Internal Ex-Post Evaluation for Technical Cooperation Project

conducted by Philippines Office/ July, 2014

Country Name	Sustainability Improvement of Renewable energy (RE) Development in Village Electrification
Philippines	

I. Project Outline

Background	In the Philippines, more than 6,200 barangays (villages) out of around 42,000 barangays in the country were not electrified because of the geographic conditions of the country, which is composed of more than 7,000 islands. Since the household electrification rate was still under 70%, about 20 million people lived without electricity. However, the most of the unelectrified villages are scattered in the mountainous areas or the islands with difficulty to connecting the transmission and distribution network of electricity. Therefore, the government of the Philippines planned electrification by stand-alone power source using renewable energy for the remote areas. Under the situation, it was essential to enhance sustainability of rural electrification by renewable energy through capacity development of implementing agencies.		
Objectives of the Project	1. Overall Goal: Village Electrification Program under Expanded Rural Electrification Program is successfully implemented. 2. Project Purpose: Capacity of the target group (note1) is enhanced to promote and manage sustainable RE based village electrification projects. 3. Assumed steps for achieving the project goals[1]: The project implements technical trainings and On-the-Job Training (OJTs) of Micro-Hydropower Plant (MHP), Photovoltaic (PV, solar power), Social Preparation (SP) and develops technical manuals and guidelines for RE village electrification projects. Through these activities, the project also implements model projects of RE village electrification as well as rehabilitation of the existing RE systems. By the trained persons, the project aims to enhance capacity of the implementing agencies and other related organizations in the Village Electrification Program. RE systems developed under the project and the RE village electrification projects are operated appropriately by the trained staff and thereby village electrification are promoted sustainably. (note 1) Renewable Energy Management Division/Department of Energy (DOE-REMD, currently Renewable Energy Management Bureau: REMB), Affiliated Non-conventional Energy Centers (ANECs, currently Affiliated Renewable Energy Centers: ARECs), Local Government Units (LGUs), Center for Micro-hydro Technology for Rural Electrification (CeMTRE).		
Activities of the project	1. Project site: Barangays in Antique Province, Kalinga Province, Leyte Province, Illoilo Province and Bohol Province, and the whole country. 2. Main activities: Technical trainings and OJTs for the staff of implementing and the related agencies, implementation of model projects and rehabilitation projects, development of technical manuals and guidelines for RE village electrification projects and others 3. Inputs (to carry out above activities) Japanese Side 1) Experts: 1 for long-term23 for short-term 2) Trainees received: 13 persons 3) Third-country training (Indonesia): 8 persons 4) Equipment: PCs, portable GPS, solar sensors, PV training kit, etc. Philippine Side 1) Staff allocated: 16 persons 2) Land and facilities: project offices		
Project Period	June 2004 to June 2009	Project Cost	440 million yen
Implementing Agency	Department of Energy (DOE)		
Cooperation Agency in Japan	Tokyo Electric Power Company		

[1] Reviewed at the time of the ex-post evaluation.

Related Projects (if any)	Japan's cooperation: The Study on the Institutional Building for DOE under a Restructured Philippine Electric Power Industry (TC, 2002-2003), Joint Study for More Effective and Comprehensive Philippine Energy Plan Formulation (TC, 2007-2008), Rural Electrification Utilizing Mini-/Micro Hydro Power (Dispatch of expert, 2001-2004)

II. Result of the Evaluation[2] [3]

1 Relevance

This project has been highly relevant with the Philippines' development policy to target "Barangay Electrification of 100%" as set in policy documents including Philippine Energy Plan (2001-2011) and Expanded Rural Electrification Program, development needs of "sufficient technical and management capacity of DOE and other related organizations to promote village electrification by RE, as well as Japan's ODA policy to support improvement of gaps including rural electrification at the time of both ex-ante and project completion. Therefore, relevance of this project is high.

2 Effectiveness/Impact

The project focuses on enhancement of technical capacity of REMB, CeMTRE, ARECs and LGUs to promote village level RE-based electrification. Although the achievement of the Project Purpose was not able to be verified by the indicators specified by the Project Design Matrix, at the time of ex-post evaluation, the achievement was able to be confirmed by the alternative indicators. As of 2012, 50 MHP projects out of 67 projects (75% of MHP projects), are operational. Among the rehabilitated MHPs, 1 MHP has been well-functioning with the Electronic Load Controller (ELC) to stabilize frequency and voltage. Other 5 MHPs have been functioning but having troubles of busting of bulbs and fluctuation of voltage because of the uncontrolled electricity load without using ELC. Therefore, the project purpose has been mostly achieved at the time of ex-post evaluation.

As for the overall goal, the electrification rate at barangay level reached 99% in 2011. 41,960 barangays in the country have access to electricity. At the household level, the electrification rate of 78.6%, covering 14 million households, has been still on the way to achieve the target of 90% for year 2017. The progress of rural electrification brought some positive changes in rural life such as more activities in evening time and less consumption of kerosene and gas. Also, the local governments gave priority on improvement of access roads connecting to villages as economic growth has moved at a much better momentum in the rural areas previously not electrified. It is important to note, however, that while the project has contributed to the overall goal of electrification at the barangay and household levels, there are other contributing factors that are not directly within the purview of the project such as the high level of prioritization on RE of the Philippine Government as pronounced in the Philippine Energy Plan for 2009-2030 and in the Renewable Energy Act (Republic Act No. 9513) that expedited the electrification in the countryside.

In addition, the project contributed to the enactment of "the Renewable Energy Act" (Republic Act No. 9513) and the scale up of the former DOE-REMD to the Renewable Energy Management Bureau with more staff and budget in order to promote rural electrification based on renewable energy. Furthermore, the personnel trained by the project have been involved in in-house trainings and some technical staff, who have directly been trained or were trained by DOE personnel involved in the project, have actually been tapped by JICA as instructors in RE-related training activities for other developing countries such as Solar PV Trainings in Bhutan[4], Zambia[5], and Japan[6]; a significant south-south cooperation initiative made possible by JICA support.

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

Achievement of project purpose and overall goal

Aim	Indicators	Results
(Project Purpose) Enhancement of capacity of the target group for promotion of sustainable RE based village electrification projects.	80% of RE systems developed under this project and BEP (Barangay Electrification Program) during the Project Period are operational appropriately.	(Project Completion) Not verifiable within the timeframe of the project period, the project purpose was verified by an alternative indicator "establishment of necessary coordination system between central and local level for provision of necessary knowledge, skills and technologies in order to promote the Village Electrification Program. It was achieved by the coordination system between DOE-REMD, ARECs and LGUs which was well established. (Ex-post Evaluation) Mostly achieved. As of 2012, 75 % of MHP projects are operational.[7]

[2] Constraint of Evaluation: (1) The project did not set indicators for overall goal. (2) Ministry of Agriculture has only part of the production data.

[3] This report is based on the information till October 2013 before Bohol Earthquake of October 15, 2013 and Typhoon Haiyan that have affected the project sites in November 2013.

[4] October 11-29, 2009; April 18 to May 15, 2010; and February 4-16, 2011.

[5] October-1-23, 2011 and October 3-28, 2012.

[6] February 7-11, 2011; January 16-21, 2012; November 13-17, 2012; and August 18-23, 2013.

[7] At the time of ex-post evaluation, the data concerning the overall operational status of PV and SV was not available. However, by the field survey of ex-post evaluation, it was verified that at least two PV sites (Alumar and Balugo) are operational.

	In case of trouble, 80% of troubled RE systems mentioned above are repaired or rehabilitated.	(Project completion) Not verifiable within the timeframe of the project. (Ex-post Evaluation) The project was able to repair/ rehabilitate nine existing projects (2PV and 7 MHPs)
(Overall goal) Successful implementation of Village Electrification Program under Expanded Rural Electrification Program	100% barangay level electrification is accomplished by year 2009.	(Ex-post Evaluation) Mostly achieved. As of 2011, 99% of barangays (41,960 out of 41,975) are electrified.
	90% of household level electrification is accomplished by year 2017.	(Ex-post Evaluation) Mostly achieved. As of 2011, 78.6% of households (14 million out of 18 million) are electrified.

Source：Project Completion Report, Interviews with counterparts

3 Efficiency

While the inputs were mostly appropriate for producing the outputs of the project, and the project period was as planed (ratio against the plan: 100%), the project cost was higher than the plan (ratio against the plan: 133%) primarily because of increase in the number of short-term experts dispatched and the third country training in Indonesia. Therefore, efficiency of the project is fair.

4 Sustainability

In the policy aspect, this project is endorsed by the “Renewable Energy Law” aiming at promotion of utilization of renewable energy, including renewable energy based rural electrification.

As for the institutional aspect, with the RE law, the new REMB is created with enhanced functions in the promotion of the development and utilization of RE resources, thus securing the organizational sustainability of REMB as an organization and consequently rural electrification as a mission. Consequently, the number of REMB personnel is increased, from only 25 in 2007 to 71 positions since 2009. While 2 out of the 4 ARECs did not renew their partnership with DOE after the completion of the project, a new partnership was established with a new AREC, bringing the total number of functioning ARECs to 3 at the time of ex-post evaluation. According to the DOE, this number would still be optimal for sustaining the activities as the new partner ARECs. There is no issue with proximity as the AREC that did not renew was replaced by another AREC which is nearby. The project has also brought about the creation of Barangay Power Association (BAPAs) in different areas which previously did not have electricity and most of them are located in the project sites. This expansion has continued even until the time of ex-post evaluation, in line with the expansion of electricity services in the communities.

Regarding the technical aspect, with more new staff joining the REMB, in-house trainings on RE policy and systems, MHP and PV technologies as well as social preparation became unavoidable. DOE reports that the project counterparts continue practicing acquired skills and techniques in line with the Household Electrification Program (HEP) which is a continuing program of DOE that is closely aligned with the completed project In addition, manuals and guidelines for RE projects developed by the project have been made available for use by REMB. REMB reports that these have been crucial inputs for their evaluation activities given their role in screening RE development projects by private developers seeking DOE endorsement. The project also trained BAPA members as “technicians” for PV and “operators” for MHP, working jointly with ARECs in their areas. Partnerships with ARECs would ensure that the "technicians" and "operators" would gain access to support from ARECs as needed.

In the financial aspect, the RE law effectively increased the financial resources of REMB, thus securing its financial sustainability. DOE being a government agency is bound to adhere to strict liquidation procedures. On the other hand, some partner ARECs were reported to have difficulty working on liquidation documentations, and as such, the only recourse for DOE was to hold the project-related funds until such time the ARECs are able to rectify their liquidation reports. At the grassroots level, some BAPAs encountered challenges in their operation and maintenance costs, and this is mainly due to the difficulty of collecting electricity fees. With the end goal of making these kinds of grassroots organizations self-sustaining, DOE (particularly the REMB) would be looking into finding ways to better empower BAPAs to enable them to eventually become financially self-sustaining organizations

As there are some problems in the financial aspects, the sustainability of this project effect is fair.

5 Summary of the Evaluation

This project has partially achieved the project purpose to enhance capacity for promotion of sustainable RE based village electrification projects since most of MHP projects developed under the project are operational and the troubled RE system were repaired or rehabilitated at the time of ex-post evaluation. In addition, the Village Electrification Program has been successfully implemented and attained 99% of the barangay level electrification, but the contribution of the project could not accurately be confirmed. As for sustainability, the renewable energy based rural electrification is endorsed by the “Renewable Energy Law” and the former DOE-REMD was scaled up to REMB with more staff and budget for promotion of rural electrification by using renewable energy. In addition, the project counterparts continue practicing acquired skills and techniques as well as using the manuals and guidelines developed by the project. On the other hand, some partner ARECs were reported to have difficulty working on liquidation documentations, and some BAPAs have financial difficulty caused by the limited collection of electricity fee. As for efficiency, the project cost was exceeded the plan due to the increase in the short-term experts dispatched and the third country training. In light of the above, the project is evaluated to be partially satisfactory.

III. Recommendations & Lessons Learned

Recommendations for Implementing agency:

- Due consideration by DOE should be provided in terms of ensuring partner agencies (ARECs) in order to be aware of government financial management standards (especially in liquidations).
- Partnering agencies (ARECs) should support the BAPAs concerning collecting fees and proper in-site financial management to ensure sustained financial capabilities of the sites.
- ARECs should also endeavor to further support BAPAs in terms of technical skills.

Lessons learned for JICA

- It is important to examine the appropriate steps for achieving the project goals when designing a project. The project indicates the necessity of i) setting the realistic project purpose and overall goal and measurable indicators, ii) considering causal link between overall goals and project purpose and iii) incorporation of appropriate activities such as development of manuals.

Solar Home System in Leyte

Load Controller