

Household Electrification Program in Samar Island: A Collaborative Undertaking

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Abstract: *This paper presents the extent of collaboration between the Department of Energy (DOE) and the University of Eastern Philippines (UEP) in the implementation of Department of Energy's Household Electrification Program (HEP) in the Samar Island. The program adopted an implementation model of: government installed and owned, empowered project management and self-maintained systems. UEP's collaborative undertakings with DOE in the implementation of HEP starts from the preparatory phase up to the post-installation phase. As of December 2016, the partnership was able to provide electricity thru use of Solar Home Systems (SHS) to 1,950 unenergized households in off-grid areas in the three provinces of the Samar Island in a span of five (5) years. As of December 2016, out of 1,950 installed PV-SHS, 1,886 or 96.72% were still functional. Likewise, a total of 24 Solar Power Associations (SoPAs) were organized in 22 beneficiary-barangays in the three provinces of Samar, of which 12 or 50% were already registered with concerned institutions. Series of capability building trainings were also conducted to capacitate officers and technicians to properly manage their SoPAs and efficiently serve their constituents.*

Key Words: *collaboration, electricity, power, off-grid, association, status*

1. INTRODUCTION:

Background

Household Electrification Program (HEP) is a continuation of the Barangay Electrification Program (BEP) that aims to attain a 90 % level household electrification by 2017. HEP involves the energization of off-grid households using mature renewable energy technologies such as photovoltaic solar home system (PV-SHS), photovoltaic Street light and micro-hydro systems (DOE, 2010).

Electricity is now considered as a driver of economy and also considered as a basic right of all citizens. Implementation of electrification projects to off-grid means providing its citizens a right to conducive living.

The World Bank has defined four different institutional models for implementing SHSs which are named after the financing mode (Cabraal, 1996): cash sales, consumer financing through dealers and commercial banks, leasing arrangements, and fee-for-service. Each institutional model has specific characteristics with respect to ownership, financing mechanisms, flows of products, services and money. In practice, the difference between consumer financing and leasing arrangement of solar home systems is not so large. Considering the past experiences of solar PV energization project previously implemented by the Philippine and other countries in the region, HEP employs different model of PV-SHS project implementation to attain project sustainability. It is generally accepted that an institutional model for successful implementation is country specific (Cabraal, 1996) (Cabraal, 2000). What model is most suitable for a country depends on the institutional, legal, socio-economic and cultural conditions in the country. Furthermore, a project can only be successful if every part of the institutional model is functioning properly: if one part is weak, the entire project may fail. As a consequence, it may take several projects to find a successful approach for a country.

The DOE's Renewable Energy Management Bureau (DOE-REMB) in partnership with the Affiliated Renewable Energy Centers (ARECs) strategically located in different state universities all throughout the country

implemented HEP with an implementation model of: Government Installed and owned-Self maintained/SOPA Technicians with assistance from UEP AREC. Beneficiaries were required to save money and deposited to the SOPA account intended for the replacement of the broken and unserviceable part of the PV-SHS. This model has similarity with the PV projects implemented in Namara, (Fiji), Ha'apa'I (Tonga) and Puka Puka (Cook Islands). Problems on the collections of the amount to be saved, intended for the replacement of very high cost battery was experienced. Minimal technical problems was experienced by the users on the systems of high quality (Wade, 2000).

The University of Eastern Philippines- Affiliated Renewable Energy Center for Samar Island as DOE's extension arm in the promotion of Renewable Energy (RE) technologies and systems utilization and HEP implementing partner took its serious participation in the energization of off-grid communities in the 3 provinces of Samar Island, from identification of beneficiaries, social preparation up to post system installations, monitoring, maintenance and evaluation. Hence, this documents highlights extent of collaborative undertaking of UEP in the implementation of HEP in the Samar Island to serve as reference for the planners of the future government projects to be implemented.

1.1 Objectives:

- a. To determine the extent of collaborative undertaking of the University of Eastern Philippines in the Department of Energy's Household Electrification Program implementation in the Samar Island;
- b. To assess the operational status of Installed PV-SHS in the Samar Island;
- c. To assess the financial and organizational status of organized Solar Power Associations in the Samar Island.

2. METHODOLOGY:

The UEP-AREC as DOE's implementing partner of the HEP employed techniques and implementation strategies that spurred achievement of the national goal of the program which is project sustainability. The project implementation, selection of barangay and household beneficiaries of the HEP projects followed the following checklist for project sustainability (M. Adil Khan, 2000).

- Relevance to the needs of the community. In order to solicit strong support from the community and its leaders, the Center sees to it that electrification is really a need in the area.
- Acceptability of the project. This was measured during the conduct of social preparation. Local executives and the barangay constituents were the source of information in determining the level of acceptability.
- Economic and financial viability. Target beneficiaries were also oriented on the economic and financial benefits of the project during social preparation.
- Environmental sustainability. Potential environmental impacts of the project were emphasized during the preparatory phase of the project.
- Implementation and monitoring strategy. Implementation and monitoring strategy were well planned and implemented with active participation of different stakeholders and other implementation partners.
- Post implementation operation and maintenance. Conducted series of capacity building to SOPA officers & technicians. Leadership, project management, financial management and technical training were conducted to come up with competent and responsible leaders who will provide services and assistance to member-beneficiaries. Continuing assistance on the technical, organization and financial aspects were made possible with the help of UEP-College of Engineering and UEP-College of Business Administration faculty and students.

In order to achieve the objectives of this paper, secondary data from UEP-AREC was utilized.

3. DISCUSSION OF RESULTS:

Legal Mandate and Structure of the Collaborative Undertaking

By virtue of a Memorandum of Agreement (MOA) forged between and by the Department of Energy (DOE) and the University of Eastern Philippines (UEP) in April 6, 1994 docketed as DOE Project No. SAA-144-94, UEP became the extension arm of DOE in the promotion and utilization of renewable energy technologies and systems in the Eastern Visayas Region particularly covering the three (3) provinces of the Samar Island, obliging the university to render extension service to DOE's program/project beneficiaries and clientele, hence, the establishment of the Affiliated Nonconventional Energy Center for Samar Island (UEP-ANEC) in the university, later renamed in 1998 to Affiliated Renewable Energy Center for Samar Island (UEP-AREC). The UEP-AREC since then provided the necessary assistance to all its projects.

The UEP-AREC is manned by faculty members of the university who are designated as Director, and Heads of Technical Division and Extension Division as university's counterpart on the operation of the Center aside from the provision of office and its needed utilities. Regular support staffs are hired on contractual basis charged to UEP-AREC annual regular funds provided by DOE. Included in the annual regular funds is Maintenance and Other Operating Expenses of the Center.

Periodically, during conduct of monitoring, evaluation and rectification activities, UEP-AREC staffs are assisted by faculty members and students of the College of Engineering's Department of Agricultural and Electrical Engineering. Furthermore, during summer term (2 months), UEP-CE's Electrical Engineering students as OJT conducts rectification of defective components of Solar Home Systems installed in the whole Samar island. On other hand, the faculty members and students of the College of Business Administration's Department of Accountancy, conducts financial management trainings for all the organized SoPAs.

UEP's Involvement in the HEP Implementation Process

University of Eastern Philippines-Affiliated Renewable Energy Center for Samar Island (UEP-AREC) mandated activities are guided by specific guidelines and prioritization criteria of the DOE for the implementation of HEP:

- a. The target barangay/sitio is duly certified by the concerned EC as unenergized and the EC has no grid extension plan for it within the next 5 years;
- b. Social acceptability of photovoltaic "solar" home systems (PV-SHS);
- c. Willingness of households to provide counterpart funding (Php 1,000 initial and monthly fee or contribution of Php 150-250);
- d. Accessibility of the barangay/sitio/barangay

UEP through its UEP-AREC provided extension services in the entire HEP implementation process consisting of four (4) phases:

A. Preparatory Phase

In consultation/coordination with Electricity Cooperatives, Provincial and Municipal Local Government Units in the area of coverage, the UEP-AREC identified unenergized off-grid sitios/barangays as potential beneficiaries of the HEP. After EC's certification as unenergized and the EC has no grid extension plan for the aforesaid areas within the next 5 years, the UEP-AREC in collaboration with the College of Engineering, the UEP-AREC Staff, faculty and students of the College of Engineering particularly from the Departments of Agricultural and Electrical Engineering, conducts Rapid Rural Appraisal (RRA) to determine whether electrification is one of the priority needs of the locality. The Center simultaneously conducted dialogues with the barangay officials as well as the barangay residents on the program concepts and eventual acceptance. Willingness to avail of its project packages by the residents, and their commitment of the required obligations and responsibilities in pursuit of becoming beneficiaries of the project is later taken.

UEP-AREC submits to DOE-REMB the list of sitios/barangays with the corresponding number of households willing to avail of the project packages of the program for inclusion in the HEP implementation schedule, including all required supporting documents,

B. Pre-installation Phase

Upon DOE's approval for inclusion in the HEP Implementation Schedule of the submitted list, UEP-AREC then visits LGUs whose areas are included in the approved sites for HEP implementation and conducts social preparation activities. Conducts on-site meetings/dialogues with the Barangay LGU officials at identified sites for the finalization of beneficiary listing.

In community assemblies, the Solar Power Association (SoPA) is organized and elected officers composed of its President, Vice President, Secretary, Treasurer, Auditor, PIO and Business Manager. Two or three local technicians are identified through endorsement from the SoPA.

SoPA is then registered with the Security and Exchange Commissions or with the Department of Labor and Employment for legalities of the associations.

Collection of initial counterpart commenced immediately as assurance of commitment of the beneficiaries to avail of the HEP project package and collected funds are deposited with depository banks through the assistance of UEP-AREC. Such collection is one of the primary requirements for SHS installation in household-beneficiaries' dwellings.

C. Installation Phase

c.1. Coordination of Stakeholders

Proper coordination with Local Government Units (LGUs) and SoPAs is done by the UEP-AREC prior to installation of the systems in the respective identified sites.

c.2. System delivery and installation

Purchase of project's hardware (system components) in bulk is done by the Department of Energy (DOE) -Main Office following the implementing guidelines as prescribed under Republic Act No. 9184, otherwise known as "Government Procurement Reform Act of

The winning bidder or Contractor, after technical inspection of all deliverables by the DOE-Main office, coordinates with the UEP-AREC on their delivery and installation schedules, and eventually delivers them as scheduled.

During the installation of the systems by the Contractor, UEP-AREC technical staff conducts inspection of installables and the supervision of the installation process.

c.3 Submission of Installation Completion Report

Upon completion of installation, Contractor submits Installation Completion Report to DOE with UEP-AREC confirming the completion of installation.

D. Post-installation Phase

d.1 Inspection of Completed Installation and Project Commissioning

DOE Inspectorate Team conducts inspection of all installations with the assistance of the UEP-AREC, and eventually commissioning of the project to the SoPAs after inspection.

d.2 Monitoring, Evaluation and Rectification

As part of the mandated activity of the UEP-AREC, a quarterly monitoring of all implemented HEP projects is undertaken. During the monitoring, when systems are evaluated to be not functional, rectification of the defective component is done. When replacement of defective component is not available, SoPAs would later inform UEP-AREC when the replacements are available so that if their SoPA technician is unable to do the rectification, UEP-AREC technical staff would then undertake the rectification.

d.3 Capability Building of Project Beneficiaries

In order to ensure the sustainability of the HEP projects, strengthening SoPA's capabilities to manage their projects is needed, thus, the center conducted series of capacity building training to SOPA officers and technicians in collaborations with the students and faculty members of the Colleges of Engineering and Business Administration strengthen the,. It was conducted through on-site trainings and in different strategic locations covering all established SoPAs in the Samar Island. Capacity building training consisted of solar PV home systems operation and maintenance, leadership, strategic planning and organizational management of SoPA officers. Technical training of SoPA local technicians as well as LGU's electricians were also conducted with the assistance of the faculty members and students of the College of Engineering particularly the departments of . Agricultural and Electrical Engineering.

Separate trainings on financial management were conducted with the assistance of the College of Business Administration's faculty and students to SOPA's key officials: the president, treasurer, secretary and auditor. This was done to provide and equip them with the required skills in the proper handling of the member-beneficiaries funds intended for the replacement and maintenance of their SHS; providing them with the needed skills in bookkeeping and accounting that will surely improve the financial management of the association's funds as well as established transparency from among its members.

HEP Implementation Status

This section presents the Household Electrification Projects implemented in the Samar Island through the collaborative effort of University of Eastern Philippines Affiliated Renewable Energy Center for Samar Island (UEP-AREC) and the Philippine Department of Energy (DOE).

The implementation of HEP in the Samar Island was undertaken in four (4) project tranches of inclusions: the first in HEP 2010 implemented in 2011, the second in HEP 2011 implemented in 2014, third in HEP 2012 implemented in 2013 and the fourth in HEP 2013 implemented in 2015.

Each household-beneficiary was provided with a PV Solar Home System package consisting of a 30Wp solar module, 33AH batter-6A controller integrated system with built-in radio transistor with AM/FM & MP3 configurations, cellular phone charging port & charger, and 4 pieces LED bulbs.

HEP 2010

Table 1 presents the number of unenergized barangays served by Household Electrification Project (HEP 2010) implemented in the Samar Island with corresponding number of beneficiaries served. As shown in the table, HEP 2010 were able to serve six (6) unenergized barangay from the municipalities of Biri and San Vicente, in the province of Northern Samar. A total of 167 household were provided with Solar Home System (SHS). The project

household-beneficiaries were provided with a PV Solar Home System package consisting of a 30Wp solar module, a 33Ah battery-6A controller integrated system with built-in radio transistor with AM/FM & MP3 configurations, cellular phone charging port & charger, and 4 pieces LED bulbs (3-3W & 1-1W).

Household Electrification Project (HEP 2010) was the first project implemented in the Samar Island on the second quarter of 2011 under the DOE’s HEP. This was made possible through the collaborative effort of the Department of Energy (DOE), University of Eastern Philippine- Affiliated Renewable Energy Center for Samar Island (UEP-AREC) and the Team Energy Foundation, Inc.

Total installed systems for HEP 2010 were 166 SHS. Currently, 132 units, which is 79.04% of the installed PV-SHS are operational. Nineteen (19) PV-SHS units were retrieved from users in Cogon, MacArthur due to non-replacement of damaged components that render it non-operational as no procurement of replacement parts was made due to negligence of member’s obligations and responsibilities with regards to monthly financial contributions, resulting to lack of maintenance funds.

Table 1. Status Report of HEP 2010 PV-SHS Installations as of Dec. 2016

<i>HEP 2010, Municipality of Biri and San Vicente, Northern Samar</i>				
<i>Sitio/Barangay/Municipality</i>	<i>HH Beneficiaries</i>	<i>Installed</i>	<i>Operational</i>	<i>Non-operational</i>
Punta, Brgy. Progress, Biri	17	17 SHS	16 SHS	1 SHS
Cogon, Brgy. MacArthur, Biri	39	39 SHS	19 SHS	20 SHS
Cawayan, Brgy. Kauswagan, Biri	33	33 SHS	25 SHS	8 SHS
<i>Total</i>	89	89 SHS	60 SHS (67.42%)	29 SHS
Cabil-isan, Brgy. Punta, San Vicente	13	13 SHS	13 SHS	
Labangbaybay, Brgy. Punta & Cabangcalan, Brgy. Destacado, San Vicente	29	29 SHS	25 SHS	4 SHS
Langka, Brgy. Tarnate, San Vicente	36	36 SHS	33 SHS	3 SHS
<i>Total</i>	78	78 SHS	71 SHS (91.02%)	7 SHS
Grand Total	167	167 SHS	132SHS (79.04%)	35SHS

HEP 2011

Household Electrification Project 2011 was the third project implemented by the program in the Samar Island. This was implemented from 1st quarter to 3rd quarter of the year 2014. Technicality issues at the national level resulted to the delay in the implementation of the HEP 2011.

Table 2 reflects that a total of 1087 units of 30 watts Solar PV Home System were distributed in the 3 provinces of the Samar Island. Northern Samar was able to receive 445 units, mostly in the municipality of Biri and 32 units to Brgy. Sangputan in municipality of San Vicente. The province of Eastern Samar was able to receive 375 units scatteredly distributed in four (4) unenergized barangays in the municipalities of Gen. McArthur, Arteche, Quinapundan and Oras. Likewise, the province of Western Samar was able to receive 267 units in the remotest and unenergized barangays of the City of Calbayog.

Based on the data gathered during the 2016 4th quarter period monitoring and evaluation, of the 1087 SHS units of HEP 2011 installed throughout the three provinces of Samar, 1061 units, which is 97.61% are still operational. The non-operational units can be still operable should defective components are replaced. Recently reported defects or damages sustained due to typhoon Nona in Biri, Northern Samar were already replaced through procurement of replacement components taken from their maintenance funds.

Table 2. Status Report of HEP 2011 PV-SHS Installations as of Dec. 2016

<i>HEP 2011, Province of Eastern, Western and Northern Samar</i>				
<i>Province/Barangay /Municipality</i>	<i>HH Beneficiaries</i>	<i>Installed</i>	<i>Operational</i>	<i>Non-operational</i>
<i>Northern Samar</i>				
San Antonio, Biri	177	177 SHS	177 SHS	
Kauswagan, Biri	91	91 SHS	91 SHS	
MacArthur, Biri	38	38 SHS	36 SHS	2 SHS
San Pedro, Biri	107	107 SHS	107 SHS	
Sangputan, San Vicente	32	32 SHS	32 SHS	
<i>Total</i>	445	445 SHS	443 SHS (99.55%)	2 SHS
<i>Eastern Samar</i>				

Sta. Monica, Oras	220	220 SHS	211 SHS	9 SHS
Concepcion, Arteche	71	71 SHS	66 SHS	5 SHS
Macapagal, MacArthur	25	25 SHS	24 SHS	1 SHS
Anislag, Quinapondan	59	59 SHS	59 SHS	
<i>Total</i>	375	375 SHS	360 SHS (96.0%)	15 SHS
Western Samar				
Higasaan, Calbayog City	46	46 SHS	44 SHS	2 SHS
Mabini-1, Calbayog City	65	65 SHS	64 SHS	1 SHS
Pinamorotan, Calbayog City	60	60 SHS	58 SHS	2 SHS
Olera, Calbayog City	51	51 SHS	49 SHS	2 SHS
San Antonio, Calbayog City	45	45 SHS	44 SHS	1 SHS
<i>Total</i>	267	267 SHS	259 SHS (97.0%)	8 SHS
Grand Total	1,087	1,087 SHS	1,061 SHS (97.61%)	26 SHS

HEP 2012

Household Electrification Project 2012 was the second project implemented by the Household Electrification Program in the Island of Samar. A total of 417 units of Solar Home System were distributed to the beneficiaries through the organized Solar Power Associations (SOPA). Solar power associations were organized by the UEP-AREC to manage the organizational, technical and financial aspects of the project to achieve sustainable operation of Solar PV System. This was implemented and installed on the 2nd quarter of 2013.

As shown in table 3, the project was able to provide Solar PV Home System to 414 households in the unenergized islets of Brgy. Tarnate, Brgy. Sangputan and Brgy. Maragat in the municipality San Vicente Northern Samar. Currently, 100% of the 414 PV-SHS, 6 PV Communal and 6 PV Streetlights installed for HEP 2012 in San Vicente, Northern Samar are still operational.

Table 3. Status Report of HEP 2012 PV-SHS Installations as of Dec. 2016

<i>HEP 2012, Municipality of San Vicente, Northern Samar</i>				
Barangay	HH Beneficiaries	Installed	Operational	Non-operational
Sangputan	131	131 SHS	131SHS	
Maragat	86	86 SHS	86 SHS	
Tarnate	197	197 SHS	197 SHS	
<i>Total</i>	414	414 SHS	414 SHS (100%)	

HEP 2013

The UEP-AREC was able to implement Household Electrification project 2013 to 282 unenergized households in the province of Northern and Eastern Samar. The Victory Island in Guiuan was able to receive 137 units of SHS and 145 units for the remaining unenergized households in the San Vicente, Northern Samar. The project was implemented on the 1st quarter of year 2015.

Presently, 279 units, which is 98.94% of the installed PV-SHS are still operational and in good condition.

Table 4. Status Report of HEP 2013 PV-SHS Installations as of Dec. 2016

<i>HEP 2013, Municipality of San Vicente, N. Samar & Guiuan, E. Samar</i>				
Province/Barangay/ Municipality	HH Beneficiaries	Installed	Operational	Non-operational
Northern Samar				
Tarnate, San Vicente	33	33 SHS	33 SHS	
Sila, San Vicente	63	63 SHS	62 SHS	1 SHS(burned)
Maragat, San Vicente	49	49 SHS	49 SHS	
<i>Total</i>	145	145 SHS	144 SHS (99.31%)	1 SHS

<i>Eastern Samar</i>				
Victory Is., Guiuan	137	137SHS	135 SHS	2 SHS
<i>Total</i>	137	137 SHS	135 SHS (98.54%)	2 SHS
Grand Total	282	282 SHS	279 SHS (98.94%)	

Table 5 presents the summary of the number of unenergized barangay and households served by the Household Electrification Program in Samar Island. The DOE & UEP-AREC was able to serve 1,130 household covered by 10 barangays in the province of Northern Samar, 5 barangays with 507 households in Eastern Samar and 5 barangays with 267 households in the province of Northern Samar.

The barangay-beneficiaries were able to receive street lights and communal 80 watts Solar PV systems installed in their Barangay Health Center and Barangay Hall.

Table 5. Summary of the number of barangay & beneficiaries served by Household Electrification Project in Samar Island as of Dec. 2016

Province	Number of Barangay Served	No. of HEP/Beneficiaries
Eastern Samar	6	512
Northern Samar	11	1,171
Western Samar	5	267
TOTAL	22	1,950

Operational Status of the Installed PV System as of December 2016

Table 6 presents the operational status of the Solar PV Homes systems installed in different unenergized barangays of Samar provinces under Household Electrification Projects 2010, 2011, 2012 and 2013.

Out of 1,950 PV-SHS installed, 1,886 PV-SHS or 96.7% are operational. Among the HEP project implementation batches, HEP 2012 had the highest operational units of 100.0%, followed by HEP 2013 of 98.9%, HEP 2011 of 97.6% and HEP 2010 of 79.5%.

Among the 22 barangays installed with PV-SHS, 10 barangays have 100% operational units out of the actual installed units in their areas are still operational since the time of installation.

Table 6 reflects that those implemented under HEP 2010, Brgy. Progress has the highest operational percentage of 94.1% and the least was that of Brgy. MacArthur of 48.7%. Those under HEP 2011, five barangays (Brgys. San Antonio, San Pedro, Kauswagan, Sangputan and Anislag-Brgy. 6) showed to have 100% operational percentage while Brgy. Concepcion had the lowest operational percentage of 92.9%. All the three barangays under HEP 2012 showed 100% operational percentage. Finally, those under HEP 2013, Brgys. Tarnate & Maragat, both showed 100% operational percentages than the others while Brgy. Sila had the least operational percentage of 98.4%.

Table 6. Operational Status of Installed Solar PV Home Systems in the Samar Island as of December 2016

Province/ Municipality	Barangay	Number of Installed SHS	Operational Status			
			Operational		Non-Operational	
			F	%	F	%
HEP 2010						
Biri	Progress	17	16	94.1	1	5.9
	Kauswagan	33	29	87.9	4	12.1
	MacArthur	39	19	48.7	20	51.3
San Vicente	Proper	42	38	85.4	4	14.6
	Tarnate	36	32	88.9	4	8.3
	Total	167	132	79.5	34	20.5
HEP 2011						
Biri	San Antonio	177	177	100.0	0	0.0
	San Pedro	107	107	100.0	0	0.9
	MacArthur	38	36	94.7	2	5.3
	Kauswagan	91	91	100.0	0	0
San Vicente	Sangputan	32	32	100.0	0	0
Gen. Macarthur	Macapagal	25	24	96.0	1	4.0
Arteche	Concepcion	71	66	92.9	5	7.1
Quinapondan	Brgy. 6 &	59	59	100.0	0	0.0

	Anislag					
Oras	Sta. Monica	220	211	95.9	9	4.1
Calbayog City	Olera	51	49	96.1	2	3.9
	Mabini-I	65	64	98.5	1	1.5
	Higasaan	46	44	95.6	2	4.4
	Pinamorotan	60	58	96.7	2	3.3
	San Antonio	45	44	97.8	1	2.2
	Total	1,087	1,061	97.6	26	2.4
HEP 2012						
San Vicente	Tarnate	197	197	100.0	0	0.0
	Sangputan	131	131	100.0	0	0.0
	Maragat	86	86	100.0	0	0.0
	Total	414	414	100.0	0	0.0
HEP 2013						
San Vicente	Sila	63	62	98.4	1	1.6
	Tarnate	33	33	100.0	0	0.0
	Maragat	49	49	100.0	0	0.0
Guiuan	Victory	137	135	98.5	2	1.5
	Total	282	279	98.9	3	1.1
	GRAND TOTAL	1,950	1,886	96.7	64	3.3

Financial and Organizational Status of Organized Solar Power Associations

As of December 2016, a total of 24 Solar Power Associations (SoPAs) were organized in 22 beneficiary-barangays in the three provinces of Samar, of which 12 or 50% were already registered with Security and Exchange Commission (SEC) and with Department of Labor and Employment (DOLE), and the rest have registration-on-process with DOLE.

All the SoPAs are functional except two SoPAs that are not and needs immediate re-training on organizational management.

Table 7 reflects that those implemented under HEP 2010, SoPAs has an average financial capability ratio of 1: 2,667; HEP 2011- has an average financial capability ratio of 1: 976; HEP 2012-has an average financial capability ratio of 1:4,051; and HEP 2013-has an average financial capability ratio of 1:1,801. The average financial capability of the SoPAs of 1:2,374 means that each beneficiary-SoPA member has an average of Php 2,374 savings reflecting that each has the capability to purchase replacement parts when needed. Low monthly collection was due to the effect of two typhoons (Typhoon Ruby & Typhoon Nona) that devastated the Samar Island where beneficiaries have to prioritize their subsistence than payment of monthly obligations.

On the other hand, five (5) SoPAs, each has less than Php 10,000.00 cash in banks, are considered to have low financial capacity to be able to purchase replacement parts in case of malfunctioning due to defective parts in order to sustain operation of their units, while Tarnate Solar Power Association has the highest collections deposited in bank amounting to Php 934,880.22.

A total of Php 3,623,470.25 had already been deposited in bank by the 23 SoPAs as their maintenance fund intended for purchase of replacement parts of their PV-SHS units.

Table 7. Financial and Organizational Status of Solar Power Associations in the Samar Island as of December 2016.

Province/ Municipality	Name of SOPA Established	Registration Status	Operational Status	Financial Capability Ratio	Cash in Bank, Php
HEP 2010					
Biri	Punta Solar Power Assn. (17)	SEC Registered	Functional	1:1,241	21,100.00
	Cawayan Solar Power Assn. (33)	SEC Registered	Functional	1:1,004	35,145.00
	Cogon Solar Power Assn. (39)	SEC Registered	Functional	1:274	10,680.00
San Vicente	Labangbaybay-Cabangkalan Solar Power Assn.	Registration on process with DOLE	Functional	1:7,092	156,027.00

	(22)				
	Cabil-isan Solar Power Assn. (13)	Registration on process with DOLE	Not functional, needs re-training	1:5,000	65,000.00
	Langka Solar Power Assn. (36)	SEC Registered	Functional	1:3,912	140,817.00
			Average	1: 2,667	
HEP 2011					
Biri	San Antonio Biri Solar Power Assn. (177)	DOLE Registered	Functional	1:1,160	205,272.85
	San Pedro Solar Power Assn. (107)	DOLE Registered	Functional	1:2,546	272,376.53
	MacArthur Solar Power Assn. (38)	Registration on process with DOLE	Functional	1:2,284	86,800.00
	Kauswagan Solar Power Assn. (91)	Registration on process with DOLE	Functional	1:1,634	148,841.59
San Vicente	Sangputan Solar Power Assn. (32)	SEC Registered	Functional	1:5,511	176,343.00
Gen. Macarthur	Macapagal Solar Power Assn. (25)	DOLE registered	Functional	1:322	8,040.00
Arteche	Concepcion Solar Power Assn. (71)	DOLE registered	Functional	1:134	9,500.00
Quinapondan	Anislag-Guinbanguan Solar Power Assn. (59)	Registration on process with DOLE	Not functional, needs re-training	1:95	5,580.00
Oras	Sta. Monica Solar Power Assn. (220)	DOLE registered	Functional	1:339	74,580.00
Calbayog City	Olera Solar Power Assn. (51)	Registration on process with DOLE	Functional but needs re-training	1:481	24,536.55
	Mabini I Solar Power Assn. (65)	Registration on process with DOLE	Functional	1:222	14,400.00
	Higasaan Solar Power Assn. (46)	Registration on process with DOLE	Functional	1:200	9,200.00
	Pinamorotan Solar Power Assn. (60)	Registration on process with DOLE	Functional but needs re-training	1:271	16,228.91
	San Antonio Solar Power Assn. (45)	Registration on process with DOLE	Functional	1:200	9,000.0
			Average	1: 976	
HEP 2012					
San Vicente	Tarnate Solar Power Assn. (197)	SEC Registered	Functional	1:4,065	800,745.23
	Sangputan Solar Power Assn. (131)	SEC Registered	Functional	1:3,693	483,800.00
	Maragat Solar Power Assn. (86)	SEC Registered	Functional	1:4,564	392,472.00
			Average	1: 4,051	
HEP 2013					

San Vicente	Sila Solar Power Assn. (63)	Registration on process with DOLE	Functional	1:2,463	155,200.00
	Tarnate Solar Power Assn. (33)	SEC Registered	Functional	1:4,064	134,134.99
	Maragat Solar Power Assn. (49)	SEC Registered	Functional	1:1,041	51,000.00
Guiuan	Victory Solar Power Assn. (137)	DOLE Registered	Functional	1:1,224	167,649.60
			Average	1: 1,801	
			TOTAL	1: 2,374	3,623,470.25

4. CONCLUSIONS AND RECOMMENDATIONS:

The HEP in the Samar Island had been a success based on the overall performance of the project’s implementation as well as the observational impacts brought by its electrification objective anchored on the providing opportunity of access to satisfaction of basic needs such as electricity at the household level.

The targeting system for the HEP is household-based and a total enumeration of households in the prospective unenergized sitio/barangay as potential project beneficiaries without bias on their social status must be done to give all households the opportunity to be selected as one of the program beneficiary. This basic consideration is one way of eliminating possible political interference in the selection and inclusion of potential household as eventual project beneficiary.

Continuing capability building for the SoPAs has been effective tool in transforming them into functional organizations as well as instill among household-beneficiaries the sense of cooperation and sustainability of the systems/units’ operation. Likewise, transparency of organization’s operation/transactions had been instrumental in pushing SoPA-members to be diligent in their obligations and responsibilities. Henceforth, organizational and technical management training must be the main support mechanism in the implementation of any program.

Sustainability of the program’s project as the main goal of the program has been the driving reagent in reacting to changes in the community brought by policies and guidelines of the program that requires adherence and commitment, thus, not only the present generation will benefit from the project but also the next generation in the future.

Regular monitoring and evaluation has proven to be very crucial in achieving the main goal of project sustainability.

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