

Internal Ex-Post Evaluation for Grant Aid Project

conducted by Ethiopia Office/ Nov, 2013

Country Name	The Project for Water Supply in Afar Region
Ethiopia	

I. Project Outline

Background	<p>In Ethiopia, it was estimated that about 24 % of the population can access to safe potable water. This figure was quite lower than the average of the countries of Sub-Sahara (54%, estimated by UNDP). People in the rural area, where 85% of the total population of Ethiopia lived, spent a lot of time and manpower to fetch potable water, and it caused the acceleration of the poverty in the area.</p> <p>Average water supply coverage in the Afar state, one of the poorest states in Ethiopia, was only 16.5% against the same of the national level 30.9% in 2001. The Government of Ethiopia aimed to improve the water supply coverage in the Afar state from 44% (urban) and 14% (rural) in 2001 up to 90% (urban) and 62% (rural), in an average 65.1 % by 2016.</p>		
Project Objectives	<p>To provide safe and stable water in the Afar State by constructing water supply facilities, carrying out a technical assistance (capacity development of rehabilitation and operation skills and maintenance skills), and procuring equipment necessary for rehabilitating the existing water facilities, and thereby contributing to decrease in water-borne diseases and lighten burden of collecting water.</p>		
Summary of the project implementation	<ol style="list-style-type: none"> 1. Project site: 9 towns in the Afar National Regional State (Gubi Dowra, Kelewan, Derayitu, Chifra, Eli Wuha, Nemelefen, Wederage, Kumami, and Dulecha) 2. Output(s) by Japanese side: <ol style="list-style-type: none"> (1) Construction of water supply facilities in 9 towns in Afar Regional National State: <ul style="list-style-type: none"> • Water source facilities: (1) 6 new wells, reuse of 6 test wells as production wells, and rehabilitation of 3 wells by the Ethiopian side with support of the Japanese side, (2) installation of 12 sets of well pumps, electric generators and (3) electric generator rooms (12 sets) • Water supply facility (pipelines) • Distribution facility (6 sets of distribution reservoirs, an elevated water tank, public water taps) (2) Procurement of a truck with well rehabilitation equipment and a truck with pumping test equipment (3) Technical Assistance (a soft component) for well rehabilitation technique and management of water supply service 3. Output(s) by Ethiopian side: <p>Constructing an access road, land acquisition and site clearance, installing the protective fences for the wells and the public fountains, sites for storing the procured equipment</p> 		
E/N Date	November, 2006 (Detailed Design:DD) May, 2007 (Construction)	Completion Date	February, 2010
Project Cost	E/N Grant Limit: : 23 million yen (DD), 544 million yen (Construction)	Contract Amount: 23 million yen (DD), 470million yen (Construction)	
Implementing Agency	The Water Resources Bureau, The Afar National Regional State (AWRB)		
Contracted Agencies	A joint venture company of Kyowa Engineering Consultants Co., Ltd. and Yachiyo Engineering Co., Ltd., Toa-Tone Boring Co., Ltd.		
Related Studies	Basic Design Study: January 2006 – July 2006, Detail Design Study: December 2006 – November 2007		
Related Projects (if any)	<p>Japan's Cooperation: The Groundwater Development and Water Supply Training Project at Ethiopian Water Technology Center (EWTEC) (Phase II (2006-2008) and Phase III (2009-2013) Project (Technical Cooperation)</p> <p>Other donors' Cooperation: World Bank, UNICEF, OAU (AU), and the Government of Italy support water supply projects</p>		

II. Result of the Evaluation

1 Relevance

This project has been highly relevant with Ethiopia's development policies, such as water supply and sanitation development under "Plan for Accelerated and Sustained Development to End Poverty" (PASDEP) (2006-2010) and Growth and Transformation Plan (GTP) (2010-2015), development needs to improve access to safe potable water both at the national and regional level as well as Japan's ODA policy (prioritizing water supply) at the time ex-ante and ex-post evaluation. Therefore, relevance of this project is high.

2 Effectiveness/Impact

The project has achieved its objectives of providing safe and stable water in the Afar State at a limited level. Out of nine sites, the water facilities at three sites (Nemelefen, Wederage and Kumami) are not functional (as of May 2013), due to breakdown of the equipment (a pump at one site, and generators at two sites). It takes generally 6-8 months to repair/replace equipment, and prospect of repair of these facilities is not clear as the repair of those facilities requires relatively higher technical skills which AWRB is not equipped with. In addition, some wells which constitute the water supply schemes at the two sites among the three sites where the water facilities are not functional (Nemelefen and Wederage) are dried up. Although the water facilities at other sites are functional, for this reason, the estimated population served by the project currently is 22,827 compared to the target 34,550. The current actual total volume of water supply of 570.6m³/day is lower than the target of

1,702m³/day. Partly because water facilities are non-functional at three sites, and partly because water facilities under the project provide water supply services for only 4-5 hours due to the insufficient power supply of generator which stops working because of higher temperature (sometimes exceed 45 degrees C) than the anticipated temperature (35 – 40 degrees C).

With the training conducted by the project, the technicians at the AWRB have improved their knowledge and skills for well rehabilitation works. As a result, and by using the equipment provided by the project, the AWRB rehabilitated more than 60 wells in the last three years and provided maintenance services for more than 150 water facilities including hand pumps. Regarding the quality of the water, communities are satisfied with water quality in terms of its smell except two sites where people find salt concentration is a major water quality problem, though they still use the water source. Water quality analysis is carried out once a year which supports the above mentioned people's recognition.

Although some favorable impacts such as reduction of time of fetching water and reduction of water-borne diseases prevalence were found, the project did not reach the target of its direct objectives in various aspects, and therefore, effectiveness/impact of this project is low. There is no negative impact on natural environment. There is no land acquisition/involuntary resettlement except Chifra. At Chifra, the generator house was constructed inside a farmer's farm field with the permission of the land owner.

Quantitative Effects

Indicator	Year 2006 (before the project) Actual value	Year 2010 (target year) Target value	Year 2010 (target year) Actual value	Year 2012 (ex-post evaluation year) Actual value
Indicator 1: Water supply coverage ratio in 9 towns	49.4%	75.6%	n.a.	58.6%
Indicator 2: Water supply volume in 9 towns : (1) Volume per day per person (2) Total volume per day	(1) 12.3 liters (2) 408m ³ /day	(1) 25 liters (for public taps) (2) 1,702m ³ /day	n.a.	(1) 14.6 liters*1 (2) 570.67 m ³ /day
Indicator 3 (Supplemental indicator): Water served population in 9 towns	16,320	34,350	n.a.	22,827*2

*1 Total water supply volume per day/actual population in 9 towns. *2 Total water supply volume per day/25L per capita (assumed water consumption per capita based on the beneficiary interviews at the time of ex-ante evaluation). Source: Field Survey Result (2013): Interview with WWO officers



A WC Chairman with record book (Eli Wuha) Tap water at home yard at Gubi Dowra A Water point at Woderage

3 Efficiency

Although the outputs were produced mostly as planned, Ethiopian side has not yet fulfilled their responsibility. For example, fences around the water supply facilities were not constructed at many project sites. The project cost was within the plan (ratio against plan: 87%), however, the project period exceeded the plan (ratio against the plan: 131%). The reason of delay is re-drilling the boreholes in three sites due to the dried hole. Therefore, efficiency of this project is fair.

4 Sustainability

Operation and maintenance (O&M) of the water facilities constructed by the project is carried out by Water Committees (WC) in the target towns with the support of Woreda Water Offices (WWO) at Woreda level¹. WCs basically are responsible for management of water supply, whereas WWOs are responsible for the protective inspection of the facilities and assisting all the activities of WCs, such as doing minor repairment of facilities, regular protective inspection and requesting assistance to AWRB for serious mechanical problem. Institutionally, after the reorganization of AWRB, the capacity O&M department has changed to smaller level as "Team", and as a result, the number of staff allocated to O&M Team was reduced to seven which is much smaller than the planned 28 staff. Each WWO has relatively sufficient number of technical staff of about 8-9. At community level, WCs exist in 8 sites, and the WCs have at least six members for management, however, WC's management is at beginning stage in most sites.

Technically, the lack of capacity is observed at all levels (AWRB, WWOs, and WCs). The O&M Team of AWRB once in a year undertakes inventory to determine the functionality level of water schemes. However, they are not capable enough to fix serious problems, partly because of the resignation of experienced and knowledgeable 2 staff members. As to WWOs, although

¹ Administratively, the Afar state has 5 zones which are divided into 29 Woredas. Woredas are further divided into 32 towns and 236 villages.

they perform regular monitoring and check-up, WWOs sometimes fail to identify problems in water facilities. In addition, although high water leakage loss due to burst caused by high water pressure was seen in existing pipelines, a technical issue hampers WWOs to replace the existing pipelines to HD PVC pipelines which are durable and cost effective to exactly fit with the newly constructed main water pipeline by the project. In most sites, WCs are generally not engaging and upholding the responsibility of water scheme administration to the desired level. Although training was provided by this project, newly re-elected WC members were not given any training, consequently they lack necessary knowledge nor skill for management. Financially, although the budget allocation for AWRB including O&M budget has increased, the amount is not sufficient to meet vast demands for rehabilitation and maintenance services. As to WCs, except three non-functional sites, all the remaining six water facilities collect water tariff regularly and keeps financial records. However, due to increasing fuel cost, low water supply service and lack of community commitment to pay water bills, most water facilities are financially unsustainable to cover necessary O&M expenses (payroll of pump operators, fuel cost, and repair cost) by themselves. Exceptionally, operating expense of the facilities of Chifra WC was decreased by half since WWO at Chifra made efforts to connect the water facility to the main electric power gridline.

As to the current status of O&M, as mentioned above, the water facilities at three sites are non-functional and still waiting solution from the AWRB. AWRB took longer time to respond to the request of various water facilities in the region (6 to 8 months). As explained above, the water facilities under the project provide water supply services for a limited amount of time (4-5 hours), as the generators would stop functioning during mid-day as the temperature becomes very hot. As to WWOs, at least once a week the WWOs perform regular monitoring and check-up of the water facilities. Besides, whenever problems happened, the WWOs fix them within their capacity if possible and buy equipment for repair and spare parts when necessary. If necessary, the WWOs request AWRB for assistance. In general, it is observed that the water supply facilities operation and maintenance activities are not undertaken in appropriate manners by WC in most towns. All procured rehabilitation equipment is still providing their intended service without any major problem. Once in six months the AWRB has properly taken the necessary maintenance service measures for the donated rehabilitation trucks. Thus, as this project has problems in institutional, technical and financial aspects as well as the current status of operation and maintenance, sustainability of this project is low.

5 Summary of the Evaluation

This project has achieved its objectives of providing safe and stable water in the Afar State at a limited level. The water facilities at three sites are not functional due to breakdown of the equipment, and dry up of some wells. As a result, the latest figures for the population served by the project as well as the water supply volume do not reach the target. With the training given through the project, the technicians at the AWRB have improved their knowledge and skills for well rehabilitation works and actually undertook rehabilitation of 60 wells and maintenance services of 150 water facilities by using the equipment procured by the project. Although some favorable impacts were found, the project does not reach the target in various aspects, effectiveness/impact of this project is low.

For efficiency, the project period slightly exceeded the plan. As for sustainability, there are problems in institutional, technical and financial aspects as well as the current status of the O&M due to insufficient number of staff, technical capacity and O&M budget. In addition, currently water facilities are not functional at three sites due to breakdown of the equipment.

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

III. Recommendations & Lessons Learned

Recommendations to implementing agency:

1. Considering the vastness of the region and lack of sufficient capacity to address the growing demands of rehabilitation and maintenance services from Woredas, it is recommendable to strengthen the operation and maintenance activities in the Afar. Otherwise, the small town water supply systems constructed and rehabilitated by the project would not be sustainable in the future.
2. The AWRB together with WWOs should consider the revitalization of the new WCs through facilitation and training (i.e. water scheme administration, financial management and O&M) provision of necessary guidelines for the newly re-elected members of the WCs.
3. The AWRB has to make necessary arrangements for the water facilities to access electric power sources to reduce the increasing operational cost.
4. In most of the project sites replacement of the distribution pipeline system has to be considered to avoid unnecessary water loss due to frequent breakdowns and leakage.

Lessons learned for JICA

In a region such as the Afar region which is the most difficult region for sustainable water supply, the selection criteria of the sites could be stricter and a soft component could be more comprehensive, considering more than 30% of the project sites are not functional only after 2 years of the completion of the project.

1. Increasing fuel cost have posed serious challenges to the sustainability of the water schemes. Hence, availability of the conventional grid line for electricity or the plan of extending the grid line might be considered for the selection of the site. Connecting the water supply system to the gridline of electricity, and thereby cheaper supply of electricity could improve financial status of a WC as in the case of this project.
2. In case of the project, the project should have included the training to the plumbers and water technicians for O&M of HD PVC pipelines for sustainability of the project effect. In accordance with the content of the technical skills to be transferred and the technical level of the target group, appropriate support scheme (i.e. Technical cooperation) should be taken into consideration. In addition, considering the difficulty in organizing the WCs, more user friendly support could have been provided, for example, not only letter-based but also picture-based manuals could be more appropriately prepared.