

Country Name	Project for Rural Water Supply, Sanitation and Livelihood Improvement through Dissemination of Rope Pumps (RPs) for Drinking Water
Federal Democratic Republic of Ethiopia	

I. Project Outline

Background	<p>In Ethiopia, the proportion of the rural population who had access to safe water was as low as 26%, while the average in Sub-Saharan African countries was 49% in 2010, thus the extension of water supply coverage was an urgent issue in the country. The government of Ethiopia introduced a concept of Self-supply as a way of improving water supply facilities by 100% self-investment of rural population and deployed plans and programs to materialize the concept. Recognizing the rope pump (RP) technology as one of the simple and low-cost technologies which contributed to Self-supply, the government aimed to increase the number of RPs at a large scale. However, there were some issues which hampered dissemination of RP technology such as inconsistency of RP qualities in the market and absence of financial support facilities for rural households. With that background, it was required for the government of Ethiopia to control the quality of RPs and create enabling environments to accelerate the dissemination of RPs.</p>										
Objectives of the Project	<p>Through standardization of specifications of RP for drinking water, formulation of strategies for quality control of RP, acceleration of promotion activities on RP, and continuous support for the practice of RP use, the project aimed at improvement of situation of water supply, sanitation, and livelihood in the project target areas, thereby contributing to improve water supply and sanitation conditions and livelihood in rural areas in the Southern Nations, Nationalities and Peoples' Region (SNNPR).</p> <ol style="list-style-type: none"> Overall Goal: Water supply and sanitation condition and livelihood in rural areas are improved through dissemination of RPs for drinking water in SNNPR. Project Purpose: Situation of water supply, sanitation, and livelihood are improved through dissemination of RPs for drinking water in project target areas. 										
Activities of the Project	<ol style="list-style-type: none"> Project Site: 10 kebeles (villages) in 4 woredas (districts) (Dale, Damot Pulasa, Meskan, Yirgachefe) of SNNPR Main Activities: <ol style="list-style-type: none"> standardization of specifications of RP for drinking water and installation technologies at the federal level, formulation of strategies for manufacturing and installation technologies, and operation and maintenance of RP for drinking water, acceleration of promotion activities on RP including hygiene education by the governmental and semi-governmental organizations in the target woredas, continuous support for practice of RP use including hygiene improvement by the village technicians and extension workers in the target areas, compilation of project knowledge and experiences as dissemination tools and acknowledged in SNNPR and other Regions. Inputs (to carry out above activities) <table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Japanese Side</td> <td style="width: 50%;">Ethiopian Side</td> </tr> <tr> <td>1) Experts: 7 persons</td> <td>1) Staff Allocated: 7 persons</td> </tr> <tr> <td>2) Trainees received in Japan: 12 persons</td> <td>2) Land and Facilities: project office</td> </tr> <tr> <td>3) Equipment: vehicles, PCs, printers, projectors, copy machines, etc.</td> <td>3) Local cost: cost for utility of offices (electricity, water and telephone)</td> </tr> </table> 			Japanese Side	Ethiopian Side	1) Experts: 7 persons	1) Staff Allocated: 7 persons	2) Trainees received in Japan: 12 persons	2) Land and Facilities: project office	3) Equipment: vehicles, PCs, printers, projectors, copy machines, etc.	3) Local cost: cost for utility of offices (electricity, water and telephone)
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Project Period	February 2013 - December 2016	Project Cost	(ex-ante) 516 million yen, (actual) 532 million yen								
Implementing Agency	<ul style="list-style-type: none"> Water Supply and Sanitation Directorate (WSSD), Ministry of Water and Energy (MoWE) (current Ministry of Water, Irrigation and Energy (MoWIE) reorganized in 2019) Water Resource Bureau (WRB) (current Water Resource and Irrigation Development Bureau (WRIDB) reorganized in 2019), SNNPR Woreda Water, Mine and Energy Offices, SNNPR 										
Cooperation Agency in Japan	Earth and Human Corporation										

II. Result of the Evaluation

<Special Perspectives Considered in the Ex-Post Evaluation>

- The field survey for this ex-post evaluation was conducted in 9 kebeles in 4 woredas in the target areas of the project. "Continuation status of project effects at the time of ex-post evaluation" was evaluated using the data collected by the field survey.
- Since no field survey was conducted outside of the target areas of the project due to corona virus pandemic and other reasons, the "status of achievement for Overall Goal at the time of ex-post evaluation" was evaluated by the qualitative data collected through the questionnaire to WRIDB of SNNPR.

1 Relevance

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

The government of Ethiopia developed the "Universal Access Plan" (UAP) in 2006 and committed itself to increase water supply coverage to 98% by 2015. The 5-year national development plan of "Growth and Transformation Plan 2010/11-2014/15" (GTP I) was announced in 2010 sustaining the target of UAP. In 2012, the government issued the "National Guidelines for Self-supply in Ethiopia" and

introduced the concept of “Self-supply” as one of the service modalities to achieve the target. Self-supply was defined as a way of improving water supply facilities by 100% self-investment or with partial subsidy for groups. The RP technology was recognized as one of the low-cost technologies which could be burdened by rural households. Therefore, the project was consistent with the development policies of Ethiopia at the time of ex-ante evaluation.

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

Through the technical cooperation projects assisted by the government of Japan including the “Groundwater Development and Water Supply Training Project Phase 2 and 3” (2005-2008, 2008-2013) and the “Water Sector Capacity Development Project in Southern Nations, Nationalities and People’s Region” (2007-2011), the skills and knowledge on training of RP manufacturing, constraints on installation and dissemination of RPs, and the needs of rural population for RPs were identified and accumulated. However, the national level standardization of specifications for manufacturing and installation of RPs was not progressed, the technical training for manufacturers and installers for consistent quality of RPs were not systematically conducted, and sales promotion of RPs for local households was not deployed by the government. Therefore, the project was consistent with the development needs of Ethiopia at the time of ex-ante evaluation.

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

In the “Country Assistance Policy for the Federal Democratic Republic of Ethiopia” (April 2012), agriculture/rural development focusing on a comprehensive cooperation including water resource development was designated as one of the four priority areas. Specifically, water supply projects in rural areas and development of human resources in the watering field were identified as high priority assistances for Ethiopia. Therefore, the project was consistent with the Japan’s ODA policy for Ethiopia at the time of ex-ante evaluation.

<Evaluation Result>

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

2 Effectiveness/Impact

<Status of Achievement of the Project Purpose at the time of Project Completion>

The Project Purpose was achieved at the time of project completion. The total number of 210 RPs were installed in 204 households in the target areas (Indicator 1), and all (100%) of 171 RP users surveyed by the project had knowledge about at least one method of hygiene and sanitation improvement (Indicator 2). As for the improvement of livelihood, out of 171 RP users surveyed, 159 users (93%) were satisfied with the RPs and 168 users (98.3%) felt that their livelihoods had improved by the installation of RPs (Indicator 3).

<Continuation Status of Project Effects at the time of Ex-post Evaluation>

The project effects have been continued at the time of ex-post evaluation. Households in the project target areas have purchased and installed RPs from their own motives after the completion of the project. Therefore, the total number of RPs in the areas must not decrease but increase to be at least over 210 at the time of project completion. The RPs have been generally well maintained by the RP users themselves and the fee-based maintenance service systems formulated and operated by the groups of village technicians and woreda water experts. According to the interviews with RP users in the target areas, most of them keep the knowledge about hygiene and sanitation improvement they learned in the project, and they have felt that their livelihoods had improved after the installation of RPs since they could get safe water, reduce water fetching time, and grow vegetables in their backyards by using RPs.

<Status of Achievement for Overall Goal at the time of Ex-post Evaluation>

The Overall Goal was achieved at the time of ex-post evaluation. 10,000 RPs were procured by WRIDB of SNNPR and more than 8,500 out of 10,000 were purchased by rural residents inside and outside of the project target areas at the time of ex-post evaluation. According to WRIDB, most of the users understood the importance of water point cleaning and fencing to keep animals away from the wells (Indicator 1), and they found that their livelihoods have improved being able to get safe water for drinking, domestic use, gardening, and irrigation by RPs (Indicator 2).

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

Various positive impacts made by RPs were observed at the time of ex-post evaluation. For example, safe water for drinking and domestic use has become easily available, women’s and children’s workload of water fetching has been eased, vegetable and horticulture production at backyards of houses has expanded or started. Besides, seeing the RPs installed by the project for demonstrations in the target communities, other local community members have been inspired and started purchasing RPs with the funds from microfinances. No negative impact on natural, social and economic environment has been observed.

<Evaluation Result>

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

Achievement of Project Purpose and Overall Goal

Aim	Indicators	Results
Project Purpose: Situation of water supply, sanitation and livelihood are improved through dissemination of RPs for Drinking Water in project target areas.	Indicator 1: The number of RP users who installed RPs by Self-Supply which are made in the project becomes 200.	Status of the Achievement: Achieved (continued) (Project Completion) The total number of 210 RPs were installed by Self-supply in 204 households in the target areas by the time of project completion. (Ex-post Evaluation) Data of the number of RP users in the project target areas at the time of ex-post evaluation was not available. According to the interviews with RP users and village technicians in the target areas, since local people keep purchasing and installing RPs, the total number of RPs in the areas must not decrease but increase to be at least over 210 at the time of project completion. And the RPs installed have been generally well maintained. RP users take care of the RPs by doing regular maintenance such as oiling and checking of rope tension, while using the village technicians’ technical services in minor repairs on fee basis.
	Indicator 2: The percentage of RP users who knows the	Status of the Achievement: Achieved (continued) (Project Completion)

	<p>methods of improving water hygiene and sanitation becomes more than 90% among the RP users.</p> <p>Indicator 3: The percentage of RP users who find that their livelihood is improving becomes more than 90%.</p>	<p>According to the end-line survey conducted by the project, all (100%) of 171 RP users surveyed had knowledge about at least one method of hygiene and sanitation improvement.</p> <p>RP users having knowledge about the methods</p> <table border="1" data-bbox="770 174 1513 342"> <thead> <tr> <th>Method</th> <th>RP users</th> <th>%</th> </tr> </thead> <tbody> <tr> <td>Water point cleaning</td> <td>171</td> <td>100%</td> </tr> <tr> <td>Keeping animals away</td> <td>169</td> <td>99%</td> </tr> <tr> <td>Fencing around the well</td> <td>102</td> <td>60%</td> </tr> <tr> <td>Household Water Treatment and Storage</td> <td>75</td> <td>44%</td> </tr> </tbody> </table> <p>(Ex-post Evaluation)</p> <p>According to the interviews conducted in the ex-post evaluation with 9 RP users in the target areas, 9 (100%) of them had knowledge about at least one method of hygiene and sanitation improvement.</p> <p>RP users having knowledge about the methods</p> <table border="1" data-bbox="770 504 1513 672"> <thead> <tr> <th>Method</th> <th>RP users</th> <th>%</th> </tr> </thead> <tbody> <tr> <td>Water point cleaning</td> <td>9</td> <td>100%</td> </tr> <tr> <td>Keeping animals away</td> <td>8</td> <td>90%</td> </tr> <tr> <td>Fencing around the well</td> <td>6</td> <td>70%</td> </tr> <tr> <td>Household Water Treatment and Storage</td> <td>6</td> <td>65%</td> </tr> </tbody> </table> <p>Status of the Achievement: Achieved (continued) (Project Completion)</p> <p>According to the monitoring conducted by the project, 125 (89%) out of 140 users answered that they felt their livelihoods had improved by RPs. In addition, according to the end-line survey conducted by the project, out of 171 RP users surveyed, 159 users (93%) were satisfied with the RPs, and 168 users (98.3%) felt that their livelihoods had improved due to RPs.</p> <p>(Ex-post Evaluation)</p> <p>According to the interviews with 9 RP users in the target areas, 8 RP users (90%) out of 9 felt that their livelihoods have improved in various ways after the installation of RPs. The improvement included safe water, less time for water fetching, coffee seedling nursery and back yard gardening for income generation.</p>	Method	RP users	%	Water point cleaning	171	100%	Keeping animals away	169	99%	Fencing around the well	102	60%	Household Water Treatment and Storage	75	44%	Method	RP users	%	Water point cleaning	9	100%	Keeping animals away	8	90%	Fencing around the well	6	70%	Household Water Treatment and Storage	6	65%
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<p>Overall Goal: Water supply and sanitation condition and livelihood in rural areas are improved through dissemination of RPs for Drinking Water in Southern nations, Nationalities and People's Region.</p>	<p>Indicator 1: The percentage of users who knows the methods of improving water hygiene and sanitation becomes more than 80% among the RP users.</p> <p>Indicator 2: The percentage of RP users who find that their livelihood is improving becomes more than 80%.</p>	<p>(Ex-post Evaluation) Achieved</p> <p>10,000 RPs were procured by WRIDB of SNNPR and delivered to zonal and woreda offices inside and outside of the project target areas. At the time of ex-post evaluation, more than 8,500 rope pumps were purchased by rural residents and installed by local installers or village technicians. According to the questionnaire survey on WRIDB, the necessity of water point cleaning and fencing to keep animals away from the wells is explained by installers to users at the time of installation. Therefore, although no quantitative data was available, most of the users must know the methods of water hygiene and sanitation. This procurement and dissemination activity of 10,000 RPs was conducted in parallel with the project, the project provided some technical and financial assistance.</p> <p>(Ex-post Evaluation) Achieved</p> <p>Though quantitative data was not available, according to the questionnaire survey on WRIDB, most of RP users found that their livelihoods have improved due to RPs. They can easily get safe water for drinking, domestic use, gardening, and irrigation.</p>																														

Source: Project Final Report (2016), questionnaire to and interview with WRIDB, RP users

3 Efficiency

Although the project period was within the plan (the ratio against the plan: 100%), the project cost slightly exceeded the plan (the ratio against the plan: 103%). The outputs were produced as originally planned by the end of the project period. Therefore, efficiency of the project is fair.

4 Sustainability

<Policy Aspect>

Succeeding the targets and strategies of GTP I, 100% national potable water supply coverage was aimed by the "Growth and Transformation Plan II 2015/16-2019/20" (GTP II) as well as by the "Ten Years Development Plan 2021-2030." As one of the strategies to achieve the target, GTP II and the Ten Years Plan focused on the strengthening of water facilities construction capacities of the public and private sectors including community organizations. In line with GTP II and Self-supply concept, the "Hidden Resource of Self-supply Guidelines" approved by MoWIE in 2019 outlined how to assess potential sites of water resources, create self-supply demands of rural people, provide technical and managerial supports for construction and operation of water supply facilities including family wells. Regarding the quality of RP, the standard specifications of RP developed by the project was approved by the Ethiopian Standards Agency (ESA) as the "National Standard ES3968: 2016, Rope Pumps" in April 2016.

<Institutional/Organizational Aspect>

WRIDB of SNNPR rearranged its departments related to rural water supply to enable a strategic and integrated approach for increasing the water supply coverage in the region. Reinforcing the new institutional setup, WRIDB recruited water engineers and assigned them as

self-supply experts in Woreda Water Offices to activate and manage the self-supply activities in kebeles. Because of this staffing, according to the WRIDB's focal persons of Self-supply, the number of staff has increased and is currently sufficient for their activities. As for financial institutions, the Omo Micro Finance Institute (OMFI) involved in the project has extended its services for woredas outside of the project target areas in SNNPR.

<Technical Aspect>

Water supply experts of WRIDB trained by the project have knowledge and skills about manufacturing, installation and quality inspection of RP and have applied them to the region-wide dissemination of 8,500 RPs in SNNPR. The experts involved in the project in the standardization of RP specification had monitored and inspected RP manufacturers. Although outflow of the knowledge and skills associated with the transfer and turnover of the experts has become a challenging issue, newly assigned staff members have conducted the monitoring and inspection depending on the manuals and guidelines prepared by the project. Since WRIDB ordered in a large quantity of 10,000 RPs for region-wide dissemination, it was a heavy burden for local manufactures and caused some quality defects of the products. According to the manufacturers, because they could not get enough amount of standardized materials in market, they came to compromise on quality of materials. Besides, unavailability of spare parts such as pistons, ropes, and PVC (polyvinyl chloride) pipes is another issue for the maintenance of RPs. The guidelines, manuals and handbooks developed by the project have been highly utilized in various training programs for federal, regional and zonal experts, instructors of the Technical and Vocational Education and Training College (TVETC), credit officers of OMFI, manufacturers, installers, and village technicians. In terms of human resource development, TVETC, which made a notable contribution to the project, keeps implementing the training and skill-certification tests for RP manufacturers, installers, and village technicians utilizing its existing acknowledged certification system of Certificate of Competency (COC).

<Financial Aspect>

The Bureau of Finance of SNNPR has allocated more than 10 million Birr per year to RP extension activities. In addition, the dissemination of 10,000 RPs has been supported by development partners including JICA, the International Water and Sanitation Centre (IRC)¹ and the Millennium Water Alliance (MWA)². According to OMFI credit officers, although the demand for loans for RPs has increased along with the dissemination of 10,000 RPs, repayment has been significantly delayed. This was probably due to the coexistence of different modalities for RP extension operated by WRIDB, the Bureau of Agriculture (BOA), and some NGOs. While WRIDB extended RPs under the concept of Self-supply which encourages 100% self-investment for water facilities, BOA and the NGOs promoted the use of RPs for agriculture with subsidies or at no charge. This situation confuses RP users and demotivate them to make loan repayments. BOA's provision of RPs with subsidies or at no charges was a temporary measure for severe drought in the region.

<Evaluation Result>

In light of the above, some problems have been observed in terms of the technical and financial aspects of the implementing agency. Therefore, the sustainability of the effectiveness through the project is fair.

5 Summary of the Evaluation

The Project Purpose was achieved by installing over 200 RPs, diffusing knowledge among RP users about water hygiene and sanitation methods, and improving the livelihoods of RP users in the target areas of the project. The Overall Goal was achieved by disseminating RPs region-wide and improving the livelihoods of RP users in SNNPR. As for sustainability, although some problems have been observed in terms of the technical and financial aspects, the strengthening of the institutional/organizational aspect has been progressed. As for efficiency, the project cost slightly exceeded the plan. Considering all of the above points, this project is evaluated to be satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing Agency:

- In order to improve supply of the spare parts in market, it is recommended that WRIDB with the support of MoWIE organizes discussions with the association of RP manufacturers, spare parts suppliers, village technicians, and other related agencies to find possible governmental interventions.
- In order to improve the situation of RP loan repayment by RP users, it is recommended that WRIDB organizes coordination meetings with BOA, NGOs involved, OMFI, and other related agencies to align their payment modalities in line with the national policy of Self-supply. It is also needed for the agencies to make unambiguous announcements to rural residents that the subsidy or grant for purchasing RPs is a temporary measure for severe drought.

Lessons Learned for JICA:

- Creating and adopting a unique RP credit system, the involvement of the micro finance institution was one of the major success factors of the project. However, repayment of loans by RP users has been delayed due to the coexistence of inconsistent modalities for RPs promotion by water sector and agriculture sector. As a contingency plan of a project, it is required for a technical cooperation project to draft a cross-sectoral consistent system design for any system construction, and comprehensive stakeholders' analysis is an indispensable prerequisite for such a system design.

¹ An international non-profit organization based in Holland active in water supply research and development to build resilient local and national WASH (water, sanitation, and hygiene) systems. (Source: website of IRC)

² A permanent and operational alliance based in the US working to bring safe drinking water, sanitation, and hygiene to the people in poor communities. (Source: website of MWA)



Housewives in Dale woreda using well water.
RP was provided by the project.



RP installed after the project in Meskan woreda.
It was purchased with the fund from micro-finance.