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Colombia

38 Aguablanca Water Supply and Sewerage Project

This project's objective is to promote the supply of drinking water and the treatment of household and industrial wastewater through constructing water supply and sewage facilities in the city of Cali, and thereby contribute to the improvement of the living and hygienic conditions of the city's residents and to the prevention of contamination of Cauca River.

Loan Amount/Disbursed Amount: 18,285 million yen/18,285 million yen
Loan Agreement: May 1986
Terms and Conditions: Interest rate 4.75%; Repayment period 25 years (grace period 7 years); Partially untied
Final Disbursement Date: May 2002
Executing Agency: Empresas Municipales de Cali (EMCALI)

External Evaluator: Keishi Miyazaki (Overseas Project Management Consultants, Ltd.)
Field Survey: August 2004

Evaluation Result

In this project, the water purification plants and the sewage treatment plants, etc., were constructed almost as planned. The project period significantly exceeded the plan due to time required to hire consultants and obtain approval for land usage, but the project cost was lower than planned.

Regarding the component of water supply, the water supply population was planned at 1.55 million persons and the daily average water supply volume at 600,000 m^3/day. As of 2004, the plan had been basically achieved, with a water supply population of 2.20 million persons and a daily average water supply volume of 612,350 m^3/day. Regarding the component of sewerage, the planned daily average wastewater treatment volume was 475,200 m^3/day. Since many residents disposed of household wastewater in stormwater pipes and the sewer pipes became clogged with garbage causing sewage overflows, however, the actual figure in 2003 was only 228,960 m^3/day.

Looking at improvements in the living and hygienic environment, the infant mortality rate under one year old in Cali (per 1,000 births) decreased from 5 infants (1986) to 0.3 (2003)*. However, there is room for improvement in the water quality of Cauca River, if it is measured by the river water quality standards in Japan.

Regarding the technical capacity of EMCALI, there are no problems in the water supply system, but there is room for improvement in the sewerage system, such as in the application of the manuals. Regarding the operation and maintenance system and the financial status, in 2003 the central government of Columbia replaced the City of Cali as the authority in charge of supervising EMCALI, and management is currently being restructured under the guidance of the central government.

In conclusion, it is recommended to crack down on illegal connections to stormwater drains, improve the trash collection system, and conduct educational activities, and also to strengthen capabilities for operation and maintenance of the sewer facilities.

* The infant mortality rate under one year old in Columbia in 2003 was 18 infants (per 1,000 births).

Third-Party Evaluator's Opinion

This project is contributing to the achievement of a Millennium Development Goal, the reduction of child mortality. Henceforth, it is important to encourage the proper use of the water and sewage facilities through studies on effects on household income and education at school.

Third-Party Evaluator: Mr. Diego Villegas Navarro (private company)
Obtained a bachelor's degree in sociology from Universidad de Antioquia. Currently working as an independent consultant. Former Director of Agencia Colombiana de Cooperacion Internacional. Specializes in social development, participatory planning, monitoring and evaluation, etc.

Water Quality of Cauca River *1

Item	Water Quality of Cauca River *2			Japanese Water Quality Standard for Rivers *3
	2002	2003	2004	
pH	7.10	6.97	6.66	6.5 - 8.5
BOD (mg/ℓ)	8.80	4.23	3.33	3 or less
TSS (mg/ℓ)	172.0	84.0	115.7	25 or less
DO (mg/ℓ)	0.60	2.17	2.14	5 or more

source: Corporacion Autonoma Regional del Cauca (CVC)

*1 Japanese standards are applied because Columbia has no water quality standards for rivers.
*2 The measurement site was 49 km downstream from the Cali sewage treatment plant. Also, the data are based on results of spot checks, not on annual averages.
*3 This standard is for "grade 3 for tap water, and grade 2 for marine products."

Results of Beneficiary Surveys (Targets: 100 households of Cali residents)

Of the 100 households that participated in the beneficiary survey, 96 households mentioned "released from fetching water" as one of the positive impacts of this project. The number of households that experienced outbreaks of water-borne infectious diseases also decreased from 15 households prior to the project to 4 after the project. Therefore, it appears that the project is contributing to an improvement in the living and hygienic environment of the residents.

Changes Before and After the Project

	Before Project	After Project
Residents who mentioned "released from fetching water" as an impact	-	96 households
Outbreak of water-borne infectious diseases	15 households	4 households