External Evaluator: Chiaki Nakamura

Overall Rating **A**

Poverty Reduction
A Foundation for Sustained Growth

18 China

Dalian Water Supply System Rehabilitation Project

Helping to improve the living environment by constructing the latest water supply facilities.

Loan Amount/Disbursed Amount	5.533 billion yen/3.345 billion yen
Loan Agreement	September 1997
Terms & Conditions	Interest rate 2.1%, Repayment period 30 year (Grace period 10 year), General untied
Final Disbursement Date	October 2003
Executing Agency	Ministry of Construction of the People's Republic of China (http://www.cin.gov.cn)

Project Objectives

The project's objective was to increase the water supply volume to meet the overstrained demand for water in Dalian, Liaoning Province, by upgrading of water supply facilities and the construction of a new water treatment plant, thereby contributing to economic growth, and an improvement in the living environment of the city's residents.

Effectiveness & Impact

Rating **a**

Water shortages had become a serious problem in Dalian (population: 5.9 million) due to an increasing population and rapid economic development. Implementation of this project enabled the city to be supplied with 200,000m^3 of water per day. Combined with Phase Two project (water treatment capacity of 200,000m^3 per day), which was constructed by the Chinese Government fund, the project as a whole secured a sufficient water supply capacity to meet the future demand for water. As a result, the service population increased to 2.4 million in FY2004. A beneficiary survey (given to 124 people) indicated that 77% of respondents are satisfied with the current situation of water supply. Dalian's economy is continuing to growth, and this project contributes to it indirectly. Therefore, this project rates a highly satisfactory level of effectiveness since it has largely achieved its objectives.

Relevance

Rating **a**

Both at the time of the appraisal and at the time of the ex-post evaluation, this project has been highly relevant to China's national policies. The ninth and tenth five-year plans specified the improvement of urban water supply capacity and the upgrading of old and worn-out water supply facilities as issues to be addressed. Dalian's five-year plans also emphasize the construction of water supply facilities and the improvement of old and worn-out pipelines. Accordingly, this project was consistent with local policies.

Comparison of water demand forecast and capacity of water supply facilities in this project

	1997	1998	1999	2000	2001	2002	2003	2004
Water demand volume forecast in this project (10,000 m^3/day) (A)	96.6	82.4	102.4	111.7	112.5	–	121.6	–
Capacity of water supply facilities in this project (10,000 m^3/day) (B)	105.4	105.4	102.0	102.0	102.0	122.0	143.7	143.7
Gap between demand and supply (C) = (B) – (A)	8.8	23	–0.4	–9.7	–10.5	–	22.1	–
Capacity of facilities in this project (10,000 m^3/day) (D)	–	–	–	–	–	20.0	40.0	40.0
Average daily water supply volume in this project(10,000 m^3/day) (E)	–	–	–	–	–	13.4	19.9	27.5
Usage rate of facilities in this project (%) (E) ÷ (D) × 100	–	–	–	–	–	67	50	69

Efficiency

Rating **b**

Although the project cost was lower than planned (53% of planned amount), the project period was longer than planned (about 42% of the planned timeframe); therefore the evaluation for efficiency is moderate. The main factors behind the project delays included the fact that the site for the water treatment plant changed after the loan agreement was entered into, and the fact that time was needed for design and delivery after the procurement agreement took effect.

Sustainability

Rating **a**

No major problem has been observed for capacity of the executing agency, the operation or its maintenance system; therefore, sustainability of this project is high. At the time of ex-post evaluation, operation and maintenance of this project was being carried out by the Dalian Water Supply Company under the direction of the Dalian Water Public Bureau. There were no problems with their management abilities and operation and maintenance abilities.

Conclusion, Lessons Learned, Recommendation

In light of the above, this project is evaluated to be highly satisfactory. For lessons learned, in future projects, the demand forecasts, the remaining length of serviceable life of existing facilities, and related factors will need to be comprehensively assessed at the project planning stage, and the most appropriate scale for the project nailed down. Moreover, it is hoped that Dalian will steadily undertake the pipeline project. Because some beneficiaries were unsatisfied with the water quality and water pressure.

Third-Party Opinion

Besides the water resources shortage, Dalian City faces problems, such as aging water supply facilities and the substantial deficiencies in the water supply capacity. Hence, this project was highly relevant. In the future, the city needs to perform water quality inspection and upgrade the water supply pipeline network in order to ensure a stable and hygienic water supply.

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