

Internal Ex-Post Evaluation for Grant Aid Project

conducted by Guatemala Office: October 2011

Country	The Rehabilitation Project for Water Purification Plant in Inland Areas (Phase III)
Guatemala	

I. Project Outline

Project Cost	E/N Grant Limit: 660 million yen	Contract Amount: 644 million yen
E/N Date	June, 2006	
Completion Date	February, 2008	
Implementing Agency	Institute for Promotion of Municipality (INFOM)	
Related Studies	Basic Design Study: August 2005-March 2006	
Contracted Agencies	Consultant(s)	Kyowa Engineering Consultants Co., Ltd.
	Contractor(s)	Hitachi Plant Technologies, Ltd.
	Supplier(s)	N/A
Related Projects (if any)	<p>Japanese cooperations: Grant Aid</p> <ul style="list-style-type: none"> - The Rehabilitation Project for Potable Water Plant in Inland Areas (Phase I) (1998-2000) - The Rehabilitation Project for Potable Water Plant in Inland Areas (Phase II) (2001-2003) <p>Other donors' cooperations: BID(=IADB), KfW, GTZ, EU, FIS</p>	
Background	<p>Provision of safe potable water in Sanarate, Salamá, and Cabañas was not sufficient due to the inadequate functioning of the water purification plants caused by deterioration. The water purification plants in those municipalities were the final three (3) among twenty-five (25) water purification plants to be renovated in "Action Plan for Improvement of water purification plants in Inland Areas".</p>	
Project Objectives	<p>Outcome</p> <p>To provide safe drinking water and to improve hygienic environment in municipality of Sanarate, Salamá, and Cabañas by increasing production amount of, and improving the quality of, the water through rehabilitation of water purification plants.</p>	
	<p>Outputs</p> <p>Japanese Side</p> <ul style="list-style-type: none"> - Rehabilitation of water purification plants in Sanarate, Salamá, and Cabañas - Soft component :Establishment of O&M system through capacity development <p>Guatemalan Side</p> <p>Local cost; Request to donors; Allocation of staffs and budget for O&M; Revision of Water Charges and its enforcement; Securing of Water Sources for future; Technical Advisory by INFOM for local cities on O&M of Purification Plant.</p>	

II. Result of the Evaluation

Summary of the Evaluation
<p>In municipalities of Sanarate, Salamá, and Cabañas, provision of safe drinking water was not sufficient due to the inadequate functioning of the water purification plants caused by deterioration.</p> <p>This Project has partially achieved its objectives of provision of safe drinking water and the improvement of hygienic environments in those three municipalities through rehabilitation of water purification plants, as shown in the fact that the targeted quantity of drinking water has been mostly achieved while quality of drinking water has not fully been achieved at one of the three purification plants which cannot operate accurately due to problems mentioned in relation to sustainability below. As for sustainability, problems have been observed in terms of structural, technical, financial and operation & maintenance aspects such as frequent turnover of staffs, loss of some operation manuals, lack of continuous/further trainings for front-line operators, lack of budget allocation for maintenance by the municipalities, and improper operation of the plants sometimes. For relevance, the project has been highly relevant with Guatemalan development policy, development needs as well as Japan's ODA policy at the time of both ex-ante and ex-post evaluation. For efficiency as well, both the project cost and project period were almost as planned. In the light of above, this project is evaluated to be partially satisfactory.</p>
1 Relevance
<p>This project has been highly relevant with the Guatemalan development plan (Action Plan for Improvement of water purification plants in Inland Areas), development needs (Insufficient provision of safe potable water in local cities), as well as Japan's ODA policy at the time of both ex-ante and ex-post evaluation. Therefore, its relevance is high.</p>

2 Effectiveness/Impact

This project has somewhat achieved its objectives of increasing production amount of purified water at three water purification plants under this project. The targeted quantity of drinking water has been achieved at the time of ex-post evaluation. In terms of water quality, the plants in Sanarate and in Cabañas reached targeted quality although the plant in Salamá has not fully reached the targeted situation due to failures to control turbidity during rainy seasons. Based on interviewing with Municipalities, it is deemed that two of the water purification plants has improved operating environment systematically to improve the functioning and increase drinking water production, while the other one has been partially improved. The limited improvement in the quality of the water at one site (Salamá) is due to lack of consciousness with the standard operating procedures because some manuals and trainings are lacking (see 4.Sustainability): sometimes the use of necessary chemicals is not appropriate in terms of quantity to ensure water quality. Based on the interview with population in three sites, it was observed that local residents in Sanarate and Cabañas think improvements of hygiene (e.g. less contamination/infection route because of safer water) have been brought after the project. Also, no negative impact on the environment was observed although detailed information was unavailable. Therefore, effectiveness/impact of this project is fair.



Incoming water distribution system in Sanarate



Slow filtration system in Salamá

Quantitative Effects

Indicator	baseline value (2005)	target value (2009)	actual value (2009)	actual value (2011)
Amount of Purified Water				
Sanarate	5,180m ³ /day	6,650 m ³ /day	N.A.	6,653 m ³ / day
Salamá	2,070 m ³ /day	4,490 m ³ /day	N.A.	4,493 m ³ / day
Cabañas	1,040 m ³ /day	1,560 m ³ /day	1,156 m ³ / day	1,555 m ³ / day
Quality of Purified Water in terms of Turbidity				
Sanarate	Some cases of below Guatemalan Standard	No cases of below Guatemalan Standard	N.A.	No cases below Guatemalan standard
Salamá	ditto	ditto	N.A.	Some cases below Guatemalan standard
Cabañas	ditto	ditto	No cases below Guatemalan standard	No cases below Guatemalan standard

(Source: Interview and site Visits to the Municipalities and Water Purification Plants in Salamá, Cabañas and Sanarate, INFOM)

3 Efficiency

Although the project cost was as planned (ratio against the plan: 98%), the project period slightly exceeded the plan (ratio against the plan: 101%). Therefore, efficiency of the project is fair.

4 Sustainability

The water purification plants are operated and maintained by three Municipalities (Sanarate, Salamá, and Cabañas), respectively. Although the structure of these operation and maintenance (O&M) agencies is sustained in the similar manner of the implementation period, it has some problems for continuity of project effectiveness due to unstableness of staffing stemming from frequent personnel reshuffle. Also they have some problems in the technical aspect due to the fact that some of the necessary manuals have not been available (lost). Under this project, training in O&M was provided to staffs of the three plants as the soft component, and the remaining rate of the trained staffs is relatively high. However, it was recognized that no training to front-line operators is conducted after the completion of the project due to insufficient budget. Without manuals and continuous training, staffs have difficulties to put what they learned into practice. Furthermore, the O&M agencies have serious problem in the financial aspect caused by failures to set adequate level of water rates (tariff) to cover O&M cost as well as to raise local residents' awareness of such fair water rates. As for the current status of operation and maintenance, the municipalities have some problems due to insufficient data utilization (Sanarate and Salamá), sometimes insufficient water quality (only Salamá), some problems of facilities that have not been fixed yet (Salamá and Cabañas), no comprehensive analysis on water quality in collaboration with INFOM (all three plants), etc., although the situation in detail varies depending on each municipality. Therefore, sustainability of the project is low.



Incoming water holding tank in Cabañas

III. Recommendations & Lessons Learned

- Recommendations for Implementing agency:
- The municipalities are suggested to treat the O&M problems with sense of professionalism and serious commitment to high quality O&M. Related to this, below are suggestions in more detailed manner.
- The municipalities are suggested to make improvements in the O&M of purification plants by acquiring essential manuals again and improving compliance with them, including proper use of chemicals needed in the necessary quantities to ensure good water quality.
- The municipalities are suggested to provide constant training on O&M of purification plants to those operators who are responsible for and are involved specifically in the actual O&M activities, especially permanent staff, so that they implement the O&M activities properly with confidence.
- The municipalities and INFOM are suggested to coordinate in order to provide the training program and to establish a continuous supporting mechanism for water purification plant.
- The municipalities are suggested to treat the O&M problems with sense of professionalism and serious commitment to high quality O&M.

- The municipalities are suggested to schedule an installation of quality systems and environmental management in the short term (3-5 years).
- Continuous training in O&M after the project is as important as retaining staffs who are trained by the project for the transferred knowledge to be put into practice.