



1. Project Data :		Date Posted : 07/27/2000	
PROJ ID : P004169	OEDID: L3590	Appraisal	Actual
Project Name : Seoul And Kwangju Sewerage Project	Project Costs (US\$M)	508.1	413.2
Country : South Korea	Loan/Credit (US\$M)	110.0	39.3
Sector, Major Sect .. Sewerage, Water Supply & Sanitation	Cofinancing (US\$M)	0	0
L/C Number: L3590			
	Board Approval (FY)		93
Partners involved :	Closing Date	12/31/1997	12/31/1999
Prepared by :	Reviewed by :	Group Manager :	Group:
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2. Project Objectives and Components

a. Objectives

- (1) Assist in cleaning the Yongsan and Han Rivers in order to reduce health hazards and improve the water quality;
- (2) Focus the attention of water agencies on conservation of water to reduce water consumption and wastewater generated;
- (3) Encourage the cities to self-finance wastewater activities; and
- (4) Support technological and institutional improvements in the sector .

b. Components

- (1) In Kwangju, increasing the capacity of the Yu Deog Dong wastewater treatment plant (WTP) from 300,000 cubic meters per day to 600,000 cubic meters per day; a wastewater pumping station at Song Am and about 36 km of sewage interceptors;
- (2) In Seoul, expansion of the Anyang WTP from 1.0 million cubic meters per day to 2.0 million cubic meters per day; and
- (3) Engineering services to supervise construction and a water conservation study in both cities .

c. Comments on Project Cost, Financing and Dates

The total project cost came in at US\$ 413.2 million or 81% of the appraisal estimate of US\$ 508.1 million. The Bank financed US\$ 39.3 million (10%) after a total of US\$ 70.7 million had been canceled. The balance (90%) was financed by the respective city governments and the central government .. Out of the total canceled amount US\$ 23.4 million is explained by increased counterpart funding from the national environmental fund and the central budget for the Kwangju project; US\$ 23.5 million was because some of the equipment for the Seoul project could be deferred, and the balance of US\$ 24.7 million was explained by favorable exchange rate movements and better -then-expected bid prices under the Seoul project . The project was approved on April 13, 1993. The original closing date of December 31, 1997 was extended by two years to December 31, 1999 to allow completion of the Seoul Anyang WTP that had met with unexpected construction problems due to unexpectedly poor geotechnical conditions and a harsh winter.

3. Achievement of Relevant Objectives :

- (1) The objective of reducing pollution loads on the Yongsan and Han Rivers was achieved following the commissioning of the expanded Yu Deog Dong in Kwangju and the Anyang WTP in Seoul;
- (2) The objective of conserving water was somewhat achieved through the installation of water -saving toilets and fixtures. Overall, the reductions in water consumption and wastewater flows might be in the order of 4% in Kwangju and less in Seoul. Non-revenue water (NRW) in Kwangju (taken to be the equivalent of unaccounted water in this projects) dropped from 31% in 1996 to 27% in 1998. In Seoul the NRW dropped to 36% in 1999 after having remained at 38% of production for several years . These NRW levels are high, considering the levels of high efficiency of project implementation demonstrated by the two cities under the project;
- (3) The objective of encouraging self-sufficiency was partially achieved but might have been overly ambitious considering the very rapid expansion of sewerage and sewage treatment in the two cities which made self -financing difficult to achieve in the short term;
- (4) The objective of supporting technological and institutional improvement were partially achieved . Technological improvements happened in both cities but only Kwangju established a Local Public Corporation (LPC) with separate

accounts. In Seoul sewerage services remained as a department within the municipality and continued without any separate accounts..

4. Significant Outcomes /Impacts :

Kwangju went beyond the establishment of a separate Local Public Corporation by contracting with a private firm the operations and maintenance of its WTP. The initial experience from the private operator is positive with operating costs down by some 30%.

5. Significant Shortcomings (including non -compliance with safeguard policies):

Non Revenue Water continues stubbornly high at 30% and 36% for Kwangju and Seoul, respectively. The scarce improvement is explained by the failure to giving the respective operators the incentive to reduce unaccounted water. The failure of Seoul to create a Local Public Corporation is relevant to explaining the continued high unaccounted water since a LPC it would make it easier to increase efficiency of operations and maintenance, further improve service quality and reduce budget transfers to the sewerage services from the general municipal budget.

6. Ratings :	ICR	OED Review	Reason for Disagreement /Comments
Outcome :	Satisfactory	Satisfactory	
Institutional Dev .:	Substantial	Modest	The failure of Seoul to establish a LPC is disappointing but is compensated by the rapid positive institutional development in Kwangju.
Sustainability :	Likely	Likely	The sustainability is actually highly likely .
Bank Performance :	Satisfactory	Satisfactory	
Borrower Perf .:	Satisfactory	Satisfactory	
Quality of ICR :		Satisfactory	

7. Lessons of Broad Applicability :

(1) A comprehensive wastewater strategy should include both water conservation and wastewater collection and treatment. Where water supply and wastewater services are administratively separate it is more difficult to achieve such an integrated strategy. In particular, the water agencies' commitment to water conservation may be difficult to achieve since they do not perceive the large, down -stream costs in wastewater collection and treatment;

(2) Financial covenants requiring financial rates -of-return of 2 or 3% are unrealistic to achieve in the short term when the investment programs are very large. It is simply inappropriate to expect assets with a very long life to be recovered in a relatively short time. A covenant with a minimum percentage contribution to investments from the internal cash generation would likely have been more appropriate;

(3) Though not included in the project design, Kwangju successfully privatized the operations and maintenance of its wastewater treatment plant with cost savings in the order of 30%. This example is of wide interest in Korea and elsewhere.

8. Audit Recommended? ☐ Yes ☒ No

9. Comments on Quality of ICR :

The ICR is well written, with attention paid to detail. It would have been interesting to include further details on the mode of procurement, on the contract and its incentives, and of the quality and costs of operations of the Kwangju wastewater treatment plant. It is a pity that countries such as Korea that have recently graduated or are graduating are not more often the object for studies that could teach important lessons to active Bank client countries. The possibility remains to make a brief follow-up visit to Kwangju to focus on these aspects alone, possibly in conjunction with other OED missions to the region.