Internal Ex-Post Evaluation for Development Planning Project

conducted by Ethiopia Office: August, 2020

Country Name	Project for Groundwater Resources Assessment in the Middle Awash River Basin
Federal Democratic Republic of Ethiopia	

I. Project Outline

Background	The access rate to improved drinking water sources in rural areas of Ethiopia was 42% which was far below the average coverage rate of 60% in Sub-Sahara Africa (UNICEF/WHO 2008). Thus, it was necessary to quickly respond to securing safe water. In Ethiopia, 90% of the water sources were dependent on groundwater, but there was little information on groundwater for effective groundwater development and sustainable groundwater use.		
Objectives of the Project	Expected Goals to be achieved by utilization of the proposed plan[1]: (a) Groundwater will be effectively developed in the Middle Awash River Basin for drinking water or other purposes and it will be appropriately managed based on the management plan developed under the project. (b) The water supply coverage of the small towns will be improved in the Middle Awash River Basin.		
Activities of the Project	1. Project site: Middle Awash River Basin 2. Main activities: Assessment of groundwater potential, development of hydrogeological maps, planning of water supply facilities for small towns selected from Oromia Region, and technical transfer to counterpart staff 3. Inputs (to carry out above activities) (To be checked during the ex-post evaluation survey) Japanese Side: Experts from Japan: 12 persons Ethiopian Side: 1) Staff allocated: 5 persons; 2) Land and facilities: Land use for 11 boreholes		
Project Period	October 2013-December 2015	Project Cost	(ex-ante) 250 million yen (actual) 374million yen
Implementing Agency	Groundwater Directorate of the Ministry of Water, Irrigation and Energy (MoWIE, formerly Ministry of Water, Irrigation and Electricity)		
Cooperation Agency in Japan	Kokusai Kogyo Co., Ltd.		

II. Result of the Evaluation

1 Relevance

<Consistency with the Development Policy of Ethiopia at the Time of Ex-Ante Evaluation and Project Completion>

The project was consistent with the development policy of Ethiopia both at the time of ex-ante evaluation and project completion. The "Growth and Transformation Plan (GTP) 2010/11-2014/15" set forth four goals and seven strategies which included improvement of the access to safe water.

<Consistency with the Development Needs of Ethiopia at the Time of Ex-Ante Evaluation and Project Completion >

The project was consistent with the development needs of Ethiopia for groundwater development both at the time of ex-ante evaluation and project completion. The Awash River middle basin area (about 20,000 km^2 out of 119,000 km^2 in the Awash River basin area), which is the target area of this project, is located in the northern part of the Great Rift Valley and is susceptible to drought as experienced with serious damages in 2011. There has been an increasing need to develop less susceptible groundwater resource as an effective response to the vulnerability to drought. The population of Oromia Region was about 27 million, accounting for about 40% of the total population of Ethiopia. The water supply coverage was 68.5% (2010) in Oromia Region, which was the same level as the national average, but this region had the largest population that was unable to access safe water. After the project completion, the national average of the water supply coverage (based on the standard of GTP-II 2015/16-2019/20) has been still low. (For example, the coverage was 65.7% in 2017), whereas the water supply coverage in Oromia Region was 59.3%[2], obviously lower than the national average. Therefore, the needs to groundwater development were still high.

<Consistency with Japan's ODA Policy at the Time of Ex-Ante Evaluation>

The project was consistent with Japan's ODA policy to Ethiopia. Priority areas in ODA to Ethiopia include rural water supply, human resource development for water resources, and cooperation for exploration of groundwater[3].

<Evaluation Result>

In light of the above, the relevance of the project is high.

2 Effectiveness/Impact

<Status of Achievement for the Objectives at the time of Project Completion>

At the project completion, the following outputs were achieved for the expected goals: (1) Groundwater potential of the major groundwater aquifers and groundwater regions in the Middle Awash River Basin is assessed and a set of geological and hydrogeological map at a scale of 1:250,000 was produced. (2) Water supply scheme development plan of the small towns selected from Oromia Region was formulated.

[1] The degree of achievement of expected goals is not to be assessed in principle at the time of ex-post evaluation, since it is defined as the medium-to-long-term goals which will be attained as a result of materializing the proposed plan ("output" of the project).

[2] Source: ONE WASH National Programme - A Multi-Sectoral SWAp: PHASE II Programme Document

[3] Source: ODA country databook 2013

< Utilization Status of the Proposed Plan at the time of Ex-post Evaluation>

After the project was completed, the proposed utilization of the outputs has been partially fulfilled. Table 1 shows the plans which have utilized or are to utilize the developed hydrogeological maps.

According to the survey result, the developed hydrogeological maps have been utilized for the groundwater development in the Oromia small towns water supply project, funded by a grant aid program of the Government of Japan. In the construction plan proposed in this assessment project, 10 small towns were prioritized among the total of 30 small towns in this project area. Finally, seven small towns were selected for the water supply project funded by the Government of Japan, and the test well drilling was being underway at the time of ex-post evaluation. Besides the use of the hydrogeological maps, a field investigation in early 2020 revealed that a test borehole drilled during this assessment project was planned to be utilized for water supply in a neighbour town by another development partner (USAID).

However, the maps have not been updated and upgraded since 2015 to more detailed versions by the Government of Ethiopia because of no allocation of the budget and insufficient staff members.

<Status of Achievement for Expected Goals through the Proposed Plan at the time of Ex-post Evaluation>

At the time of ex-post evaluation, the expected goals have not been achieved by the small towns water supply project as described above.

<Other Impacts at the time of Ex-post Evaluation>

MoWIE and Oromia Water and Energy Resources Development Bureau (OWERDB) reported that no negative impact had been observed on the natural environment during test well drilling in this assessment project. No land acquisition and resettlement occurred. As the drilling sites were outside of the national parks, and there was no other protected area. Therefore, the project had no negative impact from this aspect.

<Evaluation Result>

Therefore, the effectiveness/impact of the project is fair.

Table 1 Status of Achievement of Utilization Status of the Proposed Plan and Expected Goals through the Proposed Plan

<table>
<tr><th>Aim</th><th>Indicators</th><th>Results</th></tr>
<tr><td rowspan="2">(Utilization Status of the Proposed Plan)
(a) Appropriate groundwater development/management plan will be formulated and put it into implementation by the Government of Ethiopia with the support from development partners based on the groundwater potential assessment study which are carried out by the project and on hydrogeological map which will be produced by the project.
(b) The small town water supply schemes development plan (facility plan and maintenance plan) which will be elaborated by the Project will be adopted and implemented by the Government of Ethiopia with the support from development partners.</td><td>(Indicator 1)
Status of utilization of hydrogeological map of Middle Awash River created for groundwater development plan.</td><td>(Ex-post Evaluation) partially achieved
The plans which have utilized/utilize the hydrogeological maps
<table>
<tr><th>Name of the plan</th><th>Status of planning</th><th>Status of implementation</th><th>Status of financial arrangement (financial sources)</th></tr>
<tr><td>National groundwater development mapping</td><td>Detailed planning was completed.</td><td>Not yet implemented</td><td>No budget has been yet allocated yet from the Government of Ethiopia</td></tr>
<tr><td>Project for Development of Water Supply Facilities of Small Towns in Oromia Region</td><td>Detailed planning was completed.</td><td>Preparatory field investigation (test borehole drilling) is underway.</td><td>Grant aid from the Government of Japan has been allocated for water supply facilities in 7 small towns.</td></tr>
</table></td></tr>
<tr><td>(Indicator 2) Implementation status of the proposed small city water supply scheme (facility plan and maintenance plan)</td><td>(Ex-post Evaluation) partially achieved
See the indicator 1 above.</td></tr>
<tr><td rowspan="3">(Expected Goals through the Proposed Plan)
(a) Groundwater will be effectively developed in the Middle Awash River Basin for drinking water or other purposes and it will be appropriately managed based on the management plan developed under the project.
(b) The water supply coverage of the small towns will be improved in the Middle Awash River Basin.</td><td>(Indicator 1) The number of facilities constructed based on the proposed water supply scheme (urban areas, rural areas, etc.),</td><td>(Ex-post Evaluation) not achieved
No facilities have been completed yet.</td></tr>
<tr><td>(Indicator 2) Water supply rate, distance and time to water supply facility in small town area</td><td>(Ex-post Evaluation) not achieved
No change, because of incompletion of the new water supply facilities.</td></tr>
<tr><td>(Indicator 3)
Establishment of water management committee and water tariff collection</td><td>(Ex-post Evaluation) partially achieved
In all seven small towns water management committees were established; however, the water tariff of the respected towns has not yet been collected because of incompletion of the new water supply facilities</td></tr>
</table>

Source：Interview of Ground water study & development directorate team, MoWIE and OWERDB

3 Efficiency

Both the project cost and project period exceeded the plan (the ratios against the plan: 150% and 113%, respectively). Complex geological conditions along the Great Rift Valley and insufficient drilling skills and improper drilling preparation of the contractor caused quite long time to complete the planned boreholes. This resulted in the additional costs although the outputs were produced as planned. Therefore, the efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

There have been policies which support groundwater development: The "Water Resources Management (WRM) Policy", which has been applied since 1999, and a newly drafted WRM policy in 2020, which was being currently discussed at the time of ex-post evaluation. The Water Resources Management (WRM) Policy of 1999 includes eight policy objectives referring directly to groundwater. A newly drafted WRM policy in 2020 focuses on the occurrence, and distribution of groundwater, protection and minimum modification of groundwater recharge areas, and legislations, standards and guidelines for sustainable management of groundwater.

<Institutional Aspect>

MoWIE has been mandated to design policies and legal frameworks for the development of water resources including groundwater. OWERDB has supervised water and sewerage projects in Oromia Region. Their organizational settings for groundwater development are shown in Tables 2 and 3.

Table 2: Organizational setting for groundwater in MoWIE

Section	Roles and responsibilities	No. of personnel	
		Current	Plan
Groundwater study and development	Conducting extensive groundwater study,analysis and design	4	7
Groundwater project coordination	Technical and managerial coordination of different projects with respect to operation	1	5
Groundwater information and data base management	Managing groundwater archives	1	4
Total		6	16

Source: MoWIE report 2018

Table 3: Organizational setting for groundwater in OWERDB

Section	Roles and responsibilities	No. of personnel	
		Current	Plan
Hydrology and groundwater	Managing the regional water resource, particularly groundwater	2	6
Design and study	Conducting detail groundwater resources study and design	2	5
Project coordination	Coordinating all operational groundwater projects	2	5
Planning and monitoring	Supervising groundwater data as per plan	1	2
Total		7	18

Source: OWERDB report 2018

The total number of staff required in MoWIE and OWERDB was 34 but only 13 were in place at the time of ex-post evaluation. Both MoWIE and OWERDB have been making their efforts to secure the planned number of personnel.

<Technical Aspect>

Technical level of MoWIE and OWERDB has been sufficient, as senior and experienced staff have been still working in the offices.

<Financial Aspect>

The budget has been secured for the water supply project in the seven small towns. However, MoWIE has not secured the budget for updating the hydrogeological maps and data base.

<Evaluation Result>

There have been some problems observed in the institutional and financial aspects. Therefore, the sustainability of the effects from the project is fair.

5 Summary of the Evaluation

At the project completion, all the outputs were achieved as (i) the hydrogeological maps were completed in accordance with the evaluation of groundwater productivity, and (ii) construction plan of new water supply facilities and renewal plan of existing water supply facilities were developed by utilizing the hydrogeological maps. After the project was completed, seven small towns were selected in the project of new water supply facilities funded by the Government of Japan. However, some problems have been observed in terms of the effectiveness (utilization), and institutional and financial aspects of the sustainability, and both the project cost and project period exceeded the plan with respect to the efficiency.

Considering all of the above points, this project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

MoWIE and OWERDB are recommended to update the hydrogeological maps on a regular basis by their existing organizational framework (e.g. Ground water information and data base management section). Unless there is sufficient staff or budget, it is recommended to assign professionals or allocate required amount of budget for proper maintenance and utilization of this precious information. Such continuous efforts will make development of groundwater and water supply services faster and more economical.

Lessons Learned for JICA:

This project required a significant amount of time and cost compared with the initial plan for completion of the drilling investigations. The geological formations in the Great Rift Valley are so complex that sufficient amount of time, well-maintained drilling machines, and advanced operational skills are essential to excavate deep boreholes. The following groundwater development for water supply needs to be carefully planned with sufficient drilling work period and budget that enable well-experienced drilling operators to join the project and make adequate preparations. It is thus better to put a premium on technical experience and advancement rather than merely economical advantage in procurement of the drilling contractor for construction of deep wells in this region.

Preparatory field investigation (test borehole drilling) proposed and implemented as a result of this project

The test borehole developed in this project and an operation building constructed by USAID (behind) which are to be utilized for water supply to a nearby town