

## Summary of Terminal Evaluation

1. Outline of the Project		
Country: Myanmar		Project title: The Project on Rural Water Supply Technology in the Central Dry Zone
Issue/Sector: Water resource development		Cooperation scheme: Technical cooperation
Division in charge: Global Environment Department		Total cost: 606 Million Japanese Yen
Period of Cooperation	November 2006 - October 2009	Partner Country's Implementing agencies: Department of Development Affairs (DDA)
		Supporting Organization in Japan:
		Related Cooperation: Grad aid assistance, Development Study
<p>1 Background of the Project</p> <p>The central dry zone of the Union of Myanmar (hereinafter referred to as “the Myanmar”) is a subtropical semi-arid zone. Annual rainfall in the zone is 400-800 millimeter and most of the rain is concentrated from May to October. The residents of many villages in the zone mainly depend on reservoirs where rain is collected for daily water use and when the water level of the reservoirs falls very low in the middle of the dry season, they have to go to wells several kilometers away to fetch water. To overcome such a situation, thousands of wells were formerly constructed by the Myanmar Government and international organizations. However, many of the wells constructed in the past have already been broken.</p> <p>The Government of Myanmar has planned and implemented various rural water supply projects, and one of the efforts is “A Ten Year Project for Rural Water Supply by Development Committees of Sagaing, Magway and Mandalay Divisions (From 2000-2001 to 2009-2010)”.</p> <p>Under these circumstances, the Government of Myanmar requested the Government of Japan to provide technical cooperation for further enhancing managerial and technical capacity of DDA staff. Based on the request of the Government of Myanmar, the Project on Rural Water Supply Technology in the Central Dry Zone (hereinafter referred to as “the Project”) has been implemented since November 2006, based on the Record of Discussions, signed on 7<sup>th</sup> September 2006, between the Japan International Cooperation Agency (hereinafter referred to as “JICA”) and the Government of the Union of Myanmar.</p> <p>1.2 Project Overview</p> <p>The technical cooperation on well construction, repair, operation and maintenance will be implemented to enhance the capacity of DDA on water supply for the people in central dry zone.</p> <p>(1) Overall goal: The number of villages in the Central Dry Zone with access to safe drinking water is increased.</p> <p>(2) Project purpose: Capacity for construction, repair and maintenance of water supply facilities in the Central Dry Zone is</p>		

strengthened.

(3) Outputs:

- 1) Advanced technology for construction of rural water supply facilities is transferred.
- 2) Advanced technology for rehabilitation of deep tube well is transferred.
- 3) Advanced techniques for maintenance and monitoring of water supply are transferred.

1.3 Input

Japanese side: 606 Million Yen in total

Experts: 74.12MM in 10 fields

Equipment: 278 Million Japanese Yen

Local cost: 31.14Million Japanese Yen

Trainees received in Japan: 9 counterparts (Short-term training)

Myanmar side:

Counterpart: 76 from DDA head office, Division offices and Township offices

Local Cost: Approximately 26Million Japanese Yen for materials for field work and construction of maintenance workshop in Nyaung U

2 Evaluation Team

Members of Evaluation Team	(1) Mr. Kazuo Sudo (Leader), Senior Advisor, Global Environment Department, JICA (2) Mr. Katsuhito Yoshida, Senior Advisor, Global Environment Department, JICA (3) Mr. Akio Endo, Water Resources Management Division I, Water Resources and Disaster Management Group, Global Environment Department, JICA (4) Mr. Kaneyasu Ida, Senior Consultant, Inter-works Co., Ltd	
Period of Evaluation	October 8 - 22, 2009	Type of Evaluation : Terminal evaluation

3 Results of Evaluation

3.1 Achievements of the Project

The main achievements of the Project in accordance with the Project Design Matrix are shown in the table below:

Indicators	Achievements
Project Purpose: Capacity for construction, repair and maintenance of water supply facilities is strengthened.	
Compilation of lessons learned and good practices	Nine types of printed material (textbook, manuals and data books) were produced. Good practices and lessons learned were incorporated in these materials.
Capacity development of the counterpart personnel	Fifty six counterparts were the primary target for capacity development. In June 2009, the Project conducted Terminal evaluation of the counterparts in 6 fields. Twenty four counterparts were graded as A (80%<), 39 counterparts were graded as B (60 - 80%) and 10 counterparts were graded as C (40 - 60%). (Some counterparts took tests in different fields, so the cumulative number of the counterparts evaluated was 73.) The Project also evaluated the performance of the three drilling teams. Their performances were graded as A.
4) Output 1: Advanced technology for construction of rural water supply facilities is transferred.	
More than 20 deep tube wells are drilled and over 16 thousand people can have access to safe drinking	The Project successfully constructed 20 deep tube wells, providing well water to 16,700 people (104% of the target population). Yet, 3 wells did not meet the required standards on water quality. Therefore, the population that had

water from these wells.	gained access to safe drinking water turned out to be 13,900 people (86.9% of the target population).
More than 34 DDA staff members receive technical training.	Six batches of Geophysical survey training were conducted, participated in by 48 counterparts in cumulative total. Five batches of training on drilling were conducted, participated in by 91 counterparts in cumulative total.
Output 2: Advanced technology for rehabilitation of deep tube well is transferred.	
More than 40 deep tube wells are rehabilitated and over 50 thousand people can have access to safe drinking water from these wells.	The project examined and diagnosed 40 targeted, existing deep tube wells. As a result, the Project rehabilitated 29 wells while 11 wells were diagnosed as unusable. Then, DDA replaced five of the eleven wells by drilling new wells. In terms of water supply, the Project achieved 85.9% of the target population of 50,000. Yet, 7 wells did not meet the required standards on water quality. Therefore, the population that had gained access to safe drinking water turned out to be 40,571 people (86.9% of the target population).
More than 37 DDA staff members receive technical training.	Five batches of training on rehabilitation were conducted, participated in by 57 counterparts in cumulative total. Five batches of training on drilling were conducted, participated in by 91 counterparts in cumulative total.
Output 3: Advanced techniques for maintenance and monitoring of water supply are transferred.	
Manuals for villagers and DDA staff on maintenance and monitoring	Two sets of technical manual and maintenance & monitoring manual were produced for Village Water Committee (VWC) as well as DDA staff.
More than 37 DDA staff members are trained through activities.	Four batches of training on maintenance and monitoring were conducted, participated in by 52 counterparts in cumulative total.
More than 120 villagers from VWCs receive technical training.	The Project organized a series of one day training to VWC executive members. The total number of the participants was 244.
Other achievements	
<ul style="list-style-type: none"> <li>■ The Project conducted baseline and end line surveys.</li> <li>■ The Project publicized its activities through the website and distribution of newsletter and calendar. The Project produced a poster to promote the use of well water. JICA The Project also received press tours organized by JICA Myanmar Office.</li> <li>■ Technology transfer seminars were organized three times, participated by DDA staff and VWC members.</li> </ul>	

### 3.2 Summary of Evaluation Results

#### (1) Relevance

The Project's relevance is judged as very high. The Government of Myanmar was implementing "A Ten Year Project for Rural Water Supply by Development Committees of Sagaing, Magway and Mandalay Divisions (2000/2001 - 2009/2010)". Advanced technology for drilling deep tube wells was necessary to fully achieve the goal. The need for technologies for rehabilitation of existing wells was also strongly felt by DDA as an increasing number of deep tube wells were constructed. The Project corresponded to the need of the villagers in the target areas where they suffered severe water shortage more than three months a year.

#### (2) Effectiveness

The Project's effectiveness is judged as high. The Project successfully constructed 20 and rehabilitated 29 deep tube wells. Almost all of the wells satisfied the water volume of 1500 Gallon per hour, which is sufficient to cover all the households in the average-sized village. As a result of the Project, 54,471 people gained access to safe drinking water. In accordance with the indicators of PDM, the Project achieved the target populations of 86.9% for new wells and 81.1% for rehabilitated wells. Neighboring villages in proximity to the rehabilitated wells also gained access to safe drinking water. Therefore, it is accepted that

the Project almost achieved the targeted numbers. Through practical training and trial and error in the field, the technical capacity of the counterparts has been significantly strengthened. Several counterparts are able to act as supervisors in respective fields. The maintenance workshop can function as the backstopping for other teams. Almost all the VWCs have been well developed in terms of organization, technical and administrative functions, financial management. This indicates good support functions of the maintenance and monitoring team. The Project has also helped DDA develop its organizational capacity in the following aspects:

Collaboration among the teams has been strengthened as they have learned the importance and merits of collaborating with other teams through OJT

DDA has understood the importance of rehabilitation and O&M and plans to increasingly invest in these activities and develop an organizational capacity of DDA for rehabilitation and maintenance workshop.

The Project raised the issue of ensuring water quality. DDA is now committed to check the water quality of newly constructed deep tube wells.

### (3) Efficiency

The Project's effectiveness is judged as very high. DDA assigned competent counterparts for the Project and they stationed in the project office during the stay of the expert team and exclusively engaged in the Project activities. They also continued their assigned work while the expert team was not in Myanmar. This arrangement is a factor facilitating project progress. Various equipment for construction of well facilities, repair and operation and maintenance was made in the maintenance workshop constructed by DDA along with this project. This contributed to the project to effectively deal with the field needs. The equipment provided in the earlier JICA projects (grant aid and development study projects) was properly managed and this made the Project possible to implement some of the project components at an earlier stage of the project period. The Japanese expert team was well experienced, composed of a consultant firm and a Japanese NGO. The Japanese NGO had been actively supporting the villages in the target area; therefore, it has good knowledge and understandings of local conditions, and rapport with the villagers. This helped the Project identify drilling sites and mobilize local support in an efficient manner. Delays in the arrival of some equipment slowed down project progress. However, The expert team and counterparts made good effort to make up for the delays by rearranging their work and continuously working while the expert team was not in Myanmar.

### (4) Impact

The Project's effectiveness is judged as very high. One of the anticipated attribution of the Project is "The number of villages in the central dry zone which does not have access to safe drinking water is reduced by half (by 2015, the target year of MDGs)". The advanced technologies to construct deep tube wells were vitally important to fully achieve the goal and the Project significantly contributed to helping DDA to achieve the target. In fact, the counterparts constructed 5 and rehabilitated 6 new deep tube wells without the Project's technical assistance.

The results of the baseline and end line surveys and interviews to villagers by the evaluation team show positive socio-economic impacts such as the reduced time for water fetching, reduction in the incidents of

diarrhea, dysentery and skin diseases, increased water consumption of the poor households. Some VWCs also started microfinance by lending out a portion of their savings.

The following is the other prospective impacts of the Project:

- The Project helped DDA increasingly pay attention to rehabilitation and O&M. It is expected that DDA would take measures to strengthen these activities.
- Many of the counterparts were sent from several divisions and township offices of DDA for the Project. They are expected to introduce transferred techniques and new practices to other DDA staff and their divisions and townships.
- The maintenance workshop is expected to improve its capacity and function as the central maintenance workshop for repair works of DDA equipment and machinery, as well as the backstopping for the rehabilitation of water supply facilities.
- The Project has developed learning materials and conducted achievement tests. Therefore, DDA can continuously organize training programs after the Project. There are more than 200 engineers in the three divisions who can be candidates for refresher training. Also, the achievement tests introduced by the Project can be used by DDA to assess and standardize the capacity of its engineers.

#### (5) Sustainability

The Project's effectiveness is judged as high. Rural water supply in central dry zone is one of the key strategies of the Government of Myanmar. Therefore, it is expected that policy support from DDA will be consistent. The organizational setting would be secured for geophysical survey, drilling and maintenance & monitoring teams. Yet, it is not clear for rehabilitation and maintenance workshop because DDA has not yet formulated plans for these fields of activities. The financial sustainability is positive as DDA is committed to secure and increase a budget for new construction and rehabilitation work. The availability of spare parts and instruments had been a concern for DDA. The Project helped DDA communicate with a distributor in Thailand. DDA is now able to procure spare parts through a trading company in Yangon from the distributor. The prospect of sustainability appears to be positive. Well ledger is made by DDA to collect well information and to make the construction/ repair plan of well facilities. Training program for DDA staff is required for distribution of technical capacity. The VWCs have the trained executive members in O&M, regularly monitoring their facilities and communicating with the DDA's township offices. Water fee collection rate is 100% for almost all the VWCs. The VWCs need to secure a budget for contingency such as the renewal of engine and spare parts.

#### 3.3 The positive factor for the project achievement

- Smooth and effective technical transfer was done based on DDA's high commitment such as funding and staff assignment.
- Project was implemented efficiently by utilizing knowledge, experience and equipments of Japan and Myanmar sides based on the past results of JICA project implementation.

### 3.4 The negative factor against the project achievement

- Although there was delay of procurement, the influence was small because DDA staffs continued their assigned work while the expert team was not in Myanmar
- The number of repaired wells did not reach the project index because some target wells were identified as “impossible to be repaired” by well diagnosis.

### 3.5 Conclusions

The relevance is judged as very high as the Project was clearly in line with the Government policy and meeting the strong needs of the local residents. The Project has achieved most of the targets and successfully produced a group of competent engineers and managers who can apply the transferred technologies. The Project was implemented efficiently by good efforts made by both sides regardless of the delayed delivery of some equipment and spare parts. The prospect of impact is high as the transferred technologies would greatly contribute to the realization of the Government policy of providing access to safe drinking water for all the villages. The overall sustainability of the transferred technologies is high, yet rehabilitation needs to be further reinforced as data collection and planning is still in progress. Most of the VWCs manage their facilities well, but they need to prepare for the future renewal of engine and other expenses. The Project has achieved its objectives; therefore, the evaluation team concludes that the Project could be terminated as scheduled.

### 3.6 Recommendations

The terminal evaluation team recommends that DDA should take the following actions to achieve the Project's overall goal :

- To introduce standard procedures to ensure the safety of well water and promote awareness among villagers
- To formulate an implementation plan to develop the maintenance workshop into the central maintenance workshop
- To follow up with the counterparts who were graded as B or C rank by the Terminal evaluation and encourage them to continuously upgrade their technical skills to reach A rank
- To regularly conduct refresher training program to upgrade technical capabilities of the DDA staff who did not participate in the Project
- To periodically organize training for newly elected members to maintain the technical and managerial capacity of the VWCs
- To develop an elaborate rehabilitation plan (including staff and budget allocation) and implement rehabilitation activities in a systematic way.

### 3.7 Lessons learned

- The expert team trained the counterparts and then the counterparts assisted the VWCs in developing their managerial and technical capacities. This approach proved to be effective to ensure the sustainability of the VWCs. To develop capacity of several organizations, considering the relationship

of related organizations is important for sustainability of the project.

- The target number of the deep tube wells to be rehabilitated was set before the commencement of the Project. The actual, possible number of the wells to be rehabilitated can be quantified only after diagnosis. To set an appropriate indicator, the Project should have assessed the possibility of rehabilitation at an earlier stage of the project duration and set an appropriate indicator. Experience and knowledge of BAJ is utilized for selecting target sites and building relationship with villagers. Cooperation with NGOs which have experiences in local areas will be beneficial to implement projects related to local culture.