

Ex-Post Evaluation of Japanese Grant Aid Project
“The Project for Rural Water Supply in Mwanza and Mara Regions”

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0. Summary

The relevance of the project is high, because it is consistent with the priority areas of the development policy of Tanzania and with the assistance policies of Japan, and Tanzania's development needs are also high. Both the project cost and period were kept within the plan; therefore the efficiency of the project is high. The operational and effectiveness indicators has achieved the planned figures, and the beneficiary survey confirmed both an increase in the amount of water supply and an improvement of water quality, and the project has contributed to improvements of livelihoods in the project areas; thus the effectiveness and impact of the project is high. The operation and maintenance system has been established. However, although at the district level, there exists the number of staff who are able to respond breakdowns and guiding technical matters, they have not yet been providing financial or operational guidance, because a rapid increase of population growth made a strong water supply demand, and there are new plans to establish facilities in addition to the operation and management of existing water points¹. In relation to technical matters, there is a need for retraining of those in the water users' groups in charge of technical matters. With respect to finances, there is a budget from the Ministry of Water and a budget from the Prime Minister's Office that is directly allocated to the local governments. In recent years the domestic budget of the Ministry of Water has been on the rise. Foreign capital accounts for the greater part of the budget, and donor initiatives have also meant that foreign funding has also been increasing. While most of the water users' groups collect water usage fees, coping with the cost when large-scale repairs are needed remains a problem. Therefore, the sustainability of the project effect is fair.

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

1. Project Description



Project Location



Platform in Mhulya Village, Kwimba District, Mwanza Region

1.1 Background

The target Mwanza and Mara regions relatively enjoy an economical privileged

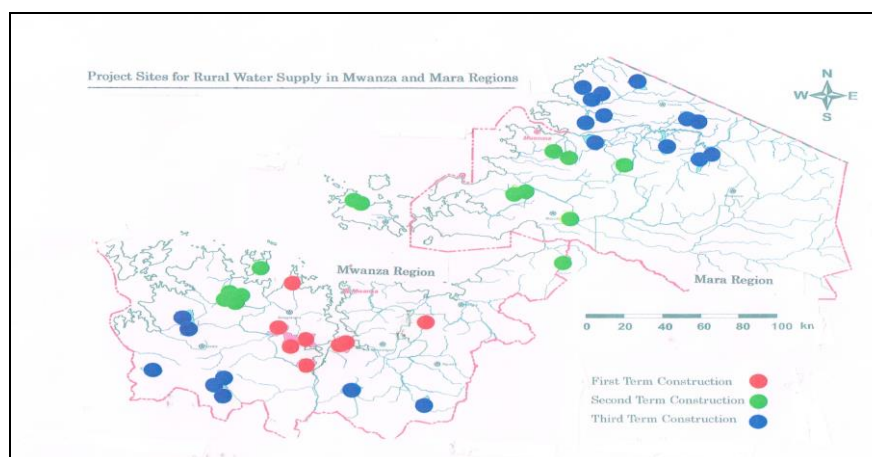
¹ The definition of water point is platforms of each deep well and water outlets of spring protection since the project has two different types of scheme, that is, deep well and spring protection.

environment, endowed with favorable fishery basins facing with Lake Victoria and suitable agricultural land with sufficient amount of rainfall. Especially Mwanza Region has been placed high in the GDP (Gross Domestic Production) ranking². However, the water facilities were built in 1960s - 70s in two regions and had been dilapidated. They had not been kept up pace with an increasing demand caused by the population growth. Thus JICA implemented the Development Study relating to the formulation of a water supply plan for these two regions from 2004 to 2006, and the project was implemented on the basis of the results of the Study.

1.2 Project Outline

The objective of the project is to increase water supply population and to provide safe water sustainably in a total of 44 villages (26 villages in Mwanza and 18 villages in Mara) by constructing water supply facilities, thereby contributing to improvements of living environments in the target areas.

| | |
|---|--|
| Grant Limit/Actual Grant Amount | 1,022 million yen / 697 million yen |
| Exchange of Notes Date/Grant Agreement Date | May 2009/ May 2009 |
| Implementing Agency | Ministry of Water, Rural Water Supply Division |
| Project Completion Date | December 2011 |
| Main Contractor | TONE ENGINEERING CORPORATION |
| Main Consultants | KOKUSAI KOGYO CO., LTD |
| Basic Design | The First Year: March 2008 The Second Year: November 2008 |
| Detailed Design | October 2009 |
| Related Project | Development Study "Water Supply Plan in Mwanza and Mara Regions" (2004 – 2006) |



NB) The construction was carried out in three terms.

(Source) Drawn up by the author from reference materials provided by JICA

Figure 1: Location of Target Villages of Project

² As for the real GDP values of the two regions, Mwanza ranks 2nd and Mara 14th of the 21 regions. (National Bureau of Statistics, National Accounts of Tanzania Mainland 2001-2013, Ministry of Finance, December 2014).

2. Outline of the Evaluation Study

2.1 External Evaluator

Noriyo Aoki, IC Net Limited

2.2 Duration of Evaluation Study

Duration of the Study: July 2014 – September 2015

Duration of the Field Study: October 18 - 31, 2014 and January 18 - 25, 2015

3. Results of the Evaluation (Overall Rating: A³)

3.1 Relevance (Rating: ③⁴)

3.1.1 Relevance to the Development Plan of Tanzania

The Tanzanian government cited an improvement of water supply rate as one of the prioritized areas for poverty elimination strategy in the Long-term Development Strategy “the National Strategy for Growth and Reduction of Poverty (NSGRP), 2005 - 2009” which was drawn up in 2004, based on “the Tanzania Development Vision 2025” (Vision 2025)⁵.

Tanzanian Ministry of Water and Irrigation at that time had formulated “The Long-term Water Sector Development Program (WSDP), 2006 - 2025” based on the National Strategy. In WSDP Phase I (2007 - 2013) this project was considered an integral part of the initiatives for improving a rural water supply rate.

At the time of the ex-post evaluation, WSDP Phase II had been drawn up with a view to achieving the goals of “The National Strategy for Growth and Reduction of Poverty II (NSGRP II) (2010 - 2014)”, with the aim of further developing capabilities relating to the maintenance and management of the water supply at the district and village level.

The National Development Plan called “Big Results Now (BRN)” formulated in the secretariat under the Cabinet Office of President, has been being promoted, and it is supposed to be implemented from 2013 to 2016. BRN includes a program for accelerating the achievement of development outcomes in the water supply sector. Since the National Development Plan is based on a Presidential decree, in order to promote rapid implementation of the Ministry of Water’s WSDP, the plan has been being implemented with target values set for each district.

In view of the above, the project is in conformity with the Tanzanian national development plan at the time of both planning and ex-post evaluation.

3.1.2 Relevance to the Development Needs of Tanzania

The rate of water supply in the target regions as of 2005 was 51% in Mwanza region and 45% in Mara region, below the national average of 52%. The expansion and improvement of water supply facilities had been lagged behind, with the traditional, unhygienic hand-dug wells or shallow wells accounting for 70% of the water supply in either region. This made it impossible for many people to have easy access to water, and the burden of work placed on women and children having to travel great distances to fetch water, and the incidence of water-borne diseases due to unhygienic water sources, had been pointed out. Insufficient understanding of hygiene on the part of residents led to problems, such as a lack of progress in the switch from unhygienic wells to safe water sources. In addition, population growth in the project area is high even in comparison with the national average⁶, and the demand for

³ A: Highly satisfactory; B: Satisfactory; C: Partially satisfactory; D: Unsatisfactory

⁴ ③: High; ②: Fair; ①: Low

⁵ It was published in 1999.

⁶ The population growth rate is Mwanza Region 3.0%, Mara region 2.5%: national population growth rate 2.7% (2012 Population Census).

water is high throughout the area⁷. Under these circumstances, the improvement of the water supply service in both regions was considered to be a matter of urgency.

After the project, with respect to the water supply facilities in the project areas, the switch is being made from the former unhygienic shallow wells to deep wells; in the project villages a greater proportion of the population has access to the water supply and the burden of work placed on women and children by the need to travel great distances to fetch water has been reduced. As described more detailed in the section of “Effectiveness”, while the demand for water continues to be high in the project area, the needs identified at the time of planning have been met; therefore the project is in conformity with development needs⁸.

3.1.3 Relevance to Japan’s ODA Policy

In relation to the water supply sector, the “Country Specific Assistance Plan for Tanzania (2008)” of the Government of Japan proposed the development of water supply-related infrastructure in areas where water resource development was difficult or where there was insufficient access to safe water and also proposed the promotion of enhanced capacity to plan, implement and manage a water supply program through the development of human resources at the local level.

In view of the above, the implementation of the project is in full conformity with the development policies and development needs of Tanzania, as well as with Japan’s assistance policy; therefore, its relevance is high.

3.2 Efficiency (Rating: ③)

3.2.1 Project Outputs

Table 1 shows the outputs (planned and actual) provided by the Japanese side in the project, and Table 2 shows the outputs (planned and actual) provided by the Tanzanian side.

Table 1: Outputs Provided by the Japanese Side (Planned and Actual)

| Item | Plan | Actual |
|-----------------|--|-------------------|
| Facility | 1. Drilling of new boreholes in 177 locations including installation of casings and screens | As planned. |
| | 2. Installation of hand pumps and construction of platforms in 182 locations ⁹ Concrete platform, drainage channel 3.0m | As planned. |
| | 3. Construction of spring protection in one location in one village Water pipeline, spring water intake pipe, water drawing point, two water storage tanks | As planned. |
| Soft Components | 1. Completion Report (by Tanzanian Side, Japanese Side) 2. Community Participatory Approach Training Report 3. Target Village Community Workshop Report 4. Report on Results of Workshop 5. VWC (NB1) Re-examination Minutes 6. Proposal on Operation and Maintenance Management System 7. Accounting Training Report (Implementing Organization and Person in Accounting) 8. Facility User’s Regulation 9. Manual on Break Down Countermeasures | Almost as planned |

⁷ Results of the field survey. Specifically, in Kwimba District, Misungwi District etc., in Mwanza Region, the design standard allowed for each well to be used by 250 people, but each well is actually used by 1,000 - 1,500 people.

⁸ The population of Mwanza is 2,770,000 and of the Mara Region, 1,740,000 (2012 Population Census). The total population of the project area is 4,510,000, but the water supply population targeted by project is 1.3% of the total.

⁹ Including five wells that met the well standards of the Development Study “Water Supply Plan in Mwanza and Mara Regions”.

| Item | Plan | Actual |
|------|---|--------|
| | 10. Planning of Monitoring 11. Report of Operation and Maintenance Management Activity Report 12. Technical Training Report (Implementing organization and person in charge of facility maintenance) 13. Hygiene Education Report 14. Guidance Visit Report | |

(Source) Basic Design Study Report, reference materials provided by JICA

NB1) VWC: Village Water Committee, consisting of members of the Village Committee elected by the people. In charge of village irrigation, management of water resource, etc.

Table 2: Outputs Provided by the Tanzanian Side (Planned and Actual) ¹⁰

| Plan | Actual |
|---|---|
| 1. Allocation of soft component personnel relating to O&M management and hygiene education (Regional Water Adviser (RWA) ^{NB1)} , District Water Engineer (DWE) ^{NB 2)} | As planned. |
| 2. Construction of drainage channels to discharge used water of water supply facility (Local residents) | As planned. |
| 3. Erection of fences around water facilities (Local residents) | As planned. |
| 4. Securing of the framework, personnel and budget needed to establish a water supply O&M management system (RWA, DWE) | As planned. |
| 5. Establishment of system to monitor the status of water supply O&M management | Almost as planned ¹¹ . |
| 6. Planting work on embankments around the platforms (Local residents) | Changed due to a design modification, to sandbags and crushed stone reinforced with cement by the contractor. |

NB1) The Regional Water Adviser (RWA) is the technical adviser at the regional level

NB2) In this report, 'District Water Engineer (DWE)' is used to refer to university graduate engineers, as well as technicians who are polytechnic or high-school graduates.

(Source) Basic Design Report, Interviews with related persons, materials provided by the implementing consultant.

The project was implemented almost as planned. The changes from the initial plan were the water intake method of spring protection works and the method of mounding for the platforms of the deep wells. The reasons for these changes, their effect and impact are shown in Table 3. The changes were in response to the on-site situation, and had the effect of enhancing the durability of the facilities. There was no impact on cost or the work period, and the changes are considered to be appropriate.

¹⁰ No information on cost expenditure relating to these outputs has been obtained from the implementing organization.

¹¹ Monitoring of the water supply situation was carried out at the same time as hygiene education in the form of Guide Visits as part of the soft component. (Reference materials provided by JICA) Periodical monitoring following completion of the project has not been carried out due to lack of staff in the DWE office (From the field study).

Table 3: Reasons for Design Changes, Their Effect and Impact

| Item | Changed Contents | Reason | Effect | Impact on Cost and Work Period |
|-------------------------------|---|--|--|---|
| Spring protection works | Design change to water intake method | Changed to a structure to collect water through enclosure in a concrete retaining wall. This is more efficient than the original design of collecting water through the insertion of a water collection pipe as it makes it possible to cope with seasonal changes in the amount of spring water and location of the spring. (Materials provided by JICA, RWA, DWE). | Having the water flow constantly downstream makes it possible to cope with seasonal changes in the quantity of water (DWE). | • There was no impact on the project period. The change in the pipe route due to the change in intake point and number of intakes reduced the cost by 21,000 yen. ¹² |
| Mounding around the platforms | Change from planting work carried out by local residents to protect the mounding around the platforms to cement-reinforced sandbag and crushed stone embankment built by the contractor | Reinforcement became necessary because during the rainy season rainwater flowing close to the drainage channel threatened to erode the mounded earth (Materials provided by JICA, RWA and DWE). | The concrete reinforcement increased stability around the platform and reduced the effects of rainwater, thus ensuring a longer service life for the platform (DWE). | • There was no impact on the project period or cost ¹³ . • It was hoped that resident participation in the planting work around the platforms would nurture a sense of community ownership, but residents desired the concrete reinforcement as this would enhance the durability of the facilities. From the long-term point of view, the change has made O&M by the community more sustainable (DWE). |

(Source) Materials provided by JICA, Interview results, Information provided by the implementing consultant.

As Table 4 indicates, for each activity in the soft component, while there were some differences from village to village in the number of participants and who participated, the activities were carried out almost as planned.

¹² Reference materials provided by JICA.

¹³ Because the work was carried out by the contractor within the contract amount, there was no impact on project cost. As for the project period, the hand pumps were installed after the curing period of the platform concrete (28 days), and the concrete-reinforced sandbag and crushed stone embankments were built during this curing period. Thus there was no impact on the project period (Information provided by the implementation consultant).

Table 4: How the Soft Component Activities were Carried Out, and Who Participated

(Activities carried out before construction of water supply facilities)¹⁴

| Plan | | | | Actual |
|----------------------------|--|----------------------------|-------------------------------------|-------------|
| Activity | Content | Modality of Implementation | Participants | |
| Community participation | Community Participation Training | Seminar, OJT | DWE RWA | As planned. |
| | Community Meeting | Village Meeting | Residents (Village Committee, etc.) | As planned. |
| Residents' Group Formation | VWC Discussion | Workshop | VWC | As planned. |
| | Establishment of O&M Management System | Workshop | VWC, WSUG NB1) | As planned. |

NB1) WSUG (Water Sanitation Users Group); WSUG is a maintenance group set up at each water point.*

* The definition of water point is platforms of each deep well and water outlets of spring protection since the project has two different types of scheme, that is, deep well and spring protection.

(Activities during and after construction of water supply facilities)

| Plan | | | | Actual |
|---------------------|---|---------------------------------|---------------------|---|
| Activity | Content | Modality of Implementation | Participants | |
| Management Training | Accounts Training (C/P) NB1) | Lecture Practical training | DWE RWA | As planned. |
| | Accounts Training (Village Accountant) | Lecture Practical training | VWC accountant | Almost as planned. The extent to which the content of the training was transmitted to the WSUC accountant or the extent to which training was carried out varied from village to village. |
| O&M Management Plan | O&M NB2) Formulation of Plan Circulation of regulations for use | Workshop OJT | Residents | As planned. Representatives of the Village Committee, VWC and WSUG received training. |
| | O&M Management Activities | Record of Monitoring Activities | Residents | As planned. Village Administrative Officials, Village Committee representatives etc., received training. In villages with large populations, training was carried out multiple times |
| Technical Training | Technical Training (C/P) Hand Pump Repair | Lecture Practical training | DWE RWA | As planned. |
| | Technical Training (Facility caretaker) Hand Pump Repair | Practical training | WSUG Caretaker NB3) | Almost as planned. The number of WSUG caretakers participating varied from village to village. |
| Hygiene Education | Hygiene Education | Seminar | Residents | As planned. Village Administrative Officials, VWC, Health Workers, WSUG etc., received training. |
| | Guide Visit | Guide Visit | Residents | Almost as planned. LC NB 4) DWE, Village representatives, Village Administrative Officials, Health workers etc., received training. |

NB1) C/P: Counterpart

NB2) O&M: Operation and Maintenance

NB3) Caretaker: WSUG member in charge of facility maintenance

NB4) LC: Local Consultant

(Source) Basic Design Report, Materials provided by JICA, Interviews in the field study.

¹⁴ Period up to completion of drilling of a well conforming to standards.

3.2.2 Project Inputs

3.2.2.1 Project Cost

While the planned project cost (E/N limit) was 1,022 million yen, the actual project cost was kept to 697 million yen (68% of planned cost) within the planned. The reason for the reduction in the project cost was the sharp appreciation of the yen. As was previously stated, the reduction in cost due to the scope change was minute. No information was obtained regarding expenditures by the Tanzanian side¹⁵.

In a comparison of the planned and actual inputs of the soft component, whereas the plan called for 4.0MM by the Japanese experts and 17.1MM by the local consultants, the actual input was 3.97MM by the Japanese experts and 24.5MM by the local consultants, an increase in the MM of the local consultants. The reason for this was that in the project villages there were other events taking place so that it was not possible for all those concerned to gather at one time and the need arose for activities to be carried out multiple times in the same village. This increased the input of the local consultants by 7.4 months¹⁶.

3.2.2.2 Project Period

The originally planned project period was 39 months, and the actual period was 35 months (two years nine months), from May 2009 (E/N Exchange) to January 2012 (89% of the planned period). It was within the plan. The primary cause for the project being completed in a shorter period than planned was that, while the tender for construction of the facilities etc., took longer than planned¹⁷, the construction schedule of the contractor that won the contract was four months shorter than the initially planned 29 months. Thus it was possible for the project period to be shortened by 4 months and the project completed within the planned period¹⁸.

Table 5: Comparison of Planned and Actual Project Period

| | Plan | Actual | Actual Period |
|------------------------------------|-----------|-----------|----------------------------------|
| Contract | 4 months | 2 months | March and May 2009 |
| Detail Design | | | |
| Up to Approval of Tender Documents | 6 months | 4 months | April - July 2009 |
| After Approval of Tender Documents | 4 months | 3 months | August, October to November 2009 |
| Facility Construction Tender | 1 month | 2 months | September, December 2009 |
| Construction Management | 29 months | 25 months | January 2010 - January 2012 |
| Period from E/N | 39 months | 35 months | |

(Source) Materials provided by JICA, Information provided by the implementing consultant.

In view of the above, both the project cost and period were within the plan; therefore, efficiency of the project is high.

3.3 Effectiveness (Rating: ③)

3.3.1 Quantitative Effects (Operational and Effect Indicators)

3.3.1.1 Water Supply Population

The planned target value of water supply population was set at 55,151 persons by the year 2020¹⁹. As shown in Table 6, at the time of the ex-post evaluation, the target values²⁰ of water supply population had already been achieved.

¹⁵ The information could not be obtained from the implementing agency.

¹⁶ Information provided by the implementing consultant.

¹⁷ The plan allowed for one month; it actually took two months.

¹⁸ The fact that the contractor used local equipment may be thought to have contributed to the shortening of the construction period (Information provided by the implementing consultant).

¹⁹ The target year was set at 2020 through discussions with the implementing organization. 2015 would have

Table 6: Main Effectiveness Indicators of the Project (Unit: persons)

| Indicator | Baseline Value | Target Value | Actual Value | Actual Value |
|-------------------------|----------------|---------------------------|--------------------|----------------------------------|
| | 2005 | 2020 | 2011 | 2014 |
| | Baseline | 15 years after completion | Year of Completion | 3 years after Project Completion |
| Water Supply Population | 9,401 | 55,151 | - | 57,352 |

Source: Basic Design Report, Materials provided by JICA, Information from DWE in each district

3.3.1.2 Operation Rate

The number of operating water points²¹ was 182 on completion of the project, but at the time of the evaluation it was 164 water points, an operating rate 91.2% of total water points.

Table 7: Operation Rate of Water Points (Unit: water points)

| Indicator | Target Value | Actual Value | Actual Value | Operation Rate |
|----------------------------|--------------------|--------------------|----------------------------------|----------------------------------|
| | 2011 | 2011 | 2014 | 2014 |
| | Year of Completion | Year of Completion | 3 years after Project Completion | 3 years after Project Completion |
| Mwanza Region Water Points | 110 | 110 | 104 | 94.5% |
| Mara Region Water Points | 72 | 72 | 60 | 83.3% |
| Average | | | | 91.2% |

(Source) Information collected from DWE office in each district

Table 8: Break-down Frequency of Water Point

| Frequency of Breakdown | Number of Water Points | Rate |
|---------------------------|------------------------|------|
| Never | 134 | 74% |
| Once a Year | 13 | 7% |
| Twice a Year | 22 | 12% |
| Three times a Year | 6 | 3% |
| Four or more times a Year | 7 | 4% |
| Total | 182 | 100% |

(Source) Information collected from DWE office in each district

Only 7% of water points have broken down more than three times a year²². Over 90% of the water points have broken down less than twice a year. 74% of the water points have never once broken down.

been too soon after completion, while if the target year had been set at 2025 in line with the "Tanzanian Development Vision 2025", it would be over a decade after completion, which would be overestimation. Therefore, the mid-point 2020 was taken as the target year. The planned population in each of the project villages in 2020 was calculated on the basis of the 2002 Population and Housing Census. The population with access to a water supply from an existing facility was not included in the target population.

²⁰ Approximately 85% of the Tanzanian population of 46.22 million (2012 Population Census) has access to a rural water supply (Information from the Ministry of Water, Rural Water Supply Division).

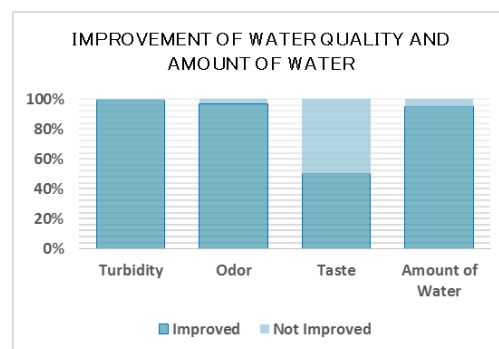
²¹ As the project includes two kinds of water supply facility, namely deep wells and spring-water protective works, each deep well platform and spring water protective works water supply port was defined as a water point.

²² The cause of breakdowns is the failure to replace U-seals and other worn parts, rods breakage, etc.

3.3.1.3 Water Quality

According to the results of the Beneficiary Survey, water quality has improved with respect to turbidity, odor and amount of water. As for taste, opinions differ even among those using the same deep well depending on the water source that was being used previously, and the level of improvement was 50%.

With regard to the water sources that were being used previously, please refer to Table 9.



(Source) Results of Beneficiary Survey
Figure 2: Improvement of Water Quality and Amount of Water

Table 9: Water Sources Used Previously (Multiple answers) (Unit: person)

| | Mwanza | Mara | Total | Rate |
|---|---------|---------|-------|-------|
| Shallow well (unprotected shallow well) | 46 (15) | 53 (21) | 99 | 80.4% |
| River or stream | 5 | 33 | 38 | 30.1% |
| Spring | 15 | 4 | 19 | 15.4% |
| Lake Victoria | 5 | 0 | 5 | 4.0% |

Note) Some users use multiple water resources.

(Source) Results of Beneficiary Survey; 123 responses.

3.3.1.4 Water Management Committee

Water Sanitation User Groups (WSUG) are established at 182 water points and user fees are being collected at 141 water points, or 77.5% of the total (see Table 10). According to interviews with end users and members of WSUG, the reasons for non-collection of user fees are that users are extremely reluctant to pay in cash, and up until now use of the shallow wells and springs has been free of charge.

Table 10: Water Management Committee (WSUG) (Unit: water point)

| Indicator | Target Value | Actual Value | Actual Value | Rate |
|-------------------------------------|--------------------|--------------------|----------------------------------|----------------------------------|
| | 2011 | 2011 | 2014 | 2014 |
| | Year of Completion | Year of Completion | 3 years after Project Completion | 3 years after Project Completion |
| Number of WSUG | 182 | 182 | 182 | 100% |
| Number of WSUG collecting user fees | 182 | 182 | 141 | 77.5% |

(Source) Basic Design Study Report, Materials provided by JICA, Reports from districts

3.3.2 Qualitative Effects (Other Effects)

3.3.2.1 Amount of Water

An adequate amount of water is now available even in the dry season, and 95% of respondents said that things were improved. Some of the project wells serve between 150 and 300 households²³, but so far there has been no case of any of the wells drying up in the dry season, as Mwanza Region and Mara Region are areas with an abundance of underground water²⁴.

²³ Kwimba and Misungwi Districts in Mwanza Region (Information from DWE office).

²⁴ Development Study Report, Information from local water supply experts.

3.3.2.2 Reduction in Time Spent Fetching Water

The project has reduced the time spent fetching water and the distances traveled. 68% replied that the time spent fetching water had been reduced by up to 30 minutes, and 30% responded that the time had been reduced by more than 30 minutes. While the distance to the water source had been reduced, because of the large number of users, at some water points users need to wait their turns to draw water.

All respondents in Table 11 who said that there was no change in the time spent fetching water said that having to wait to draw water meant that ultimately there was no difference in the time it took.

Table 11: Reduction in Time and Distance for Fetching Water

| | Reduced | Not Reduced |
|-----------------------------|---------|-------------|
| Distance for Fetching Water | 99% | 1% |
| Time Spent Fetching Water | 96% | 4% |

(Source) Results of Beneficiary Survey

Table 12: Reduction in Time

| Reduction in Time per Day | Rate |
|-------------------------------|------|
| Less than 30 minutes | 68% |
| Between 30 minutes and 1 hour | 10% |
| Between 1 and 2 hours | 10% |
| More than 2 hours | 10% |
| No change | 2% |
| Total | 100% |

(Source) Results of Beneficiary Survey

3.3.2.3 Switch in Water Sources

While there has been progress in the switch from the shallow wells with poor water quality to the deep wells of this project,²⁵ in the Beneficiary Survey 37% of respondents said that they did not know the difference between a shallow well and a deep well in terms of hygiene. The reason for this is probably that, despite activities to raise awareness of the difference as part of the soft component, the community representatives, household representatives and WSUG representatives who received guidance and instruction in the village meetings had failed to pass on the information to other stakeholders²⁶.

3.3.2.4 Change of Situation of Fetching Water

In this project a hand-operated pump called Afridev²⁷ is used. The water is fetched in a 20 l bucket carried to and fro between the platform and the household. In areas where water was drawn from an open-type shallow well prior to the project, accidents happened when a child drawing water would fall into the well, but after completion of the project, the opinion has been heard such accidents do not happen anymore²⁸.

3.3.2.5 Effect of Soft Component

The soft component activities, targeting 44 villages, 182 water points and 182 WSUGs at the village level, has been conducted in an extensive and scattered way. Consequently, the soft component generally made a good contribution to the clarification of the system of

²⁵ Results of interviews with the beneficiaries.

²⁶ Results of interviews with WSUG.

²⁷ A type of deep well hand pump. It can be procured in Tanzania and is a hand-operated pump that enables users to draw water easily.

²⁸ Results of interviews with the beneficiaries.

support for the WSUG and the DWE offices and of the roles of those involved; to the establishment of an O&M management system through community ownership; to the acquisition of the skills needed for O&M management; and to the enhancement of awareness and knowledge of health and hygiene. Enhanced effectiveness with limited inputs required the proper targeting of participants in seminars and training. For example, as part of the soft component activities, instruction in accounting targeted those responsible for accounts in the upper levels of the Village Committees; it was not instruction that was needed by members of WSUG, whose level of education was low. There were villages where the person who was responsible for accounts and had received training did not provide any substantial instruction to WSUG. It was hoped that what participants in the soft component had learned would be passed on to other stakeholders, but in some villages there was not sufficient sharing of information²⁹.

3.4 Impacts

3.4.1 Intended Impacts

3.4.1.1 Improvement of Livelihood Environment

The time saved in fetching water as a result of the project is being used by the beneficiaries for agricultural activities, housework and community activities.

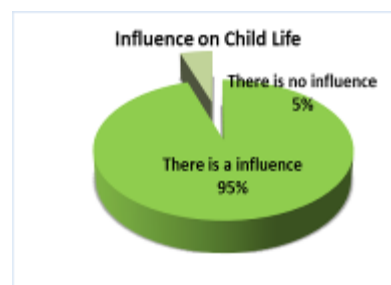
Table 13: Use of Time Saved in Fetching Water (Multiple answers)

| | Respondents (persons) | Rate |
|---|-----------------------|-------|
| Agricultural Activities | 113 | 91.9% |
| Non-Agricultural Income-generating Activities | 13 | 9.7% |
| Housework | 74 | 60.1% |
| Resting | 4 | 3.2% |
| Community Activities | 24 | 19.5% |
| Participating in Education/Training Course | 5 | 4.0% |

(Source) Results of Beneficiary Survey, 123 responses

3.4.1.2 Influence on Children Tasked with Fetching Water

There has been no change in the task of fetching water being a task assigned to children, but 95% of respondents said that the project had had an influence. Changes mentioned included the child now being able to go to school (49%)³⁰, spending more time studying (39%) etc.



(Source) Results of Beneficiary Survey
Figure 3: Influence on Child Life

Table 14: Changes in Child Life (Multiple answers)

| | Respondents (persons) | Rate |
|--|-----------------------|------|
| It is not necessary to go to fetch water | 3 | 2% |
| It makes able to go to school. | 60 | 49% |
| Learning time increases | 48 | 39% |
| It makes possible to help parents work more than before. | 26 | 11% |

(Source) Results of Beneficiary Survey, 123 responses

²⁹ Results of interviews with WSUG.

³⁰ The response "The child is now able to go to school" encompasses a wide range of meaning, including the child being able to go to school earlier than was previously the case.

3.4.1.3 Improvement in Hygiene Behavior with regard to Water Use

93% of respondents affirmed that they had a better awareness in relation to water use and hygiene. Concrete examples given were mostly changes in hygiene behavior arising from the increased use of water, such as washing clothes more often, more frequent body washing etc. Only a few respondents mentioned changes directly linked to a better awareness of hygiene³¹, such as more frequent hand washing (14%) or boiling water (4%)³². The need for more time spent in instruction and campaigns targeting whole villages to change hygienic concept and awareness is seen as the reason for the lack of frequent hand washing and boiling of water.

Table 15: Changes in Hygiene Behavior (Multiple answers)

| | Respondent (persons) | Rate |
|-----------------------------|-------------------------|------|
| Boiling of Water | 11 | 4% |
| Frequent Hand Washing | 38 | 14% |
| Increase in Washing Clothes | 51 | 42% |
| Frequent Body Washing | 49 | 40% |

(Source) Results of Beneficiary Survey, 123 responses

3.3.1.4 Reduction in Infectious Diarrhea and Other Water-borne Diseases

54% of respondents said that there had been a reduction in infectious water-borne diseases such as diarrhea³³. As shown in Table 9, one factor in the reduction is considered to be the fact that before the project, approximately 80% of the beneficiaries used shallow wells as their water sources.

3.4.2 Other Impacts

3.4.2.1 Impacts on the Natural Environment

With regard to the impact on the natural environment, there have been no incidences of ground subsidence, drying up of other water sources etc., due to pumping of water. The construction work caused no damage to the natural environment³⁴.

3.4.2.2 Land Acquisition and Resettlement

No land acquisition or resettlement was required in the execution of the project³⁵.

3.4.2.3 Impacts of Construction Work on Local Residents

Where the construction site was close to houses, construction time was limited, with no noisy work carried out in the early morning or during the time of the evening meal. The construction sites and material stockyards were patrolled, and while work was in progress the construction site was roped off to keep residents out. Care was taken to ensure the safety of local residents coming and going during boring, so that local residents were not affected by the work³⁶.

In view of the above, it can be seen that the planned effects and impacts, in terms of the increase in the water supply population, the improvement in the volume and quality of water, the reduction in the time spent fetching water, distance traveled to fetch water, etc., were

³¹ Results of interviews with village executive officers and local water supply experts.

³² According to the hygiene education manual, the boiling of water is encouraged because of the possibility of contamination after the water has been drawn. Advice is also given that containers should be washed, and their lids kept closed (Materials provided by JICA).

³³ Results of the beneficiary survey.

³⁴ DWE responses to the questionnaire.

³⁵ Results of interviews with RWA.

³⁶ Information provided by the implementing consultant.

achieved through the implementation of the project; therefore, the effectiveness of the project can be judged to be high.

3.5 Sustainability (Rating: ②)

3.5.1 Institutional Aspects of Operation and Maintenance

3.5.1.1 Implementing Agency

There has been no change in the organizational structure of the Rural Water Supply Division of the Ministry of Water from the time of the planning of the project. The Rural Water Supply Division is composed of three sections, the Technical Support Section, the Community Support Section and the Operation and Planning Support Section. Under the operation and maintenance monitoring system, the DWE submits a weekly report to RWA, and a quarterly report to RWA and the Ministry.

3.5.1.2 RWA Office

The RWA office is in the position of supervising the DWE office. The DWE office plays a main role in providing substantial technical and operational guidance to the villages³⁷.

3.5.1.3 DWE Office

The technicians and engineers³⁸ of the DWE office are assigned many duties relating to district water supply projects, including surveys, planning, implementation, reports, dealing with inspections, response to breakdowns at water points, etc. In particular, a strong demand for water due to the rapid growth in population means that they have a wide range of responsibilities since they must see not only to the operation and maintenance of existing water points, but to deal with plans for more new water points. Therefore, they are not able to verify the operational or financial situation of the O&M organization of each WSUG. Numbers differ from DWE office to DWE office, but 1-4 water engineers and 2-10 technicians are deployed at each office. The number of staff³⁹ at each office at the Ministry of Water was confirmed at the time of the ex-post evaluation, and with the exception of a few special cases staffing levels were sufficient for visits to each defective water point and the provision of technical instruction, but not sufficient to carry out such painstaking duties as providing instruction in the finances or running of the water points. At the time of the ex-post evaluation, as mentioned in 3.1.1, BRN has been being implemented and it was confirmed that over a period of 3 years (2013 - 2016) approximately additional 700 staff would be employed⁴⁰. While it was not possible to confirm mid- to long-term plans for staff recruitment to deal with the increased demand due to future population growth, the Ministry of Water is giving top priority to ensuring that staffing is sufficient to enable an immediate response to water points that have broken down⁴¹.

3.5.1.4 Water Sanitation User Groups in the Villages

At the time of planning, the idea was that the WSUG would report to the Village Executive Officer (VEO) and the Village Water Committee (VWC) who would then contact the DWE, but in fact many of the WSUGs directly contact the DWE when there is a breakdown. In such cases, since there is no reporting system within the village between the WSUG and high-ranking village officials, when there is a major breakdown, the WSUG cannot gain the understanding and cooperation of the high-ranking villagers.

³⁷ Material provided by JICA, Interview results.

³⁸ University graduates are classified as Engineers; graduates of polytechnics and high-school are classified as Technicians.

³⁹ The Ministry of Water has a criteria to increase staffing, that is, each DWE, at least, are able to respond to deal with the breakdown.

⁴⁰ As of February 2015, at the time of the second field survey: Information from the Ministry.

⁴¹ Information from interview with the Director of Rural Water Supply, Ministry of Water.

As shown in Figure 4, the Ministry of Water has changed its policy on village O&M systems from the time of planning, at the time of the Inspection and the time of the ex-post evaluation. The policy was changed with the aim of improving the system of communication and reporting within the village and formulating a more sustainable O&M system.

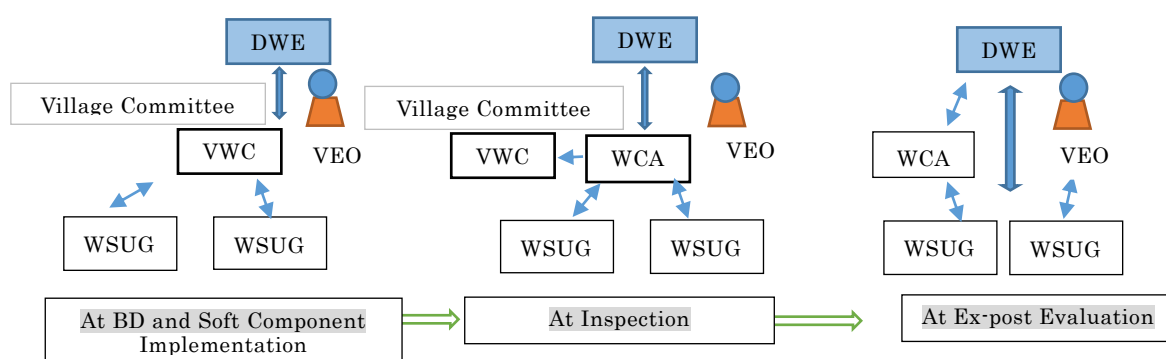
At the time of the Inspection, the O&M management system within the village was changed with the establishment of a Water Consumer Association (WCA) consisting of members elected from the WSUG; the WCA would report to the VWC, and to the Village Council (VC).

After that the government renewed the policy, the government has been promoting an establishment of Community-Owned Water Supply Organization (COWSO) as a legal-entity which would be developed from WSUG and WCA. The condition of establishment of COWSO is an appropriate selection of the leader, strengthening of organizational management and financial structure. Once a group is registered legally, in case of a large scale of repair, a subsidy for the cost of maintenance management repair will be disbursed⁴². At the ex-post evaluation, there is no case of COWSO which has been yet developed from the WSUGs of the project⁴³. Ministry of Water recommends the accumulated financial reserve be kept in the bank account for safekeeping at the time of the establishment of COWSO and so forth. As the situation of the village, villagers have to run a bicycle or pay transportation expenses to go to the financial institution to deposit and withdraw the money spending for the whole one day, which makes them quite a heavy burden for WSUG. Since one of the conditions to form COWSO is a requirement of depositing money in the bank, WSUG of the project do not want to become COWSO⁴⁴.

⁴² Water Supply and Sanitation Act 2009.

⁴³ Results of interviews with WSUG.

⁴⁴ Results of Interviews with WSUG.



Note) DWE: District Water Engineer
 VEO: Village Executive Officer
 WCA: Water Consumer Association
 VWC: Village Water Committee
 BD: Basic Design

Figure 4: Changes of the Reporting and Communication System within the Village

While an O&M system has been established and at the district level enough personnel have been appointed to deal with breakdowns and provide instruction. They are not yet to give detailed instruction in finances or management at each water point. At the village level, there is a need for the establishment of a functional system of communication and cooperation within the village.

3.5.2 Technical Aspects of Operation and Maintenance

In relation to the level of skills in O&M of the RWA and DWE at the time of the completion of the project, it was observed that they did have the skills needed to give instruction on the management of the water points and to carry out repairs⁴⁵.

The need for the WSUG caretakers to receive training on maintenance and repair was pointed out in the Inspection Survey, but no technical training has been carried out after the completion of the project⁴⁶.

Since it is only when there is a breakdown that the DWE visits a water point, the caretaker of a water point that breaks down frequently has the chance to receive instruction from the DWE⁴⁷.

Table 16 shows the duties of each person responsible for operation and maintenance.

Table 16: Duties relating to Operation and Maintenance

| Person in charge | Duty related to operation and maintenance |
|------------------|---|
| WSUG Caretaker | Able to make a judgement by raising the rod, and to make repairs. O&M including exchange of U-seals, etc. |
| DWE | O&M involving the raising, checking and repair of the pumping pipe |
| Contractor | O&M of the whole well when a pumping cylinder or pumping pipe has dropped |

(Source) Interviews with DWE

NB) Responsibilities regarding O&M may differ depending on the skill level of WSUG caretakers or DWE.

⁴⁵ Information provided by the implementing consultant.

⁴⁶ According to the local water supply expert, the technical training for caretakers in the soft component is an introductory explanation, and for the actual skills to be mastered, seven or so training sessions are needed.

⁴⁷ Results of interviews with DWE and WSUGs. At the Ministry of Water, instructional visits to water points suffering breakdowns are given priority. (Interview with the Director of Rural Water Supply Division in the Ministry of Water).

At the time of the Inspection as well as at the time of the ex-post evaluation, it was confirmed that a single supplier set high prices, and that the WSUG has been paying high prices for spare parts⁴⁸. In some remote areas of Mara Region, poor road conditions make access difficult, and a procurement of spare parts is difficult. In response to this situation, at the time of the ex-post evaluation, the Ministry of Water was planning to establish a procurement center at the district level; but this has been put on hold because of various disputes⁴⁹.

From the technical point of view, there is a need for the WSUG caretakers to receive training on skills and technique in relation to repair.

3.5.3 Financial Aspect of Operation and Maintenance

The budget of the Ministry of Water is divided into funding by the Tanzanian government (referred to below as domestic funding) and foreign aid funding. As Table 17 shows, in the past the expenditure of the Ministry of Water has on the rise, and domestic funding has also increased steadily. Overall, the actual expenditure of the Rural Water Supply Division has tended to increase in terms of both domestic funding and foreign funding. In either case however, there is a heavy dependency on foreign capital⁵⁰.

As for the future budget, as Table 18 shows, the budget of the Ministry of Water as a whole will peak in 2016/17, after which the rate of increase will slow down. The Rural Water Supply Division is assured a budget of around 170 billion Tsh⁵¹ from both domestic and foreign funding⁵².

With regard to the cost of the maintenance of the rural water supply, the Ministry of Water has, in order to improve the operation rate of the water points, committed to the allocation of funds for rural water supply maintenance costs. As shown in Table 18, rural water supply maintenance expenses are increasing year by year⁵³. While most of this funding comes from foreign fund, according to information from the Ministry of Water, the effective BRN campaign⁵⁴ has resulted in an increase in maintenance funding. WSDP Phase I (2007 – 2013), the initial phase of WSDP (2006 – 2025), has left a nationwide issue to be addressed, namely the sound establishment of the principle of payment by all water users; but the increase in the number of facilities has produced positive results such as the expansion of the population served by a water supply⁵⁵, following which in July 2014 WSDP II (2014 – 2019) commenced. Thanks to the influences of BRN, it is thought that donor support can probably be counted on⁵⁶.

⁴⁸ Results of interviews with DWE and WSUG.

⁴⁹ Results of interviews with related persons in the Ministry of Water. There is the argument that the intervention of a public organization might distort the market price for spare parts. Another reason for non-implementation of the plan is the lack of O&M capacity at the district level.

⁵⁰ There are two types of budget, one allocated to the Regional and Local Governments from the Prime Minister's Office, and the Ministry of Water's own budget. Since it is difficult to grasp the overall distribution, it was not possible to confirm any detailed information regarding the form of foreign funding allocated to the rural water supply (grant, loan, etc.).

⁵¹ As of April 7 2015, the exchange rate was 1 yen =0.06Tsh; 1US\$=1,782.80Tsh.

⁵² According to information from the Ministry of Water, this is added to the projected WSDP budget.

⁵³ From interviews with the Ministry of Water.

⁵⁴ BRN has carried out a nationwide campaign making full use of TV, radio, street banners, posters etc., and implemented proactive activities appealing for funding

⁵⁵ Ministry of Water, Water Sector Status Report 2014, October 2014.

⁵⁶ Ministry of Water, Water Sector Status Report 2014, October 2014. Information from the Ministry of Water.

Table 17: Changes in Actual Expenditure of the Ministry of Water (Unit: Million Tsh)

| | Expenditure of Ministry | | Expenditure of Rural Water Supply Division | |
|---------|-------------------------|-------------------------------|--|-----------------|
| | Domestic Funding | Foreign Funding ⁵⁷ | Domestic Funding | Foreign Funding |
| 2009/10 | 50,463 | 276,952 | 1,437 | 105,698 |
| 2010/11 | 41,565 | 221,627 | 14,084 | 91,217 |
| 2011/12 | 73,340 | 506,021 | 13,300 | 124,221 |
| 2012/13 | 140,015 | 383,179 | 19,606 | 128,717 |
| 2013/14 | 312,066 | 371,582 | 21,575 | 129,254 |

(Source) Ministry of Water reference materials

Table 18: Expected Budget for the Ministry of Water and Rural Water Supply Division^{NB} (Unit: Million Tsh)

| | Rural Water Supply Division Budget | Rural Water Supply Budget for O&M | Ministry of Water Budget |
|---------|------------------------------------|-----------------------------------|--------------------------|
| 2014/15 | 178,341 | 28,042 | 496,265 |
| 2015/16 | 171,879 | 45,451 | 867,547 |
| 2016/17 | 170,145 | 62,355 | 971,670 |
| 2017/18 | 168,186 | 73,976 | 646,067 |
| 2018/19 | 173,843 | 89,548 | 450,395 |

(Source) Ministry of Water reference materials

NB) Including foreign funding as well as domestic funding.

The DWE office receives from the district a budget the size of which has been approved by the Ministry of Water and the Ministry of Local Government⁵⁸. The decentralization brought the district government into the Ministry of Local Government under the Prime Minister's Office, and the budget allocated to the DWE office is determined on the basis of the budget directly allocated to the Ministry of Local Government from the Prime Minister's Office. The budget for this project was secured from the budgets of the district and the Ministry of Water, and according to interviews with the DWE, with the exception of some districts, sufficient staffing has been secured to enable visits to water points that have broken down.

At the village level, each WSUG determines how user fees are to be collected, and the amount. As for the system of subsidies and exemption system for households having difficulties paying, eligible households are identified at the discretion of the WSUG⁵⁹. 23% of WSUGs have not collected any user fees⁶⁰, and it was confirmed in the field survey that these WSUGs are hardly active at all. The WSUGs with unpaid charges receive no particular urging or instruction from the DWE, VC or VEO regarding the collection of fees or how to manage the money. The proportion of WSUGs collecting a fixed-quantity fee of around 20Tsh per 20ℓ bucket was 56%, while 21% of WSUGs collected a flat rate per household⁶¹. Some WSUGs make use of a system of management that combines the user

⁵⁷ In the case of WSDP, the principal donors in terms of size of grant are the International Development Agency (IDA) and the African Development Bank (AfDB).

⁵⁸ RWA offices of Mwanza Region and Mara Region.

⁵⁹ Information from WSUG and DWE.

⁶⁰ In some cases, since it is the people around the water point where the well was dug who become members of WSUG, the conditions for different people to work together and cooperate may not be in place. In other cases, there are other reasons people are unwilling to pay: if there is a water source or spring nearby that can be used for free, or if for some reason there is a lack of transparency in the way money is used or managed within the group, this affects the willingness to pay. (Report from the DWE offices).

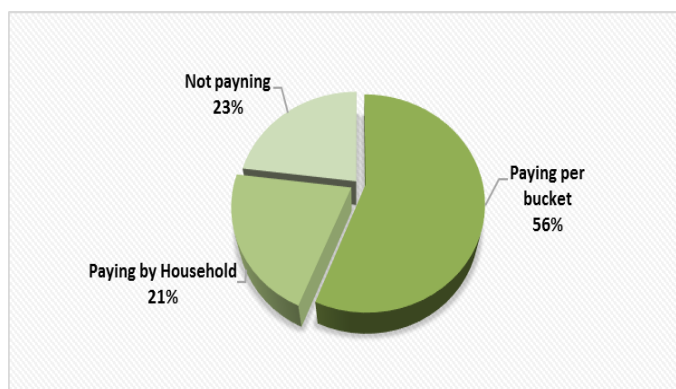
⁶¹ Report from DWE offices.

fees thus collected with the traditional aid structure⁶². In general, WSUGs that collect O&M fees at the village level keep some kind of record of their management of O&M costs⁶³.

Depositing the money in a bank account commenced at the time the facilities were handed over, but when the bank is located far from the village, since the account is temporarily closed if there are no regular transactions⁶⁴, most WSUGs that collect user fees keep the money in the village.

Figure 6 and Figure 7 show the amount of money put aside for maintenance costs, but in reality often the amounts are greater than shown here.

When the money is kept in the village, in many cases information about large amounts of savings are not made public for the sake of security⁶⁵, and in reality there are many WSUGs that have savings in excess of 1 million Tsh⁶⁶.



(Source) Report from DWE Offices

Figure 5: Methods of Payment to the WSUGs

⁶² Interviews with WSUG.

⁶³ Interviews with WSUG.

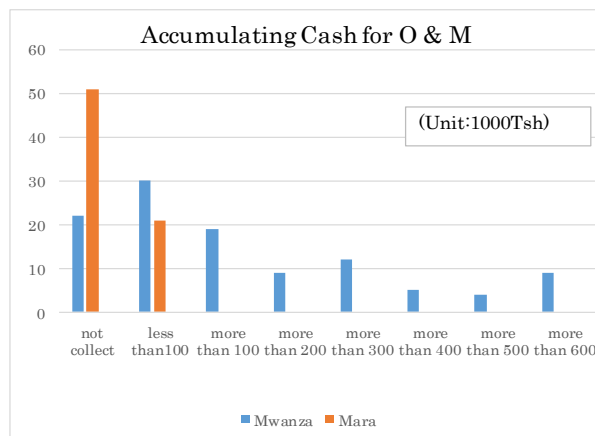
⁶⁴ Report from DWE offices. The Ministry of Water recommends depositing the money in a bank account for safekeeping, for the establishment of a COWSO, etc.

The situation in the villages is that depositing and withdrawing the money is a heavy burden for the WSUG; it takes a villager a whole day to cycle to the financial institution, or he may have to pay transportation expenses. Because the setting up of a COWSO requires the money to be deposited in the bank, the WSUGs have no desire to become COWSOs (From interviews with WSUGs).

⁶⁵ Information from a local water supply expert.

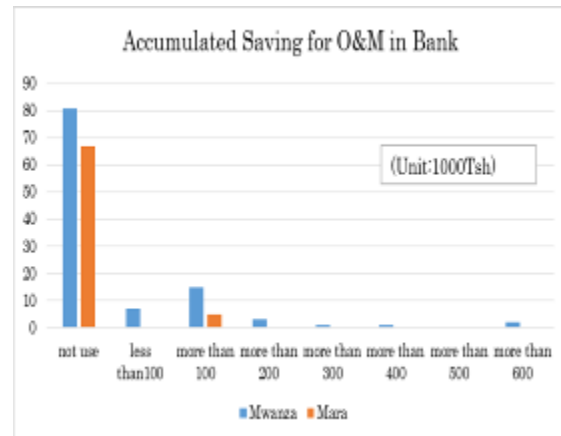
⁶⁶ From interviews with WSUGs. The percentage of WSUGs with more than 1 million Tsh in savings has not been confirmed, but in the case of fixed-quantity payment per bucket, at a rough calculation the annual amount collected per household comes to 36,500Tsh (20Tsh/bucket×5×365) supply. Assuming one water point is used by 50 households, the total amount is in excess of 1,820,000 Tsh per year.

In the case of a fixed-rate payment, the average user fee for one household is 2000Tsh per month, or 10,000Tsh per year per household. Assuming that each water point is used by 50 households, that comes to 500,000 Tsh. As 2 years have passed since the completion of the facilities, one million Tsh would have accumulated.



(Source) Report from DWE

Figure 6: WSUG Accumulating Cash for O&M



(Source) Report from DWE

Figure 7: WSUG Accumulating Saving Deposit in Bank for O&M

In financial terms, most of the Ministry of Water's overall budget for maintenance comes from donor funding, although the securing of a budget and the amount of expenditure from domestic funding also have been steadily increasing. The long-term implementation of WSDP and the current nationwide BRN campaign have made more funds available, which situation seems likely to continue. There is also the district budget that is allocated to the local government directly from the Prime Minister's Office.

Although almost 80% of WSUGs are collecting user fees, the problem remains of how to cope when large-scale repairs are necessary.

3.5.4 Current Status of Operation and Maintenance

With regard to the use of facilities and O&M status, information was collected from the DWE offices, and in the case of water points where there was a problem with operational status the situation was verified over the phone. In the case of sites where verification by means of a visit was possible, visits were made to the DWE offices so as to confirm the O&M management status. At the district level, guidance visit records, repair request forms and repair records are kept, but not at the WSUG level.

How the installation of fences at the water-drawing platforms and the issue of drainage around the platforms are dealt with varies from WSUG to WSUG. Overall, the 77% of WSUGs that are able to collect user fees have for the most part been carrying out O&M activities, and their O&M status is all in all good. WSUG that have carried out O&M activities developed their regulations for use of the facilities, and the users also abide by the regulations. In addition, a tendency was observed in the case of very active WSUGs for the regulations for use to be determined on their own initiative, through discussion. In concrete terms, they have on their own initiative strictly prohibited the wearing of shoes on the platform, determined times of use, deployed a guard during times of use, decided that the platform should be locked when not in use, and a night guard stationed⁶⁷. In cases where the state of management of the area around the platform is bad, DWE has given guidance when the site has been visited for a field survey, but it was confirmed that in some cases the instructions of the DWE were not followed⁶⁸.

⁶⁷ Results of interviews with WSUG.

⁶⁸ Results of interviews with DWE.

Although the maintenance management system has been established, the staff engineers at the district level are able to deal with the breakdown of the water point and instruct technical guidance, not only because there are plans to increase new water points, but also because they have to maintain existing water points due to a strong demand of the rapid increase of population. From a technical aspect, it is necessary for DWEs to carry out re-training of caretaker of WSUG. From a financial aspect, the budget allocation concerned with O&M in the Ministry of Water as a whole is also expected to be prioritized to disburse in the future. There are district budget directly allocated to local government from the Prime Minister Office. Although a foreign fund accounts for most of the funding for O&M, the recent BRN's national campaign has strengthening ensuring budget and the future five year's budget for WSDP II has also been able to be expected. Whereas most WSUGs have been collected user fees, an issue remains how to cope with a large-scale repair and so forth.

In light of the above, some minor problems have been observed in terms of the institutional, technical and financial aspects. Therefore sustainability of the project effect is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The relevance of the project is high, because it is consistent with the priority areas of the development policy of Tanzania and with the assistance policies of Japan, and Tanzania's development needs are also high. Both the project cost and period were kept within the plan; therefore the efficiency of the project is high. The operational and effectiveness indicators has achieved the planned figures, and the beneficiary survey confirmed both an increase in the amount of water supply and an improvement of water quality, and the project has contributed to improvements of livelihoods in the project areas; thus the effectiveness and impact of the project is high. The operation and maintenance system has been established. However, although at the district level, there exists the number of staff who are able to respond breakdowns and guiding technical matters, they have not yet been providing financial or operational guidance, because a rapid increase of population growth made a strong water supply demand, and there are new plans to establish facilities in addition to the operation and management of existing water points. In relation to technical matters, there is a need for retraining of those in the water users' groups in charge of technical matters. With respect to finances, there is a budget from the Ministry of Water and a budget from the Prime Minister's Office that is directly allocated to the local governments. In recent years the domestic budget of the Ministry of Water has been on the rise. Foreign capital accounts for the greater part of the budget, and donor initiatives have also meant that foreign funding has also been increasing. While most of the water users' groups collect water usage fees, coping with the cost when large-scale repairs are needed remains a problem. Therefore, the sustainability of the project effect is fair.

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

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

【Follow-up to WSUG by Staff of DWE Office】

The DWE officers do not have sufficient time to visit the sites, and at the time of the ex-post evaluation, they were visiting sites only when there was a breakdown, and at such times they were providing technical guidance in maintenance to the WSUG caretakers, because of the wide range of duties of the DWE with regard to the rural water supply.

The staff (engineer, technician and etc.) of the Rural Water Supply Division has been increased at a region and district level by the execution of the National Plan of BRN. For the sustained maintenance of facilities, hereafter, DWE shall perform site visits for WSUG which does not collect the accumulated user fees for repair. It is necessary to instruct the user fees collection matching to the present conditions of each WSUG, and on the same occasion a follow-up as much as possible is required so that the technical instruction to caretakers would be executed.

【Ownership of Water Supply Facilities by New Village Representatives following Local Government Elections】

The local administration elections were held at the end of October 2014, and the representatives who had received a series of instruction on activities for the maintenance of the water points in the framework of the soft component of the project were replaced. Basically, maintenance has been carried out at the level of the WSUG, and there are not any problems with regard to daily maintenance; In the case of a large scale of maintenance which requires the contractor's repair and needs a large amount of expenditure, it requires the understanding and cooperation of the upper levels of the village administration.

It is one of the solutions that DWE office requests for understanding of representative committee of the ward and village committee with regard to the supervision and management involving the maintenance of the water supply facilities of the project: the involvement of the village administration would resolve the financial issue of large scale repairs.

4.2.2 Recommendations to JICA

None.

4.3 Lessons Learned

【Clarification of the System of Communication and Supervision within the Village】

In the case of a water supply project for villages, the capability of maintenance and management by the ownership of community people greatly influences the sustainability. Therefore, the soft component shall clearly determine the targeted persons to match the purpose of training. The training needs to be carried out, for all the concerned stakeholders such as representatives, caretakers of WSUG, accountants in charge and so forth, so as to participate in the training with appropriate contents by all means,

When those due to be trained cannot attend, another person should attend instead, and when this happens it is necessary to clarify the mechanism by which information is shared in the village, and to ensure that know-how and skills are transmitted accurately. Specifically, at residents' meetings prior to the construction work and at the time of activities during the construction such as instruction in accounting, skills, hygiene etc., relating to maintenance, participants should be urged to make a list of the people to whom the information should be passed on after the training. It must be repeatedly stressed that participants have "a mission to pass on" skills and knowledge. It needs to be a duty for them after training to follow the list and to pass on the knowledge and know-how that needs to be passed on. In addition, a representative needs to be appointed to check that the information has been shared throughout the village.