Philippines

Impact Evaluation Study on Public-Private Partnerships: The Case of the Angat Water Supply Optimization Project and the Metropolitan Waterworks and Sewerage System

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1. General Overview

1.1 Background to the Evaluation

JBIC supported aqueduct construction, rehabilitation of water supply systems and improvements to water distribution systems in the "Angat Water Supply Optimization Project," which was implemented to address increased demand for water in Metro Manila. In 1997, the Metropolitan Waterworks and Sewerage System (MWSS), as the executing agency, concluded a concession agreement, in consequence of which, authority over the management and maintenance of waterworks and sewerage facilities was transferred to two companies resulting in the involvement of a public-private partnership in the water provision services. JBIC commissioned Dr. Kazumasa Ozawa, Associate Professor of University of Tokyo, Graduate School and Mr. Kazuo Ueda, Managing Director of Japan PFI Association to undertake a third-party evaluation in order to evaluate the effectiveness of this public-private partnership and to learn lessons from the public-private partnership as reference in undertaking future projects in other regions.

La Mesa Dam located in the northern area of Metro Manila

1.2 Issues defined : Public-Private Partnerships in Waterworks and Sewerage Operations

For consumers, waterworks and sewerage operations are "non-substitutional" and "necessary." Furthermore, the investment required for pipe network installation represents a significantly higher proportion of total investment as compared to other infrastructure networks, such as gas, electricity and telecommunications. Water utilities are also characterized by high transportation costs, the difficulty of achieving supply stability, variable quality, and quality as being an essential factor in supply. Accordingly, regulation of private sector participation in the waterworks and sewerage operations is crucial to achieving optimal utility performance and to maintaining appropriate tariffs and quality.
Many countries are facing difficulties in providing waterworks and sewerage operations; these include the maintenance of deteriorated facilities, responding to stringent environmental demands and a lack of necessary funds. Moreover, in developing countries, problems relating to non revenue water

Target region

(NRW: water on which charges can not be levied), including leakage and pilferage, constitute serious issues. Many countries have adopted deregulation and public-private partnerships as a means of coping with the various issues raised above.

Where private sector participation is defined as "a private company assuming operating risks during the operation period and/or assuming development and operating risks during the contract period," there are two models: namely, delegated management schemes and full privatization schemes. In Metro Manila, private sector participation in waterworks and sewerage services is implemented in the form of concession agreements, a measure that is increasingly being adopted for developing countries (especially in large cities). With concession agreements, maintenance, operation and investment are contracted out while the public sector makes maximum use of the advantages of the private sector, thereby transferring the commercial risks associated with the provision of water utilities.

1.3 Objectives

When applying concession agreements to a public utility the private sector is expected to invest effectively, undertake efficient operation and maintenance, and provide high quality services. To achieve these aims, the company that is granted the concession must be able to make sufficient profits. On the other hand, however, public interests in the monopolized market must also be taken into consideration, and the success or failure of the venture will be influenced by how the balance between public and private interests is managed. The objectives of this evaluation are to assess the five year performance of projects that were implemented under the concession agreements, to analyze the systems employed, and to present lessons for the future and topics for research.

2. Background to the Introduction of a Concession Scheme in the Waterworks and Sewerage Services of Metro Manila

Manila's Metropolitan Waterworks and Sewerage System (MWSS) was established in 1982 to provide water services to Metro Manila, Cavite Province and Rizal Province. The huge debt overhang that the Aquino Administration inherited from the Marcos government rendered it difficult to continue supplying water utilities via the public sector alone and the entrance of private-sector companies became inevitable, thereby precipitating the introduction of public-private partnerships in the Philippines. Prior to the involvement of the private sector, the MWSS was only able to supply an average 17 hours of water per day to two-thirds of the service area, sewerage services were only available to 8% of the target population, and much of the capital expenditure was reliant upon foreign government aid.

Pump station up using Japan's ODA loan

Privatized MWSS operations were instituted under these circumstances. The Water Crisis Act was enacted in 1995 in response to the water crisis which occurred that year, and since the aim was to resolve the crisis within a year, the legal foundations for the introduction of private sector participation in MWSS were established. Following this, the International Finance Corporation (IFC) of the World Bank Group was chosen to act as the technical and financial advisor of private sector participation, and the concession scheme was selected.

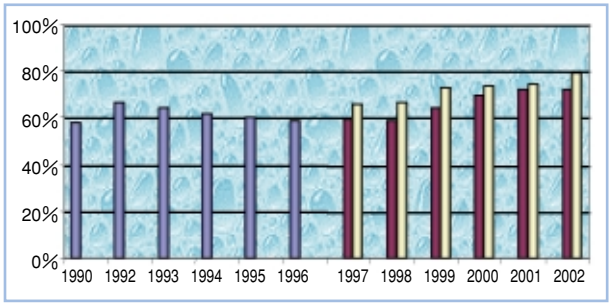
Summary of Concessions

Items	Contents
Objectives	• Increase level of water supply services, including supply capacity, water pressure, and water quality; improve operational efficiency by reducing the levels of non revenue water (NRW). • Expand the service area for water and sewerage services and increase facility investment • Increase consumer satisfaction • Alleviate the government's financial burden
Role of MWSS	• Holder of assets • The activities of the concessionaires are to be regulated by the regulation office under the jurisdiction of the MWSS Board
Role of Concessionaire	• Operation and maintenance of waterworks and sewerage services, expansion of pipes • Payment of concession fees appropriate to the repayment of MWSS debts and to the management costs of MWSS and MWSS Regulatory Office
Service Area	• The division of Metro Manila into two zones: east and west (Refer to figure 1)
Period of Contract	• 25 years
Bidding	• Competitive bidding based on water tariffs
Water Tariff System	• To be adjusted based on such indices as the Consumer Price Index and revised every 5 years

Bidding took place in December 1996; with the concession for the east zone awarded to the Manila Water Company Inc. (MWCI), and that for the west zone to Maynilad Water Services Inc. (MWSI). Both companies commenced operations in August 1997.

(Figure 1) Allocation of service zones to the concessionaires in Metro Manila

(Figure 2) Changes in service coverage



Figures for MWSS are indicated up to 1996. From 1997 onwards, the left bar indicates the west zone (Maynilad Water Service) and the right bar indicates the east zone (Manila Water)

3. Evaluation Results

3.1 Service-related performance

1) Improved service coverage

Under MWSS management water supply volumes could not keep pace with population increases (14% from 1992-1996) in the target region, and by 1996 service coverage, which was 66% in 1992, had fallen to 61%.

After the concessions were introduced, service coverage increased year on year, irrespective of subsequent population increases (9% from 1997-2002), and by 2002 the average figure for both east and west areas had risen to 75%.(Refer to Figure 2)

2) Water pressure and water availability

Although in 1996, average water pressure under MWSS management was insufficient at 3-5psi, since the introduction of the concession scheme, water pressure in both the east and west zones has surpassed 8psi.

The average water availability of 17 hours per day prior to the concession schemes has increased to 21 hours in both the east and west zones since the beginning of the concession scheme.

3) Water quality

Under MWSS management, water quality (in terms of bacteria) between 1994 and 1996 was below national standards. Moreover, residual chlorine level was close to the minimum level of 0.2mg/l.

After concession scheme started, the water quality in both east and west zones exceeded the standards and residual chlorine levels reached 0.6mg/l, three times the minimum standard.

4) Non revenue water rate

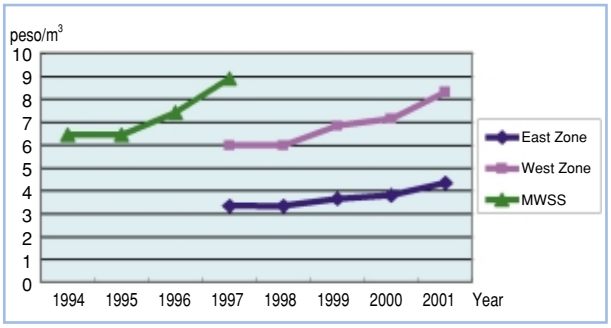
Between 1992 and 1996, the non revenue water

rate (NRW) under MWSS management was 55% to 61%. Even after the introduction of the concession scheme was introduced, the average NRW levels in both east and west zones have hovered in the region of 57%. It is believed that this may be partially attributed to the increased availability of water and greater water pressure, which has resulted in greater amounts of leakage.

5) Water service tariffs

In 1997 the MWSS water tariff was Peso 8.87/m^3. In 2001, the tariff in the both zones dropped; in the east zone to P4.32/m^3 while in the west zone to, P8.28/m^3. (Please refer to Figure 3)

(Figure 3) Changes in Water Tariffs



6) Staff Productivity

In 1996, MWSS employed 9.8 staff members per 1,000 connections. The introduction of the concession scheme resulted in substantial improvements, and by 2002, using the same index, the figure for the east zone was 3.2 staff members, and for the west zone 4.0. This was achieved through increases in the numbers of connections and via staff cutbacks.

7) Sewerage Services

The sewerage services in Metro Manila comprise : i) operation of the sewage treatment system, and ii) desludging of septic tanks and disposal of septage in regions without sewage treatment systems. As the chart below shows, despite some increases in service coverage since privatization, the improvements have not been dramatic.

Comparison of Sewerage Service Performance

Indicator	MWSS (1992-1996)	Mean value of East and West Zones (1997-2001)
Rate of sewerage connection increases	1% p/a or less	2.7% p/a
Septic tanks desludged (Yearly average)	850	1,840
Quality of treated water	Does not comply with national standards	As left

3.2 Financial Performance

1) MWSS

Prior to the introduction of the concession scheme, the financial structure of MWSS was deteriorating it was heavily dependent on government subsidies and equity infusions to service its debt obligations. Capital expenditure was also inadequate.

Since the concession scheme was introduced, MWSS' primary source of income has become the fees received from the concessionaires of the east and west zones, and it is now possible to secure the funds to cover debt repayments. (The fee received from Maynilad Water in the west zone covers 90 percent of the MWSS debt repayment fund, with the remaining 10% being covered by the concession fees from Manila Water in the east zone.)

2) Manila Water Company, Inc. (East Zone)

Although the Manila Water Company recorded losses at the start of operations, it has been posting a profit since 1999 thanks to increased water tariffs and efficient management practices.

3) Maynilad Water Services, Inc. (West Zone)

The financial performance of Maynilad Water Services is deteriorating, and net loss, which was 560 million pesos in 1998, was 2,400 million peso in 2000 and 1,100 million in 2001. This situation has come about because MWSS' debt service obligations, more than 90 percent of which are foreign currency denominated, increased due to the Asian currency crisis, leading to a rise in the concession fees payable to MWSS.

Moreover, aggregate capital expenditure in the east and west zones over the five year period (1997-2001) was virtually on a par with that spent by MWSS in the five year period (1992-1996) prior to the concessions, thus the concession scheme does not appear to have resulted in any increase in the amount of capital expenditure.

3.3 Consumer Perceptions of the Concession Scheme

According to a report by a local social survey organization, since the concession scheme implementation, over 50 percent of respondents replied that the water is safer than before. However, the results evidenced no change in daily water availability.

Consumers were asked to indicate their level of satisfaction with water services as a whole (-100 indicating dissatisfaction and +100 indicating satis-

faction), with results demonstrating that satisfaction reached high levels of +55 in the east zone and +86 in the west zone by 2000 as compared with +3 before the concessions (MWSS).

A water flow ceremony: one of the special programs for the needy

4. Special Programs for the Urban Poor

The special program introduced by Manila Water (east zone) for the poor: "Tubig para sa Barangay (Water for Barangay)," is for low-income households, where illegal piping is rampant, water quality is poor and roads are wide enough to lay tertiary lines. Some 250 regions are currently covered by the project and approximately 61,000 households are reaping the benefits.

The Maynilad Water (west zone) project: "Bayan Tubig (Community Water)," is similar to the "Water for Barangay" project. Since it was adopted in 1999, the "Community Water" project has provided service to over 40,000 households, and approximately 63,000 distribution pipes have been laid.

For the residents of poverty-stricken regions, the implementation of these projects has given access to potable water, shortened the time spent drawing water at public taps, and consequently increased water consumption. Even for concessionaires, the supplying of water to such regions has led to reductions in NRW by preventing water pilferage.

5. Conclusion and Lessons Learned

5.1 Conclusions to the Evaluation Report

The most significant outcome of concession implementation has been the increase in water supply services, and service coverage, water pressure, and water quality etc., have improved. Moreover, water is now being supplied to deprived areas in Metro Manila.

On the other hand, improvements to sewerage services have stopped at a certain level. In addition, reductions in NRW have yet to be realized.

From a financial perspective, the concessionaire in the west zone is struggling to recover from the effects of the Asian currency crisis. Although the east zone concessionaire is managing to record profits, it has yet to eliminate the government's financial burdens via its improvements to water services. Moreover, it cannot be said that the financial burden of future investment plans, including those to develop water sources, has become any lighter.

5.2 Lessons Learned

1) Preparations for the introduction of the concession scheme and the bidding process

Efforts must be made to achieve adequate communication between the executing agency and the concessionaries prior to the conclusion of agreements in order to confirm mutual understanding between the parties. In addition, comprehensive explanations must be given to the general public, prior to introduction, which should include details of future investment plans.

2) Tariff structure and adjustment mechanism

It is important to avoid disputes by clarifying tariff adjustment systems, and to have a mechanism that is capable of responding appropriately to foreign exchange fluctuations. On the other hand, five-yearly rate-rebasing has a crucial role to play from the viewpoint of long-term investment plans.

3) Regulatory framework for the entire system

Under the present agreements, the position of the regulatory office, which regulates the activities of the concessionaires, is not clear. It is very important for the information held by the supervisory agency to be shared by participants, including the general public.

4) Approaches to the urban poor

The special programs introduced by the two concessionaires for the poor have proved highly successful. The approaches to the community and education relating to the importance of water are pro-

ducing significant results.

5) Human resource development

MWSS employees have been continuously employed by both concessionaires, and are responsible for the management of waterworks and sewerage services. The transfer of authority to staff, capacity building and the provision of incentives are connecting to improvements in efficiency.

Notes from a visit to the "Water for Barangay" project of Manila Water

The area practicing " Water for Barangay, " located along the Manggahan Floodway of the Pasig city, is an area of around 8,000 low-income households. Before the project was implemented water was only supplied for 6 to 8 hours each day, but since November 2002, a 24-hour water supply has become possible. Barangay-Pinagbuhatan, in the same city, is also a ✗Water for Barangay✗ region. In the past, people had to buy water using polythene tanks, but today water can be supplied to each household covered by the project. A resident revealed that the monthly water bill (corresponding to 23m^3) is 119 pesos. This is the same as 7kg of regular rice or 6 to 7 cans of beer (The average water tariff paid in Metro Manila in 2000 was 231.5 pesos).

Various initiatives have been introduced to resolve the problem of non-payment. These include making daily payments possible via payment centers that are in partnership with the electricity companies, deciding collection days and collecting at Barangay meeting halls, and conducting publicity via PA systems. In some regions tariff collection has reached 100%.

The special programs in poor regions have increased profit levels by reducing illegal connections and installing meters, leading to improvements in company profits and, at the same time, factoring in considerations for socially deprived residents.

Area covered by " Water for Barangay " project and the meter installed under the project.

Summary of Project Subject to Evaluation

(Produced by JBIC)

Angat Water Supply Optimization Project

1) Loan Agreement Summary

Loan Amount/Disbursed Amount	\10,560 million/\6,593 million
Exchange of Notes/Loan Agreement	October 1989/Febuary 1990
Terms and Conditions	Interest Rate 2.7%, Repayment period 30 years (10 years Grace Period)
Final Disbursement Date	May 2001

2) Comparison of Original and Actual Results

Item		Plan	Actual
Project Scope	Aqueduct	500m (Φ3.4m)	1km (Φ2.8m)
	Distribution system	Primary system(Φ300-2,100mm)×118km Secondary system(Φ100-250mm)×300km	Primary system(Φ300mm or greater)×56km Secondary system(Φ250mm or smaller)×103km
	Treated water reservoirs	1 Location	3 Locations
	Pumping Stations	New: 3, Rehabilitated : 2	New: 6, Rehabilitated: 10
Implementation Schedule		July 1989-June 1994	May 1991-May 2001
Project Cost	Foreign Currency	\24,528 million	Amount unknown due to mid-term intro of private sector participation
	Local Currency	\22,804million	Same as above
	Total	\47,332 million	Same as above
	ODA Loan Portion	\10,560 million	\6,593 million
	Exchange Rate	US$1 = \132 = Peso 21.3	—

* The actual result for the implementation period represents the period starting from the conclusion of the consultant contract between NJS and MWSS up to the final disbursement date.