by the private sector more readily. Thus, the private sector risks associated with contracts for bulk water are relatively lower than in concession contracts.
- Contracts for private sector investment in bulk water supply will generally lead to an increase in the retail utility's costs. This cost increase needs to be recognized by the utility and the government. Failure to do so can lead to the retail utility's insolvency. Ideally, in these situations there should be a link between increases in bulk water charges and changes in the level of the retail tariff. If this is politically unacceptable then some form of subsidy could be needed — however, this second best solution may not be viable in the long-term and can lead to other inefficiencies.
- Bulk water is an intermediate good. Hence, the private sector investor in bulk water supply has no relationship with the retail customer. The bulk supplier's customer is the distribution utility or the government. If there is no link or relationship between the bulk water charge and retail water charge and retail tariffs are subsidized there is little incentive to conserve water.
- Bulk water contracts have some limited potential for facilitating improvements in the efficiency of retail distribution systems. This is because bulk water contracts are paid on the level of bulk production, even if this water is subsequently lost in the distribution system through leaks. Thus, the commercial retail distributor has an incentive to reduce leaks and generate additional revenue. However, if a retail utility is subsidized or is not accountable for its losses, the incentive to reduce these leaks is reduced or even eliminated.
- Bulk water supply contracts produce no incentives for the retail distribution utility to reduce or minimize sources of inefficiency associated with the general operation and management of the utility. Corporatization, if appropriately implemented, can create an incentive structure to improve the utility's performance.
- Demand management is an important element of the water market, which can be easily dismissed in favor of increasing supply. Failure to implement demand management can lead to waste of a scarce resource and hasten investments, which could otherwise be delayed.
- The use of BOT-type contracts for bulk water supply makes the demand management of drought more complicated.

C. Manila, Philippines Concessions

The Manila concessions have been in operation since August, 1997. The following presents background on the Manila water sector, the Metropolitan Waterworks and Sewerage System (MWSS) and the underlying factors which led to the concessions; details of the concession; outcomes and some lessons we can learn, at this early stage.

1. Background

In the early 1990s, under President Ramos, the Philippines began an increasing process of reform in infrastructure — for example, removal of subsidies, introduction of the BOT law, increasing the level of cost recovery, privatization, and regulatory reform. By 1995, the Philippines was successfully emerging from the power crises. Importantly, this accomplishment was largely ascribed to private investment in the sector - in the form of Independent Power Producers (IPPs), but backed by power purchasing agreements, usually guaranteed by the Philippine Government.

Tasman Asia Pacific (then named Tasman Economic Research) undertook a project for the World Bank and the Ministry of Finance in 1994 — the National Water Sector Reform Study, Philippines. This project reviewed the situation facing the water sector in Manila at that time, and developed potential responses capable of improving outcomes. While these reforms focused on the water districts of the entire Philippines, they also covered Metro Manila.

The MWSS was then the monopoly state water supply and sewerage utility in Metro Manila, and was characterized by:

- Low coverage — within defined service areas.
- High unaccounted-for-water levels (e.g., 56 percent, at May 1996).
- Poor management of ground water resources.
- Lack of investment to finance bulk water developments.
- Inadequate water tariff and allocation policies.

2. The Need for Private Sector Participation

The water utilities were failing to attract the required private sector investment, in part, because tariffs rarely covered costs. Following these and related earlier developments, and in order to increase private sector investment, the Government reformed the legal structures and incentive systems. Two key enactments were:

- The BOT Law (1993), which enabled PSP in what were historically public works activities.
- The Water Crises Act (1995), in response to the recurring crises in water supply.

The latter legislation provided, in particular, for the privatization of the MWSS and the Local Water Utilities Administration (LWUA).

It is significant that it took this water crisis to precipitate a total re-assessment of strategies for the water utilities in the Philippines, and in particular, the MWSS, just as it took a power crisis to lead to changes encouraging IPPs - eventually leading to a new strategy for competitive private power in the Philippines.

The study, undertaken by Tasman Asia Pacific for the World Bank and the Ministry of Finance, introduced PSP as a preferred method of addressing the inefficiencies plaguing the water supply sector.

Following the above study and report, the National Economic and Development Authority adopted Board Resolution 4 in 1995, encouraging:

- The introduction of commercial incentives and management in local water districts.
- Incentives for the Local Government Units to improve water supply arrangements.
- The application of economic pricing of water.
- Economic allocation principles for water resources.
- Innovative water supply projects at the local level.
- Increased PSP.

3. Background on the MWSS

a. Introduction

The MWSS was formed in 1878, making it one of the oldest (and largest) water utilities in South East Asia. The MWSS's stated objective is to provide adequate, potable water supply and adequate and dependable sanitary wastewater disposal services at affordable rates.

The MWSS serves an area nearly three times the size of Metro Manila, which includes six cities and 31 municipalities of Metro Manila plus Rizal and parts of Cavite province. In 1995, this service area was 1,800 sq. kms, with a population of 11 .0 million (see Table A1.3).²

Two thirds of this population is served through roughly 825,000 connections. Only half of the covered population receive 24 hour per day service; the remainder receive less than 12 hours per day service and often much less. Of those not covered, a large percentage have individual wells or obtain their water through vendors —priced at a multiple of (up to 10 times or more) MWSS water tariffs and with doubtful quality.

In summary, under the MWSS, only two thirds of the population had access to a piped water supply and 11 percent were connected to sewerage. In addition, more than half of the water produced was not billed — 56 percent in 1996.

b. Non Revenue Water

The MWSS, non revenue water (NRW) levels (see Table A1.4) were among the highest in the South East Asia region. These losses can be attributed to leaks, illegal connections, inaccurate measurement, non-paying connections, and other factors. In a private firm, such losses are the difference between commercial prosperity and bankruptcy; but in a state utility such as MWSS this loss-making situation just caused gradual degradation of the system and increased use of private wells. This was not sustainable.

² W C Barreiro and F Arellano, Privatizing Water Services in Metro Manila, A case Study of Privatization in Emerging Megacities, November, 1997.

Table A1.3: Summary Table of Statistics — MWSS 1995

Average Water Tariff	Pesos 8.78/m ³
Billing	42.87%
Service Population — water supply	7.32 million (66.5%)
Service Area	1,800 sq kms
No. of Connections	825,000
Water Production	3,000 mld
Non-Revenue Water (May 1996)	56%
Water Availability	16 hours
No. of Treatment Plants	3
Total Pipeline	12,000 kms
Water Coverage	68%
Average Consumption	133 liters per person per day

Source: W. C. Barreiro and F Arellano, Privatizing Water Services in Metro Manila, A Case Study of Privatization in Emerging Megacities, November, 1997

Table A1.4: MWSS Non-Revenue Water

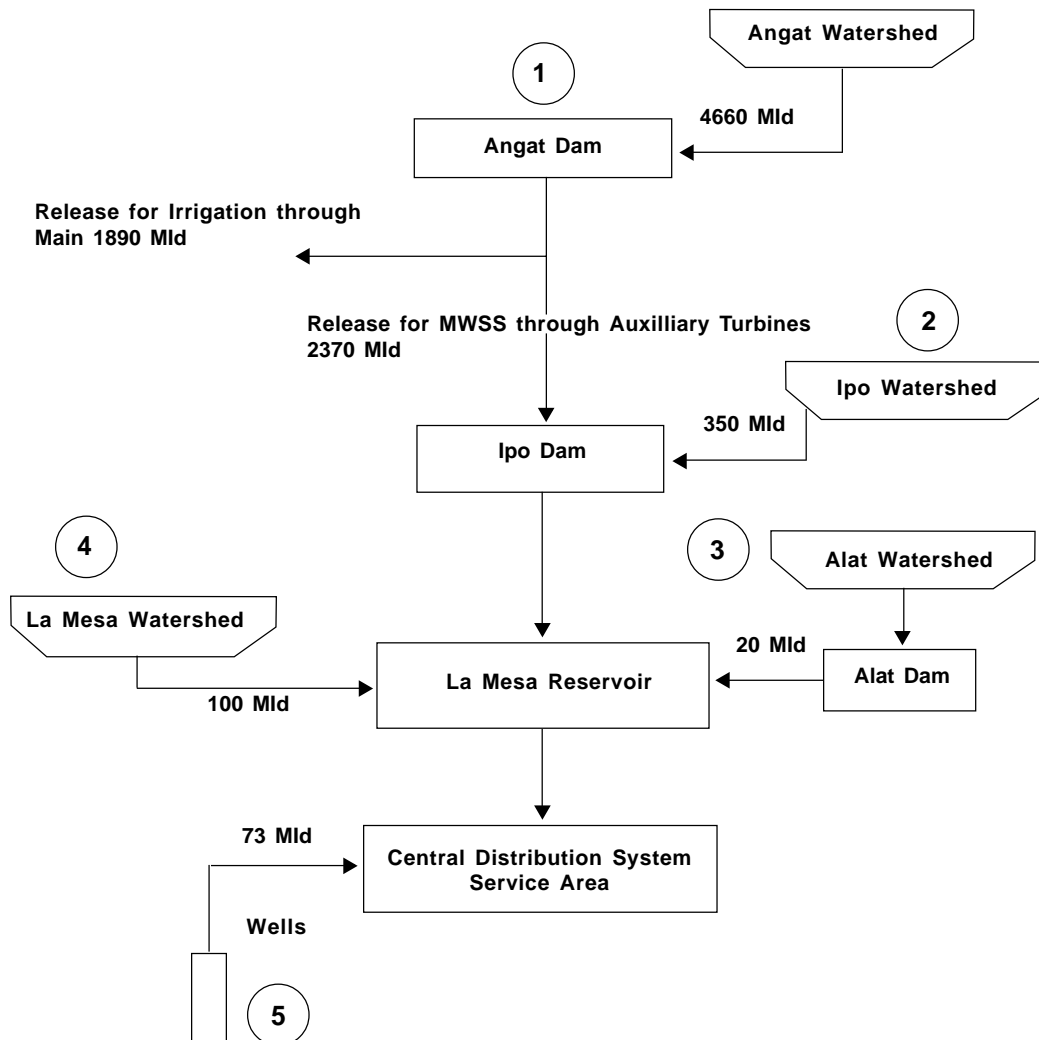
	1990	1991	1992	1993	1994	1995
Water sent to distribution system (mld)	2,490	2,465	2,335	2,555	2,765	2,635
Water billed (mid)	1,055	1,060	1,050	1,090	1,145	1,155
Non-Revenue Water	56%	54%	55%	57%	59%	56%

Source: Lyonnaise des Eaux, Manila, Philippines, Privatization of MWSS Outline Description, October 1996.

c. Raw Water Sources

The supply of raw water to the existing MWSS system is dependent on watersheds and aquifers, as illustrated in Figure A1.4. The rapid growth in population and urban development over recent decades has strained available water resources. Later in this paper we will discuss the 1998 water shortages (attributed to the El Nino effect) and their impact on this supply. Table A1.5 details the raw water sources and conveyance facilities.

Figure A1.4: Raw Water Sources



Source: Lyonnaise des Eaux, Manila.

Table A1.5: Raw Water Sources

Raw Water Source	Average Yield 1990-94 (Mld)	Percentage
Angat Reservoir	2370	81.4
Ipo Watershed	350	12.0
Alat Watershed	20	0.7
La Mesa Watershed	100	3.4
Wells	73	2.5
TOTAL	2913	100.0

Table A1.6: Financial Highlights

	Million Pesos	Million US\$
Operational Revenues		
Water Supply	3152	126
Sewerage Services	302	12
Environmental Charges	315	13
Installation Charges/Other	98	4
Total Revenue Operations	3867	155
Costs		
Wages	(998)	(40)
Other Cash Expenses	(681)	(27)
Depreciation	(902)	(36)
Bad Debts	(76)	(3)
Total Operating Costs	(2,657)	(106)
Net Operating Income	1210	49
Non-Operational Income/Expenses	(719)	(29)
Net Income	491	20

Source: IFC documents/MWSS, December 1995.

4. The Manila Concessions

The strategy for the MWSS service area involved pursuing the goals of expanded service coverage, operational efficiencies, and an easing of the financial burden on government.

In November 1995, the Government decided to conduct a feasibility study into the form, extent, process, and guidelines for privatization. The first phase was devoted to forming a clear privatization plan. The second phase in this process was implementation of the privatization process.

5. Preparation for Privatization

Phase 1 took eight months from November 1995 — and included formulating the basis of offer and information for prospective bidders. The basis for the tender was to be water tariffs, and bids would entail many contractual obligations regarding coverage, water quality, and investments.

The French Government provided US\$1 million for a technical assistance grant for the study leading to the privatization process. The International Finance Corporation (IFC) was lead adviser for this study. The mandate was:

“To evaluate and recommend the transaction structures for privatization in the light of government objectives, sector requirements, water resources, and projected demand, labor considerations and operational, legal and financial constraints.”

Focus was to be placed on the two main options - concession and sale of assets. The IFC was also required to select and hire other consultants. This was completed without bidding, as permitted under the Water Crises Act. It seems generally agreed that the process was

efficiently expedited, but at a cost in terms of some aspects of the process being less than ideal.

The eventual transaction cost of the privatization program was US\$5.8 million — \$3.8 million for adviser/consultant fees plus a \$2.0 million success fee (which MWSS advanced and was reimbursed by the winning bidders). This contingent or success fee was to be paid by the winners to the IFC on successful completion of the privatization. The financial arrangement meant that the MWSS did not have to provide any funds from its own budget. The presence of the (private sector style) success fee in this case, and the absence of such incentives in most World Bank and ADB reform technical assistance is a possible reason for the relatively rapid and successful result in Manila. Outcome driven payments, rather than payment by inputs or reports, have the effect of focusing all parties on the defined goals.

6. Privatization Strategy

Following assessment of the advantages and disadvantages of full versus partial privatization of MWSS, the study recommended full privatization of water supply services on the concession model. The total service area was divided into two zones (East and West), to be served by two different concessionaires. The MWSS would retain ownership of the fixed assets and would transfer operation and management of facilities to the concessionaires. Importantly, the concessionaires would be responsible for future investments for water source development, treatment, distribution, and provision of sewerage facilities. The study drafted a 25-year concession agreement — defining rights, responsibilities, relationships with MWSS, the government, and the concessionaires. The concession agreement specifies standards and targets to be met. A JV was to be set up to operate and maintain common facilities. Both concessionaires would have rights to Angat water.

The targets set out in the study are briefly summarized below:

- Universal water services for the population of the MWSS service area within 10 years.
- Non revenue water to decrease from 56 percent to 32 percent in the first 10 years.
- Universal water service to be achieved without an increase in real water tariffs over the first 10 years (see subsection on tariffs in this paper regarding petitions of concessionaires to increase tariffs).
- System to address the one third of service area population who are poorest and unable to afford piped water.
- Uninterrupted 24-hour water service, which meets WHO standards, to be provided within three years to all connected customers.
- Wastewater program to attain over 80 percent coverage within the 25-year concession period.
- Approximately US\$7.5 billion to be invested to improve and expand water and wastewater system during the 25-year concession.

The study noted that the MWSS would retain the ultimate legal responsibility for providing water to the franchise area, i.e., this responsibility has not gone to the private sector. The MWSS was not selling or transferring ownership of its assets, but engaging two concessionaires to operate the existing facilities.

As noted, the IFC advised and assisted MWSS and the Government on the bidding procedures. Each bidding consortium was required to be composed of the following:

- Filipino shareholding — 60 percent minimum.
- Only one local sponsor owning at least 20 percent of the shares; no other Filipino entity should hold more than half the shareholding held by this local sponsor.
- Possibly up to 10 percent of shares to be held by employees transferred from MWSS to the concession companies.
- Foreign shareholding — 40 percent maximum.
- Only one international operator owning 20 percent of the shares of the consortium.³

The concessionaries had to be Filipino companies and the water utilities were to be managed and operated by Filipinos. Since Philippine law requires the concessionaire have a minimum Filipino ownership of 60 percent, in the study it was proposed that of the 60 percent, 10 percent be for employees, 20 percent-30 percent for the main sponsor and 20 percent for the other local investors. The study also recommended the foreign operator should take a minimum 20 percent share in the company.

Physical targets and tariffs would be set and monitored by a regulatory body to be established within MWSS, with a mandate to ensure compliance. Finally, it was stipulated that the concessionaires were to be selected through a transparent bidding process against tariff.

The study recommended guidelines on protection of MWSS employees from loss of tenure.

The consortia would have to bid for both of the two concessions, but could only win one. The two zones' boundaries were communicated by an IFC information note in July 1996, as follows:

Table A1.7: Zone Boundaries

	Population 1995	Water Supply 1995	Facilities
EAST	4.5 million	71% coverage	Balara I and II treatment plants Makati City and Quezon City sewerage systems
WEST	6.3 million	63% coverage	La Mesa I and II treatment plants Central and Dagat Dagatan sewerage systems

Source: Lyonnaise Des Eaux — Manila, Philippines, October 1996.

³ IFC Outline Description — Privatization of MWSS, October, 1996

7. Target Coverage

The study outlined targets for the concessionaires as follows:

Table A1.8: Concessionaire Targets

	1997	2002	2007	2012	2017	2022
Water Supply	67%	92%	97%	98%	98%	98%
Gravity	7%	7%	10%	17%	23%	33%
Sewerage		26%	23%	21%	24%	22%
Septic						
Total Sanitation	7%	33%	33%	38%	47%	55%

8. Regulatory Body

It was noted that MWSS would act as the regulatory body after the privatization. The study had recommended MWSS serve as regulator, but subject to:

- The principle function of the regulator being to monitor and enforce the concession agreement.
- The establishment of a regulatory office within MWSS – but separate from other MWSS activities.
- The regulatory office being managed by five members, including a chief regulator – all reporting to the MWSS Board.
- The establishment of an arbitration panel of three outside MWSS, to address and resolve issues between the regulator and the concessionaires.

9. The Concession Agreement

The concession agreement document was circulated pre-bid. The document was very detailed and included provisions on:

- Assets and liabilities – long-term debts were to be retained by MWSS, but serviced by the concession fees paid to MWSS.
- Clarification of transitional arrangements for existing projects.
- Tariff adjustments – the concessionaires were not to adjust rates, except for inflation, during the first 10 years. Such adjustments were to be subject to review and approval of the Government (see note on petitions before regulatory office discussed later in this section). Upstream water treatment plants were to be managed and financed by the concessionaires.
- There would be scope for “Extra-ordinary Price Adjustments” (EPAs) in defined or force majeure situations (as happened in 1998 — the Peso depreciation and a 30 percent drop in bulk water supply attributed to the El Nino effect).

- Allocation of capital costs — 90 percent were assigned to the West concession — in an apparent attempt to equalize what were expected to be lower tariffs in the western area (this increased the foreign exchange (FOREX) risk element in the West concession).

10. Implementation of the Privatization

The main phase of the privatization included:

- Pre marketing.
- Registration.
- Due diligence.
- Strategy report.
- Information memorandum.
- Documentation.
- Pre-qualification.
- Tendering.
- Pre-negotiation.
- Bidding.
- Evaluation.
- Award of contracts.

The Schedule, planned and actual, is outlined below.

Table A1.9: Privatization Schedule

	Initially Planned	Actual
Investor registration	April/May 1996	April 1996
Data room open	15 May-i November 1996	June — 1 November 1996
Additional preliminary info. Issues	May 1996	July, September 1996
Information memorandum issued	June 1996	Mid-October 1996
Pre-qualification (local sponsor/international operator)	June/July 1996	Notification 20 September 1996
Tender documents issued	August 1996	Draft Concession Contract — 31 October
Pre-qualification (consortia)	September 1996	Comments on Draft Concession Contract up to 15 November
Pre-negotiations with bidders	October/November 1996	December 31, 1996
Bidding	December 31, 1996	January 1997
Evaluation	January 1997	February 1997
Closing	February 1997	April 1997
Beginning of operations		

Source: IFC/MWSS documents

MWSS created a technical committee (mostly from the IFC) to review the bidding consortia's qualifications and structure. The final list was approved by MWSS. The four consortia which pre-qualified were:

- Aboitiz Equity Ventures (Philippines), Compagnie Generale des Eaux (France).
- Ayala Corporation (Philippines), Bechtel Enterprises (United States) and North West Water (United Kingdom).
- Benpres Holdings Corporation (Philippines), Lyonnaise des Eaux (France).
- Metro Pacific (Philippines), Anglian Water International (United Kingdom).

The participating firms took approximately nine months for their studies and proposal preparation. It has been estimated that the bidders incurred a cost of around Pesos 100 million each in bidding.

The bids were presented on January 6, 1997. Each bidder had to submit two envelopes:

- One technical proposal – opened immediately.
- One financial proposal – opened January 23, 1997.

The MWSS issued bid documents and guidelines, including the draft concession agreement to the pre-qualified bidders. These included:

- Bids were to be based on an average tariff the bidder would charge. The winning concessionaire would not be allowed to increase tariff bids except for normal inflation. The tariff bid was to exclude additional capital costs needed after the first ten years.
- Bidders were required to bid for both concession areas.
- The bids were to be accompanied by a performance bond of US\$120 million for the West Zone and US\$80 million for the East Zone.
- A winning bidder could be awarded only one concession (a formula and procedure was outlined to determine the best combination in case one bidder offered the lowest bid for both concessions).
- Bidding for the two concessions was to take place simultaneously.

11. The Bids

The four pre-qualified bidders submitted bids for both zones. All proposals complied with technical requirements. The tariff rates submitted are detailed below (the average water tariff of MWSS at the time of bidding was Pesos 8.78 per M³).

Table A1.10: Bidders' Tariff Rates

BIDDER	EAST ZONE	WEST ZONE
Aboitiz Equity	P5.52 (62.88%)	P4.99 (56.88%)
Ayala Corporation	P2.32 (26.38%)	P2.51 (28.63%)
Benpres Holdings	P6.13 (69.78%)	P4.97 (56.59%)
Metro Pacific	P5.66 (64.50%)	P5.87 (66.89%)

As can be seen from above, Ayala submitted the lowest tariff for both East and West. The bidding rules included a formula to determine the best combination for consumers. When this formula was applied, the result was the Ayala led consortium for the East Zone and the Benpres led consortium for the West Zone.

12. Private Concessionaires

The two consortia took over facilities on August 1, 1997. The Benpres Holdings/Lyonnaise des Eaux consortium was named Maynilad Water Services, Inc. (MWSI) (Maynilad is the old Filipino name for Manila). The Ayala/Bechtel consortium was named the Manila Water Company (MWC). Decisions had to be made on disaggregation of facilities, accounts and books, physical equipment and distribution of employees. Two important documents were:

- The JV agreement for common facilities.
- The interconnection agreement — to cover metering points for the pipelines crossing each concession. An audit of MWSS assets was expected to be completed by 10 June 1998.

13. Unresolved Issues

Issues which were still to be clarified at the time of writing included:

- The definition of boundaries and completion of the interconnection agreement.
- The former has been difficult. There are cases where households in the same street would have been served by different concessionaires, and in particular, at different tariffs. Another paramount issue is the disaggregation of the two zones — requiring a number of side agreements between the concessionaires. There will be cross boundary water transfers and this poses potential problems in setting the transfer fees between the two concessionaires.
- Tariff Adjustments
- On May 22, 1998, public consultations were held by the MWSS regulatory office to discuss separate petitions placed by the two private water concessionaires for higher water rates. Another session took place on May 25, 1998. The MWSS regulatory office scrutinized the arguments of Maynilad and Manila Water Company for EPA, citing losses brought about by the El Nino phenomenon and the devaluation of the peso.

The two concessionaires petitioned for the following tariff increases:

- MWSI — sought an increase of 15.06 percent (EPA equivalent to an increase from a basic rate of P4.96 per cubic meter to P5.71).
- MWC — sought an increase of 97 percent (from P3.65 per cubic meter to P7.21 per cubic meter).

Both sought to take effect on January 1, 1999.

The press in Manila noted the contracts for the two firms stipulated a five-year freeze on water rate increases. According to the concessionaire agreement, in order to qualify for an EPA:

“notification from the regulatory board or the concessionaires is needed and the price adjustments (after the MWSS privatization) should be made after March 31 of the charging year” — i.e., the year 2000.”

During the public consultations on the water rates adjustments, four bodies made objections to the proposal. Opposition groups (FDC) protested along the following lines:

“the two private water companies offered lower rates when the two took over the MWSS in August last year. Less than a year after they are using loopholes in the contracts to adjust their prices to approximate the old rates. If the concessionaires are presently suffering from financial constraints, they should take the blame.”³

14. Devaluation and Bulk Water Shortage

The devaluation of the peso, the 35 percent reduction in water supply brought about by El Nino, the material deterioration of the distribution network, significant increases in employees' salaries and the projected increase of the concession fee, because of anticipated cost overruns of existing projects, were all cited by the concessionaires.

MWSI and MWC, at the beginning of June 1998, asked the NWRB for an increase in the volume of water flowing from Angat. According to newspaper sources: the two concessionaires wanted to return to the pre-water-rationing rate of release of 31.5 cubic meters per second from the current 25 cms.⁴ Water rationing was enforced in Manila in December 1997 – decreasing the rate of water release from 32 cms to 28 cms – when the water level in Angat Dam fell to 180 meters, or 22 meters below the ideal level of 202 meters. Then, in February 1998, the MWSS decreased the rate of release to 25 cms to conserve water in the face of the continued El Nino effects. Both MWC and MWSI source an average of 1,050 million liters a day from Angat Dam. As at 6 June, 1998, Angat's water level was 167.06 meters — two meters down on the level a fortnight ago, despite the rains. This is because the rains did not fall over the Angat watershed.

³ *Philippine Daily Inquirer*, 24 May 1998.

⁴ *Philippine Daily Inquirer*, 6 June 1998.

Box A1.5: Tariff Adjustment — Manila Contract

The value to the community of the competitive tendering process is highlighted by the tariff bids being substantially below the MWSS tariffs. The problem regarding the interpretation of the low tariff outcomes in Manila is that since the contract was signed, there have been two developments that have activated review of tariffs in terms of the *force majeure* elements of the contract.

In the first place, the capacity of MWSS to deliver the volumes set out in the financial assumptions of the bids have been undermined by the drought – associated with the El Nino effect. Water volume delivered to the concessionaires is down in excess of 30 percent, thereby reducing the capacity to sell and invoice customers.

In the second place, the devaluation of the peso is far in excess of the trigger that activates the case for tariff review. In the case of the West concession - assigned 90 percent of the capital costs of the MWSS system – there is a substantial FOREX financing cost following the depreciation of the peso.

The biasing of capital costs towards the West concession was, we are advised, an attempt to balance costs across the concessions – the IFC expected a need to add costs to the West concession in order to bring in tariffs which would be similar to those across the boundary. Ironically, the competitive bids yielded tariffs in the East below those in the West. Whatever the reason for the tariff outcome – East / West – the capital cost outcomes meant that the West concession had substantially higher financing costs, notably in terms of foreign currency.

The outcome of both El Nino and peso depreciation shocks, in terms of the *force majeure* elements of the contracts, is that the East concession is seeking a sharp increase in tariffs – although not to levels that would have applied without the privatization process. We were advised that the formulas for adjusting tariffs under the former MWSS currency exchange rate adjustment system would have led to tariffs around 12-13 peso, absent the competitive privatization, of the 5.7 and 7.2 peso requests. The contract envisages adjustments of tariffs to be spread over the length of the concession – whereas the East concession has requested a sharp increase in the first review, as a means of compensating for unforeseen increases in capital costs, and their dramatic effect on cash flows.

Bid the tariff – or the Concession fee?

The low tariff outcome in Manila has been criticized by some on the grounds that it has reduced tariffs at a time when conservation of water should be encouraged. While privatization has delivered lower water tariffs and a contractual obligation to move towards quality service, could this shift to an efficient structure have been achieved without tariff cuts – so as to achieve conservation objectives?

The alternative model, which the concessionaires could well have preferred, is one in which the tender was bid in terms of concession fees, with water tariffs set in advance, along with the indexation formula. This would have enabled harmonization of tariffs at the outset and subsequently, through the indexation formula. Bidding the concession fee at defined starting tariffs could have generated a cash flow which, in principle, could have been the same for the Government of the Philippines.

One reason for favoring a tariff rather than a concession fee bid is that pre-set tariffs can smack of the old model in which tariffs are a matter for Government. The private sector, the argument goes, should be innovative in product design and quality, and in devising competitive tariffs – with new incentives which optimize the resource and maximize benefits. A weakness with this argument is that the tariff is for an essential service – and thus is dominated by the regulatory process, once the tender has been awarded.

The National Irrigation Administration (NIA) has blocked the concessionaires' petition, saying that if the 25 cms is not maintained until end June, there will not be enough water by August to irrigate NIA expects Angat's water level to rise to 182 meters by August if the rate of water release is kept at 25 cms up to the end of the month, and if the strong rains come in the second week of June. But, at a faster rate of release, Angat Dam may not reach 180 meters by August.

The MWSS project management officer dismissed NIA's warnings, citing MWSS' own calculation that reportedly showed it could increase the rate of water release to 31.5 cms and still meet the 180-meter elevation by August.⁵

In meetings with MWSI it was noted that the devaluation of the Peso had a great effect because of the way the formula was determined. The cost is spread over the life of the concession – i.e., the 50 percent devaluation has to be spread over 25 years. The way the formula is structured, the West concessionaire has to absorb 90 percent of the concession fee of the old MWSS –60 percent to 70 percent is paid over the first 7-8 years – approximately US\$60-70 million a year.

The formula may have been structured to balance the bids – the West side is more dense than the East and there would have been less revenue per capital invested on the East side – perhaps this is the reason for the imbalance. The formula was presumably built on the assumption of a gradual exchange rate adjustment, and not the massive devaluation in the first year. As a result, the West concession - MWSI – has to absorb the increased FOREX cost. Under the old MWSS system, the currency exchange rate adjustment allowed for the impact of the last year. Under the post privatization scheme all the impact is expected to be spread over the contract – implying cash flow challenges for the concessionaires in 1998.

It should be noted that devaluation only has to exceed two percent to claim *force majeure* adjustments. The fact that the bulk water being supplied was down over 30 percent also automatically triggers *force majeure*, but the concessionaires argued this would probably not need to be used because the contract states a clear volume of bulk water to be supplied.

Overall, opinion on the speed of the implementation of this privatization has been positive, but there has been criticism that the regulatory body was not fully in place. The process of setting up an independent regulator takes time. Furthermore, the closing audit and inventory of MWSS assets had not been completed. The MWSS failed to implement the transfer of employees in time. The consultant was advised that approximately 100 (2 percent of a total of 5,000) MWSS employees refused to sign the offer sheets of the concessionaires, 200 took up voluntary retirement, 50 joined the residual MWSS organization and the rest moved to the West/East concessionaires.

15. Outcomes

The MWSS privatization provides interesting insights. Most agree that the privatization strategy, the bidding process, the selection process and the transition have been highly successful. It can be argued that the speed of the process helped to lead to successful takeover. However, many issues had to be covered in a very short span of time.

⁵ *Philippine Daily Inquirer*, 6 June 1998.

16. Loose Ends

According to the concessionaires the following problems had appeared at the time of writing:

- The formula used means the extra cost arising from the 50 percent devaluation has had a large effect. Considering that the cost is intended to be spread over the life of the concession, perhaps the regulator should be looking at re-basing issues⁶ – this could be a lesson for future concession agreements. There would appear to be a case for allowing the extra FOREX cost of borrowings to be passed through in tariffs over a period shorter than the full 25 year concession period.
- Interconnection Agreement - there are unresolved issues between the concessionaires regarding the physical boundary definitions of the concessions and the completion of the interconnection agreement, which is subject to arbitration.
- The audit of MWSS assets remains to be completed.

17. Lessons Learned

a. Appropriate Bidding Criteria

There is some support for the notion that in light of the wasteful use of water by many consumers in Manila, it would have been preferable to have had a higher tariff structure. This could have been achieved by pre-determining the tariff structure and bidding the concession fees – i.e., the highest fee for each concession would win, and the concessionaires would be subject to the same conditions as in the current contract – including extra-ordinary tariff adjustments.

b. Bulk Water Rights and Trading

A system of tradable bulk water entitlements is not present in Manila – there is simply reference to bulk volumes, which are the responsibility of MWSS. While it seems correct that it was better to proceed apace than wait on the resolution of long-term and complex bulk rights and entitlements, the allocation of water across bulk uses should now be a priority item.

⁶ In Article 9 Provisions in the contract:

There is an **allowance for automatic rate adjustments** each year for inflation. If this was not the case, the bidders would have had to forecast inflation and allow for this in the bids.

There are the EPA provisions – i.e., through the EPA, if there are different definitions of achievement (e.g., say environmental goals) which were not known at the time of privatization, or if the concessionaires' performance lags behind required standards and the regulatory office feels a price reduction is more appropriate than a penalty, or if the concessionaire benefits from grants or subsidies or the CPI definition changes, or the actual payments of the concessionaire to finance MWSS loans are different from those assumed at privatization – then the rate level will be adjusted to reflect the financial effects of any of the above.

There is **rate re-basing** – this allows the regulator to reset the rate level on fixed dates every five years. It was argued that without this mechanism it was likely the concessionaires would incur cumulative losses and go bankrupt or earn cumulatively large profits. Further, it was argued that bidders can prefer the conditions determining long-term rate changes to be left vague, because this allows them to seek to re-open the original contract terms when they are running the concessions and thus have the bargaining power. It was argued, on this basis, that there needed to be a clearly specified re-basing mechanism running at pre-determined intervals, so that it would be more difficult for the concessionaires to manipulate the contract. The regulator, should under this system, be able to argue that complaints will be dealt with under existing contract terms and so not have to renegotiate the contract.

c. Regulatory Body Must Be in Place

In Manila, the independent regulatory body was not properly in place, and the compromise agreement involved placing the regulatory agency within MWSS. Ideally, the agency would have greater independence and build on skills from other regulatory exposures of the Government of the Philippines. On the positive side, the structure and apparent efficiency of both the concessionaires and the trimmed MWSS is noticeable to the observer – there has been a huge cultural shift in the Metro Manila side of water supply in the Philippines.

d. Secure High Level Advice and Good Public Relations

The IFC advised during the Manila negotiations. It is critical that in devising a contract, the government has capable advisers to obtain a fair contract with private operators. A strong public relations campaign is also mandatory. In the case of the MWSS, communications were very open through all media outlets.

Because of the obvious high standards of professionalism, with the incentive of success fees, there was a sense that it would happen and be a fair and efficient outcome. As it turns out, the bidding process in Manila was transparent and fair – which meant well qualified and established companies submitted bids. While there were disagreements about the interpretation of the formula for choosing whether the Ayala bid should win the East or West concession, and surprise at the low bids, it is to be expected that there would be frustrated losers; market competitions are like that.

The tax incentives offered appear to have been a significant incentive – whether they were necessary is uncertain. Without them tariffs would have been higher, which would not have been a bad thing. Indeed, some argue that an environmental levy, to fund water supply development, should have been attached to tariffs – to counter the waste of water at the new low rates.

The due diligence process was acknowledged as thorough by all concerned.

Employee participation in the process was encouraged. The privatization process was swift and did not really give the unions time to consolidate a united response. At present it appears both employers and employees are fairing well.

18. Conclusion - Manila

At this stage of the Manila privatization, it would be presumptuous to conclude that it is best practice. However, on the basis of a limited review, we feel confident the privatization will improve water supply services, well beyond expectations a few years ago. There are already some signs of customer appreciation of improved service – although they have been crowded out by the 30 percent drop in water supply attributed to El Nino. The administrator of MWSS views the exercise as working well, and the allocations of scarce water by the concessionaires have been deemed to have been fairly and efficiently handled in a very difficult situation. While expectations have been running high, especially regarding the percentage of potable water, the private concessionaires will deliver within a fairly short time frame, the challenge is not small. The concessionaires are pledging very large investments. Manila awaits the private sector involvement bringing huge economic, technical, institutional, and management benefits in the provision of water services but because the privatization is so recent we must postpone any conclusive evaluation.

What is clear is that there are committed commercial entities with obligations, in terms of connections and water supply quality and coverage, that offer Manila a future of potable water supply that seemed impossible — or out of the bounds of reasonable expectations a few years ago. At the present time, what we can conclude is that the study process, the bidding process, and the transition have been successful.

OTHER COUNTRIES' EXPERIENCES

In addition to undertaking detailed analysis of the three water supply privatizations discussed in Appendix 1, we have used available literature to briefly examine private sector activity in water supply and the enabling environment for the following twelve countries:

- Australia.
- France.
- Hong Kong, China.
- India – State of Andhra Pradesh.
- Indonesia.
- New Zealand.
- Pakistan – Karachi.
- Thailand.
- People's Republic of China (PRC).
- United Kingdom (UK).
- United States (US).
- Viet Nam.

A. Australia

1. Private Sector Activity in Water Supply

The majority of Australia's water supply is currently owned and operated by regional government-owned monopolies. However, to varying degrees, governments of Australia's states and territories are prepared to consider private sector investment and participation in economic infrastructure, including water supply (see below). Reflecting this, the private sector has become more prominent in water supply investments in recent years. For example:

- In January 1996, the South Australian Government entered into a 15-year outsourcing contract with a consortium to maintain and operate Adelaide's metropolitan water and wastewater system. The system serves a population of over one million. This was the first major water supply outsourcing contract of its kind in Australia. All capital works associated with the system are managed by the consortium, however, ownership of the assets remains with the South Australian government;
- In November 1996, a build-own-operate (BOO) water treatment plant was opened to supply approximately 80 percent of the inhabitants of Sydney and its regions. The Prospect Filtration Plant, which involved an investment of A\$600 million, is the largest water-filtration plant ever developed in a single stage in the world. The procurement, design, and construction of the plant was completed in less than three years. BOOs have also been contracted for smaller treatment plants supplying Sydney including the MacArthur water filtration plant which involved an investment of A\$1 35 million. Private sector investment has also been encouraged for filtration plants for Sydney's southern suburbs and the Wollongong region and for the sewerage scheme in the Blue Mountains — west of Sydney.
- The Victorian Government has contracted for private investment and provision at the Yan Yean Water Treatment Plant (involving an investment of A\$35m).

- A number of water projects will be undertaken in regional Victoria over the next two to three years. The Victorian Government expects that some of these projects will be delivered on a build-own-operate-transfer (BOOT) basis.
- The Queensland Government is undertaking feasibility studies into the viability of privatizing central Queensland water pipelines.

2. The Enabling Environment

Australia is a federation of six states and two territories. The states and territories have primary constitutional responsibility for supplying water within their jurisdiction. Water supply has been provided typically by vertically integrated government enterprises that operate within regionally defined monopolies.

a. National Water Resource Policy

The Commonwealth Government and all state and territory governments are signatories to the Competition Principles Agreement. Through this agreement, a national water resource policy has been put in place.

The Competition Policy Agreement on water resource policy provides for reforms to institutional and pricing structures, corporatization and, if desired, privatization. All Australian State and Territory governments have agreed to implement the following reforms:

- Pricing reforms, including the adoption of consumption-based pricing and full-cost recovery and removal of uncommercial cross-subsidies. If cross-subsidies remain, they must be made transparent. In particular, where the price of a water service to a consumer is less than full cost, this fact should be fully disclosed. Ideally, in these situations, the government should pay the shortfall to the service provider directly as a Community Service Obligation payment.
- Institutional reforms, which as far as possible are to be in place by 1998, include structural separation of water service provision, standard setting, regulatory enforcement, and resource management functions.
- The agreement also requires that service providers, particularly in metropolitan areas, have a commercial focus through corporatization, privatization or contracting out. Box A2.1 highlights some of the institutional and privatization reforms taking place in the publicly owned Melbourne water utility.
- Urban area reforms should include the adoption of two-part tariffs comprising a connection charge and a usage charge – where this is cost effective. Publicly-owned service providers must earn a real rate of return on the written down replacement value of their assets. This return should be commensurate with the risk they face under public ownership. Metropolitan bulk suppliers must charge on a volumetric basis to recover all costs and earn a positive real rate of return on the written down replacement value of their assets.
- In rural areas water supply reforms include the introduction of full cost recovery and transparent arrangements for subsidies by no later than 2001. Rural water providers must also achieve a positive real rate of return on the written down replacement costs of assets by 2001, where practicable. Future investment in the industry, whether to extend existing schemes or establish new schemes, is to be undertaken

- only after appraisals indicate the investment is economically and ecologically sustainable. Where there is inter-state trade in water, pricing and asset valuation practices are to be made consistent. Funds should be set aside for future asset refurbishment and/or upgrading of government-owned water infrastructure. For the Murray Darling Basin, provision is to be made for funding of future maintenance, refurbishment and/or upgrade of headworks and other structures.
- Other sections of the agreement relate to institutional reform of resource management, groundwater, water allocations or entitlements, trading in water entitlements, consultation and public education, environment, water and related research, and taxation reforms.

Box A2.1: Melbourne Water's Unbundling, Corporatization and Tariff Restructure

Contracting out is a model whereby many of the services of water companies, such as tariff collection, tunneling, design, information technology and construction activities, are separately contracted out by the Government owned water utility. Melbourne Water commenced contracting out in the early 1980's. The utility's steady expansion of contracting out has been a precursor to more substantial private sector involvement.

Melbourne Water started by contracting out legal services in the late 1980s. This was followed by the sale of the information technology division to former staff members. Subsequently, it has contracted out printing, parks and gardens maintenance, engineering design and surveying, tunneling and many other services. In addition, all maintenance of the water and sewage infrastructure has been contracted out to three separate private engineering firms. A major result of these initiatives has seen employee downsizing from approximately 7,500 in 1989 to approximately 1,800 in late 1994.

In early 1995, the Government went further by adopting a corporatization model. The Melbourne Water Corporation was split into four entities — a wholesaler and three retail water distribution companies for metropolitan Melbourne. The distribution companies were responsible for the local distribution of water and collection of sewage and drainage. They are required to purchase their water from the wholesaler and pay that entity for the treatment of sewage and drainage. The retailers bill their customers for their service. There is now scope for the new corporatized entities to seek tenders for the private provision of water services on a concession basis.

The breaking up of Melbourne Water Corporation has produced further contracting out of activities, increased competitive pressures, automation of many activities and increased efficiencies in network management. One key area of the businesses that has experienced significant demands on performance is infrastructure and asset management.

The Melbourne Water example shows that there are some benefits to be gained from a gradualist approach. Private sector disciplines are introduced to a range of services over a period of time. Subsequently, full corporatization, privatization, or the letting of a concession can be considered.

In general, substantial efficiencies have been gained through the contracting out process, despite the claim by staff associations and others who have argued that the departure from the former public service oriented water company has meant substantial losses of corporate expertise. In fact, it is now clear that the private water service providers, including the privately built treatment plant (Yan Yean), are attracting a new level of skill to the organizations. For example, we are seeing on boards and in new management, people who had previously not worked in the water sector, but who bring substantial experience from normal corporate competitive behavior. As a result, the contracting out approach has led to an injection of new managerial talent and expertise.

b. Tradable Water Rights

Transferable water entitlements for surface water have been introduced in most Australian states. Permanent transfers of water are allowed in South Australia and on certain rivers in New South Wales. Generally, transfers are permitted only in the same supply system.

In most other cases, water entitlements are transferred on a temporary basis. Historically, initial water rights have been allocated free of charge. However, some new allocations have been auctioned, for example, in Victoria and Queensland.

c. State Government Policy on Private Infrastructure Investment

The NSW Government aims to maximize private investment in infrastructure to the extent that such investment would result in net benefits to the community beyond those from public provision. It has released guidelines for private sector participation (PSP) in the provision of public sector investment.

The Queensland Government, in September 1997, released a *Policy Framework for Private Sector Involvement in Public Infrastructure and Service Delivery*. This framework has been developed to encourage and formalize processes for PSP in the delivery of public infrastructure services. The central tenet of the framework is value for money on a whole-of-life basis for the delivery of the infrastructure asset and service.

The Victorian Government has a policy to actively encourage private sector investment in the state's infrastructure wherever benefits, in terms of efficiency and cost effectiveness, can be demonstrated. The *Infrastructure Investment Policy for Victoria*, released in August 1994, is designed to assist both Victorian Government agencies and private sector proponents when considering private investment in state infrastructure, facilities, and services. It sets out guidelines for promoting greater certainty for business in making infrastructure investment decisions.

The Tasmanian Government is currently developing guidelines on private sector provision and investment in economic and social infrastructure.

The South Australian Government has indicated that it is keen to encourage private sector investment in public infrastructure. South Australia has released guidelines for investment in infrastructure by the Private Sector.

In 1992, the Western Australian Government released guidelines on its approach to the private provision of public infrastructure. The Western Australian Government is in the process of redeveloping these guidelines for release in the near future.

The Australian Capital Territory Government is also receptive to considering proposals from the private sector regarding investment in the territory's infrastructure. The Government has not, at this stage, published guidelines on PSP in public infrastructure.

The Northern Territory Government has not yet published guidelines on PSP in public infrastructure. However, the Territory is prepared to consider further opportunities for private sector provision of such infrastructure.

d. Foreign Investment Policy

Recognizing the substantial contribution foreign investment makes, the federal government's policy on foreign investment in Australia is framed and administered with a view to encouraging investment, so long as the investment is consistent with Australia's needs. There is no specific restriction on foreign investments in Australia's water supply infrastructure.

However, notification and prior approval is required for all significant foreign investments. For example, acquisitions of substantial interests in Australian businesses with total assets of A\$5 million or more (A\$3 million or more for rural properties), or plans to establish new businesses involving a total foreign investment of A\$10 million or more would require prior approval.

B. France

1. Private Sector Activity in Water Supply

France has a 150 year history of private sector involvement in the water industry. Today, private water operators serve around 75 percent of the population and private sewerage operators serve around 40 percent of the population. Four major private suppliers serve the bulk of the market. The largest private supplier is the Compagnie Générale des Eaux which serves 40 percent of the market. The second largest water company is Lyonnaise des Eaux-Dumez which serves 23 percent of the market. The next two largest companies serve seven percent of the market between them. Several small companies have been bought out by one of the big four, who are also involved in waste disposal, television broadcasting, mortuary services, construction and electrical contracting businesses.¹

Although the 36,000 local municipalities have the option of providing water services themselves, private sector involvement has about doubled since 1950. Where municipalities are involved, they often combine to form water syndicates.

2. The Enabling Environment

The majority of private sector involvement is through franchising contracts. Franchising allows competitive disciplines to be introduced even where there is substantial market power. It can be an alternative to regulation to limit monopoly power. Rival companies bid to take over the management and operations of water facilities for a fixed period. Firms compete on price, subject to a range of non-price considerations including past experience, stability and quality assurance. Franchising contracts often specify service quality requirements, maintenance obligations, the scope for price increases, and the property rights that apply to parties once the contract expires. Competition occurs at the initial contracting stage through bidding. It also occurs, though to a much lesser extent, at contract renewal - since there is some (albeit small) prospect that the contract may be re-let to another contractor (in practice, re-letting a contract to another contractor rarely occurs). The franchising model usually takes one of three basic forms:

- **Management Contracts** – These contracts provide for the most limited form of private sector involvement. Government owned utilities contract out specific functions to private companies. The public company retains ownership of assets, accepts general responsibility for the system and responsibility for billing customers. The private company accepts responsibility for a series of specified tasks for the duration of the contract.

¹ New Zealand Business Roundtable 1995, *Reform of the Water Industry*, a report prepared by CS First Boston NZ Limited, August.

- **Affermage Contracts** – These contracts are also known as leasing contracts. They give a private company responsibility for asset operation and maintenance, billing and collection of fees from customers. The contracted private company has discretion in the day to day management of assets and staff and accepts responsibility for financing investments with life spans that fit within the contracted period, which is typically around 10 years. The government utility accepts responsibility for financing construction and operations with a life span greater than the contract period. Contracts usually specify the private contractor’s responsibilities for maintaining quality. This type of contract is the one most commonly used in France.
- **Concession Contracts** – These contracts devolve further responsibilities to the private contractor. The contractor can assume responsibility for financing, maintaining or refurbishing assets with long life spans. Consequently, contract periods usually are longer (typically, 15 to 30 years) to allow the contractor to earn an appropriate return on investment. At the end of the contract period, the ownership of assets is notionally transferred to the government utility. In practice, the franchise is usually renewed and the relationship is ongoing. Water fees are established through negotiated or competitive bidding. Water charges usually are usage related. Concession contracts typically specify initial prices and the scope for price increases based on inflation and increases in input costs. Contracts often contain five-year “break points” where either party can request to renegotiate prices. The Ministry of Economy and Finance monitors fee levels. There is no explicit rate of return regulation. However, price negotiations between contractors and the government utility are often based on each party’s perceptions of an appropriate rate of return.

C. Hong Kong, China

1. Private Sector Activity in Water Supply

Private sector activity in Hong Kong, China’s water supply is primarily restricted to construction under tender of segments of the water supply system. The Water Supplies Department, one of the departments under the Works Bureau of the Government of the Hong Kong Special Administrative Region of PRC, has responsibility for the region’s water supply. The department’s principal functions are to plan water resources and design, construct, maintain, and operate Hong Kong, China’s water supply systems. Hong Kong, China’s water supply is reported as costing four times more than the user fees charged.

2. The Enabling Environment

a. The Legal Environment — Dispute Resolution

The Hong Kong, China judicial system is based on the English model, however, investors are often advised to resolve disputes through less formal means. Indeed, Hong Kong, China, like Singapore, has sought to make it an attractive venue for arbitration. Both countries have adopted United Nations Commission on International Trade Law rules, which has played a significant part in increasing certainty for international investors by introducing uniformity in the

law of international commercial arbitration. The number of arbitration cases in Hong Kong, China, for example, increased from 54 to 185 two years after it adopted the Model Law.²

The basis of the Model Law is to give the parties the freedom to submit disputes to arbitration and to determine their own procedure including the number of arbitrators and the place and language of arbitration. There are, however, certain overriding principles to ensure fairness and due process. Court intervention is restricted to limited circumstances such as challenging the jurisdiction and appointment of the arbitral tribunal.

b. Environmental Standards

Hong Kong, China's system of environmental regulations and laws are similar to those in Organization for Economic Co-operation and Development countries.

D. India — State of Andhra Pradesh

1. Private Sector Activity in Water Supply

To date, most of the focus of private/government partnerships in infrastructure service provision in India has been in the power and transport sector. Water supply is a high priority for most state governments as surface and groundwater is scarce. However, few new water supply projects of a private investment nature have been implemented.

2. The Enabling Environment

a. The System of Government

India is a Union of States. Under the constitution, the legislative of the union, called the parliament has power to make laws for the whole or any part of the territory of India. State legislatures have power to make laws for their state, which are not covered by the Union List. The Union List gives exclusive power to the parliament to make laws in a number of areas including: defense, foreign affairs, currency, income, tax excise duty, railways, shipping, posts, and telegraphs. Both parliament and state legislatures have the power to legislate in areas covered by the Concurrent List which includes electricity; newspapers; criminal law; marriage and divorce; stamp duties; trade unions; and price controls. India's states have significant authority over water supply and sanitation and these powers can be passed down to the municipality level.

In the state of Andhra Pradesh, the planning and construction of water supply and sanitation facilities is carried out primarily by the Public Health and Engineering Department (PH ED). This state government body is responsible to the ministry for municipal administration. Under government grants or joint funding arrangements with municipalities, the PHED makes plans, designs schemes, and manages the construction process for major municipal water supply and sanitation projects through competitive tendering.

² See Asia Law January/February 1995 p. 28

Each district has a PHED office and a district superintending engineer. Once constructed, water supply and sanitation facilities are handed over to the municipality for operation and maintenance.

Existing institutional arrangements within India tend to preclude a commercial customer-oriented focus in the government agencies responsible for water supply and sanitation services. All of India's political parties support continued subsidies for water.

b. The Legal Environment and Dispute Resolution

India's legal system follows the British model. Disputes can be settled by the courts or alternatively through Lok Adalats, which are voluntary agencies for resolution of disputes through conciliatory methods.

c. Industries Reserved for the Public Sector

Six Indian industries are reserved for the public sector because of their strategic importance to the nation, another 16 industries of strategic, social or environment concern require industrial licenses. Water supply does not fall into either of these listings.

d. Foreign Exchange Controls

The Foreign Exchange Regulation Act 1973 governs India's foreign exchange (FOREX) control. In August 1994, India moved to Article VII status in the International Monetary Fund. The Indian FOREX market is developing and over the last few years a variety of instruments have been introduced.

e. Environmental Standards

Water allocation, groundwater monitoring and pollution control are divided between a number of government organizations, making integrated management of the water resource on a catchment or river basin basis difficult. For example, responsibilities for water resource management in Andhra Pradesh are split between three government agencies: the Irrigation Department, the Groundwater Department and the Pollution Control Board.

In Andhra Pradesh the institutions for water resource control have evolved over a long period of time. A rather complex set of rules and procedures are followed in most of the delta regions to allocate water and recover costs from an interconnected system of canals, barrages, intakes and storage tanks. Efficiencies could be gained through developing greater flexibility in water allocation and an ability to trade water between irrigators and urban water users. The technical capacity to achieve this exists now. However, the institutional arrangements needed for greater inter-sectoral water trading would take some time to develop.

E. Indonesia

1. Private Sector Activity in Water Supply

Indonesia's water supply has historically been subject to high volumes of unaccounted-for-water, minimal metering and insufficient pricing. The majority of Indonesia's urban poor do not have household connections to piped water. In a bid to redress these problems, the

Indonesian Government has recently awarded a number of private sector contracts. For example, in 1997 two private companies were engaged to supply water to Jakarta, under long-term (25-year) concession arrangements. In the same year a private consortium signed a long-term agreement for the construction and operation of a drinking water plant in Medan – the fourth largest city in Indonesia. A build-operate-transfer (BOT) contract has also been under negotiation for water treatment in Surabaya. However, to date, neither of these contracts has been closed, reflecting the current political situation and changing circumstances.

2. The Enabling Environment

a. The Legal System

Indonesia is a civil law jurisdiction (with some similarities to the Dutch system). However, the framework for the country's civil and administrative law is not strong. Law enforcement depends primarily on the criminal courts. However, disputes can be settled through local arbitrators – the most prominent non-court dispute resolution body in Indonesia is BANI, the Indonesian National Board of Arbitration.

Indonesia has ratified the 1958 New York Convention on the Recognition and Enforcement of Foreign Arbitral awards but the country has not introduced the required implementing regulations.

b. Environmental Standards

The Ministry of Public Works, through the Directorate of Water Resources, is responsible by law for the quality and quantity of surface water in Indonesia.

Indonesia has enacted a significant body of environmental laws; the degree of enforcement and compliance with these laws is variable.

F. New Zealand

1. Private Sector Activity in Water Supply

Historically, councils and unitary authorities have provided water supply and wastewater treatment services to New Zealand's urban and rural areas. However, there has always been some private investment in the industry. Many small towns and isolated communities have private water supplies. For example, Oamaru city's water is supplied by a farmer-controlled irrigation company. Irrigation schemes, including all those previously owned by the government, are now owned and operated by private interests.

New Zealand has been relatively slow to introduce private sector investment into its metropolitan water supply sector. A BOOT contract has recently been awarded in Wellington's Lower Hut Valley and another BOOT contract has been put out to tender by Auckland's water authority. A joint consortium has also been contracted under BOOT arrangements to design and construct treatment facilities for a population of one million in Manukau.

2. The Enabling Environment

In New Zealand's unitary system of government water supply is the responsibility of local or regional councils and unitary authorities. These bodies control the taking, use, damming and diversion of water as well as the control of discharges into water.

Amendments to the Local Government Act in 1989 increased regional councils' and unitary authorities' accountability in their resource allocation roles. Most councils have, to varying degrees, separated the water supply and wastewater utilities from other council activities. The majority of councils now supply water and sewerage services through stand alone business units rather than council departments and some councils have opted for corporatization.

Resource allocation remains a problem in New Zealand. Permits to use water are generally allocated on a first come first served basis. In many rural districts, water scarcity is a growing problem. In addition, many water utilities do not meter supply to domestic or small commercial customers, hence water charges are not based on usage. In some cases, meters have been installed but are not used. Greater use of economic instruments in allocating water is hindered by the Resource Management Act. For example, charging for sewerage services on the basis of water usage is currently not possible.

G. Pakistan — Karachi

1. Private Sector Activity in Water Supply

Karachi's water and sewerage facilities are in the process of being privatized by competitive tender. In the face of significant operational and financial difficulties over the past few years, the Government concluded that the magnitude and urgency of the required changes were such that the only viable option – even with continued multilateral and bilateral assistance – would be to transfer operating and investment risks to the private sector as soon as possible. The successful tenderer will have to invest between US\$350 million and US\$500 million to improve existing facilities if performance goals are to be met.

The Karachi project is one of the largest instances of private participation in Pakistan's water sector. The successful implementation of this project should help pave the way for private participation in other cities in Pakistan that the private sector now perceives as risky.

2. The Enabling Environment

Pakistan has a federal system of government with four provinces and two territories. In 1988 Pakistan began to re-orient its policies to improve its extremely poor social indicators. Encouraging private sector investment was seen as one mechanism for achieving this goal.

Pakistan initiated an International Monetary Fund and World Bank supported reform program in 1993. The World Bank reports that the progress with structural reforms has been mixed, but significant advances have been made with privatization and attracting private investment, particularly in the energy sector.

Almost all surface water in Pakistan is contaminated by pollution. The World Bank reports that environmental degradation and pollution are seriously affecting public health. In

1992, the federal government took steps to arrest Pakistan's environmental problems through a national conservation strategy. This was followed by an action plan for 1993—1998. The Government also encouraged the preparation of provincial strategies.

The Federal Government has created a privatization commission, which is responsible for privatizing a wide range of government owed institutions.

The Water and Power Development Authority is a semi-autonomous body responsible for the planning, formulation, and execution of schemes for the exploitation of surface and underground water resources for irrigation, water supply, drainage, and hydro-electricity in Pakistan.

H. Thailand

1. Private Sector Activity in Water Supply

The sourcing and distribution of water in Thailand is the responsibility of the Metropolitan Water Works Authority and the Provincial Waterworks Authority (PWA).

The PWA awarded Thailand's first private sector water contract in 1995. The BOOT contract, which will operate for 25 years, was awarded for water supply in the Patum Thani/Rangsit region. Construction of the Patum Thani production and transmission facilities was to be completed by October 1998. The PWA is awarding a management contract for the distribution system, which will also cover leakage control.

The PWA has a privatization policy for regional water supply in place. The recent regional economic crisis has increased the urgency of its implementation as the PWA can no longer rely on government grants and other support for capital expenditures.

The PWA has re-assessed the benefits of the BOOT approach to privatization. The authority is currently negotiating with potential investors for three to four BOO schemes. In future, the PWA plans to include both the production and the distribution in the same package.

The Royal Thai Government is currently seeking reviews of the regulatory frameworks, tariff structure and privatization option(s) for the PWA (all of Thailand), the MWA (Bangkok) and the Wastewater Management Authority.

2. The Enabling Environment

Thailand's current laws with respect to water are outdated, a new Water Law has been drafted but has not been enacted. The Head of PWA, Dr. Wanchai Ghooprasert has called for the enactment of the Draft Water Law. He has recently been reported as saying that Thailand has:

“. . . many water-related agencies, but a general lack of coordination among them, resulting in gaps and overlaps in activities and services. A central body with adequate capability, capacity and authority should be established. . . . There is a lack of unity in the plans of concerned agencies, and there is no master plan that covers all sectors. Furthermore, the existing plans lack a participatory approach.

An Integrated Water Resources Management approach should be adopted. The economic value of water should be seriously considered.” (Ghooprasert 1998)

3. Foreign Ownership

Thailand's Board of Investment imposes ceilings on foreign ownership of most activities, the exception largely being manufacturing industries. Both foreign and local investors may apply for incentives under the Investment Promotion Law. The Board of Investment maintains a list of businesses eligible for promotion and can also consider individual projects on a case-by-case basis. It is by this means that the Government can provide incentives to promote priority areas, including investment in infrastructure. Promoted projects are subject to a myriad of conditions such as minimum capital investment requirements, minimum requirements for Thai share participation and certain requirements to use local raw materials. The promoted projects are then able to gain significant advantages. These include the removal or minimization of price controls, the right to bring in foreign specialized labor, the right to own land to carry on the relevant project, exemptions or reductions in import duties on imported machinery and raw materials and, in some circumstances, company tax holidays.

4. Environmental Standards

Thailand has enacted a significant body of environmental laws; the degree of enforcement and compliance with these laws is variable.

I. People's Republic of China

1. Private Sector Activity in Water Supply

In recent years, there has been some major private sector investment in PRO's water supply, and some examples are summarized in the following boxes.³

2. The Enabling Environment

PRC, through the State Planning Committee has both developed a BOT decree and an associated decision framework and has supported model contracts in the power, transport, and water supply sectors. The initial role model was a power plant in Laibin, Guangxi province, and a follow-on has been a water sector BOT in Chengdu, of Sichuan province. Both have been bid competitively, and contract negotiations were deemed highly successful.

³ For a detailed review of water BOT issues and experience in PRC see “BOT in the Water Supply Sector in the People's Republic of China”, proceedings of a Seminar, October 1996, Asian Development Bank, Manila. The box in the text is from the conference volume, pp53-57.

Box A2.2: Water Supply Concessions in PRC

Ha-bin, Heilongjiang Province: SAUR International of France and the Harbin Water Company established a 50:50 cooperative joint venture in 1993 to finance, construct, and operate a 225,000 cubic meters (m³/day) water treatment plant for a period of 28 years. Investment contributions are both in kind and in cash, and total ¥165 million (Van, 1996).

Shenyang, Liaoning Province: Hong Long Land Holdings Ltd., AIDC Ltd. of Australia, and Temasek Holdings Ltd. of Singapore have established China Water Company Ltd. to finance, develop, and operate water treatment projects in PRC. Capitalized at \$30 million, the first project of this company is a 20-year cooperative joint venture with the Shenyang Water Supply General Co. to develop a 150,000 m³/day water treatment plant. Additional projects are in the pipeline (AWSJ, 1996).

Tanzhou, Guangdong Province: Suez Lyonnaise des Eaux of France and New World Group of Hong Kong have established a joint venture company to pursue a number of water supply projects in PRC. In Tanzhou the company has entered into a 30-year concession contract for the development of a 240,000 m³/day treatment plant in four phases of 60,000 m³/day each; the first phase was completed at the end of 1994 (Suez Lyonnaise des Eaux, 1995).

Nanchang, Jiangxi Province: Suez Lyonnaise des Eaux entered into a concession agreement in 1994 for the construction and operation of a 200,000 m³/day treatment plant, followed by another contract in 1995 for the buy back, upgrading, and operation of an existing 50,000 m³/day treatment plant.

Shenyang, Liaoning Province: Suez Lyonnaise des Eaux entered into a concession agreement in early 1995 for the buy back and operation of a 450,000 m³/day treatment plant built by subsidiary Degremont in 1992. Two additional concession contracts have reportedly been signed by Suez Lyonnaise des Eaux.

Macau, China : In 1985 a joint venture of Suez Lyonnaise des Eaux and New World Group was awarded a 25-year concession to supply water to 600,000 residents of Macau, China; this contract includes the establishment and operation of two water treatment plants and over 275 kilometers of distribution networks. Elsewhere in Asia, Suez Lyonnaise des Eaux has also entered into three concession contracts in Malaysia (Taiping, Johor Bahru, and Kota Kinabalu) comprising treatment, storage, and distribution networks.

Box A2.3: Shanghai's Da-Chang Water Treatment Plant

Da-Chang Water Treatment Plant is a foreign-owned venture jointly owned by Thames Water of the UK and Bovis, a subsidiary of P&O of the UK. The plant, located in Pudong, Shanghai, has a concession period of 20 years.

The plant involves the construction of a 400,000 m³/day potable water treatment, storage facilities, and pumping station. Peak capacity is 520,000 m³/day. The local side is responsible for the provision of raw water, operation of the intake, and distribution mains. Thames Water is responsible for the operation of the works on completion of Phase 1 (200,000 m³/day). There is also a training element to this project. Thames Water was responsible for the process, mechanical, and electrical works design in conjunction with a local design firm. Once completed, Da-Chang will serve around two million of the 13 million residents of Shanghai.

Total project costs are \$73 million. A \$54- million project financing for the plant was syndicated to foreign banks with a ten-year maturity, including a two-and-a-half-year construction period; financing took 12 months to arrange. Participating banks included BZW Asia Limited, Credit Lyonnais, Standard Chartered, and Sumitomo Bank Limited. Lenders maintain that this is one of the first non-recourse project financing arrangements in PRC and the first project financing without a FOREX guarantee, although the Shanghai government provided FOREX support through a special regulation passed at the municipal level.

While structured similarly to BOT, the foreign investment projects allotted as cooperative joint ventures (JVs). These JVs operate under separate legislation under the Ministry of Foreign Trade and Economic Cooperation. To quote Edward Lehman at an Asian Development Bank (ADB) 1996 conference:

“No matter which legal form they take, BOT, BOOT, and ROT projects are typically very complex, involve a wide range of role players, and carry a large number of risks that must be managed by them. It is essential that local governments appreciate the great complexity and range of potential risks before committing time and resources to what are invariably very long negotiations with private firms.”

The tendering and procurement process under the new laws and procedures is designed to be highly competitive. One benefit of such competition is that different bidding parties (consortia — usually foreign and local operators, investors and financiers) will typically come up with differing debt and equity structures, and differing ways of sharing risk, with the Government than being able to choose the best combination that meets their specified requirements.

PRO's early experience with BOT contracts had seen provincial governments ignoring central directives and the ministry of finance was often required to step in. The new laws are, in part, an attempt to learn from those experiences. For example, in 1993 the PRO Government imposed a freeze on rates of return for BOT contracts. This effectively halted foreign projects for over two years and led the PRO Government to a decision to consider this form of PSP in infrastructure on a case-by-case basis, with underwriting at the provincial level.

J. United Kingdom

1. Private Sector Activity in Water Supply

From 1973 until 1989, there were ten vertically integrated water authorities in the UK, each responsible for providing water, sewerage and drainage services in England and Wales. These water authorities provided services within their respective monopoly areas, except where supply was arranged through one of the 29 pre-existing privately-owned statutory water-only companies. Local government authorities operated many parts of the sewerage system on behalf of particular water authorities.

The water industry was sold to the private sector in 1989 as part of the conservative government's wide ranging privatization program. In September 1989, the assets and liabilities of the then water authorities were transferred to ten subsidiary companies within holding companies (known as Water Groups). Shares in the holding companies were sold in November 1989. Each subsidiary company was granted a 25-year operating license, making them responsible for all water and wastewater services, including extracting raw water, delivering processed water, and receiving, treating and discharging wastewater. The Secretary of State for the Environment or for Wales (depending on where the appointee operates) can terminate these operating licenses at anytime, provided it gives 10 years notice.

There has been some structural reorganization of the UK water system since the water companies were sold in 1989. There has also been changes in the regulatory arrangements and some community unrest about the privatization process. For example, the Government

introduced price cap regulation in 1990 in response to concern that the utilities would abuse their monopoly power. There was considerable customer unrest as the first periodic review of the price formula approached as prices had risen considerably since privatization. Consumer dissatisfaction continued after the 1995 periodic review. Customers and the (then) opposition party were dissatisfied that water companies management were receiving large remuneration packages while water companies were earning large profits. With a change in Government in 1997, a special one-off tax was imposed on water companies. This tax was intended to redress the bad deal the new labor government considered its predecessor had struck on water utility privatization.

The British approach to privatizing water supply demonstrates that privatization can be very unpopular if the community is not consulted and not given the necessary information to understand the need for and nature of the cost of new investments that privatization has facilitated.

2. The Enabling Environment

Following privatization, the Government introduced price cap regulation to limit abuse of monopoly power. Price caps restrict the ability of service providers to increase prices. To prevent service providers from exercising monopoly power by lowering quality instead of prices, the price capping formula contains a quality factor. The Government also held monopoly power in check during the first years of privatization by holding special (or “golden”) shares in the ten water and sewerage holding companies. These special shares were redeemed on 31 December 1994 to expose water and sewerage companies to competitive disciplines through threat of merger and takeover.

At the time of privatization, opportunities for direct competition in the supply of water and sewerage services were expected to be limited. The level of network competition in electricity and gas was considered unachievable in water, due to higher costs of transportation. The Director General of Water Services therefore did not actively promote competition. Some competition was facilitated under the Water Act 1989 (later consolidated into the 1991 Water Industry Act) through provision for companies to apply for inset appointments.

Initially, inset appointments could be granted to a company seeking to provide water and/or sewerage services on a greenfield site (i.e., one not attached or near to a public supply) within the incumbent service provider’s area. Some competition already existed on the borders between regional water companies. Inset appointments allowed new suppliers to serve previously unconnected consumers within a regional water companies geographic area. Inset appointments can be facilitated by:

- A direct connection to a neighboring water and/or sewerage company’s system.
- A bulk water supply/sewerage connection agreement with a neighboring undertaker.
- A new or existing source, sewage treatment plant or discharge consent.

Inset appointments can only be granted to a limited company. They may be granted to an existing water and sewerage undertaker. New entrants seeking an inset appointment must satisfy competence and financial viability conditions set down by the Director General of Water Services. A large customer can become its own supplier by setting up an affiliated company to act as appointee.

In practice, the existing appointee would normally continue to supply water and/or sewerage services to the boundary of the inset area and would be paid for doing so by the inset appointee. The customer would receive his/her bill from the inset appointee. In the case of a bulk water supply or sewerage connection agreement, parties are expected to reach agreement on the terms and conditions for access. However, if they fail to agree, the Director General of Water Services has powers to make a determination on terms and conditions.

The Competition and Service (Utilities) Act 1992 extended the provision for competition to allow inset appointments to be granted not only for greenfield sites but also for sites supplied with 250 megaliters or more of water a year. The process for considering inset appointments was simplified in July 1995. This led to an increase in the number of inquiries and formal applications for inset received by the Office of Water Services (OFWAT).

When provision was made in the statutes for new entrants via inset appointments, two types of insets were envisaged. One was where new resources would be developed or new sewerage services provided and the other was where a brokerage arrangement would be sought. That is, the applicant would obtain a bulk supply from a neighboring company or, in the case of sewerage services; the inset appointee would connect to the neighboring company's sewer. As at March 1997, only one of the inset applications received by OFWAT has involved the development of a new sewerage service and infrastructure. There were no inset applications received by OFWAT involving the development of new water resources.

When the inset applicant and the existing undertaker are unable to agree on the terms of bulk supply or mains sewerage connection, the Director may be asked for a determination. As at March 1997, OFWAT had considered 18 inset applications. In all cases the Director of OFWAT has been asked to determine the price at which the incumbent must provide the supply or connection (i.e., access price). The Director has made such determinations by taking into account the long-run marginal cost of supply. If this differs across a region then consideration is given to local long-run marginal costs.

While provision for inset appointment was made in 1989, the first inset appointment was not announced until March 1997. Anglian's water license was varied in May 1997 to make way for this inset appointment. Anglian is to supply a chicken factory (Buxted Chickens) which presently receives a supply from Essex and Suffolk. The variation was to take effect on 1 October 1997.

Although only one inset appointment has been announced to date, the threat of inset appointment has prompted some competition in water and sewerage prices. The threat of inset, usually by an agent acting on behalf of a potential applicant, has led companies to disentangle the costs associated with wholesale supply (bulk supply) business from the retail cost of supplying water. Many of the 29 water companies have introduced large user tariffs for water and some have introduced similar tariffs for dirty water.

3. Recent Attempts to Increase the Scope for Competition

OFWAT considers that further competition in the water industry is more likely to evolve if suppliers or potential suppliers have reasonable access to water. Access or common carriage arrangements will foster competition from newly developed water sources and reused treated wastewater.

In April 1996 the Department of the Environment issued a consultation paper proposing common carriage — third party access to water networks — and competition in water supply to large industrial customers. The Department of the Environment consultation paper published on 1 April, 1996 had a three month consultation period. It proposed legislative changes for inset appointments, cross-boundary supplies, common carriage and liberalizing the making of connections. These proposals (described below) were broadly supported by the industry regulator and most were implemented on 28 January 1997. They are expected to generate a limited form of competition in the water industry, relative to electricity and gas, albeit slowly.

4. Inset Appointments

Until recently, once an inset appointment was granted, the appointee remained in place unless another replaced it. The consultation paper proposed that inset appointments could be made for limited periods and the Director General be given powers to nominate an undertaker to replace the appointee at the end of the period. To increase the number of customers who can benefit from inset arrangements, the 250 megaliter test was amended to include premises that consume 250 megaliters that are commonly owned but separated by highways, railways, and or watercourses. The government also announced in January its intention to consider whether the level of water supply at which inset appointments would be available to large customers should be reduced below 250 megaliters per annum.

In August 1997, OFWAT announced plans to allow Anglian Water to act as sewerage undertaker for a former Royal Air Force site in Severn Trent Water's sewerage area. Water services to the site are currently provided by Yorkshire Water. The ministry of defense has sold the site including land and improvements (including sewerage pipelines and a sewerage treatment works) for a private housing development. The system operates on a standalone basis and does not require connection with Severn Trent's or Anglian's own sewerage system. OFWAT has required that a locally based customer service committee⁴ serve customers from the new development. This committee already represents the site's water customers and is different to the one that usually serves Anglian's customers.

5. Cross-Boundary Supplies

Until January 1997, any customer wanting to take a supply of water for domestic purposes could approach any undertaker for a cross boundary supply. The undertaker had a duty to supply that customer, although the customer was required to meet the costs of any required pipelaying. Customers could not require a cross-border supply of water if the water was intended for non-domestic purposes. The consultation paper proposed legislative changes to extend cross-boundary supplies to cover non-domestic use (OFWAT April 1996).

6. Common Carriage

Common carriage was proposed by the department of environment in April 1996 to further increase competition. It was envisaged that common carriage would occur where an appointee's pipes are used to transport water owned by a different supplier.

⁴ There are 10 customer-service committees appointed by the Director of OFWAT to represent the interests of consumers of water and sewerage companies.

Consultation revealed two key obstacles to the opening up of existing water networks to common carriage. One concerned water quality and the question of whether water quality standards could be safeguarded.⁵ A report commissioned by the department of environment and OFWAT by the Water Research Centre concluded that the difficulties in this area, while presenting a challenge, are not insurmountable (OFWAT 1996). The second obstacle concerned customers' perception of changes in taste and hardness that will lead them to regard the product as inferior. The Director General of OFWAT considered that attempts to ensure taste and hardness do not change as a result of common carriage and are likely to ensure that competition could not occur. Changes in taste and hardness would therefore have to be accepted, as they are already when the source of supply is varied within an existing network (Byatt, ICR 1997a).

The paper proposed legislative changes to allow any existing water undertaker (including new appointees) or new suppliers holding a direct supply license from the Director General, to supply customers by means of common carriage across any water undertaker's system. It was intended that from January 1997, large users in England and Wales (i.e., those with demands of 250 megaliters or more of water per annum or those that dispose of a similar amount of wastewater) be able to take advantage of common carriage provisions. The Director General will have the power to determine, in the absence of agreement between a prospective incoming supplier and the incumbent undertaker, the terms on which water should be supplied.

By September 1997, OFWAT had received two applications for common carriage of water. However, the Government is yet to endorse a legal framework within which access can occur.

7. Connection Charges

Prior to January 1997, customers did not have a choice over who connected their premises to the water mains. Water companies effectively had a monopoly on this and were allowed to charge reasonable costs. Companies insisted on making the physical connection, though in practice many allowed the customer or their contractor to carry out the trenchwork and lay pipes. In the consultation paper, the Director General pressed for changes to the legislation to allow other parties, such as developers and builders, to make the physical connection to the mains (OFWAT, April 1996). These changes were implemented early in 1997.

K. United States of America

1. Private Sector Activity in Water Supply

In the US, water and wastewater operations are highly fragmented. There are around 52,500 water systems. Of these, around 46 percent are publicly owned, 28 percent are privately owned, and 26 percent are ancillary systems associated with schools, hospitals, caravan parks, etc.

⁵ Water quality was already an issue in UK before common carriage proposals were aired. Between privatization in 1989 and March 1996, 9 billion pounds (1995–96 prices) was spent on asset maintenance, refurbishment, and construction. Nearly 40 percent of this expenditure (3.4 billion pounds) went to improving drinking water quality. Capital expenditure of around 4 billion pounds is planned for the 10 years 1995 to 2005 to further improve drinking water quality.

Privately-owned companies serve around 15 percent of the US population. Most private water companies are investor-owned, though there are some mutuals owned by shareholders. Private companies operate the majority of smaller systems in the US. There are very few privately owned systems serving a population of more than one million people (Beecher and Mann 1990). In some cases, privately-owned companies own combined water and electricity businesses.

Publicly-owned companies, usually municipalities, serve around 85 percent of the US population. Municipalities dominate the provision of services to larger urban areas. Publicly-owned companies also traditionally have dominated the provision of wastewater services. These services have been substantially subsidized by governments. Competition between publicly-owned companies is deterred by regulation. For example, if municipalities choose to serve customers outside their jurisdiction, they become subject to state regulation. Many municipal water supply systems face serious problems associated with capital deterioration, deferred maintenance, unreliable water supply, and under-pricing of services.

Most of the government owned systems price on the basis of estimated usage or on the basis of political considerations. In many systems, including New York City, water meters are only just being installed for usage based charging. This has provided an incentive for overuse of water by consumers. Water suppliers are not able to identify where system losses and excess demand are occurring and therefore find it difficult to improve efficiency.

Mounting regulatory pressures (costs of complying with regulation), and budgetary problems prompted greater consideration of private sector contract operations and maintenance of water and wastewater facilities. In 1992, there were around 300 operations and maintenance competitive franchising contracts between private operators and municipalities. The contracts generally run for five years. It is estimated that these contracts have achieved cost savings of between 20 and 50 percent (Haarmeyer 1992).

Performance comparisons of private investor-owned water utilities versus public water utilities have found that the two types of companies generally provide comparable services, though investor-owned companies pay taxes and do not receive non-operating income like public utilities. The government-owned water utilities receive generous tax subsidies that investor owned utilities do not. A study by Neal, Maloney, Marson, and Francis (1996) found that investor owned utilities generally had a lower net cost of capital, lower real water bill and greater efficiency in their operations than government owned utilities.

Public and private water utilities in the US face pressures associated with increasing urbanization, deteriorating infrastructure, and increasingly stringent drinking water quality regulations. The ability of utilities to respond to these problems is partly constrained by regulations in the industry (Mann 1993).

2. The Enabling Environment

a. Government Involvement and Regulation

Water services are highly regulated in the US for both investor-owned and government-owned companies.

There are many federal laws affecting water supply in the US. Historically, the Federal Government was responsible for project development and financing, for example, of storage and flood control systems. During the 1980s the federal role moved toward issues of water resource management and drinking water quality. The Federal Government also provides funding programs for wastewater treatment. These programs discourage the take-up of new approaches to meet the community's treatment needs. Federal Government grants also create disincentives for companies to comply with water treatment standards, as failure of the government to provide funds was an acceptable excuse for non-compliance (Stiefel 1994).

Federal laws are enforced by a plethora of agencies. Federal agencies include the American Water Works Association, National Institutes for Water Resources (NIWR), National Association of Regulatory Utility Commissioners, American Water Resources Association, and the Water Quality Association. These federal agencies usually have state-based counterparts.

While the Federal Government plays a large role in water matters, the states have primacy over the federal government in planning, management and regulation matters.

States have authority to create, allocate and regulate water rights. Different rules have evolved concerning the ownership of surface water versus groundwater (Berg 1997). Surface water accounts for 60 percent of public supply, while groundwater accounts for around 40 percent of public supply. Groundwater has been the subject of a common property resource dilemma. Each state has authority to create and regulate water rights within its boundaries. However, groundwater does not conform to state boundaries and common property issues arise because one form of usage of groundwater generally precludes another. This has been a source of conflict between states (Berg).

State governments generally have primacy in the control of utility operations, including prices. The states regulate public water utilities through state public utility commissions (PUCs). There are 46 PUCs in the US, regulating around 20 percent of water systems. PUCs determine revenue requirements and rate structure design. Companies must apply to PUCs for rate of return and price increases. Such applications often are evaluated using formal judicial processes with hearings and rules of evidence and procedure. At these hearings, utilities must prove that price increases are justified by an increase in costs. Investor-owned utilities are regulated through 40 state-based commissions. These commissions regulate the finances of investor-owned utilities to some degree through approval of debt-equity ratios; issue of stocks, bonds and dividends; and financial arrangements for water projects. Investor owned utilities usually require prior approval for a major change in a utility's corporate structure or ownership. They also require utilities to file annual or period reports with financial, operating and planning data.

Monopoly power is controlled primarily through rate of return regulation. Rate of return regulation seeks to control a monopoly's behavior by defining maximum allowable profits, having regard to the utility's costs. This regulation has generated several forms of inefficiency. First, poorly designed rates misallocate water among users. They also have created situations where revenues do not cover costs. There is not widespread use of marginal or incremental costing in the rate design process. Pricing mechanisms often do not allow for cost variations due to seasonal, geographical, and availability factors. Second, there is no incentive to minimize the costs of providing water services. In fact, rate of return regulation can have the opposite effect by encouraging utilities to maximize the value of their asset base to allow higher profits. Third, the costs of regulation often exceed the benefits, which leads to a misallocation of

utility and regulatory resources. The potential for distortion through rate of return regulation is affected by how utilities' costs are measured. Most PUCs base their decision on an historic cost accounting standard. Some use replacement cost.

b. Cross Boundary Trade in Water

There is interest in establishing a quasi-national market within the US by piping, or delivering water from Alaska by tanker to the US West Coast. The Alaska legislature has passed a law that sets up a mechanism for cross-border water sales. It is envisaged that purchasers of water from Alaska will be able to trade Alaskan water with other water companies. For instance, Nevada could buy water from Alaska and trade it to California in exchange for a portion of California's Colorado River water (Bradner 1993).

There is also interest in importing water from Canada in the future once internal debate within Canada is resolved (Berg). Canada, for the most part, is water rich. There is an interest in selling this water to the US and even water poor countries overseas. One proposal involved the export of water to Saudi Arabia by a company called Alaska Glacier Beverages (Bauman 1994).

L. Viet Nam

1. Private Sector Activity in Water Supply

To date Viet Nam has had limited private sector investment in water supply. In 1996, the first water supply BOT arrangements in Viet Nam were awarded for 20 water treatment plants in Ho Chi Minh City.

2. The Enabling Environment

a. The Legal Environment — Dispute Resolution

Viet Nam's BOT laws include procedures for dealing with disputes. The legislative regime provides that the parties must first seek to resolve the dispute by means of conciliation. Failing this, disputes between the BOT contractor and ancillary contractors are referred to a Viet Nam arbitration body, an *ad-hoc* arbitrator, a different country's arbitrator or an international arbitrator depending upon the method agreed in advance by the parties. Disputes between the BOT Contractor and a government agency are resolved through an *ad-hoc* contractor, unless discussion with the government agency results in an international arbitrator being appointed.

b. Laws to Promote Foreign Investment in Infrastructure

Viet Nam adopted specific legislative provisions dealing with BOT projects by amending the foreign investment law in 1992. Regulations for implementing the law have been circulated in a number of Government decrees and circulars. The key components of the regulatory structure for infrastructure projects are provided by Decree No 18 — Regulations Governing in Detail the Implementation of the Law on Foreign Investment in Vietnam, 16 April 1993; Decree No 87-CP — Regulations on Build-Own-Operate-Transfer Contracts, 23 November 1 993 and the Circular on Guiding Implementation of the Regulations on Investment in the Form of Build-Own-Operate-Transfer Contracts, 28 February 1994.

Under the BOT laws, a project may be undertaken with 100 percent foreign-owned capital or as a JV with foreign-owned and Vietnamese capital. However, there have been strong implicit and explicit taxation and other incentives to develop JV partnerships for BOT schemes with state owned enterprises (SOEs). In JV arrangements, the SOE's equity contribution is typically in the form of land.

As a general rule, projects dealt with under the Viet Nam BOT laws require the setting up of a Vietnamese company which contracts with the Vietnamese Government. Sponsors are permitted to construct and manage a project for a period of time, following which the sponsors are obliged to transfer the project to the Vietnamese government.

The BOT law allows for selection of the preferred contractor by either competitive tendering or through direct negotiation with foreign investors. However, many of the BOT contracts presently under consideration are being directly negotiated with a preferred tenderer selected by the Vietnamese Government. Competition for the market or the right to provide a service or build a facility is theoretically possible within the present legal framework. However, the processes are relatively unfamiliar to the Government authorities vested with the responsibilities for implementing contracts.

The Government has been addressing investor concerns about the law on a case-by-case basis. However, while foreign investment in Viet Nam has been growing rapidly, investment in BOT schemes has been slow.

c. Environmental Standards

Viet Nam at this stage has not developed a detailed body of environmental laws. However, the BOT laws (discussed above) incorporate significant regulatory detail in certain areas such as environmental regulation.

BEST PRACTICE WORKSHOP - PRIVATE SECTOR PARTICIPATION IN WATER INFRASTRUCTURE INVESTMENTS

The major theme advanced in this paper is that government needs to increase its role in regulatory, structuring and governance processes so that the private sector can be enabled to invest, manage and bear most of the demand risk. Competitive outcomes of low cost and improved quality were achieved in Macau, China and are in prospect in Manila. This appeared to confirm to participants in the workshop that the key to water supply investment is to sort out, and develop, the appropriate roles for government and private participants in the sector.

There appeared to be general support for the notion that the private sector should be invited to tender for least cost provision of water supply services on public sector assets. Ideally, or eventually, this could be through a concession model, with government structuring and regulating the process, with clearly-defined scopes of works. Furthermore, it was agreed that the capacity of developing member countries (DMCs) to move forward in involving the private sector in provision of services would vary on a case by case basis. In some countries, there are very poorly defined water rights, major problems of conflict between regional, municipal and national governments, and little by way of any history of enforcing commercial charges reflective of the costs of providing quality water. These and other factors make it difficult to move rapidly to a preferred concession model, which demands clear boundaries between commercial and government activities. In the absence of clear systems of governance and regulatory structures, private sector participation (PSP) in water supply was seen as a very risky business - hence the dominance of the public sector model. However, cost savings from PSP are now increasingly recognized.

The two water supply concessions advanced as examples of good practice, and covered in the circulated report, were discussed briefly at the Workshop. The leading executives from the Macau, China and Manila water utilities (the private sector investors managing these best practice water reforms) were present and able to deal directly with many of the issues raised. The question was not so much whether there were flaws in the details of the arrangements in Manila and Macau, China (indeed, there were areas where things could have been done better), rather, the question was: how would it be possible to move as fast in other countries, where the tender process was less advanced? build-operate-transfers (BOTs) were less satisfactory, but also easier to implement. In these DMCs, BOTs could be seen as a useful first step.

There was a general preference for an eventual shift towards full water concessions that is, arrangements whereby the private sector manages the business from reservoirs through to the household taps, directly billing the households and businesses taking water. While this was viewed as some distance off in most countries, this nevertheless did not mean that BOT models were necessarily the preferred way to go. The participants in the Workshop agreed that the history of many BOTs, and other take-or-pay bulk contracts for electricity, water, roads and other infrastructure services, is not a happy one. This is highlighted most dramatically in the case of electricity power purchasing agreements (PPAs).

The reason for the new, and somewhat negative, view on BOTs and PPAs is as follows: many of the Asian utilities, often with government guarantees, now have obligations to meet US\$ commitments against investments, but the income received through the sale of the product (electricity or water) is in domestic currency, which has sharply depreciated against the US\$.

The BOT/PPA contracts, now vastly more expensive, had often been designed in isolation from the customer and market forces. The commentators at the workshop saw the contracts as an interesting learning experience, but not as the path towards best practice. Nevertheless, there will be many examples where it will be possible to move forward in providing bulk water through first initiating private sector BOT arrangements. However, these BOTs should not be confused with any ideal solution. As an example, in many cases the real physical problem in Asian water utilities is water leakages, poor management, corruption, and inadequate governance. Simply facilitating a higher water supply, through BOTs and take-or-pay deals, would not always improve matters.

It was also agreed generally that the key steps required on the path towards best practice in water involve government getting its act together. Government should create sound regulatory institutions, viable tariff structures, define discharge obligations on those who might otherwise pollute rivers, and generally advance water resource plans and management strategies for the bulk product. The participants agreed that water shortages, droughts and so forth are serious recurring issues. However, the overwhelming agreement within the workshop, and as set out in the paper, was that the key shortage, in the case of the water sector, was of management and financial expertise, rather than water or financial capital. The suggestion that finance is not the binding problem led to an interesting discussion. The bankers agreed that if the regulatory institutions are in place, if contracts are enforceable and water tariffs are economic and commercial, then private sector investment in water businesses is viable. Most recently, this has been proven in Buenos Aires, Jakarta, Macau, China and Manila.

If government creates massive uncertainty, by not having clear regulatory regimes, by failing to allow tariffs to be set on a predictable basis, and by failing to supply clear water and access rights and other infrastructure rules, then the private sector would only invest at prices which customers may not accept, and which often demand government guarantees. This whole move away from government guarantees towards a market based pricing regime was seen as fundamental by all involved in the workshop discussion.

A. Corporatization as Transition

It was agreed that in the initial stages it may be desirable to convert the water supply sections of ministries in charge of water supply into business units, or component parts, for example by creating retail and wholesale water corporations under a new corporatization law as in NSW and New Zealand. "Corporatization" was defined as a process whereby all features of private corporate law apply to the directors and managers of the water business; however, the shareholders continue to act on behalf of the state, usually they are ministers. Corporatization involves the passage of corporatization law whereby explicit agreements Statements of Corporate Intent - are negotiated between the private sector/manager and the government, defining and limiting the rights of government and the private sector investor.

It was agreed that corporatization could be a useful transition vehicle where:

- There are complex jurisdictional and boundary matters between governments.
- Catchments can be contaminated.
- There are complications regarding trade-offs between irrigators, residential and industrial uses and the utilities, in some cases hydro-electric utilities.

Thus, corporatization can be implemented as a “half way house” which would then subsequently facilitate a coherent unbundling and competitive tender process for the respective sub-businesses.

There was considerable discussion of the virtues and limitations of benchmark competition. Benchmark competition involves the comparison of separate corporatized or privatized retail businesses, as in East and West Manila and East and West Jakarta, in a cost and data sense by government and private sector customers. However, the customer cannot, in fact, choose to switch water supply, in the way they can switch the provider of other commodities and services.

B. Social Issues

The consultant had indicated that there was a major social problem in the water sector. This arose because water - as H₂O - was provided free by nature, yet water supply was a profoundly different product, and quite expensive. Water supply can vary all the way from pure water to sewage and poisonous or contaminated substances. This confusion in the community of free rainfall with piped water provided almost freely (in many countries) by public utilities, accounts for many misunderstandings. Water in many countries costs more than gasoline, once one adjusts for having to buy in water bottles from vendors, and once one allows for the health effects of not having safe water.

It was argued by the consultant, and confirmed from the floor, that even in the poorest countries, such as India, there is a well-researched willingness and ability of the poor to pay for quality services. Indeed, the research undertaken by Asian Development Bank (ADB) and others has confirmed that the costs of piped water are rather higher to the poor than to the middle class. Water costs from vendors and bottle water suppliers, adjusted for the time costs of collection and treatment of water, far exceed efficient commercial supply as provided in Macau, China, for example.

C. Water - The Issue is Governance

The central theme of the presenter was that jurisdictions and water rights issues can only be resolved by the government agencies. Thus, issues of government policy are fundamental to resolving most water problems as a precursor to facilitating PSP in water supply. This central proposition was generally accepted, as was the notion that the private sector could often, but not always, do better in provision of services on public assets. It was agreed that there was far too much attention in the various DMC ministries to the physical side of water supply, that is, with constructing new pipelines and dams, with all the associated problems, including corruption. There was rather too little attention given to the fundamental issues of governance - regulation, structure and enforcement of laws. Maintenance of pipes and distribution systems was seen by the participants as a major and almost universal problem with public sector provision of water supply in Asia. However, when water rights are vested in concessionaires a loss of water supply means a loss of money - the resulting incentives are there for sound management of water supply distribution and for asset maintenance, if there is a long-term lease.

It was noted that because water is a capital intensive commodity, involving dams, pipes, access rights and huge tracks of land, there is inevitably a lot of interest in the business

community about potential investments in water. But in low income countries, where corruption is a problem, these investments are open to many complications, unless the governance arrangements are strong. Furthermore, the wisdom of asset sales (dams and pipes) was questioned, with the general preference being for leasing or concession contracts on assets, which remain in public ownership - the French concession model.

D. Financing

It was generally agreed by bankers, operators and financiers in the audience, that as long as the commercial environment was right, then there would rarely be a fundamental shortage of capital to meet the needs of water investments. Indeed, the essential nature of water as a product means that the income from water sales should be a secure source of income which could be securitized and thereby facilitate major private sector investments. While the government would have to provide some guarantees, these guarantees should ideally cover little more than a willingness to enforce the law and to manage certain *force majeure* situations in regard to earthquakes, contamination, riots, and so forth. Demand risk was something the private sector could take, given the essential nature of water as a product. Thus, the pressure was seen as very much on government to address the regulatory and governance requirements so that the private sector could provide the capital from pension funds and other sources with a taste for long-term regulated income streams.

E. Agenda for Change

It was agreed that governments need to put sound regulatory institutions in place, and that prior steps might involve the formation of reform units to drive the restructure and privatization process. In Jakarta, the privatizations (east and west concessions) preceded the formation of regulatory processes, which had been recommended. This was seen as one of the problems now faced in achieving value for customers and security for investors.

One area of debate, particularly in the form of written comments, related to some of the details of water privatization in Manila. The competitive tender was on the water tariff in Manila, with East Manila coming in with a very low water tariff and with both East and West Manila having successful water tenders substantially below the tariff charged by the earlier Metropolitan Waterworks and Sewerage System (MWSS) — the utility being replaced by the private concessions. There was discussion as to whether the government should have predetermined the tariffs to be set for water in Manila, reflecting the need to conserve the scarce water resources of the region. Higher tariffs would signal the need for households and businesses to conserve scarce water. The tender could then have been on the concession fees, the proceeds of which could have been used to meet environmental investments needs in the water sector or elsewhere.

Those arguing for competitive tender on water tariffs per cubic meter felt that the competitive tendering, in terms of the cheapest price per unit of water, was the best way of indicating to the community the value that could come from the competitive private sector process, that is, passing on lower water tariffs. There was nothing stopping government having an environmental levy on water use. Thus, the fact that water tariffs came in much lower than many expected should not be used to preclude the tendering process in terms of the water tariffs. Nevertheless, some felt that tendering the concession fee could well be a more efficient mechanism than tendering the tariff.

F. Summary

In summary, most participants in the workshop saw the scarce items in the sector to be to management skills, training, and expertise. Participants were generally of the view that ADB, in particular, should be financing more institutional strengthening and training programs, both in relation to the management of water institutions and the structuring of tendering and regulatory processes. Rather than lending billions of dollars for actual provision of piped and other physical water systems, ADB could achieve a far higher level of investment in most DMCs by helping the DMCs to get the regulatory governance structures right. By facilitating new regulatory and other arrangements, this would enable tariffs and investments to take place on a commercially viable basis, suitable to private sector finance.

REFERENCES

Asian Development Bank (ADB) (1993), *Water Utilities Data Book: Asian and Pacific Region* Manila: Asian Development Bank.

ADB (1997), *Second Water Utilities Data Book for the Asian and Pacific Region*, October.

ADB (1998), *Co-financing and Guarantees: The Bank's Strategy and Modalities* <http://www.asiandevbank.org/cofin/cotable.html>

APEC Economic Committee (1996), APEC Roundtable on "Best Practices" in Infrastructure Development – Conference Summary and Case Studies Singapore: APEC Secretariat.

Barreiro W C and F Arellano, 1997, Privatizing Water Services in Metro Manila, A Case Study of Privatization in Emerging Megacities.

Baumol, W.J., Panzar, J.C. and Willig, R. D. (1982), *Contestable Markets and the Theory of Industry Structure*, Harcourt-Brace-Jovanovich, New York.

Beecher, J A and P C Mann, 1990, Deregulation and Regulatory Alternatives for Water Utilities, Columbus, Ohio: The National Regulatory Research Institute, February.

Brehm, M.R. and Castro, J. O. (1995), *The Market of Water Rights in Chile: Major Issues*, World Bank Technical Paper 285.

Bishop, M and J Kay, 1988, *Does Privatization work? Lessons from the UK*, London Business School.

Bond, Gary and Laurence Carter (1994), *Financing Private Infrastructure Projects: Emerging Trends from IFC Experience Discussion Paper Number 23* Washington DC: The World Bank, International Finance Corporation

Boer, B, Ramsay, A. and Rothwell, D. (forthcoming 1998) *Environmental Law in the Asia Pacific* London: Kluwer International

Bureau of Industry Economics (1995), *Issues in Infrastructure Pricing*, Research Report 69, August, Australian Government Publishing Service.

Coase, R.H. (1960), 'The Problem of Social Cost' *The Journal of Law and Economics* (3).

Cowen, Penelope J. Brook (1996), 'The Guinea Water Lease — Five Years On', *Public Policy for the Private Sector*, Note 78, May.

COAG (Council of Australian Governments) (1995), The Second Report of the Working Group on Water Resource Policy to the Council of Australian Governments, February.

Dajani, J.S. and Gemmel, R.A. (1973), Economic guidelines for public utilities Planning, *Journal of the Urban Planning and Development Division* 99, Sept, p.171-182 cited in Kim and Clark (1988).

ESCAP (Economic and Social Commission for Asia and the Pacific), 1997, *Guidebook on Private Sector Participation in Water Supply and sanitation*, United Nations, New York.

Expert Group on Commercialization of Infrastructure Projects (1996), *The India Infrastructure Report Policy Imperatives for Growth and Welfare* New Delhi: National Council of Applied Economic Research.

Ferrigno (1996), 'The Changing Dynamics of Private Investment in Asian Infrastructure' in *Project and Infrastructure Finance in Asia*, 2nd edition, Asia Law & Practice Publishing Limited pp:97-109.

Guislain, Pierre (1997) *The Privatization Challenge: A Strategic, Legal and Institutional Analysis of International Experience* Washington DC: The World Bank.

Government of Macau, (1998), *Macau Official Homepage*, <http://www.macau.gov.mo>.

Haarmeyer, D 1992, Privatizing Infrastructure: Options for municipal water supply systems, Reason Foundation Policy Study No 151, October.

Holden, P. and Thobani, M. (1997), *Tradable Water Rights: A property rights approach to resolving water shortages and promoting investment*, World Bank Policy Research Working Paper No. 1627.

King, S. (1998), 'Principles of price cap regulation' in Australian Competition and Consumer Commission, *Infrastructure regulation and market reform Principles and practice*, a selection of papers presented at The Utility Regulation Training Program, November 1997.

Kohli, Harinder, Ashoka Mody and Michael Walton (1997), 'Making the Next Big Leap: Systematic Reform for Private Infrastructure in East Asia' in *Choices for Efficient Private Provision of Infrastructure in East Asia* edited by Harinder Kohli, Ashoka Mody and Michael Walton, Washington DC: The World Bank.

Mann PC, "Urban Water Supply: The Divergence Between Theory and Practice" in Public Utility Regulation, K. Nowtry, O. Smith and H. Treging eds 1989, Boston, Kluwer Academic Publishers, pp. 163-178.

— 1993, Water Utility Regulation: Rates and Cost Recovery, Reason Foundation Policy Study No. 155, March.

Neal, K, PJ Maloney, JA Marson, and TE Francis, 1996, Restructuring America's Water Industry: Comparing investor owned and Government Water Systems, Reason Foundation Policy Study No. 200, January.

New Zealand Business Roundtable 1995, Reform of the Water Industry, a report prepared by CS First Boston NZ Limited, August.

Ng, Y.K., (1987) 'Equity, Efficiency and financial viability: Public- Utility pricing with Special Reference to Water Supply', *The Australian Economic Review*, Third Q,

Office of Water Services (OFWAT) 1996, *The regulation of common carriage agreements in England and Wales: a consultation paper*, April.

OFWAT (1998), in Australian Competition and Consumer Commission, *Infrastructure regulation and market reform Principles and practice*, paper presented by A Booker, 'Incentive regulation in water — case study' at The Utility Regulation Training Program,— 1996, News Release, OFWAT consults on regulation of common carriage agreements for water and sewerage, 1 April.

— 1997, News Release, First commercial customer switches water supplier, 28 May.

— 1995, Competition in the water industry: Inset appointments and their regulation, July.

1996, Increasing competition in the water industry, Information note no 10, 10 April 1992, revised April 1996 on Internet at <http://www.open.gov.uk/OFWAT/>.

— 1996, The changing structure of the water and sewerage industry in England and Wales.

— 1997, The Drinking Water Directive, Information paper, February on Internet at <http://www.open.gov.uk/OFWAT/>.

Paterson, J. 1991, 'Water Utilities and Water Resources', Paper presented at EPAC Symposium on Resource Pricing, November.

Porter, M G. (1996), 'The Urbanisation Context' in Volume Three of the Proceedings of a Regional Consultation Workshop *Towards Effective Water Policy in the Asian and Pacific Region* W.L Arriens, J. Bird, J. Berkoff and Paul Mosley (eds), Manila: Asian Development Bank.

Sader (1995), 'Privatizing Public Enterprises and Foreign Investment in Developing Countries 1988-93' *Foreign Investment Advisory Service Occasional Paper 5* Washington DC: World Bank.

Tasman Asia Pacific Pty Ltd and Kinhill Pty Ltd (1997), *Models for Fostering Greater Private Sector Participation in the Urban Water Supply and Sanitation Sector of Andhra Pradesh*.

Tasman Economic Research (1993), *Infrastructure in the Philippines* Report prepared for the World Bank, Melbourne: Tasman Asia Pacific.

UNFPA, 1991, *Population, Resources and the Environment: The Critical Challenges*, cited in Earth Summit Watch Programs Clearing the Water on Internet at <http://www.earthsummitwatch.org/cwrpop.html>.

Veroy, Leovigildo A. (1997), *How Can All Parties Ensure a Win-Win Result to Increase Chances for Successful Water Projects: Philippines Experience* Paper presented to the 2nd Annual Summit on Private Participation in Water Projects in Indonesia, Centre for Management Technology.

Vickers, J and G Yarrow, 1989, Privatization in Britain, in Macavoy, Stanbury, Yarrow and Zeckhauser (eds), Privatization and state-owned Enterprises, Boston, MA, Kluwer Academic Publishers, pp. 209-245.

World Bank (1994), *World Development Report — Infrastructure for Development* Washington DC: World Bank.

World Bank (1995), *Infrastructure Development in Asia and the Pacific: Towards a New Public-Private Partnership* Washington DC: World Bank.

World Bank (1997), *Toolkits for Private Sector Participation in Water and Sanitation* Washington DC: World Bank.

World Bank (1997a), *World Development Report 1998: Knowledge for Development* A draft version of this report, to be released in June 1998, is currently available on the Internet at <http://www.worldbank.org/html/fpd/technet/wdr98/world.htm>.