

Country Name	The Project for Ground Water Development in Rural Area
Guatemala	(El Proyecto de Desarrollo de Aguas Subterráneas en Áreas Rurales)

I Project Outline

Project Cost	E/N Grant Limit: (1) 537 million yen (2) 440 million yen	Contract Amount: (1) 421 million yen (2) 438 million yen
E/N Date	(1) November, 2004 (2) June, 2005	
Completion Date	March, 2007	
Implementing Agency	Institute for Promotion of Municipality (INFOM) O&M agencies: Water Associations (Communities) involved.	
Related Studies	Basic Design Study: February 2004-August 2004	
Contract Agencies	Consultant(s)	Japan Techno Co., Ltd.
	Contractor(s)	Urban Tone Corporation
	Supplier(s)	Mitsubishi Corporation
Related Projects (if any)	<p>[Japan's cooperation]</p> <ul style="list-style-type: none"> -Development Study on Ground Water Development in Central Plateau (Technical Cooperation, 1994-95) -Strengthening Water Associations and Community Development (Technical Cooperation, 2010-2013) -Construction of Water Supply Facilities in 9 Municipalities in 6 Departments in Central Plateau (Grant Aid, 1997-98) -Construction of piped water facilities in Municipality of Quetzaltenango (Grant Aid, 2003- 2005) <p>[Other donors' cooperation]</p> <p>IDB&ASPAIN, BCIE, KfW, UNICEFF, Taiwan</p>	
Background	<p>In Guatemala, it is difficult for people particularly who live in rural area to access to safe water. Access rate to piped water was 59.6% in rural, 89.5% in urban (Census in 2002) in terms of existence of water supply facilities. However, it is said that real access rate to piped water for rural population was 40% because of unstable water amount from drying spring water. To improve water access rate in rural areas, Rural Water Supply Unit (UNEPAR) of INFOM promoted groundwater development and planned to construct 100 wells in next five years, and requested the Japanese government for assistance in procurement of necessary equipment for excavation and development of water supply facilities in selected communities where new water sources were urgently needed.</p>	
Project Objectives	<p>Outcome</p> <p>To promote ground water development in rural areas by construction of water supply facilities and procurement of necessary equipments to develop ground water.</p>	
	<p>Output(s)</p> <p>Japanese Side</p> <ul style="list-style-type: none"> - Procurement component (for nationwide): Preparation of equipments related to ground water development (two sets of excavators & supporting vehicle, machine for ground water exploration, supporting equipment for operation and maintenance - Construction component (for selected communities): Construction of water supply facilities with the source from ground water in 14 sites (deep wells, water tanks, electric pumps, etc) - Soft component: capacity development of engineers/technicians for excavation and ground water exploration; establishment of operational/administrative mechanism for ground water development <p>Guatemalan Side</p> <ul style="list-style-type: none"> - Allocation of staffs, Site preparation; Engineers/technicians for soft component (technology transfer); Necessary data; Construction of incidental facilities; Preparation (construction) of water supply facilities with the source from ground water (Further part from Water Tank) in 14 communities; O&M cost. 	

II Result of the Evaluation

Summary of the Evaluation
<p>To improve rural access to safe water, the government of Guatemala planned to construct 20 wells per year, totaling 100 wells in next five years (as of the ex-ante evaluation of this project in 2004). However, only one existing excavator of INFOM/UNEPAR, which was in charge of ground water development, was deteriorated after more than 20 years in use. Therefore, procurement of two excavators, each of which to construct 10 boreholes a year, was urgently needed. Also, there was an urgent request from the Guatemala side for development of water supply facilities at selected rural communities (14 sites) where there were no water supply facilities or insufficient water supply from spring-fed existing facilities. This project partially achieved promotion of ground water development in rural areas as shown in the increasing number of drilled wells (as the outcome of the procurement component) and positive comments of users of the water supply facilities developed by the project (as the outcome of the construction component), though the achievement level of the construction component could not be verified quantitatively due to lack of evidence to show the amount of water supply. As for sustainability, there was no serious problems observed on the procurement component due to the adequate well-drilling implementation structure with capable staff, continuity of operation and regular maintenance of the equipment with budget allocation. Regarding the construction component, however, some problems have been observed in terms of structural, technical and financial aspects as well as the current status of operation and maintenance due to constant changes of local</p>

staff, this situation consequently caused difficulties in keeping knowhow on O&M activities, difficulties in collecting water tariff and consequent shortage of budget to prepare necessary items for O&M.

For relevance, the project has been highly relevant with Guatemalan development policy and 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 the project period were within the plan.

In the light of above, this project is evaluated to be partially satisfactory.

1 Relevance

This project has been highly relevant with the Guatemalan development policy ("Improving access to safe water" as set in the Policy Guideline in National Development Plan 2004-2008 and 2009-2013), development needs: ("Better access to safe water in rural area"), as well as Japan's ODA policy ("Assisting in reduction of urban-poor gaps") and JICA's cooperation priorities at the time of both ex-ante and ex-post evaluation. Therefore, its relevance is high.

2 Effectiveness/Impact

This project has partially achieved its objectives of promoting groundwater development, i.e., to equip UNEPAR with the capacity to drill 20 wells per year (as a result of the procurement component) and to supply safe water to the 14 model sites (as a result of the construction component).

Regarding the effectiveness of procurement component, the achievement level of expected outcome, the number of wells drilled was almost 80% of the target. The less number of wells than planned was due to budget shortage on the Guatemalan side.

As for the effectiveness of the construction component, the data on the actual amount of safe water supply was not available. Although the water supply facilities developed by this project had not been used yet in 5 sites out of the 14 sites for first two years after the completion¹ because electricity supply had not started², 12 out of 14 facilities were physically functioning as of October 2011. However the facilities are operated during limited period of time of a day or week in some sites due to, according to the interviews with communities and social promoters (staffs of UNEPAR regional offices), high operating costs and the refusal of some users to pay the service fees.

Nevertheless, the interviewees in the sites where the facilities are operating said that access to water has been improved compared to before the project, which has resulted in, as positive impacts, less burden of fetching water for women and children (local residents).

Therefore, effectiveness/impact of this project is fair.

Quantitative effect

Indicator	baseline value (2004)	target value (2010 or 2011) (target year: five years after first operation)	actual value (2007)	actual value (2008)	actual value (2009)	actual value (2010) (target year)	actual value (2011) (target year)
Number of wells drilled per year (outcome of the procurement component)	1 /year	20 /year	4	17	27	20	10
Total wells drilled (accumulated number) (outcome of the procurement component)	NA	100 (2011)	4	21	48	68	78
Amounts of safe water supply in the 14 sites where the project constructed the facilities (outcome of the construction component)	42-50 liter/day /person	90 liter/day /person	N/A	N/A	N/A	N/A	N/A

Source: Interviews with INFOM/UNEPAR



Drilling machine

3 Efficiency

The outputs of the project were produced as planned, and both the project cost and the project period were within the plan (ratio against the plan: 88%, 100%). Therefore, efficiency of this project is high.

4 Sustainability

¹ The detailed planning study for JICA Technical Cooperation Project, "Strengthening Water Associations and Community Development" collected some data on water supply amount per minute in 2009: it ranged from 6 liter/minute (Los Encuentros) to 68 liter/minute (La Giralda). Although it was not certain how many hours a day the facilities operated, these amounts are most likely below the planned values (94-1,453 m³/day, which are equivalent to 65-1,009 liter/minute under the assumption that the facilities operate 24 hours a day), which were calculated as maximum possible supply based on the population projection for 2026.

² There was no electricity supply in two more sites, but the local governments purchased diesel generators and operated the pumps.

Regarding the sustainability of the effects of the procurement component, the equipment provided by the project is maintained by INFOM/UNEPAR, the implementing agency.

This component has no serious problem in structural, technical and financial aspects as well as the current status of operation and maintenance of the implementing agency: Ground Water Program, changed from Ground Water Unit in 2008, of INFOM has maintained the structure for drilling with the sufficient number of capable staff, and the drilling machines and other equipment are under operation and regular maintenance with budget allocation.

As for the construction component, the facilities/ equipment provided by the project are maintained by water management committees composed of local communities., The implementing agency, INFOM/UNEPAR is responsible for technical support.

This component has some problems in structural, technical and financial aspects as well as the current status of operation and maintenance of the implementing agency. In the structural aspect, although the structure of water management was sustained what it was considered desirable at the time of ex-ante evaluation, it has some problems due to the constant replacement of social promoters/technicians. In the technical aspect, all ex-trainees from the soft component of this project were transferred, and INFOM/UNEPAR does not provide technical assistance periodically, except in emergency.

In the financial aspect, some water users do not agree with paying the tariff, because that people don't get used to payment for water in Guatemala, which affect financial conditions of water management committees. In other communities, there is a lack of agreement between the Water Committee/ Association Directive and community establishing the proper tariff. As for the status of operation and maintenance, some facilities have problems such as insufficient chlorination, due to inability in renewal of some parts and lack of fuel, both resulting from the shortage of budget.

Therefore, sustainability of this project is low. Nevertheless, JICA technical cooperation project "Strengthening Water Associations and Community Development" started trainings to current committee members and INFOM/UNEPAR staff to strengthen their capacity.



Pump station and water tank (Chimaltenango Department)

III Recommendations & Lessons Learned

Recommendations for Counterpart Agency:

INFOM/UNEPAR is recommended to strengthen its institutional capacity in order to provide more technical assistance to the communities for the operation for maintenance and administration.

Lessons Learned for JICA:

Water management committee should have enough capacity so that they could fulfill their responsibility for the operation, maintenance and management of the water systems in order to guarantee the sustainable water systems. (Note: the JICA technical cooperation project to strengthen water management committees is on-going to address this issue)