

# CHAPTER 4 EX-POST EVALUATION IN FY 1998: AN OVERVIEW

## 4.3 Summaries of Individual Evaluation Reports

### (1) Detailed Evaluation

#### 1) The Republic of Korea "Seoul Subway Construction Project II"

The City of Seoul, which is a center of the Republic of Korea's politics and economy, has grown into a large city of a population of 10.61 million, one quarter of the national population in 1990. It had also come to suffer from a wide range of urban problems. In particular, its traffic problem required urgent solution. This project sought to improve traffic conditions in the city by building a subway system. The ODA loan covered the entire foreign currency portion of the project.

Since the implementation of the project, the traffic volume of the subway system rose to that comparable with that of the world's major cities and its share exceeded the share for buses in 1997 to become the dominant mode of transport in the city. This project also served as an incentive to technology transfer to the Republic of Korea.

#### 2) The Republic of the Philippines "Metropolitan Area and Regional Roads Project"

This evaluation targeted a total of seven road improvement projects, three in the Metro Manila area and four in rural areas. The three projects in the Metro Manila area were designed to construct and improve roads to meet increasing traffic demand in the area, to alleviate traffic congestion, to make traffic safer, smoother and more comfortable, and thereby to contribute to economic development. The four rural road projects aimed to build and improve national roads to improve road transport within the regions concerned, and between them and the capital, and also to enhance agriculture and other industries in those areas. The loan covered the entire foreign currency portion of the project cost (and a part of local currency cost in some areas).

These projects reduced flood damage in the metropolitan area in the rainy season and improved the convenience and efficiency of road users. In rural areas, the roads improved transport efficiency (reduced traveling hours and improved comfort on long-distance buses etc.) and secured access to public services such as schools and hospitals.

#### 3) The Republic of the Philippines "Calaca II Coal-fired Thermal Power Plant Project"

This project was designed to add No.2 generator (output 300MW) to the Calaca Coal-fired Thermal Power Plant in order to meet the rising electrical demand centered in the Manila

metropolitan area. The ODA loan covered the entire foreign currency portion of the project. The evaluation for this project asked for third-party evaluation regarding its environmental impact from Mr. Minoru Moriguchi, a consultant at the Japan Meteorological Association (as it was then) and regarding its socio-economic impact from Mr. Mario Paredes Leviste, a professor at the Lipa campus of the De La Salle University, Philippines. These evaluations concluded that the plant posed no environmental problems as it is currently within environmental standards. However, the reports suggested optimization of monitoring points. Regarding consideration for the local residents and society, the various measures taken for the relocated residents were positively evaluated, but the importance of explaining these support measures to the residents in an easily comprehensible form through wider public relations efforts was indicated.

Since completion, this project has been working steadily, contributing to a more stable supply of electricity. By using domestic coal, the power plant has also yielded a saving in foreign exchange expended for fuel imports.

#### **4) The Kingdom of Thailand “Bhumibol Hydroelectric Project Unit 8”**

This project was designed to add a pumped-storage type electric generation plant (Unit 8) to the Bhumibol Hydro Power Plant in Thak province of northern Thailand in order to secure an adequate supply of power (particularly at times of peak load) for the nation. The ODA loan covered the entire foreign currency portion of the project cost.

This project has been operating steadily since its completion. In 1997 it generated 434MWh, meeting peak demand and helping to stabilize Thailand's electricity supply.

#### **5) India “Housing Program for Low and Medium Income Households”**

This project was designed to provide financial support for India's ongoing program that provides housing finance to low and medium income households, thereby promoting the construction of homes for such households. Through strengthening the newly founded National Housing Bank (NHB), the project assisted the growth of India's housing finance sector. The loan covered a part of the housing construction fund for low and medium income households, and was delivered to borrowers through local financial institutions.

This project allowed the construction of 20,000 houses through the primary loan alone and strengthened the NHB's ability to provide low-interest, long-term finance. It thus promoted the subsequent acquisition of housing by low and medium income households.

#### **6) Democratic Socialist Republic of Sri Lanka “Port of Colombo Expansion Project (IV), Port of**

This project was designed to construct new berths and install cranes and other cargo handling equipments for the Port of Colombo to increase the container handling capacity of the port.

Colombo is located in the center of the Indian Ocean and serves as a hub port for Southeast Asia, South Asia, the Middle East and the Persian Gulf and East Africa. The ODA loan covered the entire foreign currency portion of the project cost and a part of the local currency cost portion. It has operated well and work constantly beyond its full capacity since completion. The foreign currency earned by the port in container handling fees amount to approximately 8.5% of the country's foreign currency reserve in 1997, making it an important source of foreign exchange for Sri Lanka.

#### **7) Hashemite Kingdom of Jordan "Human Resources Development Sector Investment Loan"**

In this project, JBIC and the World Bank co-financed the Educational Facilities Improvement Program, which was comprised of seven programs in the Ten-Year Human Resources Development Sector Investment Project (Phase 1). The ODA loan covered construction costs for school buildings for elementary, middle and high schools, and procurement costs for educational materials, equipment and appliances (computers, AV equipment, laboratory equipment, desks, chairs etc.).

Under this project, 181 schools were built, which replaced rented and two-shift school buildings with single-shift-purposed schools. They improved the quality of classrooms and, consequently, raised education levels in Jordan.

#### **8) Arab Republic of Egypt "Beni-Suef Cement Factory Project"**

This project was designed to build a cement factory with a one million ton production capacity per year to meet growing demand in Egypt, which became a net importer of cement in 1975. The ODA loan covers the entire foreign currency portion of the project cost.

Since its completion, this factory has been operating constantly at capacity, producing at least one million tons of cement powder annually. Domestic cement production instead of importing saved \$97 million of foreign exchange in 1997, for instance.

#### **9) Republic of Botswana "Railway Rolling Stock Increase Project"**

The Republic of Botswana, a landlocked country, depends on railways to transport its ores and agricultural products to neighboring countries. This project was designed to add to the Botswana National Railway's rolling stock in order to expand its transportation capacity. The loan covered the entire foreign currency portion of the project cost.

Since its completion, the rolling stock rent which had amounted to as much as \$3.3 million per year has been on the decrease by the mid 1980s. The reinforcement brought about flexibility in its availability in southern Africa (South Africa, Zimbabwe etc.), thus having succeeded in increasing transportation capacity not only in Botswana but in the whole region.

## **10) The Republic of Mauritius "Telecommunication Expansion Project"**

This project was designed to meet pressing demand on telecommunication resources, with the additional aim of improving the quality of communications on the island. The project involved the installation of the country's first digital communications equipment such as digital switchboards (30,000 lines), fiber optic systems (4 sections), and digital micro systems (13 sections) and the construction of a subscriber cable system. The ODA loan covered the entire foreign currency portion required for procurement and installation of the switchboard and transmission facilities and training in equipment operation.

Other than the delay in the construction of the switch building (which was handled by the Mauritian side), the project was implemented mostly as planned. After completion, the manufacturer who delivered the equipment provided full training, which also led to good operation and maintenance of the installed equipments. This project substantially increased telephone switchboard capacity, the number of users and the telephone diffusion rate in Mauritius, thus securing adequate volume of communication traffic. Digitalization has improved the quality of communications by enabling compatibility with data communications, reducing sound quality deterioration and increasing speed and volume.

## **11) Federative Republic of Brazil "State of Goias Rural Electrification Project"**

This project was designed to build electricity transmission and distribution networks in seven regions in the southern part (approximately 200,000km<sup>2</sup>) of the State of Goias, an eastern state of the Republic in order to raise the electrification rate and to meet the increasing demand for electricity from the agricultural sector (for irrigation pumps) in rural areas. The ODA loan covered 60% of the project cost, the majority of the foreign currency portion and part of the local currency portion.

This project has enabled a steady increase in the volume of electricity sales within the state and the volume sold to rural areas. At the same time, the number of electrified households and the rural electrification rate in the area served by the project has grown substantially, from 24,000 households (31.8%) in 1990 before the implementation of the project to 71,000 households (66.8%) in 1997. Improvements have been seen for transmission losses and the frequency and duration of power failure.

## **(2) Third-party Evaluation**

### **1) People's Republic of China "Qingdao Development Project (Water Supply and Sewerage)"**

This project was designed to improve water supply and sewerage in the city of Qingdao, China, in order to meet increasing water demand and prevent marine pollution. The ODA loan covered the entire foreign currency portion of the project cost.

The project has brought an adequate supply of good-quality water to Qingdao city. Sewerage processing has also been improved, which has brought about environmenteed benefits.

## **2) The Republic of the Philippines “Metro Manila Depressed Area Electrification Project”**

This project was designed to deliver a safe, cheap and reliable supply of electricity to approximately 234,000 households in 229 priority development districts in the depressed areas of Manila’s metropolitan area. The ODA loan covered the entire foreign currency portion and a part of local currency portion.

This third-party evaluation was conducted from a social anthropological viewpoint, which had not been used in previous post-evaluation studies. The main finding was that the initially-anticipated effect was achieved, namely the supply of safe and highly reliable electrical supply to the urban poor who have flooded into Manila from other regions (squatters). In addition, the report clarified the fact that the project was strongly linked with the formation of new communities.

## **3) The Republic of the Philippines “Calaca II Coal-fired Thermal Power Plant Project”**

Refer to [Detailed Evaluation] (3).

## **4) Kingdom of Thailand “Map Ta Phut Industrial/Urban Complex Project”**

This project was designed to construct an industrial complex as part of the Eastern Seaboard Development Plan. The complex targeted large-scale heavy chemical industries which utilize the natural gas produced in Gulf of Siam. The ODA loan covered the entire foreign currency portion of the project.

This project led to the establishment of many heavy chemical industry operations in the area and played an important role in the Thai economy. Environmental countermeasures were the most important issue of this project. Thus, evaluation on administrative measures for anti-pollution in the Map Ta Phut Industrial Complex was conducted reflecting the experience of Japanese local authorities.

The evaluation found that the use of natural gas for fuel and raw material did not produce the kind of air pollution Japan has experienced in the past, but improvement was needed for problems of odor and water contamination. The efforts of the parties concerned were yielding progress in alleviating the odor problem and it is likely to be solved soon. It will be possible to prevent further worsening of water contamination through the adoption of suitable preventive measures.

## **5) Islamic Republic of Pakistan “Metropolitan Water Supply Project (Simly)**

This project was designed to expand water treatment plant capacity and build new water pipelines to feed the existing reservoir in the city with an aim of raising water supply coverage rate in Islamabad to cope with the city's growing population. The ODA loan covered the entire foreign currency portion of the project cost and part of the local currency cost.

Water supply in this project began in 1996 and is now operating at its almost full capacity. However, there is shift room for improvement in profitability and maintenance. The executing agency's accounting system leaves much room for improvement as well.

## **6) Republic of Ghana "Ports Rehabilitation Project"**

This project was designed with cooperation of the World Bank to rehabilitate the ports of Tema and Takoradi in order to support the Ghanaian government's economic recovery plan, which focused on rebuilding exports. It also aimed to cut export costs by increasing the efficiency of shipping cocoa, lumber and other produce. The ODA loan covered 49% of the total project cost (equivalent to \$24.1 million), with the remainder provided by the World Bank (\$21.9 million, 44%) and the Ghanaian government (\$3.5 million, 7%).

This project has succeeded in enabling the export-led economic recovery which Ghana has been pursuing since 1986. As to the ships and new cargo handling equipment for the ports of Tema and Takoradi procured under JBIC project, immediately after the restructuring of port maintenance and integration into a single management organization, it has enabled the Ghana Ports and Harbours Authority to streamline the use of ports and improve their performance.

## **(3) Desk Evaluation and Evaluation by Representative Offices**

### **1) Republic of Korea "Safety Research Center Project of the National Institute of Health"**

This project was designed to build a new Safety Research Center attached to the Korean National Institute of Health in order to establish a thorough inspection system for pharmaceutical products safety.

The ODA loan covered the entire foreign currency portion of the project cost. Twenty eight appliances and 391 pieces of experimental equipments were procured to the Safety Research Center. They have been used and maintained well. The implementation of this project has enabled safety inspection observing the "Standard for Experimental Safety Testing of Pharmaceutical Products", contributing to the improvement of the pharmaceutical safety research system in the Republic of Korea.

### **2) Republic of Korea "City Water Project (Seoul)"**

This project was designed to install modern equipment and facilities at the Parudan and Gui water source, the two largest water sources (water treatment plants) serving the city of Seoul, in order to stabilize the supply of water to the city. It also aimed to automate and optimize the analysis of water quality and the addition of chemicals. The ODA loan covered nearly the entire foreign currency portion of the project cost. The rapid appreciation of the Yen during the project's implementation stage led to concerns in the Korean government over the future increase in the burden of repayment. Therefore the modernization of the Gui water source, a major part of the project, was postponed and procurement for the Parudan water source was scaled down. These were the major alterations to the project scope.

The Parudan water source, where the project was actually carried out, went into operation immediately after the construction works were completed and it has been running well since then. The modernization work on the Gui water source, which was postponed under this project, was later carried out with government funding, together with other major water sources development.

### **3) People's Republic of China "Shenzhen Dapeng Bay Yantian Port 1st Phase Project"**

This project was designed to construct and improve a harbor with the scale of the cargo handling capacity of 2.8 million tons per annum in the Shenzhen Dapeng Bay Yantian region of Guangzhou Province (six-berth pier with two container berths, one multi-purpose berth and three miscellaneous cargo berths), plus berthing facilities/equipment, a railroad outside the harbor (24km) and roads outside the harbor (72km), in order to meet the increasing demand of shipping cargo handling volume with particular reference to containers in southern China.

Since its completion, the volume of containers handled has kept rising, reaching 1.04 million TEU 1 in 1998, more than as planned.

1 TEU is an abbreviation for Twenty-foot Equivalent Unit, indicating the equivalent number of 20' containers.

### **4) Republic of Indonesia "Ujung Pandang Water Supply Rehabilitation Project"**

This project aimed to improve the situation of water supply in Ujung Pandang, the capital city of Sulawesi Province in the Republic of Indonesia. It was designed to increase the volume of water supply and to improve the charged ratio by rehabilitating the existing facilities (two water treatment plants in the city) and by reinforcing them (laying pipelines for transmission channels, substituting old water pipelines, etc.).

The number of beneficiaries of water supply has increased and the service area has expanded through the implementation of this project. Also, an improvement in water quality has brought about benefits, such as the prevention of water-related epidemics.

## **5) Republic of Indonesia "Equipment Supply for Maritime Telecommunication System (II)"**

This project was designed to expand Indonesia's marine wireless communications network in line with the JICA's Master Plan on "Marine Wireless Communications Network Expansion Plan", which was completed in 1982. It aimed to make marine transport safer and more efficient. This project is Phase 2 of the plan, which reinforces the radio stations along the coast. The ODA loan covered the entire foreign currency portion of the project cost.

It is difficult to grasp the quantitative effects of this project, but while the volume of Indonesia's marine traffic has increased (greater volume of freight transactions), the accident rate has fallen. This suggests the project has had a certain level of effect in enhancing marine safety in Indonesia.

## **6) Republic of Indonesia "The Gas Firing Modification Works of Gresik Steam Power Plant Units"**

This project was based on the "Reduction in Oil-Reliance Through the Diversification of Energy Sources", the national policy of Indonesia since the 1970s. It was designed to remodel the Unit III and IV heavy-oil boilers (both with a 200MW capacity) into heavy-oil-and-gas boilers operating in the Gresik Steam Power Plant located 20km northwest of the city of Surabaya in the eastern part of Java Province.

The plant has been generating electricity without any problem. By converting the fuel partially to gas, the SO<sub>x</sub> and NO<sub>x</sub> emissions have been substantially reduced, thus positive environmental effects have been recognized.

## **7) Republic of Indonesia "Bali International Airport Construction Project (I)"**

The expansion project was commenced at Bali International Airport in Indonesia in the latter half of 1980s in order to meet the increasing demand for passenger and freight transport. This project corresponds to Phase 1 of the three divided phases of the expansion project, and consists of civil works (runways, aprons, taxiways), construction works (passenger terminals), the construction of new air safety facilities and the renewal of existing ones, the construction of new fuel supply facilities, and consulting services. The ODA loan covered the entire amount of foreign currency and a part of local currency amounts of the project cost.

This project enabled the airport to deal with a more-than-expected increase in the number of passengers, freight volume and number of departures and arrivals. The earning of the airport has improved because of the actual handling of more passengers and freight volume than estimated. The enhancement of the safety of the airport can be cited as one of the effects for this project as well.

## **8) Republic of Indonesia "Equipment Supply for Enhancement of Radio and Television Network (I) (II)"**



This project was to respond to the Fourth Five-year Development Plan for Broadcasting Sector (fiscal 1984 to 1988) that is a part of the first period of the New Fifteen-Year Long-Term Development Plan for Broadcasting Sector in Indonesia initially drawn up in fiscal 1984. It aimed to expand the areas and a range of population to receive radio and television broadcasts and to improve the quality of broadcasts through establishment of program production and broadcasting facilities for both radio and television (medium-wave and FM radio, color television, etc.). The ODA loan covered the entire foreign currency portion and a part of the local currency portion of the project cost.

The project was divided into two phases. Phase I covered the establishment of the program production facility, while Phase II mostly involved constructing and improving the broadcasting facility. This project achieved the transfer of both "hardware" and "software" technologies, improving Indonesia's ability to produce programs at local stations as well. In particular, the population able to receive television signals has greatly increased, thus speeding up and expanding communication.

#### **9) Republic of Indonesia "Way Umpu and Way Pengubuan Irrigation Rehabilitation Project"**

This project was designed to rehabilitate irrigation facilities in the Way Umpu and Way Pengubuan region in Indonesia with an aim of expanding agricultural production in Lampung Province, Sumatra Island, Indonesia. The irrigation facilities targeted for rehabilitation were buildings constructed under the Way Umpu and Way Pengubuan Irrigation Project implemented with the ODA loans. The results of a post-evaluation conducted by JBIC (1986) after the original projects completed recognized that the facilities were succumbing to severe damage and that rehabilitation was needed urgently, which led to the rehabilitation project. The ODA loan covered the entire foreign currency portion and a part of the local currency portion of the project cost.

After the implementation of this project, rice unit yields rose from 3.0t/ha to approximately 3.5t/ha in the Way Umpu area, and from 3.2t/ha to approximately 5.0t/ha in the Way Pengubuan area. A total area of 9.083ha of rice paddies has been developed in the project area.

#### **10) Malaysia "Engkilili Sibu Transmission Line Construction Project"**

This project was designed to make more effective use of the electrical power generators in the Batang Ai Hydro Power Plant in Sarawak Province, Malaysia. It aimed to respond to the increasing demand for electrical power in the Sibu region of Sarawak and improve the electrical power supply system in the Sarikei, Sri Aman and other regions of western Sarawak.

The ODA loan covered the entire foreign currency portion incurred for the electricity transmission lines (275KV, 132KV) and part of the machinery for the substations

This project enabled the supply of electricity from five major power stations to the city of Sibu, Sarawak's second largest city through incorporation into a 275kV/132kV grid. The level of reliability of the power supply has been increased.

**11) Malaysia "Small and Medium Scale Industry Promotion Program (SMIPP): Bank Pembangunan Malaysia Berhad (BPMB), Bank Industry Malaysia Berhad (BIMB), Malaysian Industrial Development Finance Berhad"**

This project aimed to develop and foster small and medium-sized companies in Malaysia, the country's driving force for economical activities, especially those in private economic sectors such as manufacturing and tourism. It was a so-called Two-Step Loan plan with low-interest/long-term loans, to which it had been difficult for small and medium-sized companies to gain access. This loan was provided via government-run financial institutions (the institutions involved included three banks: Bank Pembangunan Malaysia Berhad, Bank Industry Malaysia Berhad, Malaysian Industrial Development Finance Berhad).

The ODA loan covered the entire foreign currency portion required by small and medium-sized companies as end users for purchasing and replacing facilities and environmental conservation equipments. This project accounted for approximately ten percent of Malaysia's financing for small and medium-sized companies. It made a contribution to the improvement of technology and productivity in the small and medium-sized companies.

**12) Malaysia "Patau-Patau Power Station Extension Project"**

This project was designed to establish another unit of 32MW gas turbine generator facility in the Patau-Patau Power Station on Labuan Island, Sabah Province. It aimed to provide a stable supply of electricity in order to cope with increased demand especially during peak hours on the electrical system serving the western coast of Sabah Province quickly and economically. The ODA loan covered the entire foreign currency portion required for the project.

This project contributed to diversifying energy sources by using domestically produced natural gas and stabilizing the electric power supply on the State of Sabah's western coast power system.

**13) The Republic of the Philippines "Ilocos Norte Irrigation Project (Stage I)"**

This project was designed to construct irrigation facilities including diversion dams in 5 locations, irrigation canals, drainage canals and related roads with an aim of improving agricultural productivity in Ilocos Norte Province in the northern Philippines (Honga River Right Bank, 10,200 ha). The ODA loan covered the foreign currency portion of the project cost.

This project was planned taking into account the needs of the “Zanjeras”, the traditional irrigation unions in building the canals and terminal field facilities.

The implementation of this project considerably increased the production of rice and other crops. The average income of farmers was multiplied several times over. The participation of the Zanjeras made this a good example of a participatory development project.

#### **14) The Republic of the Philippines “Irrigation Operations Support Project”**

This project had two objectives: to rehabilitate the state-owned irrigation facilities in 127 locations, raising their operation rates; and to improve the quality and efficiency of the facilities, maintenance. This was a co-financed project with the World Bank, with the ODA loan being allocated to the rehabilitation of existing irrigation facilities. Other components of the project were covered by the World Bank finance.

The increase in rice production in the area covered by the project amounted to 580,000t, far in excess of the increase forecast at the time of the appraisal. As a result, farmers’ incomes grew by a larger margin than anticipated. These effects were due to the repair of terminal irrigation channels.

The proportion of the irrigable areas actually receiving irrigation was 69% in rainy season and 47% in dry season before the implementation of the project. They have been increased to 72% and 63% respectively afterwards.

#### **15) The Republic of the Philippines “Flood Forecasting and Warning System for Dam Operation Project II”**

Flood Forecasting and Warning System for Dam Operation Project aimed to contribute to mitigate flood damage on lives and assets of people who suffer serious flood damage from typhoons, etc. every year, and to stabilize their lives and increase their welfare. Under this project, flood forecasting and warning systems were to be constructed at 5 major dams (Angat, Pantabangan, Binga, Ambuklao and Magat) on Luzon Island, the most populated and industrialized island of the Philippines. The ODA loan covered the entire foreign currency portion of the project cost.

Judging from the record of dam flood forecasting issued since the completion of the project, the record of flood damage and interviews with residents, it can be said that the project has contributed to a reduction of flood damage and greater stability in the residents’ lives. The project also established cooperative relationships between the agencies involved. Technology transfer among them has been attained in the operation of the system.

#### **16) The Kingdom of Thailand “Engineering Services for New Rama VI Bridge Construction Project”**

This project was designed to replace the superannuated Rama VI Bridge, spanning the Chao Phraya River in the city of Bangkok, with a new bridge up-river (north) in order to alleviate traffic congestion in the northwest area of Bangkok. The ODA loan covered the entire foreign currency portion of the project cost and a part of local currency portion, and the entire foreign currency portion for consulting services. Operations and maintenance have been satisfactory since completion of the project.

The former Rama VI Bridge with two traffic lanes was replaced with the New Rama VI Bridge with six lanes, while weight limits were vastly alleviated. Consequently, the distribution between the center of Bangkok and Thonburi region in the west bank of the Chao Phraya River has been facilitated and actively encouraged.

#### **17) Arab Republic of Egypt "El-Salam Canal Pumping Station Project"**

This project aimed to build pumping stations and related facilities including power transformation facilities to secure the water level in the main irrigation canal (El-Salam Canal) on the 82 km extension linking the Damietta effluent in the eastern side of the Nile delta in Egypt with the Suez Canal. The JBIC loan covered the entire foreign currency portion of this project.

This project was delayed by six years and seven months due to changes in construction contracts and extended construction works to deal with poor ground conditions. Furthermore, the project shouldered the development of agricultural land (83,000ha), which was proceeding in parallel with this project and had not been completed by the time the project was. Therefore, it is likely to take a while before the effects of this project are manifested. However, water supply to the east bank of the Suez Canal using the El Salam Canal has begun, and the operation rates of the water pumps installed under this project are expected to increase gradually.