



**Palawan New and Renewable Energy and  
Livelihood Support Project (PNRELSP)**  
*PHI/99/G35*

**Project Terminal Evaluation**



Submitted by

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# Palawan New and Renewable Energy and Livelihood Support Project (PNRELSP)

## PROJECT TERMINAL EVALUATION REPORT

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## Acronyms and Terms

ANEC	Affiliated Non-conventional Energy Centers
APR	Annual Project Report
CRREE	Center for Renewable Resources and Energy Efficiency
DENR	Department of Environment and Natural Resources
DILG	Department of Interior and Local Government
DOE	Department of Energy
ELF	Education for Life Foundation
GEF	Global Environment Facility
GHG	Greenhouse Gas
ICLEI	International Council for Local Environmental Initiatives
IRA	Internal Revenue Allotment
JICA	Japanese International Cooperation Agency
LGU	Local Government Unit
MFI	Micro-Finance Institutions
MOA	Memorandum of Agreement
MR	Memorandum Receipt
MSP	Medium-Size Project
NEA	National Electrification Administration
NGO	Non-Governmental Organization
NRE	New and Renewable Energy
NREPE	National Renewable Energy Policy Expert
PALECO	Palawan Electric Cooperative
PGP	Provincial Government of Palawan
PIR	Project Implementation Report
PMO	Project Management Office
PNRELSPP	Palawan New and Renewable Energy and Livelihood Support Project
PPDO	Provincial Planning and Development Office
PREDC	Palawan Renewable Energy Development Center
PRODOC	Project Document
PSC	Project Steering Committee
PSU	Palawan State University
PV	Photovoltaic
REC	Rural Electric Cooperatives
RESCO	Rural Energy Service Company
SAI	Strategic Advantage, Inc.
SHS	Solar Home System
SPEX	Shell Philippines Exploration B.V.
SRPC	Shell Renewable Philippines Corporation
SSPC	Shell Solar Philippines Corporation (formerly SRPC)
TA	Technical Assistance
TO	Table of Organization
TOR	Terms of Reference
UNDP	United Nations Development Programme
UNDPCO	United Nations Development Programme Country Office
UPERDFI	University of the Philippines Engineering Research and Development Foundation Inc.
USPL	University of the Philippines - Solar Laboratory

## EXECUTIVE SUMMARY

### Brief description of the Project

The *Palawan New and Renewable Energy and Livelihood Support Project (PNRELSP) of the Philippines (UNDP-GEF No. PHI/99/G35-PHI/99/013)*, or the Project, is aimed at reducing the long-term growth of greenhouse gas (GHG) emissions through removing the barriers to commercial utilization of renewable energy (RE) power systems to substitute for use of diesel generators in Palawan. As part of the project interventions, the project originally intends to demonstrate the viability of the RESCO (Rural Energy Service Company) delivery mechanism of renewable energy systems, and economic activities of productive use of renewable energy services for rural communities. The RESCO approach was however changed to Direct Sales approach because of the unsuccessful RESCO project in Aklan Province, which this project intends to replicate. That failed RESCO project was implemented by Shell Solar Philippines Corporation (SSPC, formerly Shell Renewables Philippines, Inc.), which is also the private company partner of this Project.

The overall outcomes of the revised Project are:

- Increased level of awareness of the people about renewable energy systems;
- increased information and services on renewable energy for potential investors; and,
- a commercial and sustainable delivery mechanism set up such as Direct Sales approach to provide renewable energy services in the province of Palawan.

The Global Environmental Facility (GEF) grant for this medium size project was US\$ 750,000. This was matched with co-financing from the United Nation Development Programme under its Target for Resource Assignments from the Core (UNDP TRAC) in the amount of US\$ 100,000, the Provincial Government of Palawan (PGP), US\$ 300,000, and SSPC as the private sector stakeholder, for US\$ 1,400,000 bringing the total project cost to US \$ 2,550,000.

### Context and purpose of the Evaluation

This Project Terminal Evaluation reviews the implementation experience and achievement of results of the Project against the project objectives endorsed by GEF, including changes agreed during implementation. The purpose of the evaluation is to analyze and assess the relevance, sustainability, impact and effectiveness of the strategies, project design, implementation methodologies and resource allocations that have been adopted for the purpose of achieving the objectives stated in the project document.

### How the Evaluation was Conducted

As explained in the Inception Report submitted to UNDP Country Office in Manila, the Project Evaluation was done through the following main steps:

1. Complete desk review of relevant documents provided regarding the Project
2. Conduct of meetings and interviews with relevant project management staff, PGP and UNDP officers, and key stakeholders

3. Conduct of field visits in Caramay, Roxas Municipality for on-site sampling evaluation, field interviews and information gathering on project management and other related activities.
4. Documentation of findings, conclusions and recommendations.

## **Contents of the Report**

As prescribed by the TOR for the evaluation task, this Project Terminal Evaluation Report contains the comments on the project concept and design, project results, findings on project management, major conclusions, recommendations and lessons learned.

In discussing the results of the evaluation, this Report includes detailed discussions on the progress towards attaining project's objectives, achievement of project outcomes and outputs and discussion on the key issues that include: changes in the enabling environment, how the state of RE application in Palawan changed, contribution of UNDP and GEF to achieving the change, collateral impacts and project relevance to natural resources management policy environment.

## **Main Findings**

### ***Project Achievements as of Project Closing (June 2006)***

At the time the Project was designed and justified in 2000, the identified main barriers were lack of financing and inadequate participation of the private sector. At that time, the Project was regarded as pioneering and highly innovative considering that this was the first UNDP-GEF supported project in the Philippines in the renewable energy and environment fields and that this is being executed by a non-government organization (NGO). The project tested the direct sales approach in introducing Solar Home Systems (SHS) to unelectrified houses with a back up LRF (or referred also herein as loss reserve fund) so that banks like the Cooperative Bank of Palawan (CBP) can be encouraged to finance SHS acquisition of home owners.

The Project effectively introduced the LRF which was likely to have positive influence on the effective demonstration and proliferation of SHS for households and livelihood support. It is evident that the Project had important policy impact for the government which was then contemplating on various financial mechanisms to support RE commercialization at the national, provincial and local level and also considering similar RE projects on a bigger scale.

While most of the project activities such as contracted services of consultants have been completed in the first three years of implementation, the Project experienced cumulative delays of more than two years. Two major delays have occurred: 1. delay in the implementation of demonstration in the implementation of the delivery mechanism resulting from the change to using direct sale approach; and 2. delay in CRREE project execution.

Some organizational changes occurred during the course of project implementation. CRREE, as the executing agency and as the institution to carry on the responsibility of the RE Development Center after it has been established, experienced unstable operations and inability to perform the expected outputs starting from 2003. The

sustainability of the Project outcomes was threatened as CRREE ceased to exist starting December 2004.

The UNDP Philippine Country Office (UNDP CO), in close coordination with PGP, has to undergo some adaptive management in order to achieve the remaining project outputs without CRREE.

As designed, the project activity was also justified to be the precursor of financing mechanisms contemplated for other projects which were about to be implemented on the national level such as the Capacity Building for Removal of Barriers for Renewable Energy Development (CBRED) Project and the World Bank Rural Power Project (WB RPP). The experiences gained from the design and implementation of the selected financial mechanism of the Project were used as reference for formulating similar financial mechanisms for these 2 ongoing GEF-funded RE projects.

Based on the records, CBP has reported no single charging from the LRF although there was one default on January 15, 2006. As of June 2006, CBP reported that it has not applied for availment from the LRF because it is still making arrangements with SSPC which will exhaust available recovery or refinancing options possible before opting to use the LRF facility.

On the livelihood component of the Project, the demonstration activity which focused on using Solar PV lighting for mud-crab culture in five (5) sites in Palawan Province was already completed. The peoples' organizations/cooperatives which hosted these solar PV-assisted livelihood projects for the communities were trained and supervised by CRREE. However, these projects have also depended largely on the Project funds which tended to be co-terminus with CRREE until December 2005 in the second reprogramming of the project.

The communities and households in the different demonstration sites have benefited a lot from their varied experiences. Nevertheless, the common benefit that was cited by community cooperatives as a result of the Project is the capacity building of the community leaders and participants to pursue new livelihood projects while learning from previous experiences in the requirements for sustaining a livelihood project.

The community has also afforded the installation of SHS for the houses especially for households earning additional income in the community livelihood activities. A growing number of households have continued preferential use of SHS over the diesel genset power which has proven to be more expensive, unreliable and environmentally-unacceptable. Several households have also improved their income particularly small stores, which now stayed open for more hours at night because of solar lighting. The response to solar power benefits also includes the advantages of having better and longer duration of light for children's study and family's activities as well as conveniences of modern living and productive uses of solar-powered devices such as radio, small TV for information and cellular phones. The knowledge and awareness that these applications have become practical and highly beneficial because of access to affordable energy creates already a big, long lasting impact to the households.



## Achievement of Results

### *Outcome /Achievement of Objectives*

On the overall, based on the reprogrammed project plans, the Project performance and progress has **satisfactorily** met all the objectives and outputs of the four main activities of the project. However, in terms of timeliness of outputs as originally programmed, one of the activities of the Project (corresponding to 36% of project resources) experienced more than two years of delay due to the change in approach and delivery mechanism and the completion of the remaining activities. It is noted that in 2001 (during the second year of the project), the UNDP CO Philippines and the PSC were informed by the Project Management about the potential delays for this activity because of the unsuccessful results that arose from the RESCO approach in another project. The proposed change was finally decided in May 2003. The other three activities (about 64% of the project) have satisfactorily met all objectives according to original targets by Year 3 (2003). It was only during the last three years of extension that the remaining work on the Risk-Sharing Mechanism design and implementation were done, which were supposed to be completed in December 2003 as previously planned. Nevertheless, with the approved extended project duration, the Project has **satisfactorily** accomplished the following to meet all the four expected major actual outputs corresponding to the Project Objectives as listed in the ProDoc:

1. Capacities of PGP, local community government units and the rural electric cooperative (PALECO) improved as manifested by the establishment and sustainable implementation of the program for providing energy access to the people who cannot be reached by the power grid. The peoples' cooperative organizations have built their capacities through the Project which have enabled them to continue developing and implementing in a sustainable manner and attracting more resources and funds for their own livelihood activities.
2. Public demand for SHS in Palawan has increased in the past years at a faster rate based on the actual number of sold and installed SHS within the project duration starting at none in 2000, to 120 units in 2002, 324 in 2003, 690 in 2004, and 1,088 in 2005. This contributed in preventing the high growth of diesel-based power generation and consumption for communities in supporting basic household lighting needs and community livelihood activities. All the units are operational because of the very effective after-sales maintenance service being provided by SSPC in strategically located solar service centers near the target communities. There were reported cases of temporary down time due to weak or worn-out battery or malfunction of other parts, such as battery control units which are readily addressed by the service centers.
3. A Renewable Energy Development Center (REDC) has been established for the Province of Palawan with corresponding allocated budget and organization under the permanent Energy Division of the Programs and Planning Development Office of the PGP.
4. A risk-sharing mechanism to support direct sales of SHS and other appropriate delivery mechanisms are designed and their applications demonstrated. After almost a year of pilot implementation a total of 788 loans have been generated for the purchase of 789 SHS units. This resulted to a total Original Principal Portfolio size of PhP 13,964,696 with one reported loan default amounting to PhP 7,736.70 equivalent to 0.05% of the original

principal amount as of June 2005. As of June 2006, the total number of SHS units sold stood at 2,719 using established financial systems compared to the target of 2,200 units by end of project (under Revision 2 reprogramming).

Stakeholders and beneficiaries agree that the Project was a good one and made them aware of the benefits of RE, in general, and solar PV, in particular. The results of the interviews conducted validate this observation.

### ***Sustainability***

As a whole, the Project has achieved ***Satisfactory*** rating on its objective of demonstrating and promoting RE, particularly SHS for house lighting and livelihood applications, to support sustainable development in the Province of Palawan. Even with the stoppage of CRREE's operation and other difficulties that the Project implementation has encountered, the objective of building the capacity of the different stakeholders and beneficiaries has been achieved in making energy access possible to support sustainable development at the community level without depending on diesel-based generation. At the same time, the Project has also achieved its purpose of contributing to global environmental benefits. The Project has a very high potential for replicability in other provinces and local governments using the experiences and lessons learned in their aim of providing access to modern forms of energy through RE to support sustainable community development especially in unelectrified remote and poverty-stricken areas.

### **Main Conclusions**

#### ***Strong Aspects***

1. One of the strong features of the project design is the division of the Project into clear project components and activities based on a logical framework analysis making it ***Highly Satisfactory***. Being so, it was easier to redirect the project and adapt to the changing situations in the market after the mid-term of the Project.
2. The management structure during the first two years consisting of preparatory and initial phases of site selection for demonstration RE application to livelihood activities of the Project is ***Satisfactory***. It employs top-down and bottom-up approaches and social preparations where CRREE as an environmental NGO is recognized strong at. However, after 2003, the performance of CRREE dwindled as the project budget support to CRREE's operation has been consummated.
3. Capacity building at the community and peoples' cooperative organization level and raising the information and knowledge of project participants on RE have been emphasized. Strong community ownership has been developed through various orientation and training activities, cooperative development, and identification of livelihood activities and mobilization of local resources. CRREE has been strong in community mobilization and capacity development of community leaders and facilitators that made the first two years of the project successful.

4. While the demonstration sites focused on a specific mangrove habitat for mud-crab culture as the livelihood activity, there have been good attempts to integrate the activity into a community-based project that can serve as a good capacity building and learning venue for local leaders and participants that can attract future projects to enhance biodiversity conservation, alternative income generation, eco-tourism, etc.
5. The pilot risk-sharing mechanism using the LRF has enhanced the bankability of SHS in Palawan. With the availability of this loan guarantee facility initiated by the Project and with the concept adopted in other financial windows that are now existing in subsequent initiatives such as the CBRED and World Bank RPP projects, the increased availability of main loan funds for actual financing of RE units has been greatly encouraged to meet increasing demand. As the Project's main output, the RE financing scheme is now available and operational and can be fully activated by the PGP whenever their planned RE Trust Fund is in place.
6. The Project has successfully demonstrated SHS as an alternative energy system for the household and community livelihood applications. The success stories with present users having been able to pay the loans (with very minimal defaults) and the learning experiences provide very good starting points for greater contribution of SHS in the remaining market in unelectrified 160 barangays (37% of total) or 89,400 households (53% of total) as of December 2006.
7. The Project has influenced adoption of a provincial energy policy and also encouraged PGP to issue Provincial Ordinance No. 729-03 in November 2003 creating a permanent Energy Division under the Planning and Development Office for energy development concerns that includes implementing an RE policy in its barangay electrification plans.
8. The design of the Project's risk-sharing mechanism using the LRF has been proven successful which has also been used as reference in designing a similar guarantee facility in two (2) RE projects of the Philippine Department of Energy.
9. UNDP through the UNDP CO in Manila, particularly the Environment Program Portfolio, was strongly supportive, successfully assisting to overcome the Project's implementation and administrative difficulties through adaptive management in the midst of CRREE's stoppage of operation and changing market situation.
10. The PGP continued to provide institutional mandate, program support and experienced staff through its Energy Division and the RE Development Center which, together with the LRF, ensure that the SHS-based energy services will be sustainable.
11. The pilot risk sharing mechanism of the Project has helped the banks in understanding the actual risks involved in REs, particularly SHS, thus increasing the banks' confidence on RE and therefore enhanced the bankability of SHS projects. DBP has continued to recognize that the risk sharing mechanism has lowered the risk of lending to SHS user. CBP is now providing loans on a regular basis to household SHS users.
12. With its extended duration, the Project was able to accomplish its objectives and outputs within the original Project Budget and with the cooperation and

various inputs from the different stakeholders and co-financing partners. Considering the need to adapt to changing situation during the implementation, there were at least two major realignments of the original budget plan. As of the time of this evaluation, the Project activities and the budget have been almost fully consumed at 97.7%, except for the ongoing terminal project evaluation and closure activities. When all these remaining activities are completed, the project budget will have been fully spent.

### ***Key Challenges***

1. The overall project implementation and stakeholder participation is considered generally ***Satisfactory***. The timely execution though of the required project outputs was affected by the change in project direction. The challenge mainly lies on the adoption of an appropriate delivery mechanism considering the changing market condition and unfavorable end-user response to the RESCO approach in another project. The good thing is recognizing the need for the shift in project direction early and going through the process of stakeholder approval and achieving ownership and responsibility for the decision. The increasing demand and actual delivery of the SHS proved that decision was favorable to the achievement of project objectives.
2. The choice of an NGO as an Executing Agency, which has not established its own track record as an established organization and expertise particularly in the RE field, proved to be a major challenge, and later, unsustainable because CRREE largely depended on Project funds for its operational budget needs and therefore has to cease its operation when the salary budgets have been exhausted.
3. The implementation of the management structure during the third year of the Project appeared to have areas for improvement in terms of clear definition of roles of the policy and decision making functions. CRREE's role as a manager and provider of RE development services and the seat of the RE Development Center has ceased to be feasible in the following years thereafter when the project funds for operating expenses have almost been spent. The Project Steering Committee (PSC) as the highest-level decision making structure may have been affected by this situation in terms of lack of accurate and appropriate technical and policy advice that has come from CRREE and consultants in the early part of the project. The UNDP CO had to enter in the project implementation in view of its adaptive management roles for the project when CRREE ceased to operate after December 2004.
4. The choice of the livelihood activity, i.e. mud-crab growing, to be used as the application for the RE-based energy system has been seen as hardly sustainable and replicable. The preparatory phase in selecting the activity and fitting it to the resources and peoples' capability in the demonstration sites should have undergone more rigorous selection process considering sustainability and replicability as important factors. However, the requirements for sustainability and replicability were not considered in the project design.
5. The project implementation appears to have areas for improvement in cost-effectiveness in terms of staying within budget or reducing transaction costs.

The previous audit findings have cited areas where there could be improvement in this respect. Asset management appeared to have some concerns when the vehicle purchased from UNDP TRAC funds was lost and cannot be retrieved.

6. With regards to meeting the targets for the RE-based electrification, the Project was only able to achieve 5 out of 20 barangays expected. However, inherent in the direct sales approach of SSPC would be that the company's microfinancing are for consumers who could afford to buy the SHSs, but not for those in the project sites who can't afford these systems. These tended to concentrate only in areas where there are solar sales centers and the income of households is relatively of higher level to afford the SHS loan amortization. The challenge lies in bringing the energy access to the greater number of barangays which are farther from the centers and where the households are within relatively lower income brackets.
7. The Project experienced a case of default in January 2005 which should have triggered the application of recovery mechanisms from the LRF as provided by the Operating Guidelines and Procedures in the Risk-Sharing Mechanism which was designed and established for the LRF. However, the SSPC and CBP chose to exhaust other means to address the default. By their inquiry, the customer did not pay the loan obligation because the SHS failed and was not aware that batteries should be changed. However, the homeowner does not have resources for the battery purchase. CBP decided instead to include battery replacement as part of the loan program so that the homeowner will not be experiencing relatively big one-time outlays and could enjoy continuous lighting service. This is viewed positively because the bank and other possible RE lending institutions could first exhaust other financing options or other usual recourse and still have the assurance of a fallback option provided by the LRF. This emphasizes the need for the LRF as a standby facility to continue improving the financing sector's confidence in RE lending.
8. It was noted also that CBP has not been submitting official reports regularly following the prescribed format and frequency which could lead to potential problems if not adhered to. As explained by CBP and the contractor (IIEC), there were changes of personnel and assignments. CBP, however, committed to resume regular reporting using the prescribed system.
9. While the LRF has been established, the Project has also experienced difficulty initially in providing funds through CBP financing windows for loaning to SHS users. CBP has applied from DBP to have funds for loaning but CBP's current financial standing did not meet the required criteria of DBP for such financial arrangements. Because of the increasing demand and the remaining market for SHS and their presence in the pilot areas of the project, CBP stated that they remain committed to increase their volume in the RE loan portfolio through internal resources and external facilities to augment the actual lending facility such as reapplying with DBP and exploring new fund sources. Follow-up and monitoring of this initiative should be done as a post-project arrangement.
10. The RE Trust Fund (RETF) as a baseline responsibility of PGP being the project partner has not been established as expected. The province is still

negotiating with the National Government for the actual release of the funds from which the seed money for the RETF will be taken, as planned.

## **Recommendations**

1. With the demonstrated success of the Project's risk-sharing mechanism through the LRF, it is recommended that CBP continue its operation with possible improvements like including battery replacement in the loan package. This will be towards serving the big remaining portion of unelectrified barangays and households in Palawan. It may be good to also consider integrating the LRF with existing RE financing mechanism in the form of a Loan Guarantee Fund (LGF) of the CBRED Project and World Bank RPP to bring it together with similar financing mechanisms on a national level.
2. To make the LRF more beneficial, it is recommended that PGP, in coordination with the banks, pursue the increase of the scale of the loan program that the LRF backs up in order to extend the program to other areas and beneficiaries. The funds to be used for actual lending should be increased to meet the big requirements and demand of the direct sales of SHS. Among other fund possibilities, the planned RE Trust Fund for Palawan should already be established.
3. The post-project operation of the LRF in conjunction with the main RE financing program of CBP and other potential banks should be continuously monitored to provide additional information and experience in developing similar financial guarantee funds to encourage more banks to take up RE financing.
4. In marketing the SHS and other RE systems, it is recommended that the application of the systems for productive activities (i.e., in terms of income generation) should be emphasized both at the household or community levels. Whether the demonstration of the livelihood component succeeded or failed, the post-project arrangements for the accountability, maintenance and operation of the RE systems should be addressed since SHS units are designed to outlive the project. For example, the cooperative in Caramay has preserved the SHS units provided by the Project and used them in the new projects of the cooperative. This does not only preserve the asset value of the SHS units but also enhances the promotional value of the technology. People could easily attribute failure of a project to a technology. It is recommended that PGP go back to the four other demonstration sites and check the post-project arrangements in these sites.
5. The successful experience in the pilot implementation of the risk sharing mechanism, particularly the important information on SHS loan portfolio risk profiles should be disseminated to other banks and private financing sector to encourage them to support direct sales of SHS or other RE delivery and financing mechanisms.

## **Lessons Learned**

The following are the lessons learned as derived from the various situations experienced in the Project implementation:

1. More active and time-bound stakeholder consultations and decision making, particularly in changing project direction and strategy, is very important to avoid long delays in project implementation. This should be emphasized in the management arrangements in the design and implementation of future similar projects especially considering sustainability and replicability.
2. Stricter adherence to targets and improving level of commitment of partners in doing parallel activities are undeniably very crucial in the overall success of the project. Clearer definition of indicators of performance and targets which should be jointly developed and understood by all project partners should be included in the design of the project which will guide towards more effective and timely implementation of the project and meet desired results and logical framework of activities. These items should be the basis for the M&E system for the project during implementation and beyond to achieve the long-term goals of the project.
3. Community direct participation and ownership have been found very effective mobilization factor in achieving long term project goals and sustainability of project outputs. Considering the nature of RE applications in rural communities, the roles and responsibilities of the community should be incorporated in project design and implementation plans that are supposed to be developed through sufficient consultation and needs analysis.
4. Presence of a Local Loan Facilitator has been found effective as intermediary and support logistics provision in the implementation of the financing programs of the project. This can be considered in the design of rural-based financing mechanisms for future projects.

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PHI/99/G35**

**PROJECT TERMINAL EVALUATION REPORT**

**1. Introduction**

This **PROJECT TERMINAL EVALUATION REPORT** is being submitted in compliance with the requirements of the Consultancy Agreement DSSC-C-2004-016 Amendment No. 5 dated January 30, 2007.

As prescribed by the Terms of Reference (TOR) of the evaluation task, seen in **Annex A**, this Project Terminal Evaluation Report contains the project concept and design summary, project results, findings on project management, major conclusions, recommendations and lessons learned.

In discussing the results of the evaluation, this Report includes detailed discussions on the progress towards attaining project's objectives, achievement of project outcomes and outputs and discussion on the key issues that include:

- Changes in the enabling environment
- How the state of RE application in Palawan changed
- Contribution of UNDP and GEF
- Collateral Impacts

**2. Project Concept and Design Summary**

2.1. Project Context

The *Palawan New and Renewable Energy and Livelihood Support Project (PNRELSP) of the Philippines (UNDP-GEF No. PHI/99/G35-PHI/99/013)*, or herein after referred to as the Project, is a UNDP/GEF Project executed by the Center for Renewable Resources and Energy Efficiency (CRREE) in collaboration with the Provincial Government of Palawan (PGP). This medium size project (MSP) and is line with GEF Operational Programme No. 6, "Promoting the Adoption of Renewable Energy by Removing Barriers and Reducing Implementation Costs," implemented through the United Nations Development Programme (UNDP).

To begin with, the project implementors have to understand first the barriers affecting the market entry of renewable energy (RE) while considering the unique situation of the province and its constituents, in order to effectively address them.

The critical barriers to RE deployment in the country in general, which are also applicable to Palawan, are as follows:

- 1) Limited capacity of the local government to formulate RE policies.



- 2) Lack of awareness among decision-makers, entrepreneurs, and households of RE systems and their potentials.
- 3) Lack of information about renewable energy resources, technologies, and market.
- 4) Lack of expertise to conduct feasibility studies and market surveys.
- 5) Lack of maintenance services for the renewable energy systems.
- 6) Lack of sustainable and commercial delivery mechanism.
- 7) Lack of appropriate financing mechanism for rural electrification.

As a GEF-supported project, the ultimate measure of success for the Project is how RE would play a role in bringing about the reduction of greenhouse gases (GHG). Ultimately, this translates to laying the groundwork towards a sustainable market for RE with the private sector taking the lead. With wider proliferation of RE systems, more fuel combustion-based GHG emissions are avoided and more rural houses are electrified, thus satisfying both environment and energy needs.

- a. adopting an RE policy and necessary financial incentives for NRE applications in Palawan,
- b. firming up the RE component in the Palawan Energy Master Plan,
- c. making the general public aware of the Project up to the point of decision and action through the conduct of training and education to enhance knowledge and skills on socio-economic and technical aspects of the NRE systems,
- d. establishing the Renewable Energy Development Center for Palawan as an RE information center, a project developer, a “bridger of gaps”, a policy action center, a decision support provider, a business catalyst, a resource mobilizer and a program manager to enable a conducive environment for the private sector to be actively involved, invest capital and provide continuing service for the NRE end-users
- e. conducting feasibility studies to identify viable RE applications to support livelihood activities of rural communities through peoples’ organizations and also identify investment risks to be averted for long-term sustainability

If the status quo will have to persist, more diesel generators will be installed to provide rural electricity for the 50,000 unelectrified households or 65 percent of the barangays in Palawan, otherwise these households will remain unelectrified indefinitely. The expansion of electricity services will be very slow because of the limited government funding.

The project is aimed at reducing the long-term growth of greenhouse gas (GHG) emissions through removing the barriers to commercial utilization of renewable energy power systems to substitute for use of diesel generators in Palawan. This project originally intends to demonstrate the viability of the RESCO (Rural Energy Service Company) delivery mechanism of renewable energy systems, and

economic activities of productive use of renewable energy services for rural communities. The RESCO approach was changed to Direct Sales approach because of unsuccessful RESCO project in Aklan by Shell Solar Philippines Corporation (SSPC), formerly the Shell Renewables Philippines, Inc., which is also the private company partner of this Project.

The overall outcomes of the Project as revised are expected as:

- Increased awareness of renewable energy systems;
- increased information and services of renewable energy for potential investors; and
- a commercial and sustainable delivery mechanism set up such as Direct Sales approach to provide renewable energy services in the province of Palawan.

The Project approach of linking energy and environmental needs to livelihood opportunity of a rural community was new in the country during the time the project was designed. The Project Document (ProDoc) has also defined the linkages among objectives, inputs, activities, outputs, expected outcome and impact. However, there are some modifications as to the implementation and management arrangements brought about by current socio-political condition in the provincial government of Palawan during the initial phase of the Project and the experiences of Shell in its RESCO project in Aklan.

The Project was so designed to enhance the enabling environment so that the market for RE will be developed starting in the selected project sites. The Project was also designed to address specific issues related to individual learning, organizational structures, processes management system, networking and linkages that will build-up the capacity and performance of the project beneficiaries in the communities.

## 2.2 Project Timeframe

All parties signed the 3-year project on February 28, 2000 that indicated notice of official implementation of the Project. The Project was originally to be implemented for 36 months from official start up of March 2000 to target completion of March 2003 only.

Date Of Entry in WP	Oct. 10, 1999
ProDoc Signature Date	Feb. 28, 2000
Duration (months)	36 months (3years) extend one year
Date of First Disbursement	25 April 2000
Date of Mid-Term Evaluation	July 2002
Closing Date	Original: December 2002
	Revised 1: December 2003
	Revised 2: December 2005
Project Actual Closing	June 30, 2006

The project timeframe was extended by more than two years as a result of the change in project direction and delays in implementation of Project components. The project timeframe was revised twice to December 2003 and December 2005, respectively. This was brought about when Shell Solar Philippines Corporation

proposed to change the project strategy to "Direct Sales Approach," because of the failure of the RESCO approach in their project in Aklan. As such, the Project supported direct sales approach and the development of the risk-sharing mechanism applicable to the approach.

Most of the Project activities that were contracted as services of consultants have been completed in 2003. Some delays have occurred (such as delays in the implementation of demonstration in the implementation of the delivery mechanism resulting to using direct sale approach, delays in CRREE project execution, etc.) The pilot implementation of the risk-sharing finance mechanism was completed in September 2005 and was carried through by the CBP until June 2006 as the project closure date. The financial mechanism that was established by the Project continued to be operational up to the present time.

### 2.3 Project Resource Inputs

To achieve the Project objectives, the Global Environmental Facility (GEF) provided US\$ 750,000. This was matched with co-financing from United Nation Development Programme - Target for Resource Assignments from the Core (UNDP TRAC) in the amount of US\$ 100,000, the Provincial Government of Palawan (PGP), US\$ 300,000, and SSPC as the private sector stakeholder, for US\$ 1,400,000 bringing the total project cost to US \$ 2,550,000.

**Table 1. Summary of Project Input Resources and Disbursements to UNDP Country Office - Manila**

<b>INPUTS</b>	<b>Budget as Indicated in PRODOC (in US \$ million)</b>	<b>Spent as of December 2006 (in US \$ million)</b>	<b>% Funds Spent</b>
<i>FUNDS</i>			
GEF	\$0.750	\$ 0.750*	100%
UNDP (TRAC)	<u>0.100</u>	<u>0.100*</u>	100%
Sub-Total	0.850	0.850	100%
<i>Co-Financing</i>			
PGP	0.300	0.250**	83%
Private Sector (Shell Solar)	<u>1.400</u>	<u>1.627***</u>	120%
Sub-Total	<u>\$1.800</u>	<u>1.877</u>	104%
<b>TOTAL</b>	<b>\$ 2.550</b>	<b>2.727</b>	<b>107%</b>

INPUTS	Budget as Indicated in PRODOC (in US \$ million)	Spent as of December 2006 (in US \$ million)	% Funds Spent
<b>Other IN-KIND INPUTS</b> <ul style="list-style-type: none"> <li>▪ Participating Institutions (CRREE, PGP, DOE &amp; other stakeholders)</li> <li>▪ Barangay/Peoples' Organizations</li> </ul>	<ul style="list-style-type: none"> <li>• Own Budgets for Incidental Travel, Staff Support, Information, Communication and other necessary inputs</li> <li>• Local voluntary services, materials, livelihood initiatives, etc.</li> </ul>		

Notes:

- \* Based in CDRs. Actual spent as of December 2006 is USD 0.729 million.
- \*\* \$200,000 for 3 years for personnel counterpart and \$50,000 for equipment and others.
- \*\*\* The total of \$ 1.627 million includes \$67,957 for buy-back guarantee by SSPC to SHS loans provided by CBP; \$ 240,000 provided by SPEX for RE-based livelihood projects; \$360,000 from SPEX for funding SHS financing and \$ 1 million for operational requirements within project duration of the established solar centers located in six marketing and after sales service centers in Palawan.

The in-kind contributions of PGP in the PRODOC were planned to include salaries, allowances, and time of personnel involved in the project, office space for the Renewable Energy Development Center, baseline costs to revise the Provincial Energy Master Plan, administrative support, and in-country mission support for project related staff and transport services as available. As estimated by PGP, the co-financing inputs of PGP to the project are \$ 250,000 or 83% of the committed \$300,000.

Regarding the \$1.4 million committed co-financing from Shell Solar, project communications and documents state that this fund will be used to cover the investment costs in the pilot renewable energy systems in Palawan using the original project concept based on the RESCO model and also for "buying down" the solar home systems at \$5/peak watt to be able to make the energy services of the RESCO more affordable for the targeted beneficiaries. With the recent change in project direction and since Shell Solar is not anymore building mini-grids, part of the \$1.4M commitment has been spent and the remaining amount (plus some additional monies) reallocated for SSPC's own micro-financing scheme. According to SSPC, their co-financing input is estimated at \$ 1.67 or 120% of the committed \$ 1.4 million value.

A solar home systems sales center, with its support marketing staff and technicians, has been established by Shell Solar in Puerto Princesa, Palawan. In addition to this central office, to further support the areas where it operates, SSPC is now operating Solar hubs in four (4) more centers, namely in towns of Quezon, Brookes Point, Taytay and El Nido. Seven (7) subcontractors were fielded to take charge of hauling, installation, spare parts, repair and maintenance with the help of its own trained technicians.

As part of its marketing approach, through Shell Solar, \$150T has been provided for the creation of mud-crab culturing where solar lighting system are installed in five (5) sites to demonstrate the use of solar lighting. Shell Solar is also having

sales caravans where they introduce solar energy, its benefits, its applications and the various devices to utilize it.

The total UNDP/GEF budget of US\$ 850,000 are allocated for subcontracts and CRREE's direct payments to other contracted services and own expenses. In summary, about half of total UNDP/GEF funds are subcontracted, while the other half is CRREE-administered. The subcontracts are being handled through UNDP.

#### 2.4 Main Stakeholders/Beneficiaries

The direct stakeholders and beneficiaries of PNRELS and corresponding expected benefits are:

- Provincial Government of Palawan and Local Government Units - increased policy formulation capacities, as well as increased awareness and interests in renewable energy leading to implementing and managing RE program for the province.
- Center for Renewable Resources and Energy Efficiency – establishment of a Renewable Energy Development Center in Palawan, and training for its staff members in market strategies, feasibility studies, resource assessment, as well as technical and business capabilities.
- Private Sector - risk-sharing mechanism to reduce their risks and costs, increased public awareness, and increased access to market information on renewable energy towards expanding the RE market and raising levels of investment returns.
- Rural Electric Cooperatives - increased information and awareness in RE to help them carry out their rural electrification mission and meet the target for barangay electrification.
- Unelectrified barangays - schemes in contributing to electric power services to 65% of the barangays in Palawan, or around 50,000 households, that do not have access to electricity and support productive uses from RE to improve the livelihood in these rural communities.

In addition, the widespread application of RE resulting from the project should have a positive impact on vulnerable groups. The indirect beneficiaries of this Project are:

- Babies and children - convenient form of lighting at night and reduced exposure to local air pollution from fossil fuels
- Sick and elderly people - convenient form of energy and likewise reduced exposure to local air pollution from fossil fuels
- Women - more time for performing some income augmentation activities that needs light at night.

#### 2.5 How the Project Dealt with the Situation

The Project piloted the commercial sales of solar home systems (SHS) in order to enhance awareness and acceptability of REs in the basic household energy needs and to demonstrate delivery and financial mechanisms that would be

instrumental in making the RE systems reliable and affordable towards establishing the market for REs and, with increasing volume of units sold, reduce transaction costs and selling price of RE units to meet the needs of targeted beneficiaries.

As it was designed, through stakeholder consultations, the Project consisted of activities and strategies that would remove the existing barriers to wider use of REs in Palawan. Particularly, it demonstrates a community-based access to energy to provide for basic energy needs and promote productive uses of RE for economic activities that will generate income for the livelihood of the communities. This would enable households to pay for the RE systems. The needs definition formed the basis of the logical framework and strategies of the Project, mainly to push for the following outcomes:

- Increased awareness of renewable energy systems;
- increased information and services of renewable energy for potential investors; and
- a commercial and sustainable delivery mechanism set up such as Direct Sales approach to provide renewable energy services in the province of Palawan.

At the time the Project was designed and justified, the identified main barriers were lack of financing and inadequate participation of the private sector. It is a highly innovative project considering that this was the first UNDP-GEF supported project in the Philippines in the renewable energy and environment fields. The project tested the direct sales approach in introducing Solar Home Systems (SHS) to unelectrified houses with a back up Loss guarantee fund, referred to as the Loss Reserved Fund (LRF) so that the Cooperative bank of Palawan (CBP) can be encouraged to loan SHS acquisition of home owners.

The Project was also justified to be the precursor of financing mechanisms contemplated for other projects which were then about to be implemented on the national level such as the Capacity Building for Removal of Barriers for Renewable Energy Development (CBRED) Project, also UNDP/GEF-supported and another GEF-supported project through the World Bank Rural Power Project (RPP).

## 2.6 Project M&E

The Project was continuously monitored and evaluated for a period of five years, including the following:

- Five (5) Annual Project Review and Project Implementation Reviews
- Five (5) Annual Tripartite Reviews
- Quarterly Reports including financial statements and work plan for subsequent quarter, based on the project objectives and performance indicators

The Project has been subjected to close monitoring and evaluation using UNDP-GEF standards through the Annual Project Report/Project Implementation Review (APR/PIR) and adaptive management processes to ensure achievement of the targets.

### 3. The Project Terminal Evaluation Process

This Project Terminal Evaluation reviewed the implementation experience and achievement of results of the Project against the project objectives endorsed by GEF, including changes agreed during implementation. The purpose of the evaluation is to analyze and assess the relevance, sustainability, impact and effectiveness of the strategies, project design, implementation methodologies and resource allocations that have been adopted for the purpose of achieving the objectives stated in the project document.

#### 3.1. Context and Purpose of the Terminal Evaluation

The specific objectives of the evaluation are as follows:

- To identify and evaluate the effectiveness and outcome of strategies and activities of the project.
- To identify and evaluate the constraints and problems, which have been or are being encountered, the effectiveness of resource utilization and the delivery of project outputs.
- To assess progress towards attaining the project's global environmental objectives per GEF Operational Programme concerned (OP No. 6).
- To assess policy, institutional and financial instruments which have been identified and developed at the local level to ensure long-term sustainability of project-initiated activities beyond the life of the programme;
- To identify the manner and extent to which the project has leveraged co-financing and policy changes
- To assess the level of public involvement in the project and recommend on whether public involvement has been appropriate to the goals of the project;
- To review and evaluate the extent to which project impacts have reached the intended beneficiaries, both within and outside project sites;
- To assess the likelihood of continuation of project outcomes and benefits after completion of GEF funding.

#### 3.2. How the Evaluation was Conducted

As explained in the Inception Report following the Terms of Reference, and submitted to UNDP Country Office in Manila, the Project Evaluation was done following the following main steps as detailed in the Schedule of Evaluation as shown in **Annex B**:

- Complete a desk review with relevant documents regarding the project
- Conduct interviews with relevant project management staff, PGP and UNDP officers, and key stakeholders
- Conduct field visits in one project site in Caramay, Roxas Municipality for on-site evaluation, field interviews and information gathering on project management and other related activities.
- Analyze findings, prepare report and document final conclusions and recommendations.

In view of the organizational changes that the Project has encountered, this Evaluation has remained focused on the results, i.e. outputs and outcomes. It assessed the performance and contributions of policy, program, project and partnership efforts toward the intended outcomes. The list of persons and organizations met is shown in **Annex C**.

#### 4. Project Results

After the APR/PIR 2002, using a results-based monitoring system, the project performance indicators were revised to make them quantifiable and time-bound. In addition to those listed in the Project Document, the following project indicators were included in the monitoring of project results:

- a. decreased diesel consumption for rural electrification as gauge for GHG reduction targets with assumed conversion efficiencies
- b. increased installed capacity and share of NRE for rural electrification
- c. increased income of villagers from NRE-assisted livelihood activities

CRREE proposed the revision of the approach in connection with the design of the risk-sharing financial mechanism in October 2001. The chronology of events is seen in **Annex D** in connection with the change in project strategy. The Project Steering Committee approved the proposed concept of the Project's Design Risk-Sharing Mechanism for Direct Sales on May 30, 2003 as recommended by the PMO, IIEC, PGP, Shell and CBP. The Project, as it is now defined in the PIMS, is intended to demonstrate the viability of direct sales of SHS as a delivery mechanism towards achieving the target of energizing 1,000 households in Palawan. Likewise, the project seeks to demonstrate the viability of economic activities of productive use of RE services for rural communities. At the end of the Project, there will be: 1) increased capacity and recognition of renewable energy and appropriate delivery mechanisms at LGUs; 2) a revised Provincial Energy Master Plan and a range of RE financial incentives established; 3) Increased public awareness of renewable energy systems and RE delivery mechanisms; 4) increased information and services provided to potential investors in RE; and, 5) a commercial and sustainable delivery mechanism and workable risk-sharing schemes to increase RE services in Palawan.

The detailed results of the project activities and programs are shown in **Annex E**.



#### 4.1. Progress Towards Attaining Project's Regional and Global Environmental Objectives

On the overall, based on the reprogrammed project plans and targets, the overall Project performance and progress towards attaining Project's regional and global environmental objectives is *Satisfactory*.

As seen in **Table 2**, the Project has reported its achievement of regional and global environmental objectives that include the following indicators:

- equivalent liters of diesel displaced by the end of the Project
- cumulative installed capacity of solar home systems operational by end of the Project

**Table 2. Progress towards attaining Project's Regional and Global Environmental Objectives**

Description	Value in year 0	End of Project Target Value (Year '03 – Dec 2003 – Rev.1)	End of Project Actual Value (June 30, 2006)	Achieved Target? (Yes/No)
<b>Objective:</b>				
The project is aimed to reduce the long-term growth of CO2 emissions through removing barriers to commercial utilization of renewable energy systems to substitute for the use of diesel generators in Palawan.				
<i>Indicator1:</i> About 67,500 equivalent liters of diesel will be displaced or approximately 30 liters per household will be displaced covering 2,200 households by the end of 2004.	Negligible	30,000 liters of diesel displaced	28,980 liters of diesel displaced.	Yes. 97%
<i>Indicator2:</i> A cumulative installed capacity of about 132 KW (approximately 2,200 solar home systems) operational by end of project (2004).	Negligible	1,000 units sold (revised to 2,200 units sold – Rev.2)	2,719 actual units sold	Yes. 270% for original target; 123% for revised target.

With respect to the desired impact of the project on GHG emissions reduction, the initial RE-assisted livelihood application chosen for the 5 sites, i.e. using mud crab culture technology, does not have very significant contribution in terms of reduction in diesel fuel burning per se. It is however for demonstrating the utilization of non-GHG emitting technology for livelihood applications. Hence, we can say that the impact will be indirect, and will only be manifested from

potential replications in other livelihood support initiatives in both electrified and non-electrified areas in the future.

The Project has selected mud crab culture not only because of the peoples' familiarity and preparedness about it but also it served as a market entry strategy bearing in mind that this could lead to other livelihood applications and more interest in SHS. The livelihood support aspect of the project is to assist consumers in earning income that will make them capable to afford the RE-based energy systems (e.g., SHS).

The Project has also reported other livelihood applications of solar PV technology initiated by REDC as an off-shoot of the Project that include the following:

1. Lighting for grouper culturing (1 site)
2. Solar PV powered hydroponics (REDC operational model)
3. Solar-Powered Battery Charging Station (BCS) for an average of 50 households per month and about 20 batteries/month charged for motorized fishing boats (start-up engine) and 4 public calling station using satellite phones.
4. Solar-charged flashlights for caretaker's use of livelihood projects and domestic use.

The Project has also reported that REDC has also initiated demonstration of other RE technologies in providing other energy alternatives, including the following:

1. Biogas system - 5 systems installed in 4 households and 1 in REDC
2. Rice hull Gasifier - 2 units of gasifiers fabricated and operational for 2 households at 1 unit pre household
3. Biodiesel (Cocodiesel) - main fuel of diesel-type-engine generator set as back-up power source of REDC.

These units were for simulated educational and demonstration purposes only in line with increasing awareness on renewable energy technologies. Installation of actual operating units were not covered under the project, hence they do not have GHG emission reduction.

Aside from the livelihood applications, the Project aimed for the household access to energy for basic needs. Based on the project metrics, at the end of the Project it was targeted that around 30,000 equivalent liters of diesel should have been displaced. Actual accomplishment showed a figure of 28,980 liters of diesel displaced.

As targeted, by end of the Project (in December 2005 under Revision 2, reprogramming made in 2003), some 2,200 SHS units should have been installed. From the project reports from SSPC, 2,719 SHS units were actually installed under the Project as of end of project (June 30, 2006) as shown in **Annex G**.

During the time of this project evaluation (February 2007), it was gathered that cumulatively, the actual number of units sold from since project inception (2002 to February 2007) is 3,072. As observed, there have been an increasing number of units sold with a remarkable growth in demand for SHS in Palawan.

All the units are operational because of the very effective after-sales maintenance service being provided by SSPC in strategically located solar service centers near the target communities. There were reported cases of temporary down time due to weak or worn-out battery or malfunction of other parts, such as battery control units which are readily addressed by the service centers.

The awareness on RE being an environmental and energy solution, even in small but sustained amounts through the long term, has been very much highlighted by the Project. Apart from the energy relevance, it is well noted also that the livelihood activities introduced through the project have direct environmental benefits, like the mud crab culture, in terms of avoidance of mangrove tree cutting and preservation of the swamps. Information on the Global Environmental Facility (GEF) and its programs has also been well disseminated by the Project in fora, conferences, exhibits and other media opportunities.

In monitoring reduction of technology cost of REs, in 2004, the Project reported indicative cost of energy generation and cost of equipment for different applications, including:

**Table 3. Indicative Cost of RE Energy Generation and Equipment**

RE Technology	Generation Cost, in US\$ per unit of measure	Equipment Cost, in US\$ per KW installed, or as indicated
Solar PV yard lighting, for grouper fish cage lighting and hydroponics	0.113 per kWh	7,423
Solar powered Battery Charging station used in chicken incubator (3 solar module/BCS @ 50 Watt-peak	0.339 per kWh	22,269
Solar Flashlight	0.31 per kWh	6,731
Biogas system	0.011/m3 of gas	231 as installation cost of a unit
Rice hull gasifier	0.035/day in using gasifier	38.50 a unit
Biodiesel (Cocodiesel)	0.052/kWh	0.055/liter

It was noted that the above cost reckoning does not help justify RE in comparison with conventional energy forms. The basis for this costing is not on a commercial number of application but rather on very limited number of units for demonstration purposes only. REs are better appreciated in terms of energy service application rather than energy cost per kWh. However, in the reviewer's opinion as the RE market develops and more customers will share the overall transaction costs, the final per-unit cost will be lowered in the long run.

## 4.2. Achievement of Project Outcomes and Outputs

### 4.2.1. Assessment of Achievement of the Four Project Strategic Outputs

On the overall, based on the reprogrammed project plans, the Project performance and progress has **satisfactorily** met all the objectives and outputs of the four main activities of the project. However, in terms of timeliness of outputs as originally programmed, one of the activities of the Project (corresponding to 36% of project resources) experienced more than two years of delay due to the change in approach and delivery mechanism and the completion of the remaining activities. It is noted that in 2001 (during the second year of the project), the UNDP CO Philippines and the PSC were informed by the Project Management about the potential delays for this activity because of the unsuccessful results that arose from the RESCO approach in another project. The proposed change was finally decided in May 2003. The other three activities (about 64% of the project) have satisfactorily met all objectives according to original targets by Year 3 (2003). It was only during the last three years of extension that the remaining work on the Risk-Sharing Mechanism design and implementation were done, which were supposed to be completed in December 2003 as previously planned. Nevertheless, with extended project duration, the Project has **satisfactorily** accomplished the following to meet all the four expected major actual outputs corresponding to the Project Objectives as listed in the ProDoc.:

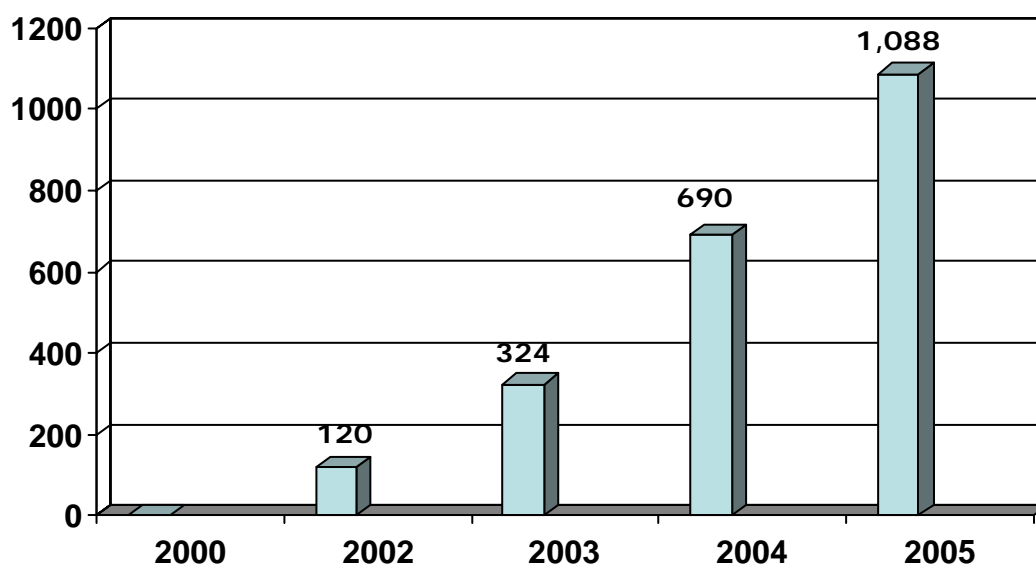
**Output 1.** Capacities of PGP, local community government units and the rural electric cooperative in the province (PALECO) improved as indicated by establishment and sustainable implementation of the program for providing energy access to the people who cannot be reached by the power grid. The peoples' cooperative organizations have built their capacities through the Project which have enabled them to continue developing and implementing in a sustainable manner and attracting more resources and funds for their own livelihood activities.

At least 245 persons were given training in various areas and organizations. For PGP, this has enabled the PGP to adopt RE policies in terms of local resolutions and ordinances in line with national and local objectives. It has established an RE unit and a permanent Division under the Policy and Planning Coordination Office to take care of planning and implementation of RE-related activities and projects and providing information and decision support to RE developers and consumers in Palawan on RE through the establishment of the Renewable Energy Development Center. The PGP has demonstrated capability to manage the RE-based electrification in addition to the grid-supplied electrification.

The awareness and acceptance of the SHS in homes and livelihood application and the preparedness of the different interested parties to acquire and maintain SHS units is an indication that the capacities to adopt this new technology in

Palawan have been gaining in number and extent to help in sustaining the RE-based program in the province.

**Output 2.** The demand for solar home systems in the province of Palawan has increased. As shown in **Fig. 1** below, the actual number of sold and installed SHS has increased during the past years at a faster rate based on within the project duration starting at none in 2000, to 120 units in 2002, 324 in 2003, 690 in 2004, and 1,088 in 2005. Details according to sales center are shown in **Annex G**. This contributed in preventing the high growth of diesel-based power for communities in supporting basic household lighting needs and community livelihood activities. Therefore, the figures show *satisfactory* compliance of targets.



**Fig. 1. Increase of Actual Number of SHS Units Sold and Installed in Palawan within the Project Duration**

All the units are operational because of the very effective after-sales maintenance service being provided by SSPC in strategically located solar service centers near the target communities. There were reported cases of temporary down time due to weak or worn-out battery or malfunction of other parts, such as battery control units which are readily addressed by the service centers.

The expectations of the project participants and targeted beneficiaries were raised as a result of the information, awareness and educational activities of the project, particularly in the livelihood components and the SHS delivery and financing mechanisms of the project.

The Project looks at the impacts of the RE-assisted income generation to be, on one hand, increasing the opportunities of the families to increase their income and therefore augment budget for energy. On the other hand, familiarity with benefits derived from RE, e.g. from Solar PV systems, at least for convenient lighting at night, will continue increase demand for these systems, especially that

the sites do not have immediate hope of being electrified. The number of households without access to the grid still stands at 89,400 or 59% of total households in Palawan.

**Output 3.** A Renewable Energy Development Center (REDC) has been established for the Province of Palawan with corresponding allocated budget and organization under the permanent Energy Division of the Programs and Planning Development Office of the PGP.

As reported, the REDC (or also referred to as Renewable Resources Learning Center, RRLC) has moved to a bigger office to accommodate bigger staff size (20) and a wider area for the REDC/RRLC to provide operational models and hands-on training on the various uses of RE to support livelihood enterprises. In 2004, a permanent site was established through donation of space (1 hectare) and facilities from the Provincial Government Office making it fully functional and receiving visitors regularly to provide operational models and hands-on training on the various uses of RE to support livelihood enterprises during and beyond the project.

Ten (10) types of RE technology models were put up in the REDC/RRLC that include: Solar Hydroponics, bio-gas, bio-diesel, solar mud crab farming, solar-powered nipa hut, solar-powered duck hatchery, battery charging station, satellite phone operation, 200w pico-hydro power system and vermiculture/vermicomposting. REDC served as training center for RE-related training courses. Example of courses offered are in Biogas, Operation and Maintenance of BCS, solar-powered duck hatchery/grouper culture) provided by REDC staff to beneficiaries, LGU, and potential investors.

**Output 4.** A risk-sharing mechanism to support direct sales of SHS and other appropriate delivery mechanisms are designed and their applications demonstrated.

After almost a year of pilot implementation a total of 788 loans have been generated for the purchase of 789 SHS units (one borrower bought two units). This resulted to a total Original Principal Portfolio size of PhP 13,964,696 with one reported loan default amounting to Php 7,736.70 equivalent to 0.05% of the original principal amount as of June 2005.

As of June 2005, from a total of 788 loans, 73 accounts have fully paid while 14 accounts are past due. Of these accounts, only 1 has been considered on default necessitating pull out of the SHS system. Based on outstanding balance, past due loans account for only about 1% of the total outstanding loan portfolio. This represents a very healthy portfolio compared to the planned loss rate of 30%.

As of June 2006 for this evaluation, the total number of SHS units sold stood at 2,719 using established financial systems compared to the target of 2,200 units. In spite of the fact that CRREE has ceased to operate after doing the activities up to December 2004, the LRF continued to serve its purpose of enhancing the bankability of SHS in Palawan. There was only a single default encountered as of June 2006. There was no avilment yet from the LRF as SSPC and CBP found it

not necessary for the moment and continued to exhaust other means of addressing the default directly with the household owner. Accordingly, the household owner stopped its payment because the SHS failed to provide the lighting they need at night. From the interview, it was found out that the household owner was not aware that the battery needed to be replaced. When told by the technician about the problem and the SHS is still fully functional, the owner still wants the SHS but could not raise the money to buy a new battery. Considering that the default was past halfway its amortization schedule, CBP's solution is to restructure the loan to include the cost of the battery and to allow resumption of the same monthly payments as before with a new amortization schedule. Therefore, the actual financing practice by CBP has taken shape to conform to consumer needs with the pilot risk-sharing mechanism of the Project providing the bank guarantee. This is very good indicator of the sustainability of the financing mechanism because the bank itself has taken its own responsibility and initiative on making the direct financing of SHS through SSPC sustainable. This is particularly what the Project has aimed to accomplish. The barrier that banks consider RE financing as very risky has been removed. From the interview with the CBP management, the bank will continue its lending program for SHS using the experience from the Project. It is willing to recommend the system to their other cooperative banks in other provinces that are similarly situated.

#### 4.2.2. Specific findings of the Evaluation

##### a.) Effectiveness and outcome of strategies and activities of the Project

In the course of project implementation, CREEE and SSPC proposed a change in the component activity on Designing and Implementing a Risk-Sharing Mechanism. Since conditions have changed in Palawan significantly and considering the non-successful SSPC experience in its fee-for-service RESCO project in Aklan, SSPC decided to shift the approach to Direct Sales Approach using micro-finance facilities with buy-down on first cost. The change of strategy stemmed from the barrier by the banks on financial uncertainties involved in marketing a new and expensive technology. Thus the change in approach also embodied a financial mechanism of risk sharing in the form of a loan guarantee fund or the Loss Reserve Fund from project funds.

**Table 4. Effectiveness and Outcome of Strategies and Activities**

Project Outcomes	Key Outputs	Effectiveness of strategies and activities
1. Capacities of PGP, local community government units and rural electric cooperatives (PALECO) improved	1. A fully staffed Energy Division that includes RE activities has been formally organized with organizational and budget supports from the PGP 2. 44 people from PGP, LGU, RECs, academe, NGOs, media and the PMO were trained in integrated energy planning and renewable energy project development and evaluation. Two (2) PALECO technicians did off-	<ul style="list-style-type: none"> <li>PGP has also developed capability in issuing policies and resolutions (Provincial Ordinance No.729-03) for the adoption of RE in its developmental programs and institutional structure.</li> <li>PGP under the leadership and direct participation of the Governor and his office has issued Resolution 4763-01 in October 2001 adopting a policy</li> </ul>

Project Outcomes	Key Outputs	Effectiveness of strategies and activities
	<p>grid distribution line surveys in the 5 pilot sites.</p> <p>3. Barangay level and peoples cooperative organizations in Two (2) out of five (5) have been mobilized and continue to engage in livelihood and entrepreneurial activities with the help of RE-based lighting systems in homes and meeting places and of learning experiences from their mud-crab project implementation under the Project.</p> <p>4. PALECO has built its capacity and acquired experience in including RE in its plans and programs and in helping provide conducive business environment for RE providers.</p>	<p>of including RE in augmenting rural energy supplies consistent with the environmental protection for the province.</p> <ul style="list-style-type: none"> <li>• The PSC chaired by the PGP Vice Governor approved Resolution No. 1-02 endorsing the proposed change in delivery mechanism.</li> <li>• The peoples' organizations in the selected five (5) pilot sites have benefited in the training and solar technology demonstration in their respective locations in support of their livelihood activities. For instance, the Cooperative of Caramay which is one of the cooperatives that implemented the solar-assisted mud-crab project has demonstrated its capability to implement livelihood project on its own and was able to attract additional funding support for new livelihood project ventures totaling to at least PhP 15 million. Another livelihood project site in New Ibabay has also demonstrated success along the same line of capacity building strategies for local people's organizations.</li> </ul>
2. Public demand for RE systems increased	The demand for SHS for the past two (2) years has been increasing at a faster rate based on the actual number of installed SHS.	<ul style="list-style-type: none"> <li>• The direct sales approach backed with efficient after-sales service in repair and spare parts provision and financing packages have been proven to increase reliability of SHSs and therefore improved customer acceptance and patronage.</li> </ul>
3. A Renewable Energy Development Center (REDC) established in {Palawan}	PGP has established the REDC through its Energy Unit which continues to provide information to interested parties and promote RE in the province.	<ul style="list-style-type: none"> <li>• PGP issued Provincial Ordinance No. 729-03 dated November 2003 creating a permanent Energy Division that includes in its operational plans and programs the RE-based energy services and the REDC and corresponding budgets.</li> </ul>
4. A risk-sharing mechanism to support direct sales of SHS and other appropriate delivery mechanisms are designed and their applications demonstrated	<p>1. The Risk Sharing Agreement and the Escrow Agreement for the Loss Reserve Fund (LRF) were signed in September 2004 and are continuously in effect.</p> <p>2. The Cooperative Bank of Palawan awarded loans to 966 SHS recipients supplied by the Shell Solar Philippines Corp.</p> <p>3. DBP has reported that to date there has been no withdrawal from the LRF.</p>	<ul style="list-style-type: none"> <li>• Finance term was matched with the customer ability to pay, at 3-4 years or even 5 years. SSSP reports that some customers prefer shorter terms in order to pay off loans earlier.</li> <li>• Interest rates were based on market rates usually 23-30 % p.a. for microfinance.</li> <li>• Down payments are flexible and were sized to allow easy entry and reflect strong stake</li> </ul>



Project Outcomes	Key Outputs	Effectiveness of strategies and activities
	4. PGP has authorized P100 million for PALECO as financial assistance for augmenting rural electrification, a significant part of which could be used as NRE Trust Fund.	<p>of ownership.</p> <ul style="list-style-type: none"> <li>• Providing technical assistance to CBP was essential in effective pilot implementation.</li> <li>• While the LRF remained intact, it has served its purpose of allaying the fears of banks to lend for RE systems and thus confirms desired risk abatement measures and bankability of RE projects</li> <li>• From records of CBP, however, there was one (1) user who default payment in January 2005 but CBP was not able to process claims against the LRF before the Project closing date in June 2006. CBP plans to claim on the LRF in coordination with the SPPC who will exhaust other means of recovery first.</li> </ul>

On the overall, the Project has achieved **Satisfactory** rating in its effectiveness and outcome of strategies and activities done for promoting RE-based energy services using SHS. The Project has met its objective of promoting RE in Palawan and all the expected project outputs have been satisfactorily produced. Despite the obstacles encountered in the project implementation resulting to delays totaling at least 2 years, the objective of building the capacity of the Provincial Government of Palawan has been achieved. Particularly, this includes promoting and implementing RE-based provision of energy services to support sustainable rural development in the selected sites in terms of solar home systems and demonstration of application of solar lighting systems in livelihood activities.

b.) Effectiveness of resource utilization and the delivery of project outputs in dealing with constraints and problems encountered

The Project has *satisfactorily* maintained expenses within budget while achieving the required outputs and outcomes through a series of budget realignment and adaptive management. The Project Management has to terminate the operation of the CRREE in 2004 because the budget for salaries, maintenance and operating expenses, etc. has been used up because of extended project implementation. UNDP CO, PGP and the consultant, in cooperation with CBP and DBP, were able to implement the remaining project activity on Risk-sharing Financial Mechanism in spite of CRREE's closure of operation.

In terms of physical accomplishments vis-à-vis the budget/financial performance, as seen in **Table 5** below, most of the Projects components and activities were completed as planned with the corresponding almost full (97.7%) expenditures of allocated budgets. Other activities, such as the implementation of the LRF, will be on a continuing basis to be continued after

the Project. Unless there are decisions to transfer the LRF now in escrow at DBP to other program and fund manager, the same arrangement on the financing mechanism will hold. There were no noted major constraints and problems encountered with the present arrangement. In terms of effectiveness of resource utilization, the LRF has served its purpose with the total amount intact with some interest gains accounted. It will continue to be an important factor for increasing bankability of SHS, and RE projects in general.

**Table 5. Physical Accomplishment and Financial Completion in Meeting Project Objectives**

Project Objectives and Indicators of Achievement	Physical Accomplishment Completion	Financial		
		Allocated Budget per Activity/ Outcome	Actual Expenses	%Actual Expenses vs. Budget
<b>Outcome 1: Capacities for Provincial Government, LGUs and Rural Electric Cooperatives improved</b>				
1.1 Increased awareness and information in renewable energy and RESCO model among LGU and REC staff for LGU officials	Completed on Direct Sales Approach	168,340.00	155,031.16	92.1%
1.2 Financial incentive policies for renewable energy formulated and Provincial Energy Master Plan finalized	Completed			
1.3 An NRE unit within the Provincial Planning and Development Office (PPDO) set-up	Completed			
1.4 The REC-funded NRE rural electrification projects for 20 barangays are operational by the end of 2003	Five (5) Barangays directly from the Project. 15 other barangays are in various stages of completion.			
<b>Outcome 2: Public demand for Renewable Energy Systems increased.</b>				
2.1 Increased public awareness of renewable energy systems and RESCO concept.	Continuing	145,200.00	174,315.15	120.0%
2.2 At least 500 referrals to SSPC on potential NRE customers for 2003-2004.	Completed			
<b>Outcome 3: A Renewable Energy Development Center (REDC) established in Palawan</b>				
3.1 Increased awareness of renewable energy systems and RESCO and other delivery models.	Continuing	229,460.00	215,090.92	93.7%
3.2 Improved capacities to conduct market feasibility studies for renewable energy projects and increased market information available	Completed			
3.3 Improved capabilities on renewable energy resource assessment and increased renewable energy resource data available.	Completed			

Project Objectives and Indicators of Achievement	Physical Accomplishment Completion	Financial		
		Allocated Budget per Activity/ Outcome	Actual Expenses	%Actual Expenses vs. Budget
3.4 Skills on installation and maintenance of renewable energy systems improved.	Completed			
3.5 Capacity in economic and financial evaluation of various NRE projects improved and business plan for the Center developed	Continuing			
3.6 Center provides financial advisory services to developers of NRE projects by mid-2003.	Completed. Service was stopped with CBP taking on responsibility.			
<b>Outcome 4: A risk sharing mechanism to support direct sales of SHS and other appropriate delivery mechanisms are designed and their applications demonstrated</b>				
4.1 Risk sharing mechanism to support RESCO designed	Completed	307,000.00	280,264.19	91.3%
4.2 Risk sharing mechanism to support RE delivery mechanism implemented	Completed			
4.3 Other appropriate delivery mechanism for the pilot sites is identified by the 1 <sup>st</sup> quarter of 2003.	Completed. CBP continues to explore improvement on the mechanism.			
4.4 Designed RE financial support schemes are recommended to, and evaluated for consideration by the PGP	RE financial support scheme completed but PGP RE Trust Fund has not yet been set-up.			
4.5 Solar energy system vendor(s) able to sell solar home systems to 5 pilot sites through the risk-sharing support provided by PNRELSP	Completed			
<b>TOTAL PROJECT</b>		<b>50,000.00</b>	<b>830,115.95</b>	<b>97.7%</b>

As can be seen from the table, most of the activities of the Project have been completed. As of June 30, 2006, the overall delivery rate of 97.7% has been achieved at project closing date of June 30, 2006. Completion of remaining activities and expenses which are for the project terminal evaluation and other related final project closure activities will result to 100% delivery rate.

**Annex H** shows the summary of the four major activities with the corresponding budget and actual expenditure.

c.) Progress towards attaining the Project's global environmental objectives

The Project has met *satisfactorily* its commitment on the environmental metrics on target quantity of diesel displaced and the number of SHS units installed consistent with the GEF Operational Programme (OP No. 6). As a pilot project, the Project has laid the groundwork for bigger scale RE projects contemplated by the Philippine Government towards achieving long term environmental goals. Details were discussed in Section 4.1 above.

#### d.) Ensuring long-term sustainability of project-initiated activities

The Project, with its scope covering the Province of Palawan only, has established mechanisms to sustain the activities and programs beyond the duration of the Project after 2005. In terms of policy framework, the PGP has adopted in its Rural Energy Master Plan the adoption of measures to promote the use of REs in meeting the electrification needs of the rural communities that cannot be reached by the grid for an indefinite period of time.

On the institutional aspect, the PGP has formalized and directly supported the creation of the Energy Division under the Policy and Planning Development Office where the RE Development Center is also housed. Sufficient number of staff with the necessary training on RE development has been assigned permanently to develop and implement the RE-based energy program. Linkages with the private sector, the academe, other relevant government agencies and the local government units have been established to explore further developments and resource mobilization.

On the financial mechanisms, the Risk-sharing financial facility consisting of the Loss Reserve Fund has been established and operationalized in CBP and DBP which is covered with formalized agreements and reporting systems. It has allayed the concerns of the banks regarding the bankability of REs. While the actual loan funds appear limited during the project implementation, it is expected that more loan funds will be made available by different financing institutions in various forms that include microfinance facilities which are also widely used in other sectors. Regarding the funds expected from the share of the province from the natural gas royalties, there are steps being pursued by PGP with the national government to make some funds available for RE financing. In any case, the financial mechanisms and operational systems are in place to enlarge the coverage of the project-initiated activities in the years to come to meet the growing demand.

#### e.) Leveraging co-financing and policy changes

The Project has also initiated leveraging for co-financing and policy changes in line with mobilizing more support for the RE-based program for Palawan. The following examples have been reported and the extent by which these initiatives have contributed towards enlisting more support:

1. Shell Philippines Exploration, B.V. (SPEX) -funded "Solar Power Micro Enterprise Project" which covers the 6 pilot sites
2. Ford-Funded Solid Waste Management Project (PhP 1 million grant)
3. SSPC financing facility for 100 SHS (PhP 7 million)

In terms of policy changes brought about by the Project, the results of the risk sharing mechanism pilot implementation of Project has been used as a best practice example for formulating similar loan guarantee funding facility of two major DOE RE projects, i.e., the CBRED Project and the World Bank Rural Power Project, both of which are supported by the GEF.

f.) Level of public involvement in the Project

The Project's more direct beneficiary is the public in the poor and isolated communities. It has always involved and sought participation of peoples' organizations and local government units that have direct access to the general public. These are in the form of information dissemination, project development and implementation. The efforts of CRREE in this respect is acknowledged particularly in promoting livelihood activities and developing RE applications in income generating projects, such as the mud-crab culture and other similar undertakings. While the impact might not be that large in terms of the project metrics on oil displacement and economic improvement, such public involvement has demonstrated far-reaching impacts as a result of the capacity building of these people and community organizations. The progress of the cooperatives that were involved by the Project in the selected sites has been demonstrated by the way they have expanded to new areas and technologies using the lessons learned and capacity building that they gained from the Project. As an outcome, the Project has been successful in inculcating basic entrepreneurial management to these communities which could be replicated in many parts of the province and elsewhere. Definitely, public involvement has been very appropriate to the goals of the Project and should be actively encouraged. Ownership and sustainability efforts by the people themselves of these initiatives have been observed to be attained effectively.

g.) Extent to which project impacts have reached the intended beneficiaries

Based on the interviews and project records, the Project impacts are felt directly by the intended beneficiaries especially within the selected project sites. Many have said that the Project has been helpful to those who have availed of the SHS units through the direct sales with SSPC. However, the reach of services can still be improved to cater to potential users that generally belong to the economically disadvantaged group that do not have yet electricity services. This poses a big challenge on continuing the program to extend the reach to the greater number of target beneficiaries through an increased volume of loanable funds directly from CBP and other banks or lending institutions/enterprises or availability of the RE trust fund originally planned for the Province of Palawan. Nevertheless, the systems are in place for more innovations on the technology delivery and financial mechanisms. For instance, the Project, in its continuing search for innovative measures to match the capacity of the targeted beneficiaries, has included as further innovation the financing of replacement batteries which the poor families cannot afford at this time.

h.) Likelihood of continuation of project outcomes and benefits after completion of GEF funding

The project-initiated activities and the benefits derived there from, particularly related to the four strategic outputs of the Project are seen to likely continue even beyond the completion of GEF funding. The policy,

institutional and financial outcomes of the Project are all established and have been operating as observed by this Terminal Evaluation process. However, these should be further sustained by the PGP through its Energy Division and the Renewable Energy Development Center in Palawan through regular budgeting of personnel, maintenance and operating expenses as well as the continuing policy reinforcement in the Palawan Energy Master Plan. Another requirement for the program sustainability will be the continuous strengthening of the working linkages of the PGP with other stakeholders, viz. CBP, DOE's barangay electrification programs, existing related projects of DOE such as CBRED and WB-RPP projects, PALECO, the private project developers and the local peoples' organizations.

#### 4.3. Discussion on Key Issues

##### *4.3.1. Changes in Enabling Environment*

In applying RE for meeting energy needs of rural households and for livelihood activities, the initial cost of RE, e.g. solar home systems, is still high compared to the usual option of diesel generation. With appropriate mechanisms, the Project has demonstrated that the SHS has proven to be technically, economically and environmentally viable option, if not the only option, in far-flung communities. The need to change the paradigm and establish an enabling environment at the local level for a preferential bias for REs is very important. The national pronouncement of policies and programs and legal issuances are likewise important. As shown in Palawan, the alignment and consistency of the national and local directions, enabling environments and time bound program targets should be consistent and reinforcing to one another if wider and lasting impacts are desired to be further achieved. The Project has demonstrated on a provincial scale, the feasibility and impact brought by the changes of the enabling environment in terms of policy, institutional and financial aspects. There might be shortcomings experienced by the Project in achieving fuller performance magnitudes and rates but these initiatives should be sustained in order for the new RE paradigm to reach the greater number of rural households waiting to benefit from modern energy services in Palawan that are already found successful here and in many parts of the world.

##### *4.3.2. How the state of RE application in Palawan changed*

Being one of the earliest RE commercialization projects in the country, the Project paved the way for better familiarization, acceptance and willingness to pay for SHS systems. The Project used the Direct Sales approach which, at that time that the Project was stated to be implemented, was a new idea. The usual approach for RE application is grant-assisted technology distribution and financing. The biggest factor of success can be attributed to the initiatives of the private sector, which in this case the Shell Solar Philippines Corporation, being a partner to the Project. Other private RE developers and suppliers are watching closely for the development of this approach leading to attracting of other SHS

providers to open their market in other parts of Palawan where SSPC is not operating. The issue here is how to bring the main hardware, spares and maintenance services closer to the homeowners and communities in a timely and efficient way at least transaction costs involved. At the beginning, there is a little market for SHS to speak about because there are only a small number of families who understand the benefits and costs of owning SHS. The Project's capacity building, information, demonstration and financing activities helped elevate the level of acceptance and application of RE in Palawan and potentially likewise in some other provinces that are similarly situated.

#### *4.3.3. Contribution of UNDP and GEF to the RE Application*

As the Project was designed and implemented, the UNDP and GEF contribution of USD 0.85 million amounted to one-third of the estimated project cost, but this amount paved the long way towards more RE application. In the beginning, it was as seed money to mobilize more support for RE activities involving the private sector, local government units and other participating institutions. During the implementation process, more support came in the form of potential funds for actual lending for SHS units using the financing facility that was piloted in CBP and more likely with other banks who are developing their interest in RE financing. The establishment of the RE Trust Fund though not materializing within the Project timeframe is still a strong possibility of being realized. The lessons learned and best practices in financing mechanisms derived from the Project are now being used in at least two major RE projects of the country, viz. the CBRED and the WB-RPP Projects.

#### *4.3.4. Indirect or Collateral Impacts of the Project*

The Project has also made some collateral impacts resulting from the GEF-supported activities. These will be illustrated as sample cases in point as discussed below.

- Political Influence – The Provincial Government of Palawan has used the Project in pushing for provincial ordinances that make energy development for rural communities at center stage of the programs. The Palawan Energy Master Plan, through the auspices of JICA, has been finalized and is being used as guideposts in putting RE in the context of a provincial plan and how the Re policy can support wider RE application. The Provincial Governor and the Provincial Board have issued an ordinance creating the Energy Division where the Renewable Energy Development Center (REDC) for Palawan is housed.
- Enhancement of Information access – REDC has started activities to be the repository of valuable information on RE and its application and has acted as focal point for RE-related information exchange for the province.

- Replication – The Project and the RE program development as a whole as demonstrated and implemented in Palawan, can be replicated in some other provinces.
- Catalytic Effects – The direct involvement in organizing and participation in the implementation of the private sector, the local communities and peoples' organizations have catalyzed for more and wider participation towards providing energy services for the remaining 57% of the unelectrified households or a 89,000 households.
- Financial Leverage – With the establishment of the Loss Reserve Fund as the loan guarantee fund for RE financing, the banks and financial institutions have started to open their portfolios to accommodate RE financing. The establishment of the RE Trust Fund as planned using the provincial share in Malampaya natural gas royalties can be better induced because of the existence of the financial mechanisms which are already acceptable to the banks as developed through the Project. The experience in the Project's financial mechanism has also been used in developing similar financing facilities for two major RE projects of DOE on the national scale.
- Empowerment – The Project has mobilized the local peoples' cooperative organizations into finding and developing livelihood generation projects in the five demonstration sites under the Project. With the capabilities that they have developed in the livelihood activities and the ability to manage these projects, the cooperatives have continued to establish their own credibility and integrity to look for other livelihood projects and funding. A case in point is the Caramay Multi-purpose Cooperative which has continued its operation even after the solar PV lighted mud-crab culture demonstration. Financial simulations of mud crab farming done by CRREE indicate internal rate of return of 43% to 128% across different project sites and farm sizes. However, the mud-crab project itself was not sustained because of some siting problems. Some places have dried up and were declared unfit for such marine culture. Nevertheless, for the case of the Caramay Multi-purpose Cooperative visited during the evaluation, they have continued the use of the Panels in lighting their meeting halls and offices as well as the sorting of the sea cucumber products at night as their new entrepreneurship venture. They have attracted more funding for the new projects and developed self-reliance in running the cooperative businesses that include eco-tourism and marine resources farming. The other community project sites have developed similar empowerment in their own project interests. The impact of the Project therefore on empowering and sustaining successful community livelihood/business depended largely on the success of the capacity building for enterprise development, basically instilling in the community entrepreneurs business decision making, procurement and marketing skills, within the Project and beyond.



#### *4.3.5. Project Relevance and Follow-up related to the Natural Resources management Policy environment in the Philippines*

The Project is very relevant to the natural resources management policy environment in the Philippines because it is promoting the use of indigenous resources in encouraging sustainable development especially in rural areas. There are follow-up related projects being supported also by GEF, namely the CBRED Project through UNDP and the Rural Power Project through the World Bank, as implementing agency, respectively. Both projects used the experience of the Palawan Project in establishing a bigger scale financing mechanism for RE projects at the national level.

### **5. Project Management**

Regarding actual implementation and management arrangement for the project, the Project Management Office (PMO) relied heavily on sub-contractors and experts in terms of the substantive inputs. This has resulted to the issue of CRREE not developing its own personnel since most of the staff members are contract personnel, if it were to house and implement the Renewable Energy Development Center. With CRREE ceasing to operate starting 2004 because CRREE doesn't have operating budget after the Project funds is consumed, however, the shift that PGP should eventually develop its own staff for the Renewable Energy Development Center in Palawan and/or absorb the staff trained under the Project has been adopted as the management strategy. The remaining project activity, which is the design and implementation of risk-sharing mechanism, was done through the contractor (IIEC) which completed their work in September 2005. Therefore, the capacity building has been focused on PGP and its assigned personnel.

PGP has continued to establish working linkages with Cooperative Bank of Palawan, PALECO, private sector represented by Shell Solar Philippines Corporation and other interested RE private companies, other academic institutions in Palawan including PSU, and government institutions including DOE and its Palawan ANEC-State Polytechnic College of Palawan, DENR, and DILG. PGP/PPDO has established a regular division to oversee and manage all energy-related functions of PGP under the Special Program Services group, including RE deployment in its Energy Master Plan for Palawan.

#### **5.1. Assessment of Project's overall adaptive management**

Some negative changes occurred during the course of project implementation. CRREE, as the executing agency and as the institution to carry on the responsibility of the RE Development Center after it has been established, experienced unstable operations and inability to perform the expected outputs starting from 2003. It can no longer support the salaries of the Project personnel beyond 2003 since the Project budget for this purpose was already consumed. This only indicated that CRREE has been dependent mainly on the Project funds for its operational requirements and could not sustain its operation after the Project. This is contrary to the project assumption and design that CRREE is a

well established NGO geared towards promoting RE and environmental objectives, which was supposed to be its *raison d'être*. The sustainability of the Project outcomes was threatened as CRREE ceased to exist starting December 2004.

The UNDP Philippine Country Office (UNDP CO), in close coordination with PGP, has to undergo some adaptive management in order to achieve the remaining project outputs without CRREE. During the extension phase, a major project output needed to be done which was the financing mechanism to top up the direct sales delivery approach for SHS being initiated by SRPC in Palawan. UNDP CO led the hiring of the consultant for the financing mechanism which resulted to the establishment of the Loss Reserve Fund (LRF). This is basically a loan guarantee facility so that a participating bank, as started by the Cooperative Bank of Palawan (CBP), would be encouraged to provide lending services to household owners as borrowers for SHS. This was highly innovative in those days since no such facility exists and there was clamor for SHS financing because of high front-end cost of the system beyond the paying capacity of targeted SHS users.

The CO, in close coordination with the PGP, CBP and the consultant, has continued to manage the remaining activities of the project to ensure the link between the desired results and the expectations of the target beneficiaries, thus promoting a sense of ownership.

The Project has been successful in building the capacity of the Provincial Government of Palawan (PGP) in planning, administering and implementing various energy-related projects in pursuit of its goal in providing access to energy in the off-grid rural areas of the province. The following are the indications of success in meeting the targets of the Project as well as the impact of a sustained growth of PGP in this respect:

1. Establishment of an Energy Division in the Provincial government organization
2. Budget allocation for providing access to energy in off-grid communities
3. Continuing organizational development and staff training for the Energy Division

As a whole, the Project has achieved *Satisfactory* rating on Project Management towards its objective of demonstrating and promoting RE, particularly SHS for house lighting and livelihood applications, to support sustainable development in the Province of Palawan. Even with the stoppage of CRREE's operation and other difficulties that the Project implementation has encountered, the objective of building the capacity of the different stakeholders and beneficiaries has been achieved in making energy access possible to support sustainable development at the community level without depending on diesel-based generation. At the same time, the Project has also achieved its purpose of contributing to global environmental benefits. The Project has a very high potential for replicability in other provinces and local governments using the experiences and lessons learned in their aim of providing access to modern forms of energy through RE

to support sustainable community development especially in unelectrified remote and poverty-stricken areas.

As post-project arrangement, the RE program management in Palawan has remained as the responsibility of the PGP. The PGP project staff has developed the project work plan and the annual project report to the CO, thus providing critical information and lessons learned regarding the effectiveness of the implementation strategy on the shift to Direct Sales approach and the delivery of outputs for the rest of the unelectrified households.

## 5.2. Assessment of partnerships and public/private participation

The Project contributed to the implementation of a partnership strategy developed by the RSM Consultant in close coordination with the CO in connection with the remaining activity of developing and implementing a financial mechanism for loan guarantee that was considered by the banks a prerequisite for financing solar home systems.

At the time the Project was designed and justified in 2000, the identified main barriers were lack of financing and inadequate participation of the private sector. The Project is pioneering and highly innovative considering that this was the first UNDP-GEF supported project in the Philippines in the renewable energy and environment fields. The project tested the direct sales approach in introducing Solar Home Systems (SHS) to unelectrified houses with a back up loss guarantee fund (or referred also herein as loss reserve fund) so that banks like the Cooperative Bank of Palawan (CBP) can be encouraged to loan SHS acquisition of home owners.

The Project effectively introduced the LRF which was likely to have positive influence on the effective demonstration and proliferation of SHS for households and livelihood support. It is also likely that the Project had important policy impact for the government which was then contemplating on various financial mechanisms to support RE commercialization at the national, provincial and local level and also considering similar RE projects on a bigger scale.

On the livelihood component of the Project, the demonstration activity which focused on using Solar PV lighting for mud-crab culture in five (5) sites in Palawan Province was already completed. The peoples' organizations/cooperatives which hosted these solar PV-assisted livelihood projects for the communities were trained and supervised by CRREE. However, these projects have also depended largely on the Project funds which tended to be co-terminus with CRREE until December 2003.

The communities and households in the different demonstration sites have benefited a lot from their varied experiences. Nevertheless, the common benefit that was cited by community cooperatives as a result of the Project is the capacity building of the community leaders and participants to pursue new livelihood projects while learning from previous experiences in the requirements for sustaining a livelihood project. The Project significantly ushered them to actual experience, knowledge and RE application in livelihood (where there was no electricity from the grid) and to the cooperative development and

management which they are now using for their continuing livelihood projects and activities.

For example, this Project Evaluation included in the process a visit to Caramay, Roxas, which was one of the five demonstration sites for solar PV-assisted mud-crab livelihood project. The participating cooperative peoples' organization has taken a new progressive form as the Caramay Multi-Purpose Fishing Cooperative which has been using the solar PV panels for lighting during evening meetings of the cooperative and for the sorting of sea cucumber harvest as their new found sustainable livelihood activity. According to the Cooperative Chairperson, Mr. Rodolfo Derecho, they have attracted various funding sources which now total around PHP 6.5 million because of manifested self-reliance and capability to organize and implement projects for themselves in a sustainable manner.

The community has also afforded the installation of SHS for the houses especially for households earning additional income in the community livelihood activities. A growing number of households have continued preferential use of SHS over the diesel genset power which has proven to be more expensive, unreliable and environmentally-unacceptable. Several households have also improved their income with small stores which are open for more hours at night because of solar lighting. The response to solar power benefits also includes the advantages of having better and longer duration of light for children's study and family's activities as well as conveniences of modern living and productive uses of solar-powered devices such as radio, small TV and cellular phones. The knowledge and awareness that these applications have become practical and highly beneficial because of access to affordable energy creates already a big, long lasting impact to the households.

### 5.3. Assessment of M&E and assistance from UNDP/GEF

The rigid M&E and assistance of UNDP in project coordination has helped a lot in adapting to changing situations and encountered difficulties. At the final project review in June 2006, the risks levels of the project have been reduced to *LOW* as a result of risk management measures employed by the Project. Below is **Table 6**, which shows the final risk assessment taken from APR/PIR 2006.

**Table 6. Project Risk Assessment at the End of the Project**

<b>Risk Type</b>	<b>Risk Description</b>	<b>Risk Level</b>
Financial	The expected revenue from the Malampaya natural gas production royalty shares will not be realized for PGP to fund the RE Trust Fund	Low
Operational	The Project will not be able to meet its target of providing energy services for 1,000 households using SHS even if the US\$100,000 project funds are used as LRF and private sector capital finances SHS loans	Low
	Data from surveys and reports are not reliable.	Low
	RE services cannot be provided for productive use	Low
	Trained technical staff (PMO and PGP seconded staff) will not be enough to promote investment in RE systems from the private sector.	Low
	Improved information and services on RE will not be enough to promote investment in RE systems from the private sector	Low
	The cost of RE systems will not be reduced with increasing	Low

	economies of scale.	
Political	The PGP will not implement an Energy Master Plan that includes provision of support to RE investment and services	Low
	The financial incentive policies for RE projects and investments are not legislated by the Provincial Board of Palawan and the revised Provincial Energy Master Plan is not implemented	Low

Source: APR/PIR 2006

The case of the Project illustrates that learning should be part of every monitoring and evaluation effort. In practical terms, the project reports and annual performance assessments through the APR/PIR preparations are important vehicles for resolving problems and implementation barriers and for plowing back innovative experiences and lessons learned in establishing financial mechanisms for the first time. These were resorted by the CO and the PGP, which absorbed the project management functions, as they took over the responsibility of CREEE. Thus, it was of paramount importance that for projects reaching their end that COs, in close coordination with the reorganized Project Management, intervene and generate lessons learned for the annual review and for sharing and application immediately within or outside the organization as a form of adaptive management.

## 6. Major Conclusions

This section highlights the main conclusions of the evaluation in terms of achieving the objectives stated in the project document.

### 6.1 Strong Aspects

1. One of the strong features of the project design is the division of the Project into clear project components and activities based on a logical framework analysis making it Highly Satisfactory. Being so, it was easier to redirect the project and adapt to the changing situations in the market after mid-stream of the Project.
2. The management structure at the first two years consisting of preparatory and initial phases of site selection for demonstration RE application to livelihood activities of the Project is Satisfactory. It employs top-down and bottom-up approaches and social preparations where CRREE as an environmental NGO is recognized strong at. It allowed for ample consultations and planning for the demonstration and selection of sites and direct participation of stakeholders and beneficiaries. Capacity building at the community and peoples' cooperative organization level and raising the information and knowledge of project participants on RE have been emphasized.
3. Strong community ownership has been developed through various orientation and training activities, cooperative development, and identification of livelihood activities and mobilization of local resources. The expertise of CRREE as an NGO close to community development activities has been an asset for the Project in this respect.
4. While the demonstration sites focused on a specific mangrove habitat for mud-crab culture as the livelihood activity, there have been good attempts to integrate the activity into a community-based project that

can serve as a good capacity building and learning venue for local leaders and participants that can attract future projects to enhance biodiversity conservation, alternative income generation, eco-tourism, etc.

5. The pilot risk-sharing mechanism using the LRF has enhanced the bankability of SHS in Palawan. With the availability of this loan guarantee facility initiated by the Project and in other financial windows that are now existing, the main loan fund for actual financing of RE units may be encouraged to meet increasing demand. As the Project's main output, the RE financing scheme is now available and can be fully activated by the PGP whenever the RE Trust Fund is in place.
6. The Project has successfully demonstrated SHS as an alternative energy system for the household and community livelihood applications. The success stories with present users having been able to pay the loans (with very minimal defaults) and the learning experiences provide very good starting points for greater contribution of SHS in the remaining market in unelectrified 160 barangays (37% of total) or 89,400 households (53% of total) as of December 2006.
7. The Project has influenced adoption of an energy policy and also encouraged PGP to issue Provincial Ordinance No. 729-03 in November 2003 creating a permanent Energy Division under the Planning and Development Office for energy development concerns that includes implementing an RE policy in its barangay electrification plans under a more comprehensive energy program as recommended in the Master Plan Study of Power Development in Palawan (September 2004) that includes the establishment of diversified set-up for "promotion of Barangay Electrification ... using installation of stand-alone systems such as battery charging stations (BCS) and SHS, which are easy to manage and need less investment cost".
8. The design of the Project's risk-sharing mechanism using the LRF has been proven successful which has also been used as reference in designing a similar guarantee facility in two (2) RE projects of the Philippine Department of Energy. The pilot implementation showed that SHS borrowers in remote areas can be good credit risks. It showed that SHS financing is a viable business and a bankable account but the important success factor is strong and committed partnership with a SHS supplier/vendor with likewise strong technical services which is available close to the market. Training of various participants in the implementation of the financial mechanism is also very important.
9. UNDP through the UNDP CO in Manila, particularly the Environment Program Portfolio, was strongly supportive, successfully assisting to overcome the Project's implementation and administrative difficulties through adaptive management in the midst of changing market situation.
10. The PGP continued to provide institutional mandate, program support and experienced staff through its Energy Division and the RE Development Center which, together with the LRF, ensure that the SHS-based energy services will be sustainable.

11. The pilot risk sharing mechanism of the Project has helped the banks in understanding the actual risks involved in REs, particularly SHS, thus increasing the banks' confidence on RE and therefore enhanced the bankability of SHS projects. DBP has continued to recognize that the risk sharing mechanism has lowered the risk of lending to SHS user. CBP is now providing loans on a regular basis to household SHS users.
12. With its extended duration, the Project was able to accomplish its objectives and outputs within the original Project Budget and with the cooperation and various inputs from the different stakeholders and co-financing partners. Considering need to adapt to changing situation during the implementation, there were at least two major realignments of the original budget plan. As of the time of this evaluation, the Project activities and the budget have been almost fully consummated at 97.7%, except for the ongoing usual terminal project evaluation and closure activities. When all these remaining terminal activities are done, the project budget will have been fully spent.

## 6.2. Key Challenges

1. The overall project implementation and stakeholder participation is considered generally ***Satisfactory***. The timely execution though of the required project outputs was affected by the change in project direction. The challenge mainly lies on the adoption of an appropriate delivery mechanism considering the changing market condition and unfavorable end-user response to the RESCO approach in another project. The good thing is recognizing the need for the shift in project direction early and going through the process of stakeholder approval and achieving ownership and responsibility for the decision. The increasing demand and actual delivery of the SHS proved that decision was favorable to the achievement of project objectives.
2. The choice of an NGO as an Executing Agency, which has not established its own track record as an established organization and expertise particularly in the RE field, proved to be a major challenge, and later, unsustainable because CRREE largely depended on Project funds for its operational budget needs and therefore has to cease its operation when the salary budgets have been exhausted.
3. The implementation of the management structure during the third year of the Project appeared to have areas for improvement in terms of clear definition of roles of the policy and decision making functions. CRREE's role as a manager and provider of RE development services and the seat of the RE Development Center has ceased to be feasible in the following years thereafter when the project funds for operating expenses have almost been spent. The Project Steering Committee (PSC) as the highest-level decision making structure may have been affected by this situation in terms of lack of accurate and appropriate technical and policy advice that has come from CRREE and consultants in the early part of the project. The UNDP CO has to enter in the

project implementation in view of its adaptive management roles for the project when CREEE ceased to operate after December 2004.

4. The choice of the livelihood activity, i.e. mud-crab growing, to be used as the application for the RE-based energy system has been seen as hardly sustainable and replicable. The preparatory phase in selecting the activity and fitting it to the resources and peoples' capability in the demonstration sites should have undergone more rigorous selection process considering sustainability and replicability as important factors. However, the requirements for sustainability and replicability were not considered in the project design.
5. The project implementation appears to have areas for improvement in cost-effectiveness in terms of staying within budget or reducing transaction costs. The previous audit findings have cited areas where there could be improvement in this respect. Asset management appeared to have some concerns when the vehicle purchased from UNDP TRAC funds was lost and cannot be retrieved.
6. With regards to meeting the targets for the RE-based electrification, the Project was only able to achieve 5 out of 20 barangays expected. However, inherent in the direct sales approach of SSPC would be that the company's microfinancing are for consumers who could afford to buy the SHSs, but not for those in the project sites who can't afford these systems. These tended to concentrate only in areas where there are solar sales centers and the income of households is relatively of higher level to afford the SHS loan amortization. The challenge lies in bringing the energy access to the greater number of barangays which are farther from the centers and where the households are within relatively lower income brackets.
7. The Project experienced a case of default in January 2005 which should have triggered the application of recovery mechanisms from the LRF as provided by the Operating Guidelines and Procedures in the Risk-Sharing Mechanism which was designed and established for the LRF. However, the SSPC and CBP chose to exhaust other means to address the default. By their inquiry, the customer did not pay the loan obligation because the SHS failed and was not aware that batteries should be changed. However, the homeowner does not have resources for the battery purchase. CBP decided instead to include battery replacement as part of the loan program so that the homeowner will not be experiencing relatively big one-time outlays and could enjoy continuous lighting service. This is viewed positively because the bank and other possible RE lending institutions could first exhaust other financing options or other usual recourse and still have the assurance of a fallback option provided by the LRF. This emphasizes the need for the LRF as a standby facility to continue improving the financing sector's confidence in RE lending.
8. It was noted also that CBP has not been submitting official reports regularly following the prescribed format and frequency which could lead to potential problems if not adhered to. As explained by CBP and the contractor (IIEC), there were changes of personnel and



assignments. CBP, however, committed to resume regular reporting using the prescribed system.

9. While the LRF has been established, the Project has also experienced difficulty initially in providing funds through CBP financing windows for loaning to SHS users. CBP has applied from DBP to have funds for loaning but CBP's current financial standing did not meet the required criteria of DBP for such financial arrangements. Because of the increasing demand and the remaining market for SHS and their presence in the pilot areas of the project, CBP stated that they remain committed to increase their volume in the RE loan portfolio through internal resources and external facilities to augment the actual lending facility such as reapplying with DBP and exploring new fund sources. Follow-up and monitoring of this initiative should be done as a post-project arrangement.
10. The RE Trust Fund (RETF) as a baseline responsibility of PGP being the project partner has not been established as expected. The province is still negotiating with the National Government for the actual release of the funds from which the seed money for the RETF will be taken, as planned

## **7. Recommendations**

The following are being recommended as a result of the evaluation findings:

1. With the demonstrated success of the Project's risk-sharing mechanism through the LRF, it is recommended that CBP continue its operation with possible improvements like including battery replacement in the loan package. This will be towards serving the big remaining portion of unelectrified barangays and households in Palawan. It may be good to also consider integrating the LRF with existing RE financing mechanism in the form of a Loan Guarantee Fund (LGF) of the CBRED Project and World Bank RPP to bring it together with similar financing mechanisms on a national level.
2. To make the LRF more beneficial, it is recommended that PGP, in coordination with the banks, pursue the increase of the scale of the loan program that the LRF backs up in order to extend the program to other areas and beneficiaries. The funds to be used for actual lending should be increased to meet the big requirements and demand of the direct sales of SHS. Among other fund possibilities, the planned RE Trust Fund for Palawan should already be established.
3. The post-project operation of the LRF in conjunction with the main RE financing program of CBP and other potential banks should be continuously monitored to provide additional information and experience in developing similar financial guarantee funds to encourage more banks to take up RE financing.
4. In marketing the SHS and other RE systems, it is recommended that the application of the systems for productive activities (i.e., in terms of

income generation) should be emphasized both at the household or community levels. Whether the demonstration of the livelihood component succeeded or failed, the post-project arrangements for the accountability, maintenance and operation of the RE systems should be addressed since SHS units are designed to outlive the project. For example, the cooperative in Caramay has preserved the SHS units provided by the Project and used them in the new projects of the cooperative. This does not only preserve the asset value of the SHS units but also enhances the promotional value of the technology. People could easily attribute failure of a project to a technology. It is recommended that PGP go back to the four other demonstration sites and check the post-project arrangements in these sites.

5. The successful experience in the pilot implementation of the risk sharing mechanism, particularly the important information on SHS loan portfolio risk profiles should be disseminated to other banks and private financing sector to encourage them to support direct sales of SHS or other RE delivery and financing mechanisms.

## **8. Lessons Learned**

The Project has continued to operate in spite of the fact that the CREEE has ceased to function for the Project. The CREEE has depended for its bigger operational budget requirement from the Project funds. This was clearly demonstrated by the situation that when the Project funds for the salary of the Project staff have been used up as the Project nears its completion phase, CREEE can no longer support its continuing role in the Project. The remaining activities such as establishing a financial mechanism for the delivery of solar home systems for off-grid households in Palawan was to be taken over by the UNDP Country Office Manila in cooperation with the Cooperative Bank of Palawan and the Office of the Provincial Government of Palawan. CREEE has offered to be the Program and Fund Manager for the LRF that was to be established but it was not granted not only on the basis of its previous performance in managing the project but also of its inability to support its continuing operation from its own resources.

This was a deviation from the assumption in the Project design that CREEE is a fully established NGO with ongoing programs and role in the development of Palawan.

The following are the lessons learned as derived from the various situations experienced in the Project implementation:

- 1. Facilitating a Quicker Decision Making Process when there is Change of Project Strategy*

More active and time-bound stakeholder consultations and decision making, particularly in changing project direction and strategy, is very important to avoid long delays in project implementation. This should be emphasized in the management arrangements in the design and

implementation of future similar projects especially considering sustainability and replicability.

There was a big delay in project implementation resulting to the length of time to process and decide the change in project strategy from the RESCO approach to Direct Sales approach. This has some implications on the management structure and the M&E of the project. Firstly, SSPC as a project partner may have made unilateral decision in the change of strategy because of their unfavorable experience in their RESCO project in another province which was not firmed up promptly with the PMO and UNDP. According to UNDP/GEF policy, with the change being substantial in terms of direction and budget, the review and approval should have been facilitated so as not to affect the project timetable. Secondly, roles and responsibilities of the project partners may not be clear in terms of initiatives to inform on the planned strategy change. SSPC should have had the initiative to propose the change and provide updates on the developments on their side. Thirdly, the project M&E system may not have been set up to address this change so that the change management plan can be discussed and agreed upon immediately.

## *2. Closer Monitoring of Project Partner Parallel Activities*

Stricter adherence to targets and improving level of commitment of partners in doing parallel activities are undeniably very crucial in the overall success of the project. Clearer definition of indicators of performance and targets which should be jointly developed and understood by all project partners should be included in the design of the project which will guide towards more effective and timely implementation of the project and meet desired results and logical framework of activities. These items should be the basis for the M&E system for the project during implementation and beyond to achieve the long-term goals of the project.

While the definition of roles and responsibilities under the Project have been agreed upon, however, the evaluation noted that the Project had limitations in tracking and reporting the actual inputs and results of the parallel activities done by its partners, particularly SSPC. The total picture of the results of the activities and the integration of approaches to make them coherent has been affected in terms of timing and effectiveness of strategies taken by the Project.

A clearer definition of roles and responsibilities and plan among the three parties to implement the risk-sharing mechanism through the LRF as recommended by the consultant was put in place under a Memorandum of Agreement. The three parties include Development Bank of the Philippines (DBP) as the government financing institution and escrow agent, CBP as the lending institution and SSPC as the private company SHS vendor. In spite of the closure of CRREE after December 2004, this remaining Project component was successfully implemented until completion and continuing operation to date. To provide oversight and adaptive management, the UNDP CO has acted as the coordinator for the remaining project component in close coordination with the three parties and PGP. A monitoring and reporting system was developed and

established to keep track on the LRF administration covering individual household loan performance through CBP. The success has attracted other banks to open funding windows for RE.

### *3. Community Participation and Ownership*

Direct community participation and ownership have been found very effective mobilization factor in achieving long term project goals and sustainability of project outputs. Considering the nature of RE applications in rural communities, the roles and responsibilities of the community should be incorporated in project design and implementation plans that are supposed to be developed through sufficient consultation and needs analysis.

Community ownership of the livelihood and energy projects is very important because it results to better commitment and involvement of people. This can only be possible if the level of awareness and acceptance has reached a point where local leaders are empowered.

### *4. Presence of a Local Loan Facilitator*

Presence of a Local Loan Facilitator has been found effective as intermediary and support logistics provision in the implementation of the financing programs of the project. This can be considered in the design of rural-based financing mechanisms for future projects.

The implementation of the fund mechanisms in remote areas would have been very difficult and time consuming if local facilitators were not present to go between. When CRREE ceased to operate when the fund mechanisms were about to be implemented, negotiations with the local bank and local microfinance intermediaries were delayed. Thus, the local facilitators assisted in reaching the target market in inaccessible areas with no or inefficient communication facilities.



## **Annexes**



**UNITED NATIONS DEVELOPMENT PROGRAMME**  
**November 2006**

**I. INTRODUCTION**

The Palawan New and Renewable Energy and Livelihood Support Project (PNRELSP) is a Global Environment Facility (GEF) supported medium size project (MSP) and is in line with GEF Operational Programme No. 6, "Promoting the Adoption of Renewable Energy by Removing Barriers and Reducing Implementation Costs," implemented through the United Nations Development Programme (UNDP). All parties signed the 3-year project on February 28, 2001 that indicates official implementation of the project.

The project is aimed at reducing the long-term growth of greenhouse gas (GHG) emissions through removing the barriers to commercial utilization of renewable energy power systems to substitute for use of diesel generators in Palawan. This project originally intends to demonstrate the viability of the RESCO (Rural Energy Service Company) delivery mechanism of renewable energy systems, and economic activities of productive use of renewable energy services for rural communities. However, Shell Renewables, Inc., one of the project partners, has shifted its delivery mechanism to a "Direct Sales Approach," because of the failure of the RESCO approach in their project in Aklan. As such, the project will support direct sales approach and other appropriate delivery mechanisms. Specifically, the expected outcomes are as follows:

- Increased awareness of renewable energy systems;
- Increased information and services of renewable energy for potential investors; and
- A commercial and sustainable delivery mechanism set up such as Direct Sales approach to provide renewable energy services in the province of Palawan;

Based on these outcomes, four (4) immediate objectives were drawn and these are:

- 1) Capacities for the Provincial Government, Local Government Units and Rural Electric Cooperatives improved;
- 2) Public demand for renewable energy systems increased;
- 3) A Renewable Energy Development Center established in Palawan; and
- 4) Risk sharing mechanism to support appropriate delivery mechanism such as Direct Sales approach.

To achieve the above objectives, the GEF has provided US\$750,000; the UNDP provided US\$100,000 for the livelihood component of the project; the Palawan Provincial Government (PGP) is providing a US\$300,000 counterpart (in kind and cash); and Shell International Renewables Ltd. has pledged US\$1,400,000 parallel co-financing to promote renewable energy systems in the province.

The Monitoring and Evaluation (M&E) policy at the project level in UNDP-GEF has four objectives: i) to monitor and evaluate results and impacts; ii) to provide a basis for decision making on necessary amendments and improvements; iii) to promote accountability for resource use; and iv) to document, provide feedback on, and disseminate lessons learned. Final Evaluations are intended to assess the relevance, performance and success of the project. It will primarily look at the impact and sustainability of results, including contribution to capacity development and achievement of global environmental goals. It will also identify/document lessons learned and make recommendations that might improve design and implementation of other UNDP/GEF projects.

The final evaluation is a systematic and participatory learning exercise. Given this challenge, this exercise will be structured in such a way that it generates relevant knowledge for project partners while at the same time ensuring that this knowledge can and will be applied in practical and immediate ways. A consultative rather than an advisory process would dispel fears among some partners that evaluation is about finding fault and a proxy for measuring individual or institutional performance, rather than a sharing of knowledge and experiences amongst peers.

Like any project monitoring and evaluation activity, this final evaluation is conducted in accordance with established UNDP and GEF procedures and is to be undertaken by the project team and the UNDP CO, who will commission an independent consultant, with support from UNDP/GEF. The Logical Framework matrix provides performance and impact indicators for project implementation along with their corresponding means of verification. These, along with the objectives, procedures and tools described in the M&E plan presented in the project document will form the basis on which the proposed final evaluation of the PNRELSP will be built.

## **II. OBJECTIVES OF THE EVALUATION**

### ***Main Purpose***

The purpose of the evaluation is to analyze and assess the relevance, sustainability, impact and effectiveness of the strategies, project design, implementation methodologies and resource allocations that have been adopted for the purpose of achieving the objectives stated in the project document.

The specific objectives of the evaluation are as follows:

- To identify and evaluate the effectiveness and outcome of strategies and activities of the project.
- To identify and evaluate the constraints and problems, which have been or are being encountered, the effectiveness of resource utilization and the delivery of project outputs.
- To assess progress towards attaining the project's global environmental objectives per GEF Operational Programme concerned (OP No. 6).
- To assess policy, institutional and financial instruments which have been identified and developed at the local level to ensure long-term sustainability of project-initiated activities beyond the life of the programme;
- To identify the manner and extent to which the project has leveraged co-financing and policy changes
- To assess the level of public involvement in the project and recommend on whether public involvement has been appropriate to the goals of the project;



- To review and evaluate the extent to which project impacts have reached the intended beneficiaries, both within and outside project sites;
- To assess the likelihood of continuation of project outcomes and benefits after completion of GEF funding;

In pursuit of the above, the following key issues should be carefully looked at:

- Changes in the enabling environment such as policy changes, increasing stakeholder involvement, alternations in institutional capacity
- Within the life of project implementation, how has the state of renewable energy application in Palawan changed? Proxy indicator to use changes in human behavior (i.e. changes in pressures and responses)
- What has been the contribution of UNDP & GEF to those changes?
- Impact: Aside from direct and obvious impacts, the project may have generated indirect or collateral impacts. These are difficult to quantify, but may be usefully illustrated according to types and examples and evaluated using narrative approaches, through case studies, evaluations, for example. A few examples of indirect or **collateral impacts** of GEF activities include:
  - *Political influence:* Contributing to an enhanced political profile that support Renewable Energy in the Province;
  - *Enhancement of information and access to it:* Generating and disseminating information on renewable energy and its status that contributes to the global and regional information base
  - *Replication:* Promoting the adoption of successful GEF approaches in other locations and projects
  - *Catalytic effects:* Generating other positive steps, catalyzing state legislation that is outside the project's objectives
  - *Financial leverage:* Prompting the availability of new and additional resources and co-financing,
  - *Synergy:* Fostering positive synergies across conventions and focal areas.
  - *Empowerment:* Boosting the stature and power of focal points through finance, information, and projects (not only in terms of resources, but a "place at the table ")

### **Focus of Evaluation**

The Independent Consultant shall focus on the following based on the Four (4) Strategic Project outputs:

- |           |  |
|-----------|--|
| Output 1: | Improvement in the capacities for Provincial Government, LGUs and Rural Electric Cooperatives in dealing with renewable energy     |
| Output 2: | Increased public demand for renewable energy systems   |
| Output 3: | Establishment of a Renewable Energy Development Center (REDC) in Palawan   |
| Output 4: | Demonstration and Application of a risk sharing mechanism to support direct sales of SHS and other appropriate delivery mechanisms |

### **III. PRODUCTS EXPECTED FROM THE EVALUATION**

The Independent Consultant is expected to deliver the following outputs:

1. An Inception Report with a detailed work plan for the evaluation period indicating the schedules;

2. A draft terminal evaluation report in the format following Section IV below, including a discussion on the special issues to be submitted to UNDP Manila;
3. A final Terminal Evaluation Report addressing the comments and recommendations of GEF/UNDP within 15 days from receipt thereof.

The draft Terminal Evaluation Report will be circulated to the other key stakeholders for comments to be consolidated by the consultant and, together with the comments of GEF/UNDP, shall be finalized addressing the comments of the key stakeholders. Any discrepancies between the impressions of the evaluator and findings of these parties should be explained in an annex attached to the final report.

A Final Evaluation Report (no more than 30 pages, excluding Executive Summary and Annexes) shall be structured as follows:

- (i) Acronyms and Terms
- (ii) Executive Summary (no more than 4 pages)

The Executive Summary should briefly explain how the evaluation was conducted and provide the summary of contents of the report and its findings.

- (iii) Project Concept and Design Summary

This section should begin with the context of the problem that the project is addressing. It should describe how effectively the project concept and design could deal with the situation.

- (iv) Project Results

Progress towards attaining the project's regional and global environmental objectives and achievement of project outcomes. It should also try to answer the question: What has happened and why? The performance indicators in the logframe matrix are crucial to completing this section.

- (v) Project Management

This section covers the assessment of the project's adaptive management, partnerships, involvement of stakeholders, public participation, roles and responsibilities, monitoring plans, assistance from UNDP and IMO, etc.

- (vi) Recommendations

Here, the evaluators should be as specific as possible. To whom are the recommendations addressed and what exactly should that party do? Recommendations might include sets of options and alternatives.

- (vii) Lessons Learned

This is a list of lessons that may be useful to other projects.

List of Annexes includes Terms of Reference, Itinerary, Persons Interviewed, Summary of Field Visits, List of Documents reviewed, Questionnaires used, and Comments by Stakeholders.

#### **IV. APPROACHES AND METHODOLOGY**

The approaches and methodology to be employed by the independent consultant in undertaking the evaluation will include:

1. Develop a work plan for the evaluation indicating the schedules;
2. Brief and debrief UNDP-CO, the Provincial Government of Palawan (PGP), PMO, and relevant key stakeholders if deemed necessary;
3. Complete a desk review of the relevant documents regarding the project;
4. Conduct interviews with relevant project management staff, PGP and UNDP officers, and key stakeholders such as the Shell Solar Inc, Cooperative Bank of Palawan (CBP), Development Bank of the Philippines (DBP) and peoples' organizations in the field, local government unit (LGU) officials, church leaders, and other groups as necessary.
5. Conduct field visits in at least one project site (barangay) for on-site evaluation, field interviews and information gathering on project management and other related activities.

#### **V. QUALIFICATION OF THE EVALUATION CONSULTANT**

The Final Evaluation Consultant must have an expertise on legal and policy environment, renewable energy resource management and M & E. Specific qualifications are as follows:

At least ten years of proven experience with:

- Legal and policy analysis in renewable and/or sustainable energy management
- The logical framework approach and other strategic planning approaches;
- M&E methods and approaches (including quantitative, qualitative and participatory);
- Planning, design and implementation of M&E systems;
- Experience and training on M&E development and implementation and/or facilitating learning-oriented analysis sessions of M&E data with multiple stakeholders;
- Data and information analysis
- Report writing.

She/he must also have:

- A solid understanding of renewable energy management, with a focus on participatory processes, joint management, and possible inclusion of gender issues;
- Familiarity with and a supportive attitude towards processes of strengthening local organizations and building local capacities for self-management;
- Willingness to undertake regular field visits and interact with different stakeholders, especially primary stakeholders;

- Computer skills in word processing and other basic MS Word Office operations
- Leadership qualities, personnel and team management (including mediation and conflict resolution);
- Excellent writing and reporting skills in the English Language is required.

Desirable:

- Extensive and substantive knowledge of the renewable energy focal area in which the project operates;
- Understanding of UNDP and GEF procedures;
- Experience in data processing and with computers.
- Experience in the evaluation of technical assistance projects, preferably with UNDP or other United Nations development agencies and major donors. If possible, experience in the evaluation of GEF-funded renewable energy projects.

## **VI. IMPLEMENTATION ARRANGEMENTS**

UNDP Manila Office shall be the main operation point for the evaluation, which shall be responsible for liaising with the independent evaluation consultant and relevant persons to set-up the stakeholders interviews and meetings, arranging field visits in coordination with PGP, CBP and DBP. It shall ensure the timely provision of travel arrangements, DSA, professional fees in accordance with the contract. It shall also provide all project documents for review of the evaluators available at UNDP Manila.

PGP and CBP shall provide the necessary logistical support (for field arrangements and stakeholders interviews and meetings). It shall also provide all project information and documents for review by the evaluators.

The evaluation will be conducted for a period of six (6) weeks.

## **VII. PAYMENT TERMS**

The consultant will be paid, in accordance to the schedule below:

1<sup>st</sup> payment (15% of contract cost) - Upon submission and acceptance of Consolidated Inception Report

2<sup>nd</sup> payment (65% of contract cost) – Upon submission and acceptance of Consolidated Draft Terminal Evaluation Report

3<sup>rd</sup> payment (20% of contract cost) – Upon submission and acceptance of Consolidated Final Terminal Evaluation Report

## **VIII. SPECIAL ISSUES:**

The evaluation will consider and assess special issues related to the natural resources management policy environment in the Philippines in which the project operates. The evaluation shall be viewed in the context of a possible UNDP-GEF Phase 2 taking into consideration the approved UNDP-GEF Project Document and the new and emerging UNDP-GEF strategic priorities and thrusts.

**Annex B**  
**Schedule of Evaluation, Meetings, Site Inspection and Data Gathering**

	<b>Places Visited</b>	<b>Meetings, Data Gathering or Interviews Held</b>
<i>January 30</i>	UNDP CO Manila	Signing of the Contract for Consultancy on the Project Terminal Evaluation
<b>Inception Report and Document Review</b>		
<i>February 9</i>	UNDP CO Manila	Submission of Inception Report containing methodology and activity plan
<i>February 15 (Thursday)</i>	UNDP CO Manila	Coordination Meeting with Ms. Imee Manal and Mr. Morito Francisco on Project site visits in Palawan
<i>March 1 (Thursday)</i>	UNDP CO Manila	Meeting with DSSC, Environment Program Office on Contract
<i>March 2-6</i>		Data gathering and review of documents provided by UNDP CO
<b>Meetings and Site Visits in Palawan with Local Stakeholders and Mr. Morito Francisco of UNDP CO</b>		
<i>March 7, 2007 (Wednesday)</i>		
10:00 a.m.	Arrive Puerto Princesa	
11:00 a.m.	Energy Unit, PPDO, PGP Puerto Princesa City	Meeting with Project Team on Terminal Project Evaluation process, site visits and data requirements
1:00 – 4:00 p.m.	Cooperative Development Bank, Puerto Princesa City	Meeting and Interview of CBP General Manager and Financial Officer
<i>March 8 (Thursday)</i>		
9:00 – 10:00 a.m.	Caramay, Roxas, Palawan	Site Visits to SHS Household Owners: Sample of Up-to-date payments and defaulted payments
11:00 - 12:00	Caramay, Roxas, Palawan	Site visit to Caramay Multi-Purpose Cooperative
2:00 – 4:00 p.m.	Energy Unit, PPDO, PGP Puerto Princesa City	Meeting on project management and other remaining data requirements
4:00 – 5:00 p.m.	Provincial Planning and Development Office, PGP, Puerto Princesa City	Meeting on Energy Master Plan and RE program for rural electrification
<i>March 9 (Friday)</i>		
8:00	Cooperative bank of Palawan	Meeting with CBP General Manager and Financial Officer for Shell Solar Project
10:00	Depart for Manila	
<b>Additional Data Gathering and Report Preparation</b>		
<i>March 10 – April 20</i>	Manila	Additional data gathering, interviews and report preparation
<i>April 22</i>	UNDP CO Manila	Submission of Draft project Terminal Evaluation Report

## **Annex C**

### **Persons Met/Interviewed**

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#### **Project Team**

Darrell Elivera	Project Team Leader and OIC, Energy Division, PGP
Aireen Marcaida	Project Development Officer III
Edward Jun Valencia	Project Development Officer III
Roberto Abaciar	Project Development officer III
Dennis Valdestamon	Project Development Officer III

#### **PGP**

Samuel Madamba	Provincial Planning Development Coordinator
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#### **UNDP Country Office - Manila**

Amelia Supetran	Assistant Resident Representative
Imee Manal	Programme Manager
Morito Francisco	Programme Associate

#### **Shell Solar Philippines Corporation**

Castriciano T. Timbreza, Jr.	Assistant Operations Manager
Chit Milan	Sales coordinator
Joel Villapa	Engineer/Contractor

#### **Cooperative Bank of Palawan (CBP)**

Herudito A. Hista, Jr.	General Manager
Teofilo Badajar, Jr.	Account Officer Shell Solar Project

#### **Development Bank of the Philippines**

Jett Salvatierra	Assistant vice President
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#### **Cooperative**

Mr. Rodolfo Derecho	Chairman Caramay Multi-purpose Cooperative
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#### **Users**

Laura Macolor	Homeowner Caramay, Roxas, Palawan
Arturo Sumalde	Homeowner Caramay, Roxas, Palawan

**International Institute of Energy Conservation**

Angelina Dealino

Consultant  
Risk-Sharing Mechanism

## Annex D

### Chronology of Events in the change of delivery and financial mechanism

Below is the chronology of events in connection with the change in project strategy vis-à-vis Project target of approved RSM design by 1<sup>st</sup> Quarter 2003:

Date	Event	Remarks
Oct. 23, 2001	CRREE Proposed Revision for Designing a Risk-Sharing Mechanism	Proposed completion of design was by June 2002
Nov. 16, 2001	UNDP CO requested submission by CRREE of documentation regarding the proposal	Final documentation on the justification, budget realignment and MOA on CEC support
Dec. 7, 2001	Resubmission of the CRREE proposal on the change including requested documentation	
Jan. 8, 2002	UNDP CO post facto approval of the hiring of Technical Specialist and approval of the proposal on the conduct of the mechanism design through sub contractor bidding	NEX process required and subcontracting be done through DSSC
Jan. 18, 2002	UNDP CO relayed UNDP/GEF New York request for additional documentation on the stakeholder endorsement and further budget revisions	Confirming that CRREE can not undertake the activity directly but subcontract with possible qualified local consultants
Feb. 18, 2002	CRREE submission on additional documentation, ProDoc revisions, budget realignment and stakeholder endorsement	Stakeholder endorsement in the form of minutes of stakeholder meeting and resolution dated Feb. 6, 2002.
Mar. 7, 2002	UNDP CO requested for additional documentation on other delivery mechanism alternatives, clarification that CRREE has no role on microfinance in the Project, Project indicators, budget revision and other details on the proposed change	
Jul. 3, 2002	UNDP CO email advice on subcontract bidding for risk-sharing mechanism design	Award of bidding targeted Aug. 9, 2002 with actual work to start Aug. 15, 2002.
	Engagement of IIEC as the RSM design consultant	
Apr. 22, 2003	UNDP CO approved renaming of BL "Implementation of RSM" to "Technical Assistance for GFIs and CMFIs" and creating a separate BL for Lost Reserve Fund (original BL on Implementation of RSM).	
May 30, 2003	PSC approved the proposed concept of the Project's design of RSM for Direct sales	
June 1, 2003	SSPC sold initial 10 SHS in 3 pilot sites	
Jul. 2004	APR/PIR Report 2004	The design and implementation of the LRF and the Vendor Repurchase Commitment for direct and indirect lending schemes have been significantly delayed.
Sep. 1, 2004	MOA by SSPC, CBP and UNDP on the establishment of the consumer finance system for rural households acquiring SHS and defining terms of the loan	
Sep. 2, 2004	Escrow Agreeemtn for the LRF signed by CBP, DBP and UNDP.	
Feb. 9, 2005	LRF in Escrow with DBP for an amount	



	of PhP 3.549 million	
Feb 28, 2007	DBP report on LRF status and balance	No default availment and Balance of funds at PhP 3.675 million

**Annex E**  
**Detailed Results of Project Activities and Programs**

Overall Project Outcomes as of End of Project (June 30, 2006) vis-à-vis Performance Indicator Targets					
Description	Value in year 0	End of Project Target Value (Year '03 – Dec 2003 – Rev.1)	End of Project Actual Value (June 30, 2006)	Achieved Target? (Yes/No)	Remarks on Achievement of Targets
<b>Objective:</b> The project is aimed to reduce the long-term growth of CO2 emissions through removing barriers to commercial utilization of renewable energy systems to substitute for the use of diesel generators in Palawan.					
<u>Indicator1:</u> About 67,500 equivalent liters of diesel will be displaced or approximately 30 liters per household will be displaced covering 2,200 households by the end of 2004.	Negligible	30,000 liters of diesel displaced	28,980 liters of diesel displaced.	Yes. 97%	
<u>Indicator2:</u> A cumulative installed capacity of about 132 KW (approximately 2,200 solar home systems) operational by end of 2004.	Negligible	1,000 units sold (revised to 2,200 units sold – Rev.2)	2,719 actual units sold up to June 30 2006	Yes. 270% for original target; 123% for revised target.	
<b>Outcome 1:</b> Capacities for Provincial Government, LGUs and Rural Electric Cooperatives improved					

Description	Value in year 0	End of Project Target Value (Year '03 – Dec 2003 – Rev.1)	End of Project Actual Value (June 30, 2006)	Achieved Target? (Yes/No)	Remarks on Achievement of Targets
<p><u>Indicator 1:</u></p> <p>Increased awareness and information in renewable energy and RESCO model among LGU and REC staff for LGU officials who are responsible for using an energy cum environment strategy in creating a conducive market situation for more NRE advocacy and deployment, or information dissemination to the public.</p>	Minimal	50 LGU and REC staff trained in renewable energy and RE delivery models	51	Yes	<p>44 people from LGU, RECs, academe, NGOs, media and the PMO were trained in integrated energy planning and renewable energy project development and evaluation. Two (2) PALECO technicians did off-grid distribution line surveys in the 5 pilot sites.</p> <p>Five (5) PGP and PALECO officials had a study tour in Shell-managed RESCO facilities in Aklan where they gained first-hand information on the benefits and limitations of a Solar PV/Liquified Petroleum Gas hybrid system for an AC mini-grid RESCO operation.</p> <p>Capacities of PGP Officials was developed to enact resolutions and ordinances in RE. The PGP approved Resolution No. 1-02 endorsing the proposed change in delivery mechanism in 2003.</p>
<p><u>Indicator 2:</u></p> <p>Financial incentive policies for renewable energy formulated and Provincial Energy Master Plan finalized</p>	None	<p>20 provincial government staff trained</p> <p>A report of recommended financial incentive policies</p>	<p>36</p> <p>Completed and submitted to CRREE</p>	Yes	<p>The Seminar-Workshop on Energy Planning was held in May 2002 for 36 participants, including 15 representatives of each municipality, with the rest coming from CRREE, PPDO, CPDO, NPC, PALECO, PARAGUA and the academe.</p> <p>The UP/SL has submitted policy recommendations and financial incentive</p>

Description	Value in year 0	End of Project Target Value (Year '03 – Dec 2003 – Rev.1)	End of Project Actual Value (June 30, 2006)	Achieved Target? (Yes/No)	Remarks on Achievement of Targets
		<p>for renewable energy ready for submission to the provincial government for approval</p> <p>A revised Provincial Energy Master Plan with increased share of renewable energy in future electricity supply in Palawan</p>	Completed in September 2004		<p>options. Review by concerned agencies and public consultation and the finalization of Palawan RE Policies and financial incentives were completed.</p> <p>The Final Report for the Master Plan Study of Power Development in Palawan was completed under the JICA Technical Assistance.</p>
<p><u>Indicator 3:</u></p> <p>An NRE unit within the Provincial Planning and Development Office (PPDO) to be set-up by mid-2003.</p>	No NRE unit	NRE Unit established as part of Provincial Energy Unit	Fully staffed RE Unit under the Energy Division within the PPDO.	Yes	PGP approved Ordinance No. 729-03 in November 2003 for creating a permanent the Energy Division under the PPDO for provincial energy development concerns.
<p><u>Indicator 4:</u></p> <p>The REC-funded NRE rural electrification projects for 20 barangays are operational by the end of 2003</p>	No rural electrification project	Implementation of rural electrification project benefiting 20	Five (5) Barangays directly from the Project. 15 other barangays are in various stages of	No	Mirant barangay electrification project still ongoing. Continuing promotion in other unenergized barangays.

Description	Value in year 0	End of Project Target Value (Year '03 – Dec 2003 – Rev.1)	End of Project Actual Value (June 30, 2006)	Achieved Target? (Yes/No)	Remarks on Achievement of Targets
		barangays	completion.		
<b>Outcome 2: Public demand for Renewable Energy Systems increased.</b>					
<p><i>Indicator 1:</i></p> <p>Increased public awareness of renewable energy systems and RESCO concept.</p>	negligible	<p>The benefits of renewable energy technologies widely known</p> <p>Increased productive use from renewable energy services</p> <p>Increased demand and requests for renewable energy systems</p>	<p>Increased awareness on RE was indicated in surveys that were done</p> <p>The application of solar PV lighting in mud crab culture has been demonstrated as productive use of RE.</p> <p>The demand and requests for NRE systems, particularly solar PV systems, were verbally manifested in interviews done with people involved in the project as well in project sites.</p>	Yes	<p>The Project continued to exhibit RE in public events (PGP Baragatan, Earth Day, Quiz Bee Contests, School exhibits, etc.)</p> <p>The cooperatives use this as their learning experience in RE technology application and more importantly as capacity building for cooperative management and entrepreneurial activities. For instance, the Cooperative of Caramay has used their solar panels for another livelihood project on sea cucumber culture for lighting of their meeting hall and product sorting and packaging area. Research and conduct of feasibility studies for other RE productive applications were also done by CRREE.</p> <p>Increasing sales in SHS with additional 854 SHS in 2005 were sold by SSPC through approved loans with the LRF and 1,088 in 2006.</p> <p>Affordability still remains the big issue for increased demand for RE.</p>

Description	Value in year 0	End of Project Target Value (Year '03 – Dec 2003 – Rev.1)	End of Project Actual Value (June 30, 2006)	Achieved Target? (Yes/No)	Remarks on Achievement of Targets
<p><i>Indicator 2:</i></p> <p>At least 500 referrals to SSPC on potential NRE customers for 2003-2004.</p>	negligible	500 SHS	966	Yes	SSPC established Solar Centers in 6 locations in order to handle marketing and customer relations.
<b>Outcome 3: A Renewable Energy Development Center (REDC) established in Palawan</b>					
<p><i>Indicator 1:</i></p> <p>Increased awareness of renewable energy systems and RESCO and other delivery models.</p>	Negligible	<p>A number of staff for the Renewable Energy Development Center hired</p> <p>The office of the Renewable Energy Development Center set up</p> <p>Information and services on renewable energy available for potential investors</p>	<p>Seven (7) staff assigned to the Energy Unit</p> <p>PGP has established the REDC through its Energy</p> <p>Information and services have been initially provided to interested parties at REDC in cooperation with the ANEC-Palawan</p>	Yes	<p>PGP issued Provincial Ordinance No. 729-03 dated November 2003 creating a permanent Energy Division that includes in its operational plans and programs the RE-based energy services and the REDC and corresponding budgets</p> <p>REDC continued the function of CRREE in providing information to interested parties and promote RE in the province.</p>
<p><i>Indicator 2:</i></p> <p>Improved capacities to conduct market feasibility studies for</p>	Negligible	A list of potential productive use	CRREE, then later on Energy Unit, continued	Yes	Training design and program developed by IIEC as consultants for Designing a Risk

Description	Value in year 0	End of Project Target Value (Year '03 – Dec 2003 – Rev.1)	End of Project Actual Value (June 30, 2006)	Achieved Target? (Yes/No)	Remarks on Achievement of Targets
renewable energy projects and increased market information available		<p>of renewable energy services in Palawan identified</p> <p>A number of sites for the pilot projects selected</p> <p>The results of market survey published</p> <p>Increased social-economic information on unelectrified barangays available</p> <p>Services to conduct future market feasibility studies available</p> <p>A list of local partners available</p>	<p>to identify possible productive applications of NRE in Palawan in addition to mud crab culture in mangrove locations</p> <p>Six (6) pilot sites were developed</p> <ol style="list-style-type: none"> <li>1.Napsan, Puerto Princesa City</li> <li>2.Caramay, Roxas</li> <li>3.Bulalacao, Coron</li> <li>4.Turda, Coron</li> <li>5.New Ibajay, El Nido</li> <li>6.Tagburos, Puerto Princesa City</li> </ol> <p>Market survey results were used in the local seminar/workshops</p> <p>CRREEE started providing services which the REDC continued.</p> <p>List available at REDC.</p>		<p>Sharing Mechanism on micro-credit for solar panels for Cooperative Bank employees and Cooperative members.</p> <p>CRREE showcased application of solar lighting systems in mud crab culture towards enhancing livelihood opportunities in these areas and creating a market for RE technologies.</p> <p>The report on Market Surveys for the six selected project sites was submitted by Strategic Advantage, Inc. to CRREE. The results are also available to the public.</p> <p>Information on socio-economic aspects of unelectrified barangays at least in the vicinity of the Project sites were included in the Market Surveys.</p> <p>The REDC in the Energy Unit of the PGP has assumed the responsibility and started to develop its capability to render such services.</p> <p>The Project continued to identify partners in the implementation of its direct marketing of SHS. SSPC continued to provide the SHS supply in the areas that they operate. New players were also marketing their units or act as contractor to other solar electrification projects that are now in Palawan such as the PNOG EIES solar distribution project, etc.</p>

Description	Value in year 0	End of Project Target Value (Year '03 – Dec 2003 – Rev.1)	End of Project Actual Value (June 30, 2006)	Achieved Target? (Yes/No)	Remarks on Achievement of Targets
		<p>Matchmaking service to find a local partner for RESCO available</p> <p>20 people trained in market feasibility studies</p>	<p>N.A.</p> <p>22 officers and staff of the Cooperative Bank of Palawan trained in managing loan portfolio on SHS lending that includes in their prerequisites submission of feasibility studies.</p>		<p>Philacor in addition to CBP serve as financing partners of the Project for direct sales to users.</p> <p>Since the RESCO concept has been dropped, SSPC continued to develop its marketing and after sales organization in the province and added partners as seven (7) sub-contractors and five (5) Solar Hubs located in Puerto Princesa, Quezon, Brokes Point, Taytay and El Nido.</p> <p>REDC of the Energy Unit of PGP, the SHS companies and the ANEC-Palawan have been trained and conducting feasibility studies</p>
<p><u>Indicator 3:</u></p> <p>Improved capabilities on renewable energy resource assessment and increased renewable energy resource data available.</p>	<p>Negligible</p>	<p>Renewable resource measurement data available for a few selected sites</p> <p>A renewable energy resource database set up for Palawan</p> <p>Services of future renewable</p>	<p>Solar resource data are available in the selected project sites.</p> <p>At present, the database contains useful data for conducting feasibility studies for Palawan. A list of available data and information contained in the database can be seen in <b>Annex F</b>.</p> <p>Plans for future</p>	<p>Yes</p>	<p>Solar data was updated for New Ibajay and El Nido in 2006. However, resource data is lacking for the other NRE resources such as wind, micro hydro and biomass, particularly in the barangay and sitio levels. Topographic maps with GIS features are being made at the barangay level which could be expanded to overlay RE resource data. National data from DOE indicate that Palawan municipalities have moderate-to-excellent potential for solar, wind and hydro resources which can be used as basis for preliminary feasibility studies.</p> <p>PGP has been using the computer software provided during the training on Palawan Rural</p>



Description	Value in year 0	End of Project Target Value (Year '03 – Dec 2003 – Rev.1)	End of Project Actual Value (June 30, 2006)	Achieved Target? (Yes/No)	Remarks on Achievement of Targets
		<p>energy resource assessment available</p> <p>Ten (10) people trained in renewable resource assessment</p>	<p>renewable energy resource assessments have been prepared by Energy Division/REDC in cooperation with the DOE ANEC-Palawan.</p> <p>More than 10 personnel of CRREE and PGP staff and other personnel of key project stakeholders were trained in resource assessments.</p>		<p>Energy Database and a Management Information System.</p> <p>Training courses on energy technology and resource assessment on solar, wind, hydro and hybrid energy conversion systems were completed by CRREE.</p>
<p><u>Indicator 4:</u></p> <p>Skills on installation and maintenance of renewable energy systems improved.</p>	None	<p>Skilled local staff capable of installation and maintenance of renewable energy systems available</p> <p>Skilled local staff capable of providing training to other local technicians and providing</p>	<p>Skilled technicians are now available in all Solar hubs through the seven (7) subcontractors of SSPC who do the hauling, installation, operation, maintenance and orientation of SHS users. At least five (5) technicians are available for each hub.</p>	Yes	<p>CRREE and UP/SL staff members have provided technician training up to actual OJT for local NRE technician manpower development and technical back-up.</p> <p>Training Workshops on Technology, Design, Installation, Operation and Maintenance of NRE Systems were completed with corresponding number of graduates: Solar PV Systems /Solar Drying (26), Wind Energy Conversion / Wind Pumping Systems (21), Micro Hydro Systems/Hybrid Energy Conversion Systems (35).</p>

Description	Value in year 0	End of Project Target Value (Year '03 – Dec 2003 – Rev.1)	End of Project Actual Value (June 30, 2006)	Achieved Target? (Yes/No)	Remarks on Achievement of Targets
		<p>technical back up available</p> <p>10 people trained in technical aspects of installation and maintenance.</p>	82 people trained in various courses		
<p><i>Indicator 5:</i></p> <p>Capacity in economic and financial evaluation of various NRE projects improved and business plan for the Center developed</p>	None	<p>Five (5) people trained in business management and financial evaluation of NRE projects.</p> <p>The Center will be able to provide financial advisory services to developers of NRE projects</p> <p>A business plan for the Center prepared.</p>	Minimal	No	<p>These were the activities and services that CRREEE as the Executing Agency is expected to provide. Unfortunately, the CRREE Office has ceased to operate and PGP through its Energy Division took over the operation of the REDC. The business plan for the REDC remains unfulfilled.</p>

Description	Value in year 0	End of Project Target Value (Year '03 – Dec 2003 – Rev.1)	End of Project Actual Value (June 30, 2006)	Achieved Target? (Yes/No)	Remarks on Achievement of Targets
		The Center becomes financially independent by the end of the project			
<p><i>Indicator 6:</i></p> <p>Center provides financial advisory services to developers of NRE projects by mid-2003.</p>	None	Continues financial advisory services to developers	Stopped	No	<p>Since May 2003 CRREE has provided financial advisory assistance to the following projects:</p> <ul style="list-style-type: none"> <li>• USAEP-funded wind-powered mini ice plant for Barangay Sabang for EC Trade.</li> <li>• Livelihood and financing projects for the Fisheries Resources Management Project of BFAR and the City of Puerto Princesa for the Economic Development Foundation</li> <li>• Assistance to IIEC for the design and implementation of Risk Sharing Mechanism for renewable energy.</li> <li>• Proposed 6.6 MW solar power plant in the City of Puerto Princesa.</li> </ul> <p>The CRREE Office has ceased to operate and PGP took over the operation of the REDC. It continues to receive guests, particularly students, to promote RE in the area.</p>

Description	Value in year 0	End of Project Target Value (Year '03 – Dec 2003 – Rev.1)	End of Project Actual Value (June 30, 2006)	Achieved Target? (Yes/No)	Remarks on Achievement of Targets
<b>Outcome 4: A risk sharing mechanism to support direct sales of SHS and other appropriate delivery mechanisms are designed and their applications demonstrated</b>					
<u>Indicator 1:</u> Risk sharing mechanism to support RESCO designed	None	An agreed-upon risk-sharing mechanism between the PGP, the private solar energy system vendor(s), and the financial institution(s) by the 1 <sup>st</sup> quarter of 2003.  The PGP's roles, contingent to the given delivery mechanism, defined and capacity improved by the 1 <sup>st</sup> quarter of 2003.  Appropriate financing window(s) for	Completed          PGP's role defined          Completed	Yes	DBP's recognition of the designed risk sharing mechanism as a mechanism to lower the risk of lending for their new RE window for stand alone Renewable Energy Technology systems.  Design of risk –sharing mechanism in the form of a Loss Reserve Fund was approved by PSC as the necessary financial toll to encourage loaning in RE.

Description	Value in year 0	End of Project Target Value (Year '03 – Dec 2003 – Rev.1)	End of Project Actual Value (June 30, 2006)	Achieved Target? (Yes/No)	Remarks on Achievement of Targets
		direct sales is/are designed by April 2003.			
<i>Indicator 2:</i> Risk sharing mechanism to support RE delivery mechanism implemented	None	Implemented by December 2003	Completed pilot implementation of the risk-sharing mechanism on September 2004	Yes	Cooperative Bank of Palawan is the loaning bank, while DBP was chosen as the Escrow Agent for the LRF. Only one default case was experiences before project closure in January 2006.
<i>Indicator 3:</i> Other appropriate delivery mechanism for the pilot sites is identified by the 1 <sup>st</sup> quarter of 2003.	None	Appropriate mechanism set-up	CBP continues to explore improvement on the mechanism.	No	Financing of batteries identified as another appropriate delivery mechanism.
<i>Indicator 4:</i> *Designed NRE financial support schemes are recommended to, and evaluated for consideration by, the PGP by the end of the 1 <sup>st</sup> quarter of 2003.	None	NRE Trust Fund set-up The implementation and management procedures of the NRE Trust Fund are established based on the	NRE financial support scheme completed but PGP NRE Trust Fund has not yet been set-up.	No	PGP has been negotiating with the national government regarding the royalty share in the Malampaya natural gas reserve to be used as source of the RE trust Fund.  Submitted report on Task 4 containing the recommended implementation and management guidelines for the NRE Trust Fund for the PGP; and the recommended institution that can manage the NRE Trust Fund.

Description	Value in year 0	End of Project Target Value (Year '03 – Dec 2003 – Rev.1)	End of Project Actual Value (June 30, 2006)	Achieved Target? (Yes/No)	Remarks on Achievement of Targets
		<p>recommended NRE financial support schemes by 1<sup>st</sup> quarter of 2003.</p> <p>The PGP commits a portion of its budget to the NRE Trust Fund by the 2<sup>nd</sup> quarter of 2003.</p> <p>Financial support schemes for other appropriate delivery mechanism(s) are incorporated in the NRE Trust Fund.</p>			
<p><i>Indicator 5</i></p> <p>Solar energy system vendor(s) able to sell solar home systems to 5 pilot sites through the risk-sharing support provided by PNRELSP starting on the 2<sup>nd</sup> quarter of 2003 up to the 4<sup>th</sup></p>	None	Solar energy vendor able to sell at 5 pilot sites through the risk sharing support	Completed	Yes	As of May 2005 a total of 854 SHS units have been purchased by household borrowers through financing by the Cooperative Bank of Palawan back up by the risk sharing mechanism of the PNRELSP

Description	Value in year 0	End of Project Target Value (Year '03 – Dec 2003 – Rev.1)	End of Project Actual Value (June 30, 2006)	Achieved Target? (Yes/No)	Remarks on Achievement of Targets
quarter of 2003.		<p>provided by the Project</p> <p>Households of all income levels in the five (5) pilot sites are able to afford to purchase solar home systems.</p> <p>Solar energy system vendors can recover its operating costs including a capital recovery charge, with the support of PNRELSP by the end of year 2003</p>			<p>Public demand for SHS in Palawan has increased for the past years at a faster rate based on the actual number of sold and installed SHS within the project duration starting at none in 2000, to 120 units in 2002, 324 in 2003, 690 in 2004, and 1,088 in 2005. (Please see <b>Annex G</b> for details).</p> <p>Starting with only about 85 household from the five (5) pilot sites who were able to avail the SHS financing, the number of interested borrowers increased.</p> <p>There was a substantial increase in the no. of SHS sold by Shell Solar in Palawan, in view of the operationalization of the LRF.</p>

**Annex F**  
**Data and Information contained in the REDC Database**

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1. Solar Insolation Data for Selected Sites
2. Hydro Potential in Selected Sites
3. Household Survey at the Barangay Level – 2005
4. Barangay Profiles and Maps Including Information on Location of the Barangay Center, Boundaries and Road Networks
5. Electricity Distribution Line Maps
6. Grid Connection Plan (On-Grid and Mini-Grid)
7. Barangay Electrification Plan and Status
8. Topographic Maps in GIS Format at the Barangay Level
9. Existing Power Plants Location, Installed Capacities and Generation Data
10. Collection of various volumes and sets of reports, magazines, books, papers, documents and field reports.



**Annex G**

**Record of Actual Number of SHS Units Sold and Installed in Palawan, 2002 – February 2007**

Solar Center	Jan.	Feb.	Mar.	April	May	Jun	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
<b>2002</b>													
El Nido	0	0	8	8	2	6	2	4	0	0	2	1	33
Taytay	0	0	0	2	0	3	0	2	2	0	4	4	17
PPC	0	1	5	1	6	6	1	0	1	3	4	11	39
Quezon	0	0	0	1	3	0	0	0	1	0	0	2	7
Brookes Point	0	0	0	0	0	2	0	0	1	3	5	13	24
<b>TOTAL</b>	<b>0</b>	<b>1</b>	<b>13</b>	<b>12</b>	<b>11</b>	<b>17</b>	<b>3</b>	<b>6</b>	<b>5</b>	<b>6</b>	<b>15</b>	<b>31</b>	<b>120</b>

Solar Center	Jan.	Feb.	Mar.	April	May	Jun	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
<b>2003</b>													
El Nido	2	0	4	7	9	4	11	3	1	1	3	5	50
Taytay	0	0	10	19	11	2	8	3	1	2	3	1	60
PPC	3	3	3	2	8	3	2	1	3	2	2	13	45
Quezon	3	0	0	3	1	5	1	5	5	3	13	15	54
Brookes Point	4	1	15	7	9	11	12	5	7	5	19	20	115
<b>TOTAL</b>	<b>12</b>	<b>4</b>	<b>32</b>	<b>38</b>	<b>38</b>	<b>25</b>	<b>34</b>	<b>17</b>	<b>17</b>	<b>13</b>	<b>40</b>	<b>54</b>	<b>324</b>

Solar Center	Jan.	Feb.	Mar.	April	May	Jun	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
<b>2004</b>													
El Nido	1	1	1	4	2	2	4	5	13	10	17	4	64
Taytay	5	0	17	23	16	5	10	12	10	17	22	5	142
PPC	2	4	1	1	8	3	10	22	18	8	21	4	102
Quezon	4	0	2	3	8	9	13	26	48	19	41	14	187
Brookes Point	10	8	15	16	17	8	10	13	36	19	26	17	195
<b>TOTAL</b>	<b>22</b>	<b>13</b>	<b>36</b>	<b>47</b>	<b>51</b>	<b>27</b>	<b>47</b>	<b>78</b>	<b>125</b>	<b>73</b>	<b>127</b>	<b>44</b>	<b>690</b>

Solar Center	Jan.	Feb.	Mar.	April	May	Jun	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
<b>2005</b>													
El Nido	8	19	32	11	24	13	9	15	10	11	13	4	169
Taytay	19	19	18	13	22	11	7	25	9	15	3	5	166
PPC	63	18	35	22	33	12	9	18	15	17	29	16	287
Quezon	54	15	28	17	30	24	11	19	24	12	21	10	265
Brookes Point	33	10	18	7	29	23	10	11	15	15	10	20	201
<b>TOTAL</b>	<b>177</b>	<b>81</b>	<b>131</b>	<b>70</b>	<b>138</b>	<b>83</b>	<b>46</b>	<b>88</b>	<b>73</b>	<b>70</b>	<b>76</b>	<b>55</b>	<b>1088</b>

Solar Center	Jan.	Feb.	Mar.	April	May	Jun	July	Aug.	Sept.	Oct.	Nov.	Dec.	TOTAL
<b>2006</b>													
El Nido	22	11	16	10	24	28	13	11	4	5	6	4	154
Taytay	2	15	13	19	21	31	12	13	5	5	4	18	158
PPC	17	23	21	22	15	34	27	22	13	2	9	8	213
Quezon	18	9	12	17	13	7	7	7	4	3	2	7	106
Brookes Point	13	5	7	11	25	16	22	14	7	2	5	8	135
<b>TOTAL</b>	<b>72</b>	<b>63</b>	<b>69</b>	<b>79</b>	<b>98</b>	<b>116</b>	<b>81</b>	<b>67</b>	<b>33</b>	<b>17</b>	<b>26</b>	<b>45</b>	<b>766</b>

**Units sold Jan to June 2006**

**497**

**Actual no. of units sold since 2002 (cumulative)**

**2,719**

**2,988**

Solar Center	Jan.	Feb.	Mar.	April	May	Jun	July	Aug.	Sept.	Oct.	Nov.	Dec.	TOTAL
<b>2007</b>													
El Nido	5	3											
Taytay	9	9											
PPC	8	20											
Quezon	5	5											
Brookes Point	9	11											
<b>TOTAL</b>	<b>36</b>	<b>48</b>											

**84**

**Cumulative Total at Project Terminal Evaluation (February 2007) =**

**3,072**

Annex H

Budget and Expenditures per Project Main Activity/Objective

Sbln	Budget Line Description	Cost Allocation Factor per Project Objective	Totals		Distribution per Activity			
			ProDoc Budget	Percent Expenses vs. Budget	Activity 1 Capacities for Prov. Govt., LGUs and RECs improved	Activity 2 Public demand for RE Systems increased	Activity 3 REDC established in Palawan	Activity 4 RSM designed and implemented
			Actual Expense					
	<b>GEF FUNDS</b>							
10	PROJECT PERSONNEL							
11	International Experts & Consultants	1.0	30,000.00		30,000.00			
			0		0			
13	Admin support Personnel	0.25	38,727.00		9,681.75	9,681.75	9,681.75	9,681.75
			45,502.50	117.50%	11,375.63	11,375.63	11,375.63	11,375.63
15	Duty Travel M&E	0.25	20,000.00		5,000.00	5,000.00	5,000.00	5,000.00
			75,777.74	378.90%	18,944.44	18,944.44	18,944.44	18,944.44
16	Mission Costs	0.25	40,000.00		10,000.00	10,000.00	10,000.00	10,000.00
			8,578.94	21.40%	2,144.74	2,144.74	2,144.74	2,144.74
17	National Professionals	0.25	115,873.00		28,968.25	28,968.25	28,968.25	28,968.25
			155,523.84	134.20%	38,880.96	38,880.96	38,880.96	38,880.96
	PROJECT PERSONNEL TOTAL		244,600.00		83,650.00	53,650.00	53,650.00	53,650.00
			285,792.89	116.80%	71,345.76	71,345.76	71,345.76	71,345.76
20	SUBCONTRACTS							

Sbln	Budget Line Description	Cost Allocation Factor per Project Objective	Totals		Distribution per Activity			
			ProDoc Budget	Percent Expenses vs. Budget	Activity 1 Capacities for Prov. Govt., LGUs and RECs improved	Activity 2 Public demand for RE Systems increased	Activity 3 REDC established in Palawan	Activity 4 RSM designed and implemented
			Actual Expense					
2101	Formulation of RE Policies	1.0	40,000.00		40,000.00			
			29,662.94	74.10%	29,662.94			
2102	Conduct Public Awareness Program	1.0	25,000.00			25,000.00		
			27,778.38	111.10%		27,778.38		
2104	Establish RE Center	1.0	45,000.00				45,000.00	
			43,979.23	97.70%			43,979.23	
2105	Conduct Feasibility Studies	1.0	100,000.00				100,000.00	
			59,863.32	59.90%			59,863.32	
2106/7	Design RSM - Fin Inv	1.0	100,000.00					100,000.00
			101,766.50	101.70%				101,766.50
2108	Implement RSM (TA for GFIs and CMFIs)	1.0	150,000.00					150,000.00
			100,000.00	67.70%				100,000.00
	SUBCONTRACTS TOTAL		460,000.00		40,000.00	25,000.00	145,000.00	250,000.00
			365,050.37	79.30%	29,662.94	27,778.38	103,842.55	201,766.50
30	TRAINING	0.67 for Act. 1; 0.33 for Act..3	12,000.00		8,040.00		3,960.00	
			13,484.98	112.40%	9,034.94		4,450.04	
40	EQUIPMENT	0.33 for Act. 1-3	20,000.00		6,600.00	6,600.00	6,800.00	
			34,219.84	171.10%	11,292.58	11,292.58	11,634.78	
50	MISCELLANEOUS	0.25	13,400.00		3,350.00	3,350.00	3,350.00	3,350.00

Sbln	Budget Line Description	Cost Allocation Factor per Project Objective	Totals		Distribution per Activity			
			ProDoc Budget	Percent Expenses vs. Budget	Activity 1 Capacities for Prov. Govt., LGUs and RECs improved	Activity 2 Public demand for RE Systems increased	Activity 3 REDC established in Palawan	Activity 4 RSM designed and implemented
			Actual Expense					
			27,722.27	206.90%	6,930.57	6,930.57	6,930.57	6,930.57
	<b>TOTAL GEF</b>		750,000.00		141,640.00	88,600.00	212,760.00	307,000.00
			<b>729,275.12</b>	<b>97.20%</b>	<b>128,266.78</b>	<b>117,347.28</b>	<b>198,203.70</b>	<b>280,042.82</b>
	<b>UNDP/TRAC FUNDS</b>							
20	SUBCONTRACTS							
2103	Conduct of Education Campaign	1.0	50,000.00			50,000.00		
			50,066.20	100.13%		50,066.20		
30	TRAINING	0.67 for Act. 1; 0.33 for Act..3	30,000.00		20,100.00		9,900.00	
			29,645.84	98.80%	19,862.71		9,783.13	
40	EQUIPMENT	0.33 for Act. 1-3	20,000.00		6,600.00	6,600.00	6,800.00	
			20,243.33	101.20%	6,680.30	6,680.30	6,882.73	
80	MISCELLANEOUS	0.25	885.46	--	221.37	221.37	221.37	221.37
	<b>TOTAL UNDP/TRAC</b>		100,000.00		26,700.00	56,600.00	16,700.00	0.00
			100,840.83	100.80%	26,764.38	56,967.86	16,887.22	221.37
	<b>TOTAL PROJECT FUNDS</b>		850,000.00		168,340.00	145,200.00	229,460.00	307,000.00
			830,115.95		<b>155,031.16</b>	<b>174,315.15</b>	<b>215,090.92</b>	<b>280,264.19</b>
	<b>% of Budget per Activity</b>		100.00%		19.8%	17.0%	27.0%	36.2%
	<b>% Actual Expenses vs. Allocated Budget</b>		<b>97.70%</b>		<b>92.1%</b>	<b>120.0%</b>	<b>93.7%</b>	<b>91.3%</b>

Legend:

Line | xxx.xx | Original Budget as indicated in the ProDoc.

Item	yyy.yy	Actual Expenses based on Combined Delivery Report (CDR) figures.
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## **Annex I**

### **List of Documents Reviewed**

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1. Report on the Household Survey, Solar Home System Distribution Project. Special Program Services Group. Provincial Government of Palawan. 2006.
2. Various Communications Regarding Change in RE Delivery Mechanisms. UNDP. 2003-2003.
3. Project Document. Palawan New and Renewable Energy and Livelihood Support Project MSP Atlas 000144666. UNDP. 2002
4. Mid-Term Evaluation Report. Palawan New and Renewable Energy and Livelihood Support Project. UNDP. August 2002.
5. Annual Project Report/Project Implementation Review for Years 2001, 2002 (not available), 2003, 2004, 2005, and 2006.
6. Escrow Agreement among UNDP, CBP and DBP for the Solar Home System Finance. September 2, 2004.
7. Memorandum of Agreement among UNDP, Shell Solar Philippines Corporation, and Cooperative Bank of Palawan regarding establishment of a consumer finance system geared towards assisting Palawan rural households in acquiring SHSs. September 1, 2004.
8. Status Reports on the Escrow of Loss Reserve Fund. 2004-2007.
9. Pilot Implementation Report. Design Risk Sharing Finance Mechanism for PNRELS. International Institute for Energy Conservation. September 2005.



**FINANCING-RELATED DOCUMENTARY REQUIREMENTS AND SUGGESTED  
GUIDE QUESTIONS**

**I. Documents needed:**

- Submittals of CBP to UNDP (complete set)  
*(If not complete and up-to-date, request for complete periodic reports)*

Information that can be gathered from those documents:

Portfolio volume

Number of accounts, total and per branch

Loans granted

Outstanding loans now

Past due accounts

Amounts of loans granted

Outstanding amounts now

Past due amounts

Tenors of loans granted

Loan pricing

Equity or down payment requirements on loans granted

From there, the following portfolio analysis can be done:

Growth

Geographical reach/expansion

Aging of accounts

Collection efficiency, past due ratio

RSM target attainment

- Escrow Agent (DBP-Trust) submittals to UNDP

Information that should be gathered from those documents:

Growth and movements of the escrowed money

Deposit Account

Loss Reserve Account

Distribution of LRF escrow earnings

*(however, per cursory scanning of reports furnished by UNDP, distribution of LRF escrow earnings are not evident, except if we assume that it is plowed back to the Fund, and some are used for trustee fees. This must be confirmed)*

## II. Guide Questions:

### A. For CBP

1. How does CBP market the SHS loan? Do they wait for applications in their branches or do they go out in the field to convince household clients? Do they employ mass market techniques, like posters, brochures, etc? How do they convince clients to avail of the SHS loan?

Or, is it the sole responsibility of SSPC or the vendor to market the product to be financed thru CBP?

Does the provincial government have a role in marketing SHS? Do they, for example, provide information dissemination on the benefits of SHS? Do they provide informational inputs to the bank and SSPC for analysis and marketing purposes, e.g., list of unelectrified households, expenditure survey, etc?

2. From experience, what has been the most effective way of convincing customers to purchase the SHS and avail of financing thru CBP? For example, what marketing statements compelled them to do so?
3. What are the evaluation criteria for granting a loan? How is the SHS borrowers' capacity to pay determined?
4. Did the CBP orient the borrowers about their obligations on the loan? Or, was this necessary in the first place? Why or why not?
5. Describe the account monitoring system of CBP on SHS loans.
6. What is the definition of past due? That is, after how many consecutive defaults will an account become past due and the whole loan becomes due and demandable?
7. In the event of a default, what are the steps taken by CBP before foreclosing the equipment? (*Do they exhaust efforts to make the account current?*)
8. What are the reasons cited for borrowers' difficulty in paying the amortizations? Which reasons /factors have the most frequency? (*if possible, ask for a frequency distribution chart*)
9. What has been the breakdown rate of installed SHS and the reasons/factors therefor? How frequent is improper operation/maintenance a factor? Is equipment breakdown ever mentioned as a factor in loan default?
10. In the event of foreclosure, SSPC uninstalls the equipment and buys it at an agreed price. Is this correct?
11. Did the CBP ever call on the LRF? Why or why not?
12. How many accounts had defaulted and how many SHS had been repossessed and re-purchased by SSPC?

Pls fill in details in the following chart. Add rows as necessary.

Account	Terms	Outstanding Balance, As at default date	Foreclosure date	SSPC's repurchase price
	Original Principal: _____ Tenor: _____ Interest rate: _____ Monthly amortization: _____			
	Original Principal: _____ Tenor: _____ Interest rate: _____ Monthly amortization: _____			
	Original Principal: _____ Tenor: _____ Interest rate: _____ Monthly amortization: _____			

13. How has the SHS Loan portfolio contributed to the financial ratios of CBP?
14. What was the bank's overall past due ratio before implementing the SHS Loan? What is it now?
15. What is the proportion of SHS Loan in relation to the bank's total loan portfolio now?
16. What's the profit contribution of the SHS Loan portfolio to the bank's overall profitability?
17. How many percent is the SHS Loan portfolio's contribution to the bank's overall income?
18. Is there an accounting subsystem that captures the cost of implementing the SHS? If there is, how much is the cost of implementing the SHS Loan, (e.g., marketing, administrative, collection, etc?). What's the effective average cost per account? What's the net contribution of SHS Loan to the bank's profits?
19. Without LRF, will the bank continue marketing the SHS loan? Why?
20. What, in the bank's opinion, contributed to the success/failure of the SHS Loan program? On the RSM pilot program?
21. What are the lessons learned by the bank from its experience in implementing the SHS Loan program? Did the pilot RSM program play a significant role in encouraging the bank to market SHS loans? Is it still necessary?
22. Has CBP achieved its objective in participating in the program? In CBP's opinion, how successful is the model? And if so, what could have contributed to its success, or failure?
23. Would CBP recommend replicating this vendor financing model?

24. Could CBP suggest changes or improvements on the model? What and why?

25. Please provide a month-on-month incremental analysis of the SHS loan portfolio

month	Portfolio beginning balance		Additions for the month		Accounts becoming past due		Accounts matured and/or fully paid		Portfolio ending balance		Remarks
	accts	amt	accts	amt	accts	amt	accts	amt	accts	amt	

26. Which branch had the best performance in terms of loan marketing (i.e., number of SHS loan accounts booked)? To what factor/s can this be attributed?

27. Which branch has the best performance in terms of loan quality? To what factor/s can this be attributed?

28. In terms of loan marketing and loan quality, which branch/es has/have the worst performance, relatively, that is, and what factor/s can this be attributed to?

***B. For SSPC:***

1. It is understood that SSPC is primarily responsible for selling the product, with the vendor financing program as an added come-on. Did CBP's marketing of the SHS Loan program also help in increasing the sales of SHS?
2. How much improvement in SHS sales was realized with the vendor financing program? What are the sales data, pre- and post-program? Was the pilot RSM (risk sharing mechanism) worth it?
3. The PhP 7Million SSPC deposited with CBP helped enhance the bank's liquidity and enabled it to implement the SHS Loan program. It is understood that it earns interest at commercial rates and ultimately translated to an increase in SHS sales as the bank became able to implement a vendor financing program.

Is the investment worth it? Would SSPC recommend replicating it? Why or why not?

4. Were SSPC's business objectives (relevant to the SHS vendor financing program) met? To what extent? Please elaborate.
5. In SSPC's opinion, was the LRF a significant factor in the SHS sales performance? How?
6. In SSPC's opinion, and based on experience from the pilot program, is the LRF necessary? Why or why not?
7. Would SSPC continue with vendor financing arrangement with CBP or replicate it with any other financing organization? Why or why not?
8. What are the lessons learned by SSPC in implementing the vendor financing program thru CBP?
9. What has been the market response to repossessed SHS? Are they easily snapped up by the market, and at what price discount from original price? Are these also eligible for SHS financing by CBP?
10. In SSPC's opinion, is the vendor financing model successful? Why or why not?
11. Would SSPC be willing to replicate this model in other areas? If not, why, and what are the necessary elements that SSPC would want to see before replicating the model in other areas?
12. Would SSPC recommend any changes to the model?

**C. DBP-Trust:**

1. Please describe the process of LRF availment. *(You can do away with this, since this should have been outlined in the escrow agreement)*
2. Was there any availment from the LRF? How many and how much?
3. If the fund is channeled elsewhere with a different beneficiary, should the escrow agreement be terminated or just amended?

**D. For PGP:**

1. What's the role of PGP in the program? Were its objectives met? Is the PGP satisfied with the program?
2. Is the PGP now prepared to sink in the money to replace the LRF? Is it available already to be deposited in an escrow account? What would be the terms preferred by PGP?

**E. SHS loan borrowers:**

1. What compelled you to buy the SHS?
2. Was the financing program a major decision factor in purchasing the SHS?
3. Are you aware of the benefits of owning an SHS?
4. Would you recommend SHS to your neighbors? Why or why not?
5. Is the SHS you have now enough for your current needs? Do you want to purchase additional SHS? For what purpose?
6. Did you encounter any difficulty with the financing terms? What would you recommend to improve the financing package?

For those who did not avail of the financing package –

7. Why did you not buy an SHS and did not avail of the financing package for the SHS? Is it expensive compared to your usual energy expenditure (e.g., on kerosene)? Are the requirements too stringent?
8. What are your concerns on the SHS and the financing package?

**Annex K**  
**Comments by Stakeholders**

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Comments by Stakeholders (after recycling the draft Terminal Evaluation Report)