

PALAWAN NEW AND RENEWABLE ENERGY AND  
LIVELIHOOD SUPPORT PROJECT  
PHI/99/G35-PHI/99/013

Mid-Term Project Evaluation Report

**by**

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## Abbreviations

ANEC	Affiliated Non-conventional Energy Centers
APR	Annual Programme/Project Report
CPDO	City Planning and Development Office
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
IREPE	International Renewable Energy Policy Expert
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
PNRELSP	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
TA	Technical Assistance
TO	Table of Organization
TOR	Terms of Reference
UNDP	United Nations Development Programme
UNDP/CO	United Nations Development Programme Country Office
UPERDFI	University of the Philippines Engineering Research and Development Foundation Inc.
UPSL	University of the Philippines - Solar Laboratory

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## **0 EXECUTIVE SUMMARY**

### **0.1 Description**

#### *0.1.1 The Project*

The Palawan New and Renewable Energy and Livelihood Support Project (PNRELSP) is supported by the Global Environment Facility (GEF) as a medium size project (MSP) and is in line with GEF Operational Program No. 6, "Promoting the Adoption of Renewable Energy by Removing Barriers and Reducing Implementation Costs". It is implemented through the United Nations Development Programme (UNDP).

The project is aimed at reducing the long-term growth of greenhouse gas (GHG) emissions through the removal of barriers to commercial utilization of new and renewable energy (NRE) power systems as replacement to diesel generators in Palawan. Project approval was based on the recommendations of a feasibility study for "A Project to Provide Environmentally Friendly Electricity Services to Off-Grid Communities in the Province of Palawan" prepared by Community Power Corporation for Shell Solar, BV and Shell Philippines Exploration, BV, in October 1999. The study recommended the Rural Energy Service Company (RESCO) approach as the delivery mechanism for NRE systems in Palawan similar to Shell's RESCO Project in Alaminos, Aklan.

As an energy-cum-environmental strategy of the PNRELSP, more NRE systems are desired to be included in the revision of the 1999 Palawan Energy Master Plan of the Provincial Government of Palawan (PGP). As it stands, this plan indicates that all of the 269 unelectrified communities (or barangays), including isolated rural and island communities, equivalent to 53,000 households, will be electrified. To support the rural electrification targets and additional power requirements of the province, other power systems to broaden the supply of and increase access to electricity are planned with a total expenditure of US\$ 139 million for the next eight years. Around US\$ 28.4 million is included for rural electrification. Of the total number, only 24 communities were targeted to use NRE, mainly photovoltaic (PV) Solar Home Systems (SHS). The remaining will have grid extension, if the costs will not be so prohibitive and the geographical conditions are physically feasible; otherwise, the most likely means will be by deploying numerous small isolated diesel generators.

The number of NRE systems, which are initially SHSs that can be installed, still depends largely on how the targeted users can afford the units. Hence, the PNRELSP strategy involves a lot of capacity building, financial

mechanisms and market development in order to have more NRE systems in the Palawan energy supply mix.

The potential use of the province's share in royalty revenues from Palawan's Shell Malampaya natural gas production to "buy down" the cost of off-grid electrification is envisioned to fund this energization goal, a situation unique only to Palawan. PNRELSP aims to take this opportunity to introduce NRE systems in the Palawan market by systematically including support for livelihood applications of NRE systems for economic enhancement. Necessarily, the livelihood potential of a given community is a primary factor in site selection. Market and feasibility studies for particular sites will be conducted to ensure sustainability of the livelihood activity with NRE application.

The PNRELSP Project Document (PRODOC) was signed on February 28, 2000 marking the official start of the project, with a total financial resource of US\$ 2.55 million. This includes the inputs of GEF (US\$ 0.75 million), UNDP (US\$ 1.0 million), PGP (US\$ 0.30 million) and the private sector represented by Shell Renewables Philippines Corporation (US\$ 1.40 million). In addition to these inputs, the project also draws in important in-kind resources from other stakeholders of the project, including particularly the local communities, in terms of voluntary local labor, materials and livelihood initiatives.

The Executing Agency is a Palawan-based NGO, the Center for Renewable Resources and Energy Efficiency (CRREE). CRREE provides the overall project management and the identification of NRE-assisted livelihood projects. PGP acts as the project partner, while the private sector represented by Shell Renewables Philippines Corporation (now Shell Solar Philippines Corporation), provides the technology and equipment inputs as well as market development initiatives to promote NRE in the province.

Assisting CRREE perform the activities of the project are the subcontractors, viz., the University of the Philippines Engineering Research and Development Foundation, Inc./Solar Laboratory (UPERDFI/SL), Strategic Advantage, Inc. (SAI), Education for Life Foundation (ELF), etc. and renewable energy experts, viz. Mr. Ron White, Prof. Wally del Mundo, etc. Of the total funds coming from UNDP/GEF amounting to US\$0.85 million, 48% or US\$ 0.41 million goes to subcontract professional services. The project has relied heavily on subcontractors to provide most of the deliverables for this medium size project.

CRREE provides the Project Management Office (PMO) and personnel composed of four CRREE regular employees and four project contractual staff. Providing the policy direction and overall coordination of key



stakeholders of PNRELSP is the Project Steering Committee (PSC), which is chaired by the Governor of Palawan during its biannual meetings.

The members of PSC are representatives of the stakeholders composed of the PGP, municipal and barangay level governments, relevant agencies of the national government, e.g., Department of Energy, Department of Environment and Natural Resources, as well as local communities. Included also in the PSC are the rural electric cooperative (PALECO), CRREE, UPERDFI/SL, Shell Solar Philippines Corporation, local NGOs, local entrepreneurs, and the academic community. A strong stakeholder commitment and involvement are very important factors of success for PNRELSP.

All the project participants to the project were expected to have a common understanding of the project as well as their individual committed roles and responsibilities so that together their collective efforts are towards common thrusts and synchronized activity plans despite their diverse situations and capabilities. While the desired capability and capacity levels of the project participants are being achieved, PNRELSP has to enable a business environment conducive for the NRE market to develop in Palawan through during the course of the project implementation. This intervention is the overall mission of the PNRELSP involving market introduction of a relatively new technology in areas with very low economic and business levels.

To begin with, the project implementors have to understand first the barriers affecting the market entry of NRE while considering the unique situation of the province and its constituents, in order to effectively address them. They have to keep in mind that the ultimate measure of success for the PNRELSP is how NRE 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 NRE with the private sector taking the lead. With wider proliferation of NRE systems, more fuel combustion-based GHG emissions are avoided and more rural houses are electrified, thus satisfying both environment and energy needs.

As it stands now, and as presented in the PRODOC, the primary agenda of action of the PNRELSP remains to consist of the following:

- a. adopting an NRE policy and necessary financial incentives for NRE applications in Palawan,
- b. firming up the NRE component in the Palawan Energy Master Plan,

- c. making the general public aware of the PNRELSP 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 NRE 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 NRE applications to support livelihood activities of rural communities through peoples’ organizations and also identify investment risks to be averted for long-term sustainability

### *0.1.2 The Mid-Term Project Evaluation*

The PNRELSP is now midway of its implementation and as such progress, thus far, needs to be measured against outputs stated in the PRODOC considering the emerging needs of the project. This Mid-Term Project Evaluation focused on appropriateness and relevance of work plan in the light of the emerging needs of the project and the target beneficiaries, and compliance with the work plan along side with budget allocation. It also looked into timeliness of disbursements; procurement, quantity and quality of goods and services created; coordination among different project actors and UNDP Country Office support. Any issue that has impeded or advanced the implementation of the project or any of its components, including actions taken and resolutions made are also highlighted.

The review included both evaluation of the progress in project administration and implementation, measured against planned outputs set forth in the PRODOC and any PSC-approved changes prior to this activity, in accordance with rational budget allocation, and an assessment of features related to the impact of the project activities. It also identified “lessons learned and best practices” from the PNRELSP and recommendations to ensure successful completion of PNRELSP’s commitments.

## **0.2 Findings**

### *0.2.1 Assessment of Progress in Project Implementation*

Generally, some of the project outputs measured vis-a-vis planned activities stated in the PRODOC were delayed due to the problems and concerns encountered by the project. Project Management Office mobilization took three months to complete. At the start, the PGP was not ready to assume its role due to the untimely demise of a strong project supporter, Palawan Governor Salvador Socrates in 2000.

During the course of project implementation, the International Renewable Energy Policy Expert (IREPE) failed to comply with project commitments as consultant in the review and recommendation on NRE policies for Palawan. This therefore consequently affected the finalization of the outputs of the National Renewable Energy Policy Expert (NREPE) and the UP/SL in the Formulation of NRE Policies and the Establishment of the Palawan Renewable Energy Development Center (PREDC) and some other deliverables.

PNRELSP was originally to be implemented for 36 months from official start up of March 2000 or the period up to March 2003 only. This review covers the period from March 2000 up to July 2002 or 28 months from date of signing of project agreement.

The design and subsequent implementation of the Risk-Sharing Mechanism also was delayed as a result of several factors, particularly the decision on the change of the NRE delivery mechanism from RESCO to Direct Sale scheme as suggested by Shell Solar Philippines Corp. This major change came only last May 2002 after long deliberations and studies.

The detailed account of the progress of project implementation is discussed in the main report.

### ***0.2.2 Assessment of Features Related to the Impact of the Project***

The project is halfway in its implementation. As part of the review process for GEF projects, which is the annual Project Implementation Review (PIR), PNRELSP was reviewed in 2001 and 2002. The PIR reports of 2001 and 2002 present the findings of the review. It was in PIR 2002 that the performance indicators were modified in order to facilitate the assessment of the impact (defined as contribution to the GEF's overall goals) of the PNRELSP on the global environment.

For the PIR 2002 report, UNDP-GEF required the revision of the indicators to make them quantifiable and time-bound. Among others mentioned in the PRODOC to be monitored by the project as quantified outputs and with respective time frames are as follows:

- 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

In general, PNRELSP has set the stage for the project participants to act according to their committed roles in the project. Focus of activities is in how PGP would be able to integrate the many aspects of the provincial energy plan into one that will bring about the desired results of the project in line with the GHG reduction objective of this project. Details of the findings can be seen in Part 3 of the report in terms of:

- a. Capacity development
- b. Sustainability
- c. Leverage
- d. Awareness raising on environmental issues, GEF and NRE advocacy

### *0.2.3 Measurement of Mid-Term Outputs vs. PRODOC Indicators*

The PNRELSP, being a capacity-building project, shall be evaluated by the extent the capacities and capabilities of the stakeholders are manifested in creating a conducive market situation for more NRE advocacy and deployment. In addition, specific indicators such as those mentioned in the PIR 2002 report, e.g., reduction of diesel fuel consumption shall also be evaluated.

As presented in the PRODOC, the project has an agenda of action and a menu of things to do to achieve what the PRODOC has defined as desired future scenario for NRE deployment in Palawan as the project's success indicators. The nature and program of collective intervention is designed induce the private sector as the appropriate vehicle for delivering the NRE goods. This Mid-Term Project Evaluation (MTPE) has inventoried the manifestations of these improvements that may be directly or indirectly spawned by the PNRELSP initiatives. The exercise aims to chart the continuing improvement the PNRELSP has committed to achieve.

Highlights of the comparison (actual vs. planned) made are presented below. Some of these might need specific action plans considering present project situation and needs of targeted beneficiaries:

- a. Proposed financial incentives for NREs should have been finalized by now.

- b. A revised Palawan Energy Master Plan should have been submitted to PNRELSP. As an offshoot of the PNRELSP activities regarding the preparation of the Palawan Energy Master Plan, a JICA-assisted project to finalize the plan has been negotiated by PGP with assistance of UP starting August 2002. The arrangements were carried out as an extension of the PNRELSP-initiated activities in order to address the need of PGP to come up with an integrated energy plan to provide basis for the implementation of projects to be funded from the province's share in royalties generated from the Malampaya natural gas production. The scale of preparation therefore was increased from the basic requirements of PNRELSP, which needed additional funding from JICA..
- c. Establishment of the Palawan Renewable Energy Development Center (PREDC) has not been formalized though CRREE is functioning to be the focal point of NRE activities in Palawan.
- d. Only NRE-assisted mud crab culturing livelihood/productive applications has been identified and piloted in 6 sites.
- e. Results of market survey have not yet been published.
- f. Services to conduct market feasibility studies are not yet fully developed.
- g. Renewable energy resource assessment for pilot sites under the responsibility of the PGP is now underway. Results of the surveys in the selected project sites will be incorporated in the database of RE resources prepared under Component 3 of the PNRELSP.
- h. Improvement in the capacity in economic and financial evaluation of NRE projects and the preparation of a business plan for the PREDC have not yet been completed.
- i. Three (3) Training Workshops on: Socio-Economic Assessments, Basic Accounting Principles and Practices, Basic Business Management, and Project Feasibility Evaluation were deprioritized to give way to an Energy Planning Seminar Workshop (with Business Orientation) as suggested by NREPE. The Seminar Workshop on Socio-Economic Assessment was deleted as cleared with PMO. The consultant recommended these project deviations to PMO in view of evolving needs. It was noted that the changes were not presented and approved by the PSC and UNDP.

It was noted that the PRODOC did not present enough measurable indicators and timeframe of the outputs against which evaluation and monitoring could benchmark with. Suggestions to revise the indicators to include target values and time frames were made by UNDP-GEF during the preparation of the PNRELS Project Implementation Review (PIR) report in 2001. However, the recommended changes were not made in time for the submission of the PIR 2001 report.

For the PIR 2002 report, UNDP-GEF required the revision of the indicators to make them quantifiable and time-bound. Among others mentioned in the

PRODOC to be monitored also by the project as quantified outputs and with respective time frames are as follows:

- 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

#### *0.2.4 Assessment of Progress in Project Administration and Relevance of Work Plan*

The Project work plan, at the time of inception in Year 2000, is a work and financial plan (WPF). Such plan includes a matrix of the major project activities, expected output, responsible parties, deadline for delivery of outputs, monthly bar chart timetable, budget line and cash advances in pesos according to the PNRELSP Project Document.

The timetable represented by a bar chart gives a rough indication of expected month of delivery of outputs. The more specific dates were assumed as firmed up as the project implementation by respective implementor or subcontractor proceeds. This review did not see a detailed work plan submitted by a subcontractor or by CRREE to show a more definitive activity plan at the main activity or task level. The absence of detailed plans at the subcontractor level and executing agency level has resulted to unclear standards of performance and indefinite commitments in deliverables. While the project is ongoing up to this mid-term evaluation, the necessary performance standards has not been clarified or established yet.

Similarly, the subcontracts for professional services of renewable energy experts, i.e. international renewable energy policy expert (IREPE) and national (NREPE) do not include schedule of commitments in deliverables at the time of contract negotiation/award nor at work inception. The IREPE, for example, has not indicated in any recent communication the status of his deliverables. This consequently delayed subsequent activity implementation as previously mentioned.

In terms of project planning and control, and effective project management, the present planning, budgeting and accounting systems for the project do not sufficiently provide useful management tools and decision support for PMO.

Process-wise, the initial WFP prepared during inception by CRREE was reviewed at year-end 2000 to come up with plans for WFP 2001 and, similarly, for WFP 2002. Generally, these are the work plans developed through CRREE's yearend strategic planning meetings and used by staff as

reference for planning and monitoring progress of project implementation. Since the PRODOC has no definite timetable and limited definition of output indicators at the start of the project, the PMO monitoring and evaluation is provided very limited reliable basis for documentation of performance and corresponding standards. Hence, the work plans were defined in more concrete terms using measurable performance indicators in the course of PIR 2001 and PIR 2002 and quarterly reports preparation

The MOA of PNRELSP was signed to indicate the committed inputs, outputs and processes involved in the implementation of the PNRELSP by project partners , except the private sector partner, Shell Solar Philippines Corporation. Nevertheless, Shell proceeded to implement a solar home system marketing program in Palawan, funded directly by Shell, which run parallel to the objectives of PNRELSP. This could pave the way for other SHS suppliers and industry players to enter the SHS market not only in Palawan but also for the rest of the country. As the PNRELSP completes its activities, particularly in the design and implementation of the risk sharing mechanisms (RSM), the participation of the private sector is very important and would therefore need to be very well defined in terms of performance targets for more effective implementation. This could be through MOUs between PGP and industry participants.

## **0.3 Conclusions**

### *0.3.1 Project Design*

1. The Project clearly defined the NRE development needs and problems in Palawan. The project design was based on the findings and recommendations of the feasibility study on “A Project To Provide Environmentally Friendly Electricity Services To Off-Grid Communities In Palawan” conducted in 1999, which has taken into account Palawan’s prevailing institutional, social, political economic and environmental situation then.
2. The project approach of linking energy and environmental needs to livelihood opportunity of a rural community was new in the country during the time of project design. It 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.

3. The performance indicators for use in monitoring evaluation, however, have been defined further in the course of project implementation review because these were not very clearly established at the outset of the project. As agreed during the preparation of PIR 2002, the set of performance indicators was suggested by UNDP-GEF and were approved by the PSC in July 2002.
4. The project is very relevant to the development priorities at the local community levels being targeted especially the capacity development for the targeted beneficiaries as well as the stakeholders of the project. The local participants in the project sites are trained by CRREE staff in identifying needs towards livelihood development starting from their usual knowhow, data gathering, cooperative organization, and basic day-to-day operation and management of business. The project site chosen were mostly coastal communities where mud crab culturing was identified as a good potential for small business for the cooperatives formed by PNRELSP. Using synergistic approach, the introduction of solar lighting systems in the mud crab farms were seen to enhance the productivity of the livelihood and as a good entry point for introducing this new technology and later on open new areas for productive uses of solar energy. Hence, capacity development also included basic technical training on solar PV systems for local participants to increase appreciation and advocacy for the systems. Shell's inputs on the hardware complemented the market development initiatives of PNRELSP.
5. The project was so designed to enhance the enabling environment so that the market for NRE will be developed 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.
6. The private sector partner, Shell Solar Philippines Corporation, was not a signatory to the Project Agreement in terms of documenting official commitments on the inputs and outputs of the project and the requisite timing from which deliverables can also be monitored and evaluated.

### *0.3.2 Project Implementation*

- a. The project experienced substantial delays brought about by the change in political leadership of the province caused by the early demise of the governor who was the champion of the project. The NRE advocacy efforts of the new provincial administration have to be renewed. The outputs of the project in terms of merely capacity building may not be appreciated



very well because there was a perception that the PNRELSP activities are not addressing the needs of the direct beneficiaries. Based on the random interviews with local participants done during this review, they expect that they will also own solar home systems if these units will be made affordable through the project. They are aware of Shell's marketing program in Palawan but the price levels are still beyond their capability to pay. They expressed hope on how government, through PGP, could assist them in acquiring the solar home systems so that they will have electricity for lighting their homes. The training and education activities of the project have built their capacities and prepared them to accept these technologies thus increasing their level of expectation regarding the actual NRE power supplies hardware.

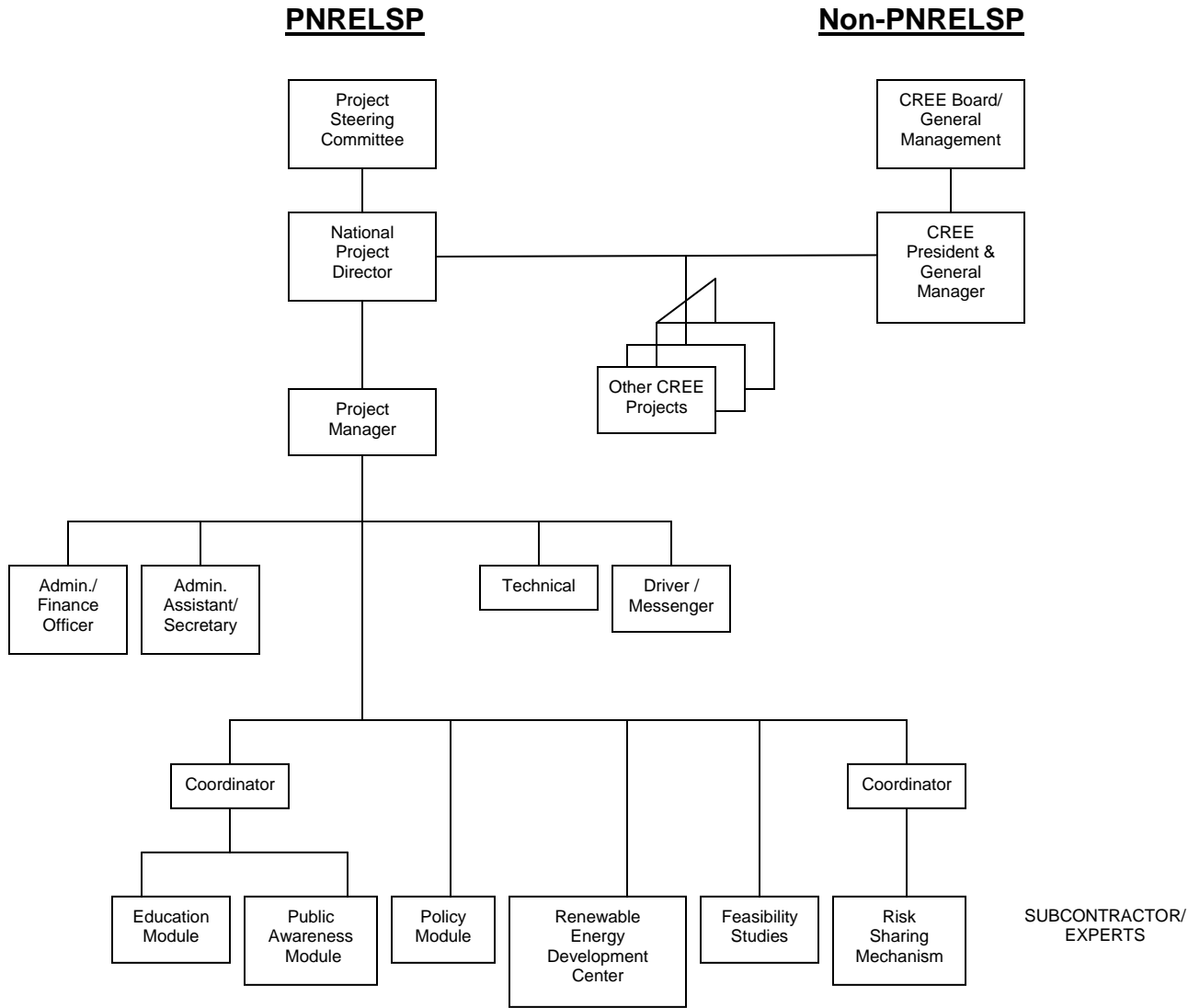
The solar home systems and the Mud crab farm lighting system provided by Shell Solar Philippines Corporation (as their co-financing inputs to the project) raised the awareness and acceptance level of the beneficiaries about NRE.. The real test is how the delivery of the NRE technology can be effectively done by the private sector where Shell is taking the lead as it establishes SHS marketing under market-based approach. The rate of technology diffusion and market response for the project will still be determined by the Risk-Sharing Mechanism design and implementation component of the PNRELSP.

- b. Another cause of delay is the failure of the IREPE to deliver the outputs as planned. Up to this reporting, there is not clear indication of how the IREPE's deliverables regarding the formulation of NRE Policies can be derived. CRREE planned to send communications to the IREPE consultant and the NREPE for the two to arrange completion and finalization of the remaining tasks and outputs on NRE policy formulation.
- c. The project experienced difficulties in managing the use its resources to produce targeted outputs due to the delays in project implementation as mentioned above including changes in project direction. The quantity and quality of project inputs relative to targeted outputs appear inadequate within the time frame expected in the PRODOC. This can be viewed as limitations with respect to the capability of the executing agency, CRREE, to manage and generate the expected outputs of PNRELSP as planned in the PRODOC. The prevailing conditions pertaining to organizational and working-relationship aspects among the project participants under the stewardship of CRREE have affected this also.
- d. 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. PGP has geared itself towards developing its own staff for the Renewable Energy Development Center in Palawan and absorb the staff trained under the PNRELSP. Therefore, the capacity building has been focused on PGP and its assigned personnel.

- e. The stakeholders participate in the management of the project through their representation in the Project Steering Committee. The direct beneficiaries are also invited as members. However, lack of continuity and consistency of representation also affected decision making process.
- f. The following are some problems in project implementation that needs to be resolved:
  - Where will be Renewable Energy Development Center be attached after the project? At present, CRREE has been performing the functions envisioned for the proposed Renewable Energy Development Center during the course of PNRELSP implementation. The REDC design is yet to be finalized by the sub-contractor UP Solar Lab. The post-project role of CRREE has to be defined in the operation and management of REDC in relation to the role of the PGP.
  - The Risk-Sharing Mechanism (Design Component) is yet to be awarded in September 2002 and to be finished in nine (9) months, while the Project is supposed to end already by December 2002. The extension up to December 2003 as recommended by the Project Steering Committee has to be approved officially by UNDP.
  - The contract with the International Renewable Energy Policy Expert, in terms of reviewing the outputs of the National Renewable Energy Policy Expert has to be decided with respect to its termination and continuance by another policy expert. This has resulted to substantial delays in the NRE policy and REDC components of the project.
  - The shift in the delivery mechanism scheme from RESCO to Direct Sales has to be addressed in relation to its effect and new gaps created in the capacity building so far achieved. The new direction of PNRELSP as approved in April 2002 includes responding to the needs for capacity building of the direct sales delivery mechanism among other delivery mechanisms during the design and implementation phases of the risk sharing schemes envisioned in PNRELSP.

- PGP has to finalize and implement its plan to create a regular department to handle energy-related activities and programs in Palawan.
- While the NRE policy has been adapted at the PGP level, there's a great need to issue policy guidelines and action plans for the policy to be understood and accepted for this to be implementable and sustainable.
- CRREE's expertise (being primarily environmental and community livelihood development) needs to be augmented in terms of NRE technical aspects. As designed in the PRODOC, the assistance of the UP Solar Lab to CRREE in the technical aspects of PNRELSP during the project implementation. A wide technical gap is identified as UP Solar Lab completes its subcontracts with PNRELSP and very minimal continuing linkage and working relationship between the two is yet to be established. PGP has organized within its structures a team of engineers related to energy projects, who are undergoing capacity building in areas that include NRE and solar home systems technical, project management, NRE resource surveys, energy planning and other related areas. PGP has entered an arrangement directly with the University of the Philippines to fill in this gap. The UP Solar Lab was designated by UP to assist PGP to complement PNRELSP-initiated activities extending beyond the PNRELSP duration.
- On the project execution, CRREE's policy, planning, monitoring and evaluation functions need to be strengthened. Presently, centralized planning and follow through coordination for the project are distributed to the staff handling respective project areas. There is a need to reinforce the planning and control system that has been developed in CRREE to make sure that the operational and administrative requirements of PNRELSP are continuously addressed at least for the remaining period of PNRELSP implementation. At the strategic level, the PMO needs advisory support in order to carry out the second half of the project more effectively as it faces critical stage of project implementation to resolve the above mentioned problems and concerns. The proposed strategy is illustrated in Figure 1a.



**Figure 1a.**  
**Present CRREE/PNRELSP Organization**

### *0.3.3 Indications of Potential Success*

1. The financial package to fund rural electrification projects in Palawan that is expected from the natural gas sharing revenues is forthcoming as indicated by PGP's assurance in getting this fund. However, the actual amount of the funds is still being debated and if reduced significantly, say to 70%, it will affect the electrification program, which was originally anticipating a bigger amount.
2. PGP has issued direction in assigning full-time personnel to attend to the functions of the Renewable Energy Development Center and the revision of the Palawan Energy Master Plan and other energy related projects of the province.
3. The project has been encouraging leveraging its resources for PGP to have additional funding support from different sources to fund its NRE program in relation to the Energy Master Plan. No significant leveraging has been achieved yet. Nevertheless, there are efforts for resources pooling. The JICA project will be completed during the PNRELSP implementation period and therefore will mean opportunities for synchronization and reinforcement of each other's plans of action. This is viewed as a means of complementing resources and programs under the PGP objective of coming up with an integrated energy plan for the province
4. PGP has continued to establish working linkages with CRREE, University of the Philippines/Solar Laboratory, PALECO, private sector represented initially by Shell Solar and other interested NRE 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 submitted a proposal to the PGP to establish a regular department to oversee and manage all energy-related functions of PGP under the Special Program Services group, including NRE deployment in its Energy Master Plan.
5. PGP has received a JICA Technical Assistance to review and finalize the Palawan Energy Master Plan, which should significantly introduce programs for NRE deployment in Palawan.
6. PGP has passed a Resolution adopting a policy to promote and deploy NRE as source of power supply particularly for rural electrification.

7. PGP has initiated a study to review NRE resources in Palawan. The results of the surveys are planned to be incorporated in the NRE database for Palawan.
8. PGP is in the process of finalizing the MOA with the designated office under the Department of Finance on the financial package coming from shares in Malampaya natural gas revenue, which may allocate about 20% of the funds for energy supplies and for the NRE Guarantee Fund.
9. The Governor has stressed in his State of the Province Address the program for NRE deployment to augment significantly rural energy supplies consistent with environmental protection for the province.
10. PGP has formally designated staff to continue to perform under the PNRELSP project, JICA-assisted review of the Energy Master Plan and other energy-related functions of PGP.
11. PGP has arranged with the University of the Philippines a program of technical assistance from UP Solar Lab for training purposes along its plan to organize its energy related functions and interest to establish a Renewable Energy Development Center for Palawan.
12. PGP has indicated that CRREE will be a member of PGP's Energy Sector Consultative group and would co-operate in the establishment of the Palawan Renewable Energy Development Center.

#### **0.4 Recommendations**

- a. The plans for the Palawan Renewable Energy Development Center should be ascertained already. Closer discussions between CRREE and UP Solar Laboratory should be done in order to finalize the design of the proposed Center. The design should be discussed and approved by the Project Steering Committee. The decision about the location, staffing, network linkages, business sustainability, plans and program, and the overall role of the REDC should be attuned with the directions and objectives of the Palawan Energy Master Plan.
- b. The prime mover of the PREDC should be the PGP with CRREE providing support and project development assistance particularly in livelihood and other productive application of NRE . PGP-own staff trained under the PNRELSP and UP Solar Lab under the PGP-UP arrangement can provide the technical aspects. The functions envisioned for the proposed Palawan Renewable Energy Development Center that are being performed by

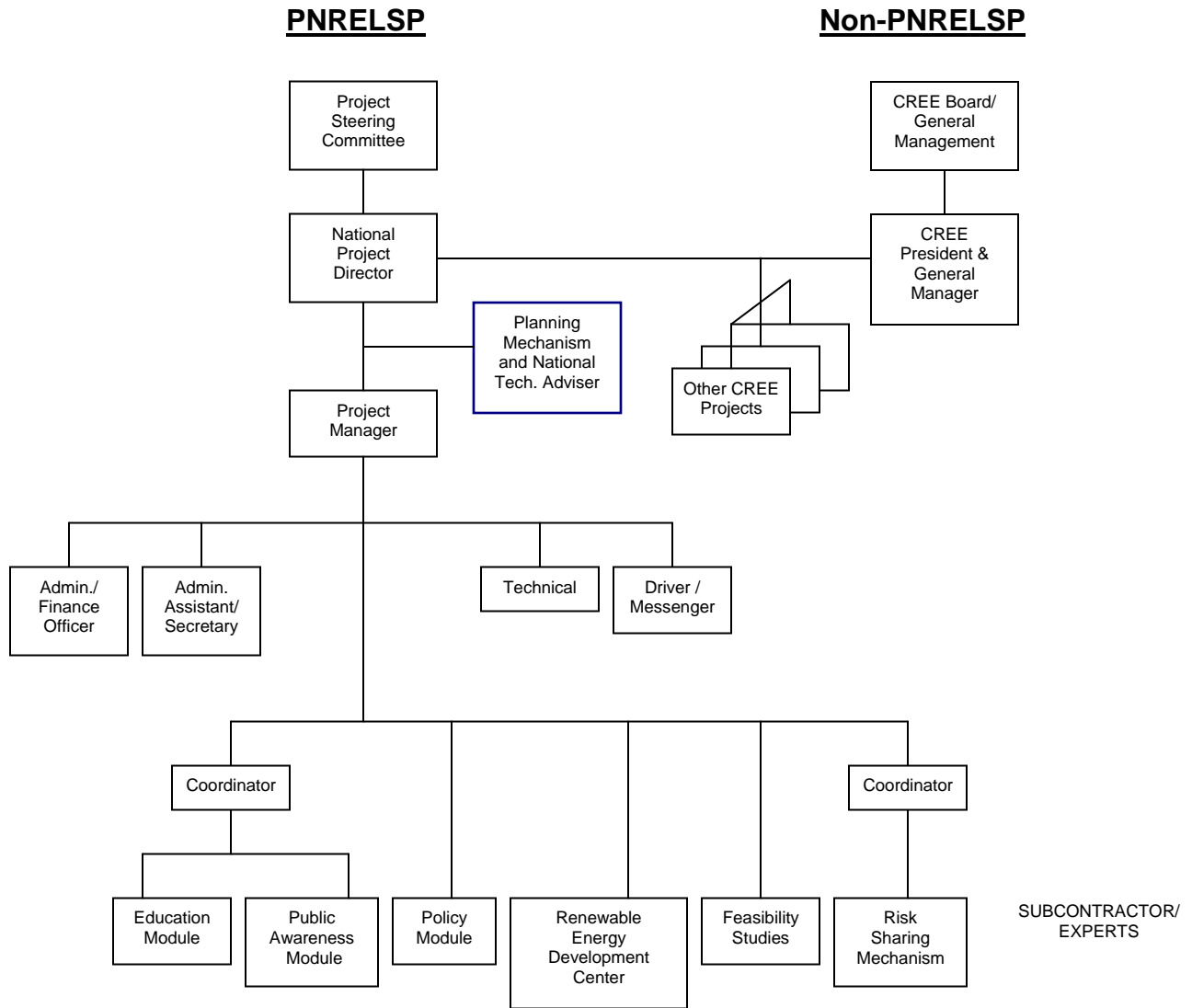
CRREE in the course of PNRELSP implementation shall be systematically transferred to PGP or working relationship clearly defined. The post-project role of CRREE has to be delineated in the operation and management of PREDC in relation to the role of the PGP. CRREE's expertise (being primarily environmental and community livelihood development and identification of NRE applications to livelihood projects) will complement the needs of PGP.

- c. The proposed extension of the project up to December 2003 as recommended by CRREE to the Project Steering Committee needs to be subsequently approved officially by UNDP. The PMO should initiate a strategic planning workshop to identify the plan of action and strategies with active participation of the stakeholders to realize PNRELSP goals in the remaining project life and extension.
- d. The contract status with the International Renewable Energy Policy Expert should be reviewed and gaps be identified to do some remedial measures. The shift in the delivery mechanism scheme from RESCO to Direct Sales has to be addressed in relation to its effect on the capacity building done previously.
- e. PGP should finalize and implement its plan to create a regular department with the mandate to handle all energy-related activities and programs, including NRE deployment, in Palawan.
- f. While the NRE policy has been adapted at the PGP level, PGP should issue policy guidelines and action plans for the policy to be understood and accepted and therefore be implementable and sustainable.
- g. CRREE needs to continue to augment itself in terms of NRE technical aspects brought about by the big technical gap as UP Solar Lab completes its subcontracts with PNRELSP and very minimal continuing linkage and working relationship between the two is yet established.
- h. PGP should complete the renewable energy resources survey in the project sites and results be incorporated in the NRE database for Palawan as an initial step towards completing the provincial NRE database.
- i. PNRELSP should continue to use the performance indicators adopted in PIR 2002 in actual monitoring and evaluation of project outputs so that measurable parameters can be used also in assessing the impact of the project in the global environment, in addition to its capacity building accomplishments.

- j. On the project administration, PNRELSP should be able to include documentation of the accomplishments of Shell Solar Philippines Corporation in its solar home systems marketing project that is a very significant activity in Palawan's NRE program. For the remaining part of the project consisting of the design and implementation of risk sharing mechanisms, PNRELSP should also have memorandum of agreement with its project partners in addition to the usual informal cooperation and networking arrangements in order to ensure clarity and continuing commitment in project inputs and outputs for the successful completion of the project
- k. On the project execution, CRREE's present policy, planning, monitoring, and control functions should be reinforced into a system to handle centralized planning, coordination and control for the project in view of the PNRELSP needs and implementation gaps mentioned above. At the strategic level, the PMO needs advisory support in order to carry out the second half of the project more effectively in view of the more critical stage of implementation for PNRELSP. Engagement of the service of a National Technical Adviser strong in NRE program implementation and financial mechanisms is highly recommended.

Figure 1b shows the organizational structure with the National Technical Adviser.





**Figure 1b.**  
**Proposed CRREE/PNRELSP Organization**

## 0.5 Lessons drawn from PNRELSP

- a. The choice of delivery mechanism for NRE technology (i.e. solar PV power systems) deployment may not be that straight forward even if success stories were experienced in other given situations. Under the new PNRELSP direction, the risk sharing mechanism that the project will design and implement is actually intended to support whatever delivery mechanism the Shell project will carry out. However, PNRELSP will evaluate all possible delivery mechanisms in Palawan as well as the appropriate risk sharing mechanism and financing scheme for each delivery mechanism.
- b. 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
- c. It is easy to raise the expectations of the people in the rural community specially when there are no apparent options for their energy needs. However, their enthusiasm drastically drops if they fail to see tangible results of what were spoken of during information campaigns and training programs. This is a measure of whether the awareness raising and even the promotional efforts of the PNRELSP are really effective.
- d. Still the first-cost barrier for NRE systems is first and foremost consideration in designing sustainable small power systems for low income communities
- e. Shortage of experienced staff and service technicians can result to serious implementation problems.
- f. Unclear performance standards and deadlines for deliverables give way to reasons for non-compliance of commitments or delays
- g. All project partners and key project implementers should all officially sign project agreements and related documents in order to formalize commitments on inputs, outputs and processes involved in the implementation of a project. The PMO, as the central monitoring group for the project, should be able to monitor and evaluate all inputs and outputs of the project. The PMO has to report the M&E findings to UNDP.

## 1 PROJECT DESCRIPTION

### 1.1 Origins and Context of PNRELSP

The Palawan New and Renewable Energy and Livelihood Support Project (PNRELSP) is supported by the Global Environment Facility (GEF) as a medium size project (MSP) and is in line with GEF Operational Program No. 6, “Promoting the Adoption of Renewable Energy by Removing Barriers and Reducing Implementation Costs”. It is implemented through the United Nations Development Programme (UNDP).

The project is aimed at reducing the long-term growth of greenhouse gas (GHG) emissions by removing the barriers to the commercial utilization of new and renewable energy (NRE) power systems. Such systems are intended to supplant diesel power generation in Palawan.

#### **Barriers to New and Renewable Energy Systems in Palawan**

Based on preliminary assessments prior to PNRELSP, the critical barriers to NRE deployment in the country in general, which are also applicable to Palawan, are as follows:

- 1) *Limited capacity of the local government to formulate NRE policies.* Generally, the Provincial Government of Palawan (PGP) has limited capacity to formulate own local incentive policies and guidelines to encourage investments in NRE, and limited knowledge about how private sector can be involved in delivering rural energy services in addition to what has been traditionally done by the rural electric cooperatives (RECs) under the National Electrification Administration (NEA). In addition, PGP has limited capabilities to strengthen renewable energy deployment in the Provincial Energy Master Plan.
- 2) *Lack of awareness among decision-makers, entrepreneurs, and households of NRE systems and their potentials.* The main reasons that diesel generators are chosen readily for rural electrification are its general availability, familiarity to users, and lower first cost and that the policy-makers, entrepreneurs, and households know little about NRE and its potential.
- 3) *Lack of information about renewable energy resources, technologies, and market.* The current understanding of the quantity and distribution of NRE resources and data analysis for NRE resource assessment, NRE technical and market aspects and the barangay socio-economic situation is largely

inadequate thus posing serious constraints to future investments in NRE technologies.

- 4) *Lack of expertise to conduct feasibility studies and market surveys.* Few professionals, local entrepreneurs, and potential investors have the expertise to conduct feasibility studies and market surveys for NRE installations, as well as to identify market opportunities of productive uses from NRE services.
- 5) *Lack of maintenance services for the renewable energy systems.* Most of the NRE systems installed to date have already been broken down and abandoned, particularly those provided through grants, due to lack of proper maintenance and after-sale services. Institutional framework and local technicians to provide reliable maintenance services after installation are lacking.
- 6) *Lack of sustainable and commercial delivery mechanism.* Currently, the RECs, which are private electricity distribution companies financed by NEA, are responsible for rural electrification within their franchise areas. However, the RECs, for example, the Palawan Electric Cooperative (PALECO), rely primarily on limited government financing from NEA. Thus, they have limited funding and capability to provide electricity services to a large number of non-electrified households. In addition, most of the private NRE companies in Philippines are only involved in sales of renewable energy equipment, rather than delivering renewable energy services (which should include maintenance services for equipment sold). Therefore, there is need to put in place a sustainable delivery mechanism to provide integrated and reliable financing, installation, operation, and maintenance services of NRE systems to local communities.
- 7) *Lack of appropriate financing mechanism for rural electrification.* NRE systems have high up-front costs, thus making them unaffordable to low-income households. However, operating costs are low because of no or very minimal fuel costs. Currently, rural electrification in the country is primarily financed through government funding, which is very limited compared to the need. Low-income households will not normally qualify for capital and credit warranties. The financial institutions have no experience in NRE projects and related micro-finance management.

Due to the above barriers of NRE diffusion and fixation on what is familiar and low front-end costs favoring diesel engines, 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.

When the expected share in revenues from natural gas come, the PGP will spend most of it on the expansion of diesel generators. The PGP has formulated the Palawan Provincial Energy Master Plan (1997-2021) which has set up the goal of increasing electricity supply from its current 25 MW to 250 MW in 2021, and the target of electrifying all the barangays by the year 2021. Both the provincial and the municipal governments in Palawan are highly committed to provide electric power services to the unelectrified households but with primary regard to protection of its environment. The PGP is searching for strategies to spend the expected share in revenues from natural gas on sustainable development in Palawan and also be consistent with its environmental protection policy.

NRE offers a solution to this concern although there should be some developmental support for its entry in the market. Palawan is an ideal place to introduce the NRE strategy to rural electrification. Otherwise, NRE will continue to play an insignificant role in any part of the country. With GEF support, a great opportunity to introduce commercial delivery mechanism for NRE is at hand. With the needed intervention and buying down the costs initially, proliferation of NRE systems in the near future will increase the market base. Such improvement in economies of scale is expected to make NRE systems affordable to end-users and the maintenance and after-sales services will be systematically provided under sustainable conditions.

The broad development objective of this project being pursued by the Government of Palawan is the provision of electricity services to the rural areas, to support livelihood improvement with minimum disruption to the local, regional, or global environments, and with maximum economic efficiency. Increased electricity services in Palawan will improve people's living standards and stimulate local economy.

This project is aimed to reduce the long-term growth of greenhouse gas (GHG) emissions through removing barriers to commercial utilization of renewable energy power systems to substitute for use of diesel generators in Palawan. This project is intended to demonstrate the viability of the RESCO (Renewable Energy Service Company) delivery mechanism of renewable energy systems, and economic activities of productive use of renewable energy services for rural communities, for replication in the Philippines.

This objective is clearly consistent with the goal of the Government of the Philippines and Government of Palawan to provide rural electrification using renewable energy and support people's livelihood improvement. This project can reduce Palawan's oil import and utilize indigenous and environmentally friendly energy resources to provide energy services to remote communities. Utilization of renewable energy can also reduce the local health and environmental hazards from the use of petroleum products.

## **1.2 Objectives and Implementation Period**

### *1.2.1 Implementation Period*

PNRELSP started when all parties signed the three-year project on February 28, 2001 and is now in its 18 months of implementation or in its mid-term period.

### *1.2.2 Changes in the Project Direction since the Project Document Formulation*

The PNRELSP originally intended to demonstrate the viability of the RESCO (Rural Energy Service Company) approach as a delivery mechanism for NRE systems, together with economic applications of productive uses of NRE services for rural communities. Considering the unfavorable results in using the RESCO approach in a similar project in Aklan by Shell Renewables, Inc. (now Shell Solar Philippines), one of the PNRELSP partners, Shell decided to shift its own delivery mechanism to "Direct Sales" scheme. In May 2002, ten months from the start of the project, the PNRELSP PMO, consulted with some stakeholders and adopted the decision to focus on the direct sales approach.

### *1.2.3 Expected Outcomes and Objectives*

Specifically, the original expected outcomes are as follows:

- 1) Increased awareness of renewable energy systems;
- 2) Increased information and services of renewable energy for potential investors; and
- 3) A commercial and sustainable RESCO set up to provide renewable energy services.

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

- 1) Capacities for 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 RESCO established and implemented.

With the change in project direction as approved in April 2002, only Component 4 regarding the risk sharing mechanism to support the appropriate delivery mechanism has been revised. The revision focused on designing and implementing a risk sharing mechanism and financing scheme to support direct sales delivery approach chosen by Shell in comparison with other delivery mechanisms. The shift of direction was reached by Shell as prompted by the experience in their project in Alaminos, Aklan where the RESCO approach was piloted. Contrary to expected results, the RESCO scheme using a mini-grid solar power generation and distribution system did not prove viable.

Based on the PRODOC, as a co-financing commitment by Shell in PNRELSP, the equipment to be put up for RESCO would be made available by Shell under a “buy down” arrangement to make the solar power affordable to targeted beneficiaries during this stage of market development. It is therefore expected that with the change of direction to direct sales scheme, a similar “buy down” scheme would also be applied, consistent with the original plan for the RESCO approach.

The proposal by Shell was approved by the PSC and UNDP after almost a year of review and deliberation that affected the project timetable significantly.

### **1.3 Target Group and Approach Used**

#### *1.3.1 Target Group*

The direct beneficiaries of PNRELSP are:

Provincial Government of Palawan and Local Government Units: The PGP and LGU staff will be benefited from PNRELSP by the increased policy formulation capacities, as well as increased awareness and interests in renewable energy leading to implementing and managing NRE program for the province.

CRREE: This project will help CRREE, which is the non-governmental organization (NGO) implementing agency, to establish a Renewable Energy Development Center in Palawan, and provide training for its staff members in market strategies, feasibility studies, resource assessment, as well as technical and business capabilities.

Private Sector: The private sector including private NRE companies, RESCOs and other private investors will benefit from PNRELSP by the risk-sharing mechanism to reduce their risks and costs, increased public awareness, and increased access to market information on renewable energy. The increased capacity of PGP, LGUs, CRREE and RECs will also greatly strengthen private sector operation in NRE in Palawan and possible replication in the Philippines towards expanding the NRE market and raising levels of investment returns.

Rural Electric Cooperatives: REC personnel will have increased information and awareness in renewable energy and private sector involvement in direct sales of NRE equipment along with other delivery mechanisms. This project can also help the REC to carry out their rural electrification mission and meet the NEA target for barangay electrification by introducing more private sector involvement and capital in rural electrification.

Unelectrified barangays: Currently, 65% of the barangays in Palawan, or around 50,000 households, do not have access to electricity. This project will introduce schemes in providing electric power services to these unelectrified barangays, and support productive uses from NRE to improve the livelihood of these rural communities.

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

Babies and children will benefit from the convenient form of lighting at night and the reduced exposure to local air pollution from fossil fuels;

Sick and elderly people will benefit from the convenient form of energy – electricity, and likewise reduced exposure to local air pollution from fossil fuels;

Women will have more time for performing some income augmentation activities that needs light at night.



### *1.3.2 Approach Used*

The strategy is combining the energy needs with environmental considerations of the province through the introduction of NRE systems in livelihood/income generation activities of the community. As economic situation improves, disposable income of families for energy supply is enhanced.

However, NRE systems such as Solar Home Systems have high front end costs though with low operating and maintaining costs.

Awareness levels of project participation and targeted beneficiaries need to be raised so that advocacy and interest will be promoted accordingly. This could lead to creation of demand for NREs. At the same time, the high front end costs has to be addressed. "Buying down" the acquisition cost is the strategy being pursued by PNRELSP. This could be possible if there are available funds to be utilized. PGP expects its share from royalties in the Malampaya Natural Gas to be used for developmental projects such as rural electrification and power supply as envisioned in the Philippine Energy Master Plan.

Building up the role of the private sector as the main vehicle for delivering the NRE technology to rural communities in Palawan is the challenge to PNRELSP. Because of investments involved, it has to mitigate risks while preserving long term viability and after-sales services. With this future scenario of a stable market for NREs, market demand will grow. Larger volumes of NRE equipment could bring down delivered cost per unit, hence, buying down costs and share in risks go down accordingly as in any new equipment, like cell phones and computers. The delivery mechanism originally intended was the Rural Energy Service Company (RESCO) approach in providing power services. However, this approach did not prove viable in Aklan, so Shell Solar Philippines suggested, and PNRELSP acceded to change the scheme to direct sale of NRE equipment. The rest of the project is how to design and later on implement a risk sharing mechanism for financing NREs.

The Provincial Government of Palawan, assisted by CRREE, will operate and manage a Renewable Energy Development Center for Palawan. The PREDC will act as the "bridger of gaps" and resource mobilizer so that the NRE deployment for answering rural energy needs will be realized. The big justification for this approach is avoidance of diesel generator sets considered bad to the environment. Environment-friendly energy systems for livelihood support makes the PNRELSP unique and challenging.

## **2 REVIEW METHODS**

### **2.1 Reasons for the Review**

The Mid-Term Evaluation of the UNDP-GEF-supported PNRELSP aims to review the performance of the project from the start up to July 2002 using data as of June 2002. The review will include both evaluation of the progress in program implementation, measured against planned outputs set forth in the Project Document in accordance with rational budget allocation, and an assessment of features related to the impact of the project. The evaluation will also identify “lessons learned” from the PNRELSP and offer recommendations to enhance the PNRELSP’s performance.

### **2.2 Evaluation Method**

As suggested in the Terms of Reference for this Mid-Term Evaluation, the evaluation of the PNRELSP performance involved analysis at two levels: at project management level; and (at stakeholders/beneficiaries level. Each level of analysis consisted of four (4) components:

#### *2.2.1 Assessment of progress in project implementation*

In this context, implementation means the provision of inputs and achievement of outputs as well as processes of implementation. The project is now halfway its project life and as such progress was measured against outputs stated in the project document. The evaluation focused on such aspects as appropriateness and relevance of work plan, compliance with the work plan along side with budget allocation; timeliness of disbursements; procurement, quantity and quality of goods and services created; coordination among different project actors and UNDP Country Office support. Any issue that has impeded or advanced the implementation of the project or any of its components, including actions taken and resolutions made were highlighted.

For this purpose, the presentation of the assessment results in the evaluation report, among others, included a summary of information as of June 2002, to reflect the following per main activity:

### **Activities**

- Planned (indicating implementation period) vs. Actual Accomplishment as of June 2002 (to be supported by necessary details presented in a separate tabulation)

### **Budget**

- Planned (as indicated in the Project Document or MOAs) vs. Actual Expenditure as of June 2002
- Percent of Budget Spent

During the first week of the Mid-Term Review, the Evaluator reviewed available documents from the UNDP CO in electronic format and some in hard copy (Reference List 1), submitted a draft Table of Contents for the Mid-Term Evaluation Report, and analyzed with CRREE Manila Office the reporting system and drew up the list of reports generated by the project (Reference List 2). The reports were classified as Subcontractors (Consultants) Reports, PMO-generated reports including periodic management reports, staff progress reports, and PMO-initiated studies and researches. Minutes of the Tripartite Committee and Project Steering Committee meetings were later requested. The said reports were mostly available in the CRREE Palawan Office. The Commission on Audit also did a Project Management and Financial Audit last March 2002.

Missing documents and other required information that were considered relevant to the Mid-Term Evaluation were identified. For example, available reports did not indicate breakdown of activities into the main-activities-level of aggregation and their respective budget and actual expenses in order to further analyze project operational and management planning and control that could lead to pinpointing more specific barriers and gaps affecting the rate of delivery of the expected outputs and impact to target groups. The Mid-Term Evaluation TOR has emphasized this aspect of evaluation. Regular and continuing discussions, either person-to-person, through phone calls or by e-mail messages were done to clarify, validate and document observations and data pertinent to the project evaluation process.

For the second week of July 23, 2002, the Evaluator interviewed in Puerto Princesa City, Palawan, the Project Management Office (PMO) team and the CRREE staff directly involved in the PNRELSP. Some of the documents mentioned in Reference List 2 were made available in the CRREE Office for ready reference.

Structured interviews were done with relevant parties at different occasions with follow-up discussions to gain a deeper understanding of the actual implementation of PNRELSP, paying close attention to the issues and concerns affecting the project. A summary of persons interviewed is shown in Annex 6.3.

The Evaluator together with UNDP CO representatives visited Palawan in two schedules: July 23-26, 2002 with Mr. Morito Francisco and August 13-15, 2002 with Ms. Imee Manal. While significant information were obtained from the series of discussions that were done, remaining data gaps and additional required information were agreed to be forwarded by concerned resource persons to the Evaluator in Manila with clarifications and validations to be than through the usual communication modes. These included the requested information on physical accomplishment and expense accounting to be disaggregated into main activities as mentioned above to be provided by the Project Manager and assigned PNRELSP staff. The initial schedule of having the first draft by August 15, 2002 as indicated in the Mid-Term Evaluation contract was not realized. The Project Management Office expressed that present reporting system do not require such details such that the requested information would still be worked out and prevailing staff load did not allow an earlier submission of the needed information.

### 3 FINDINGS

#### 3.1 Assessment of progress in project implementation

Measurements of PNRELSP actual inputs and outputs as of June 2002 were done compared to planned levels in the Project Document (PRODOC) and then the process of implementation was assessed considering the project's organizational structures and systems.

##### Resource Inputs

Table 1 presents the summary of PNRELSP inputs to reflect the resources coming in the project.

<b>Table 1 SUMMARY OF PNRELSP INPUT RESOURCES</b>			
<b>INPUTS</b>	<b>Indicated in PRODOC (amounts in million)</b>	<b>Disbursed as of July 2002</b>	<b>% Funds Disbursed</b>
<b>FUNDS</b>			
A. GEF	<u>\$0.750</u>	0.367	49%
B. Co-Financing			
• UNDP (TRAC)	0.100	0.081	81%
• PGP	0.300	not thru CRREE	n.a.
• Private Sector (Shell)	<u>1.400</u>	not thru CRREE	n.a.
Total	1.800		n.a.
<b>TOTAL</b>	<u>\$ 2.550</u>		n.a.
<b>IN-KIND INPUTS</b>			
▪ Participating Institutions (CRREE, PGP, DOE & other Stakeholders)		• Own Budgets for Incidental Travel, Staff Support, Information, Communication and other necessary inputs without DSA	
▪ Barangay/Peoples' Organizations		• Local voluntary services, materials, livelihood initiatives, etc.	

Being the PMO, CRREE should have an idea about the expenditures from PGP and Shell. That is of course, if they understand that the PGP and Shell inputs (funds and activity outputs) are part and parcel of the PNRELSP.

### *Government Inputs*

With the committed \$300,000 PGP co-funding to PNRELSP, including \$200,000 cash and \$100,000 in-kind, the amount already spent from the cash contribution was not available during the interviews conducted. The cash contribution is intended for the RESCO distribution lines (\$50,000) and the balance for concessional loans to local entrepreneurs and local communities for the NRE-assisted livelihood projects (\$150,000). With the change of approach, the distribution lines budget is assumed to be available for reprogramming. PGP representatives indicated in the interviews that the provincial government has opened windows for livelihood loans through Land Bank and DBP, including loans for NRE-assisted livelihood projects administered under the Provincial Cooperative Development Office (PCDO). The PPDO has allotted PHP 20 Million out of its year 2002 Internal Revenue Allotment (IRA) to fund NRE-supported livelihood projects. Seven (7) mayors have committed to allocate IRA for NRE projects and/or purchasing of SHS.

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.

For actual participation from PGP to the project, the present monitoring and evaluation by PMO does not include a system for specific inputs and outputs that would document and verify information on implementation from PGP's end. Limited documentation was available at the time of this Mid-Term Review since these are not regularly monitored.

### *UNDP Contribution*

The UNDP contribution is composed of the GEF and the UNDP TRAC components. Out of the GEF contribution of US\$750,000 provided through the facilities of the UNDP as a GEF implementing agency, US\$367,000 or 49% has been disbursed to CRREE as of June 2002. For the UNDP TRAC co-funding of US\$100,000, the total disbursement already amounts to US\$81,200 or 81%.

The budget for the international renewable energy policy expert (IREPE) and the international resource assessment expert (IRAE) has not actually been spent. All the national consultants and professionals have been hired. Regarding subcontracts, the subcontract for the Design of a Risk-Sharing Mechanism has been awarded, leaving the subcontract for Implementation of the Risk-Sharing Mechanism as the remaining subcontract to be awarded in September 2002. Said subcontracted project component was awarded while

this report was already being finalized. The budget for the two RSM subcontracts amounts to US\$213,000 or about 25% of the total UNDP contribution.

For equipment, the PNRELSP funds have been continuously used to purchase the necessary equipment to establish the Palawan Renewable Energy Development Center such as: a.) model NRE equipment (such solar panels, BOS, small scale wind turbine, small scale hydro generator, and a small scale biomass gasifier) for training and demonstration for the Center; and b.) computers for database management and c.) office supplies for the Center. This Mid-Term Evaluation did not conduct any inventory of purchased equipment, though it was gathered that, for NRE equipment, only solar PV equipment were purchased.

#### *Shell Solar Philippines Contribution*

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. However, part of the \$1.4M commitment has been spent for establishing SHS equipment sales center in Palawan and the rest with additional resources were reallocated to fund Shell’s own micro financing scheme. An account of the value of the investment that Shell Solar has initiated in order to establish the direct sales infrastructure instead needs to be requested by PMO from Shell. Shell Solar in Puerto Princesa, Palawan, has established a solar energy equipment sales center, with its support marketing staff and 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.

With the change of delivery mechanism from RESCO to Direct Sales approach, the financial scheme of “buying down” costs will take another framework of financial arrangement. This becomes one of the major issues to be tackled by the Risk Sharing Mechanism Design and Implementation components of PNRELSP.

This Mid-Term Evaluation was not able to gather verified information from Shell Solar on the extent of its exposure in NRE in Palawan in connection with PNRELSP commitments projected to reach \$ 1.4 million. Since Shell Solar's direct project inputs are not being regularly administered by CRREE, these are not included also in their present monitoring and reporting system. CRREE, however, informed during the draft review about the following on Shell Solar's activities that accordingly, can be considered as Shell Solar's co-financing investments to the project:

1. Feasibility study for a Project to Provide Environmentally Friendly Electricity Services for Off-Grid Communities in the Province of Palawan. Shell Philippines Exploration B.V. and Shell B. V. have commissioned the services of Community Power Corporation (CPC) in conducting said study last July 1999.
2. Shell Solar hired the services of PAFID to undertake a GPS mapping to the five pilot sites. The GP maps were used by CPC to design a mini-AC grid NRE system for the 5 sites for potential RESCO sites.
3. Shell Solar, CPC along with CRREE convened a series of consultation meetings in the sites (mid to late 2000). These meetings centered on Shell Solar's proposal for RESCO-operated rural electrification
4. When Shell Solar shifted to direct selling in 2001, it opened a Shell Solar Center in Puerto Princesa.
5. Technical, Sales training were conducted by Shell Solar which led to hiring of NRE technicians and sales agents
6. Shell Solar is planning to enter into an MOA with the Cooperative Bank of Palawan on micro financing. Negotiations are underway for the initial financing of 110 solar home systems
7. Shell Solar arranged with SPEX to provide funds of up to \$600,000 to fund the solar power and micro-enterprise project for Palawan. SPEX allocated \$125,000 for CRREE to implement a micro-enterprise project component on mud-crab farming using solar lighting.
8. Shell Solar has been provided corporate funds amounting to \$475,000 to fund the individual household electrification component of the project. Shell Solar targets to sell solar home systems to 2,200 households by year 2004.

Shell Solar's micro financing scheme is a new activity as far as the PNRELSP and the change in delivery mechanism are concerned. As such, this can be viewed as an additional financing scheme under the PNRELSP that can be tapped. This is an area that needs to be clarified also, especially that there is a very good potential for leveraging of project resources to generate more funding support. With Shell Solar's pioneering work, entry of other players in



solar energy in Palawan and other places could be a possibility depending on how the local solar energy market develops.

In summary, with the public-private sector partnership originally intended by PNRELSP, the actual working relationship between PGP, representing government, and Shell Solar, as the private sector, needs to be redefined. Shell Solar, with its own market reading, has proceeded to retail SHS as its corporate strategy.

There is need to clarify, therefore, what Shell intends to do with its PNRELSP co-financing commitment that has been a major consideration in the approval of the GEF funds. Other more recent developments about the PNRELSP and related projects and activities of the major stakeholders have to be integrated to ensure more coherent direction for NRE proliferation, mobilization of resources and rational program management. These include the micro-financing scheme still being developed by Shell Solar, related activities by other private sector players, solar projects by DOE, initiatives by PGP and other agencies, etc. Shell's own micro financing scheme is one of several possible SHS financing options that PNRELSP will be investigating in the remaining part of the project. Realizing these potentials, the GEF assistance therefore becomes very valuable in terms of ushering in the right approaches and developing capabilities of parties involved.

### ***Other In-kind Inputs***

Other in-kind inputs come from the participating agencies such as CRREE, DOE, DENR, and other stakeholders in terms of staff time, travel expenses and other related expenses that are not covered by DSA provided through PNRELSP funds.

The community and peoples' organizations also provide in-kind inputs in terms of voluntary incidental labor, materials and other related expenses not covered by PNRELSP.

### ***UNDP/GEF Inputs for the PNRELSP Main Activities***

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. The budget distribution per major activity showing subcontractors and CRREE components from the latest budget revisions is shown in Table 2. In summary, about half of total UNDP/GEF funds are subcontracted by CRREE directly to outside consultants, while the other half is CRREE-administered. In the CRREE-administered subcontracts, CRREE staff and project contractual personnel are directly involved in the implementation, and

on the other hand, the consultants primarily implement the rest. In the process, all subcontracts bidding and award were handled through UNDP.

**Table 2**  
**Approved Budget for PNRELSP Main Activities**

Main Activities	Approved Budgets (US\$)	Percent Share
A. Formulation of NRE Policies <ul style="list-style-type: none"> <li>▪ UPERDFI</li> <li>▪ CRREE-Administered</li> </ul> SUB-TOTAL	29,850 <u>53,011</u> 82,861	9.7%
B. Establishment of PREDC <ul style="list-style-type: none"> <li>▪ UPERDFI</li> <li>▪ CRREE-Administered</li> </ul> SUB-TOTAL	45,000 <u>42,911</u> 87,911	10.3%
C. Conduct of Feasibility Studies <ul style="list-style-type: none"> <li>▪ Strategic Advantage, Inc.</li> <li>▪ CRREE-Administered</li> </ul> SUB-TOTAL	66,400 <u>35,211</u> 101,611	11.9%
D. Conduct of Public Awareness Program <ul style="list-style-type: none"> <li>▪ CRREE-Administered</li> </ul> SUB-TOTAL	<u>65,649</u> 65,649	7.7%
E. Conduct of Education Campaign <ul style="list-style-type: none"> <li>▪ Educational Life Foundation, Inc.</li> <li>▪ CRREE-Administered</li> </ul> SUB-TOTAL	44,177 <u>37,734</u> 81,911	9.6%
F. Risk Sharing Mechanism <ul style="list-style-type: none"> <li>▪ Subcontractors</li> <li>▪ CRREE-Administered</li> </ul> SUB-TOTAL	230,000 <u>37,171</u> 267,171	31.4%
G. Program Management <ul style="list-style-type: none"> <li>▪ CRREE-Administered</li> </ul> SUB-TOTAL	<u>162,886</u> 162,886	19.4%
TOTALS <ul style="list-style-type: none"> <li>▪ Subcontractors</li> <li>▪ CRREE-Administered</li> </ul>	415,427 <u>434,573</u> 850,000	48.9% <u>51.1%</u> 100.0%

### 3.2 Assessment of Features Related to the Impact of the Project

The project is in midcourse of its implementation. During the preparation of PIR 2002, estimates of diesel fuel reduction as a result of NRE utilization was suggested by the GEF Coordinator to be included in the project monitoring and evaluation to put in place measurable performance indicators in

assessing the impact (i.e., attainment of the project development goal) of the PNRELSP on the global environment.

For the PIR 2002 report, UNDP-GEF required the revision of the indicators to make them quantifiable and time-bound. Among others mentioned in the PRODOC to be monitored also by the project as quantified outputs and with respective time frames are as follows :

- 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

The Mid-Term Project Evaluation focused on aspects that are closely related to impact assessment and the trend at which the long term impact of PNRELSP could be realized in terms of the following:

#### Capacity Development

The PNRELSP aims to elevate capacity and preparedness of target clients to use NRE. Its impact is expected to widen as the market base of NREs stabilizes. That will be the time that greater GHG impacts of the project can be reckoned.

The effects of the project activities on strengthening the capacities of the PGP, LGUs, peoples' and community organizations and the general public to advocate the use of NRE for environmental reasons are well understood and accepted.

A strong manifestation of the capacity building for the market entry of NREs in commercial mode is the establishment of a retailing and servicing outfit for Solar Home Systems by Shell Solar Philippines Corporation in Year 2000. The other private sector players are watching developments very closely. The project has claimed being instrumental in bringing in private companies like Shell into Palawan and linking them with the other stakeholders on NRE development.

#### Sustainability

To finally ensure the long tem sustainability of the NRE-assisted investment projects for livelihood applications, risk sharing mechanisms for direct sale of NRE systems and other commercialization modes are being studied which is the main focus of the remaining part of the PNRELSP. Results of the study

will determine the approach and implementation requirements of the delivery mechanism selected.

The NRE-assisted Mud Crab Micro-Enterprise Project under the PNRELSP is being developed as market-based, business-like and sustainable in order that the communities will imbibe a sense of ownership of the project. Through a contract farming model, CRREE and the cooperatives enter into a business partnership, though initially as teacher-student relationship, until it becomes a sustainable enterprise even after the PNRELSP.

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. These could be validated within PNRELSP duration. Potential replication is seen as existing mud crab merchants or suppliers get interested in taking the role of CRREE as the integrator and provider of production inputs. The impact of the project therefore on sustaining successful community livelihood/business depends 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 PNRELSP and beyond.

As more small scale NRE-assisted livelihood projects, other than the mud crab growing, are identified and developed, the need for financing has been anticipated by the project through its micro financing plans that could take care of not only the capital needs for the business but also for the NRE system requirement. Formulations of micro financing schemes were done by CRREE in consultation with Shell Solar, DBP, Land Bank, Palawan Cooperative Bank and Provincial Cooperative Development Office (PCDO).

### Leverage

As understood, leveraging of funds should result in additional funds from other sources brought about by the project to continue a stream of funds to support the program. In this context, projects in the pipeline related to NRE directly leveraged by the Project through CRREE are still minimal.

However, early stages in NRE project funding negotiations in coordination with other agencies are being held for the following:

- JICA Energy Master Planning for the Province of Palawan with CRREE as a subcontractor to provide basic technical and social advice for NRE to PGP;

- PAGCOR Barangay Electrification Project for a solar-powered AC mini-grid for an unelectrified barangay in Palawan with First Philippines Energy Corp as partner; and,
- MIRANT Foundation electrification of 20 barangays using solar home systems in Palawan through a micro-credit facility.

PMO mentioned related funding augmentation activities but may not necessarily be leveraging since this could be viewed still falling under commitments to the project. PGP has authorized PHP 100 million for PALECO as financial assistance for augmenting rural electrification, a significant part of which could be used as NRE Guarantee Fund. PGP is in the process of negotiating with the national government its national wealth share from the Malampaya natural gas production. The actual amount has not been determined yet. PGP expects that this fund resource can be used for addressing the needs of the province. Because of the limited rural energy supply system, it plans to allocate about 80% of the share for rural energy supplies. A portion of the expected share has been earmarked for possible NRE Trust Fund.

The PPDO has allotted PHP 20 Million out of its year 2002 Internal Revenue Allotment (IRA) to fund NRE-supported livelihood projects. Seven (7) mayors have committed to allocate IRA for NRE projects and/or purchasing of SHS.

### Awareness Raising

- Environmental Issues and the GEF

With respect to the desired impact of the project on GHG emissions reduction, the initial NRE-assisted livelihood application chosen for the sites, i.e. using mud crab culture technology, does not have very significant contribution in terms of reduction in diesel fuel burning per se. PNRELSP has selected mud crab raising not only because of the peoples' familiarity and preparedness about it but also 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 NRE-based energy systems, e.g. solar home systems. The actual accomplishment in this aspect is the multiplier effect that the project will induce as a result of this NRE market introduction strategy. The performance indicator on

reduced (or avoided) diesel consumption is the measure of success for PNRELSP ultimately.

For home applications, about 6,100 equivalent liters of diesel have been displaced through use of SHS as of May 30, 2002. This displacement value was based on the 203 SHS that were installed so far by Shell Solar Philippines Corporation.

The awareness on NRE 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 mud crab technology introduced through the project have direct environmental benefits in terms of avoidance of mangrove tree cutting. Information on the Global Environmental Facility (GEF) and its programs have also been well disseminated by the project in fora, conferences, exhibits and other media opportunities.

The solar PV farm lighting at night at strategic locations serves also as a deterrent against the animal predators as well as unauthorized human pickers thereby contributing to mud crab farm productivity. Other productive applications, e.g. solar battery charging, solar warning/location lights in farms, etc. are also being introduced to the sites. These actual hardware demonstrations and operational experience in houses and livelihood applications through a related SPEX-co-financed project have greatly increased awareness and acceptability of NREs.

- PNRELSP's contribution to promote policy or advocacy activities and collaboration among communities

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 of the project.

### **3.3 Measurement of Mid-Term Outputs Vs. PRODOC Indicators**

The PNRELSP, being a capacity-building project, can only be evaluated by the extent the capacities and capabilities of the stakeholders are manifested in creating a conducive market situation for more NRE advocacy and deployment. As designed, the project has an agenda for action and a menu of things to do to achieve what was envisioned as desired future scenario for NRE deployment in Palawan. The nature and program of collective intervention was designed to induce the private sector to take up its role as

the appropriate vehicle for delivering the NRE goods. This Mid-Term Project Evaluation inventoried the manifestations of these improvements that may be directly or indirectly spawned by the PNRELSP initiatives. The exercise was aimed to chart the continuing improvement the PNRELSP has committed to achieve.

Table 3a in Annex 6.7 presents the PNRELSP mid-term outputs compared to the PRODOC indicators as originally projected.

Highlights of the comparison made are as listed below. Some of these might need specific action plans considering present project situation and needs of targeted beneficiaries:

- a. With the change of Project direction, no RESCO is expected to be identified nor agreements made within the project period. This output, however is not altogether dropped. Component 4 of the project will involve Risk Sharing Mechanism design for the Direct Sale of SHSs, as well as a study of other RE delivery mechanisms including RESCO for the PGP's NRE Trust Fund.
- b. Proposed financial incentives for NREs should have been finalized by now.
- c. A revised Palawan Energy Master Plan should have been submitted to PNRELSP. A JICA-assisted project to revise the plan has been negotiated by PGP with assistance of UP starting August 2002. Because of the need to formulate the plan to make it more comprehensive, additional resources were required. The succeeding arrangements were carried out outside of the PNRELSP.
- d. Establishment of the Palawan Renewable Energy Development Center (PREDC) has not been formalized though CRREE is functioning to be the focal point of NRE activities in Palawan.
- e. Only NRE-assisted mud crab culturing livelihood/productive applications has been identified and piloted in 6 sites.
- f. Results of market survey has not yet been published.
- g. Services to conduct market feasibility studies are not yet fully developed.
- h. Renewable energy resource assessment for pilot sites is not yet completed by PGP. The results will be incorporated in the NRE database for the province.
- i. Improvement in the capacity in economic and financial evaluation of NRE projects and the preparation of a business plan for the PREDC have not yet been completed.
- j. Three (3) Training Workshops on: Socio-Economic Assessments, Basic Accounting Principles and Practices, Basic Business Management, and Project Feasibility Evaluation were deprioritized to give way to an Energy Planning Seminar Workshop (with Business Orientation) as suggested by

NREPE. The Seminar Workshop on Socio-Economic Assessment was deleted as cleared with PMO. These project deviations were suggested and discussed by the consultant with the PMO. However, there was no record to show that the changes were approved by PSC and UNDP.

It was noted that the PRODOC did not present enough measurable indicators and timeframe of the outputs against which evaluation and monitoring could benchmark with. Suggestions to revise the indicators to include target values and time frames were made by UNDP-GEF during the preparation of the PNRELS Project Implementation Review (PIR) report in 2001. However, the recommended changes were not made in time for the submission of the PIR 2001 report.

For the PIR 2002 report, UNDP-GEF required the revision of the indicators to make them quantifiable and time-bound. Among others mentioned in the PRODOC to be monitored also by the project as quantified outputs and with respective time frames are as follows :

- 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

### **3.4 Assessment of Progress in Project Administration and Relevance of Work Plan**

The major project activities correspond to the following six (6) major outputs of PNRELSP which are either done directly by CRREE, subcontracted or combination of both:

- A. Formulation of NRE Policies
- B. Public Awareness Program
- C. Conduct of Education Campaign
- D. Establishment of Palawan Renewable Energy Development Center
- E. Conduct of Feasibility Studies
- F. Risk Sharing Mechanism

Quarterly Financial Reports and Planned Expenditures determine the financial position of the project while the Quarterly Accomplishment Report presents the work done for each activity on a quarterly basis. However, the two reports prepared by PMO do not match with each other in terms of manifesting physical or activity progress vs. financial status per major activity.



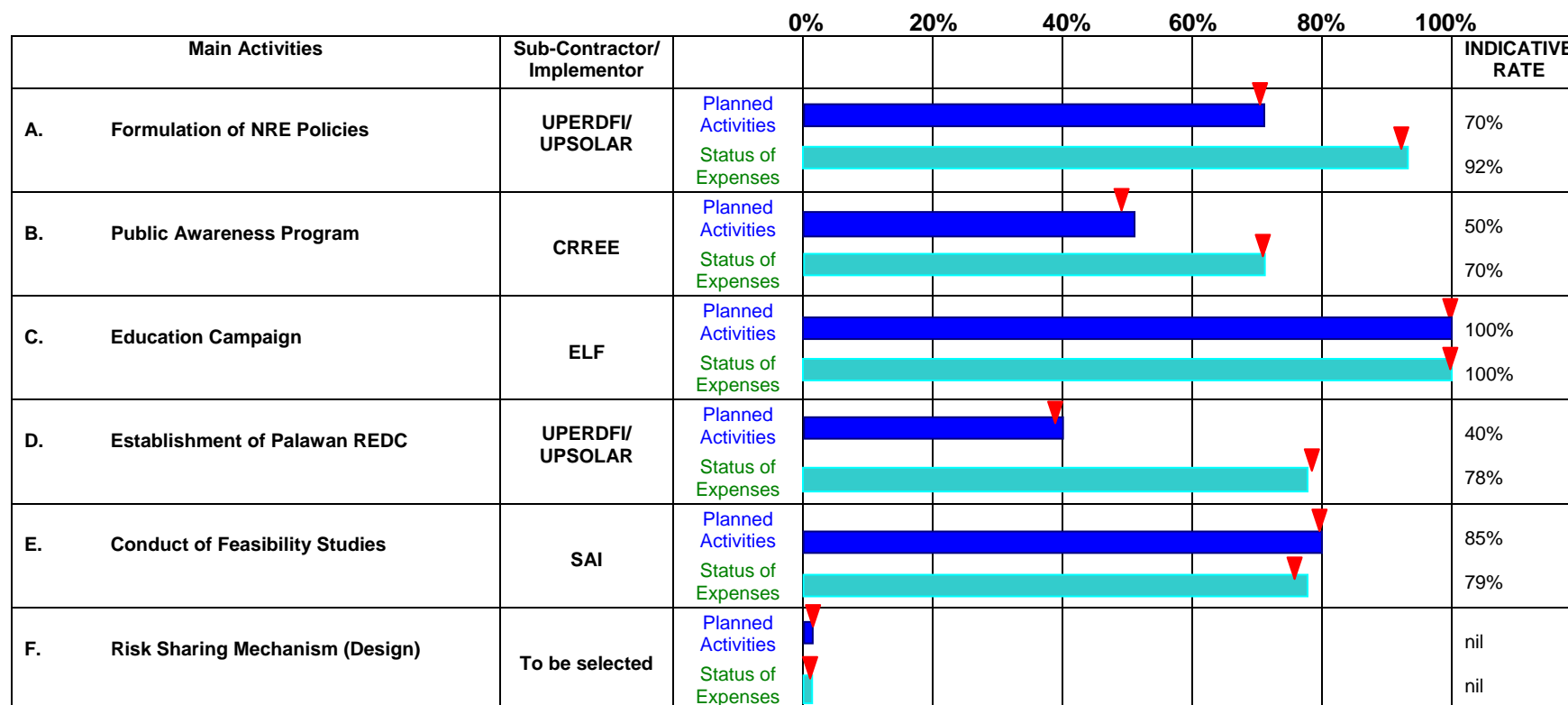
For the monthly planning and accomplishment reporting at the staff level, each CRREE staff involved in PNRELSP submits monthly Calendar of Activities and monthly Accomplishment Report based on the WFP for the year. These are all integrated at the level of the Project Manager to have the project Monthly and Quarterly Reports.

The graphical comparison in the planned activities of the different subcontractors/implementers with the rate of expenditure for the whole project is shown in Figure 1.

In summary, the following have been observed to have big variances in the rates compared.

1. Formulation of NRE Policies
2. Public Awareness Program
3. Establishment of Palawan Renewable Energy Development Center

**Figure 1. PNRELSP Main Activities by Sub-Contractor  
Planned Activities vs. Status of Expense  
As of July 31, 2002**



Notes:

1. Percent completion of planned activities was derived using weighted percent of component activities.
2. Status of expenses is the percent rate of expenses over budget.

### *3.4.1 Compliance with the Work Plan vs. Budget Allocation*

From the WFP, the budget only indicates cash advance or direct payment indicating transaction amounts rather than actual budgets for each major activity. Hence, the total budget allocation for each major activity or sometimes referred to also as a cost center, cannot readily be reckoned for project planning and control purposes. What is being used as a planning figure is the contract amount stated in the respective MOAs or Contract of Services. It was noted that in addition to subcontract expenses, CRREE has allocated expenditures related to a subcontracted major activity also. For example, for *Activity A. Formulation of NRE Policies* subcontracted to UPERDFI/SL, CRREE has also some activity-related expenditures that are drawn from line item budgets 1101, 1102, 1601, 1602, 1703, 2101 and portions of 1501, 1603, 4501, 4502 and 5301. Altogether, the different amounts from all the line items would total to the overall budget for said activity. This could be explained later in the activity vs. budget analysis presented in Annex 6.8 - Table 3b (plan vs. budget matrix).

### *3.4.2 Timeliness of Disbursements*

Generally, the project did not experience so much difficulty in disbursements as long as the required reports are submitted.

### *3.4.3 Procurement*

The project did not experience so much difficulty likewise in terms of procurement following procedures set forth in the NEX Manual.

### *3.4.4 Coordination Among Different Project Actors and UNDP Country Office Support*

Among the areas for improvement in terms of coordination are as follows:

- a. At the Tripartite level, representation by key government agencies is not consistent
- b. At the Project Steering Committee (PSC) level, the number of PSC meetings, being only twice a year, may not be enough to discuss and resolve issues affecting the PNRELSP implementation. Coordination in policy formulation appears limited especially during the slippages experienced by the project.
- c. At the project partners level, PGP and CRREE have varying focus as far as PNRELSP is concerned. PGP sometimes initiates new areas of interest

which could also be related to PNRELSP objectives, but are not communicated well with its partner, and similarly, for CRREE towards PGP. The staff members are caught in between with unclear project directions. Similarly affected is the direction and overall plan for the creation of the Renewable Energy Development Center.

- d. At the project implementation level, CRREE and UP Solar Laboratory do not meet regularly, or more often as necessary to discuss project implementation concerns. The necessary teamwork between the two groups, as envisioned in project design, can be improved where the livelihood development expertise of CRREE can combine synergistically with energy policy/planning and technical expertise of UPSL. The required tasks nevertheless are also accomplished by UPSL by coordinating directly with PGP. However, synchronization of project activities and approaches towards common goals may not happen always.
- e. At the PMO level, the present organizational structure composed of four regular personnel (National Project Director, Project Manager, Finance Officer, Administrative Assistant/Secretary, and Driver Messenger) may not be ideal in terms of coordination functions. Absence or lack of regular planning, coordination, evaluation and control functions appear to hamper the means of project execution and implementation.
- f. At the project site level, rural conditions related to mobility and communications affect effectiveness of coordination of project activities and direction.
- g. With the UNDP Country Office, project coordination and administrative requirements progressed smoothly.

#### *3.4.5 Present Set-up of PNRELSP within the Organizational Structure of CRREE*

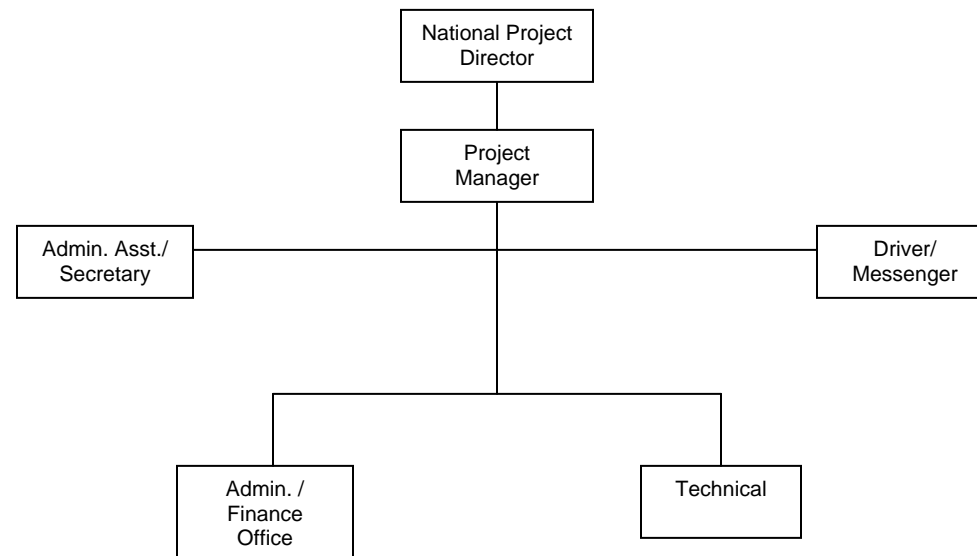
The PNRELSP's management team is composed of the National Project Director and the Project Manager. They are the management team for CRREE also. The Project Steering Committee chaired by the Governor of Palawan was created to aid the policy and program direction requirements of the PNRELSP. The members of PSC are representatives of PGP, DOE, PALECO, academic community, UP Solar Lab, Shell Solar Philippines Corp. and other stakeholders.

The PNRELSP Project Team also includes an Administration/Finance Officer, an Administrative Assistant/Secretary, and a Driver/Messenger. CRREE has hired an NRE technician, an enterprise development officer, and a marketing

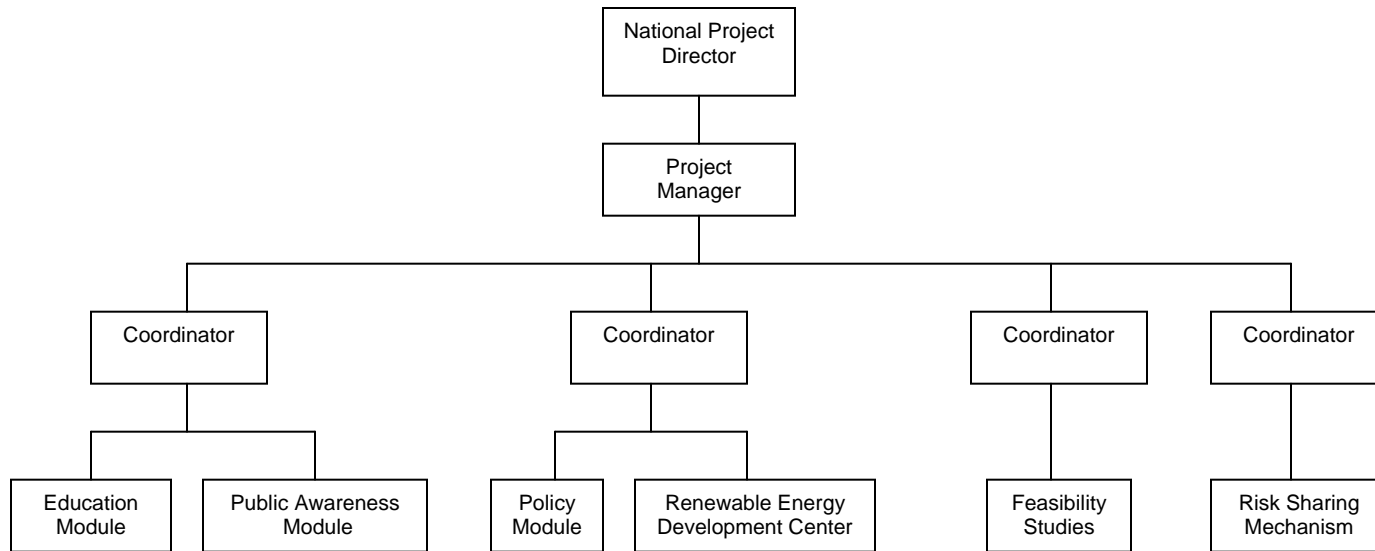
specialist. CRREE has likewise rehired the services of the five (5) Community Educators/Organizers. The bulk of the deliverables are subcontracted to various groups.

The project structure can be seen in Fig. 2a, showing the basic organization of PNRELSP within the CRREE organization. It can be observed that there is no Planning Officer designated to integrate all the project components into a cohesive and consistent activity plan for purposes of planning and control and monitoring and evaluation.

Figure 2b shows the suggested structure of the National Project Director in terms of enhancing coordinating capability of PMO.



**Figure 2a.**  
**Present Organizational Set-up of PMO**



**Figure 2b.**  
**CRREE's Proposed Organizational Set-up for of PMO**

Notes:

1. This was suggested by the National Project Director but was not yet practiced for all. Only the Education Module and the Public Awareness Module has Coordinator in the person of Mrs. Beth de Castro, who is also a consultant for the Education Module.
2. UNDP agreed to have a coordinator for the RSM module.

## Indications of Potential Success

Indications of potential success are identified to include the following:

- a. The financial package to fund rural electrification projects in Palawan to come from the natural gas sharing revenues is forthcoming as indicated by PGP's assurance in getting this fund. However, the amount of funds that can be derived from natural gas royalties may not reach the level as assumed by the PGP during PNRELSP project development. The province has planned all its program including electrification based on the big allocation. Reduction of the expected amount allocated for said purpose would reduce coverage and impact significantly.
- b. PGP as issued direction in assigning full-time personnel to attend to the functions of the Renewable Energy Development Center and the revision of the Palawan Energy Master Plan and other energy related projects of the province.
- c. The project has initially leveraged its resources for PGP to have additional funding support from different sources to fund its NRE program in relation to the Energy Master Plan. The JICA project will be completed within the PNRELSP project life and therefore will mean opportunities for synchronization and re-enforcement of its others plans of action.
- d. PGP has continued to establish working linkages with CRREE, University of the Philippines/Solar Laboratory, PALECO, private sector represented initially by Shell Solar and other interested NRE 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 submitted a proposal to the PGP to establish a regular department to oversee and manage all energy-related functions of PGP under the Special Program Services group, including NRE deployment in its Energy Master Plan.
- e. PGP has received a JICA Technical Assistance to review and finalize the Palawan Energy Master Plan, which may significantly introduce programs for NRE deployment in Palawan.
- f. PGP has passed a PGP Resolution adopting as a policy to promote and deploy NRE as source of power supply particularly for rural electrification.
- g. PGP has initiated a study to review NRE resources in Palawan.
- h. PGP is in the process of finalizing the MOA on financial package coming from shares in Malampaya natural gas revenue, which may allocate about 20% of the funds for energy supplies and for the NRE Guarantee Fund.
- i. The Governor has stressed in his State of the Province Address the program for NRE deployment to augment significantly rural energy supplies consistent with environmental protection for the province.



- j. PGP has formally designated staff to continue to perform under the PNRELSP project, JICA-assisted review of the Energy Master Plan and other energy-related functions of PGP.
- k. PGP has arranged with the University of the Philippines a program of technical assistance from UP Solar Lab for training purposes along its plan to organize its energy related functions and interest to establish a Renewable Energy Development Center for Palawan.
- l. PGP has authorized P100 million for PALECO as financial assistance for augmenting electrification work, part of which could be used as NRE Guarantee Fund.

### **CRREE's Areas of Concern**

The following are CRREE's areas of concern regarding its capability to achieve PNRELSP's goals as gathered from interviews with the National Project Director and Project Manager. This review also presents below the clarification notes gathered from the PRODOC and other sources of information such as UNDP Country Office and other participants to the project:

- *limited CRREE staff complement vis a vis workload.* As observed by this review, all the proposed personnel in the PRODOC were hired by the project. There were no significant additional activities to warrant need for additional project personnel. If the PNRELSP project design has correctly anticipated the overall project requirements as assumed in the PRODOC, then CRREE by itself is expected to have ample technical and manpower resources as an organization to carry out the requirements of the project. It was noted that CRREE was created during the PNRELSP project development and was in the process of organizing and staffing when the PNRELSP was awarded to CRREE. The limited personnel as viewed by CRREE therefore could be attributed to the prevailing modest manpower complement of CRREE when it started to implement PNRELSP.
- *beyond the capacity building and institutional strengthening goals of PNRELSP, the project should be able to augment resources to provide for NRE installations and demonstration sites could further accelerate the pace of increasing awareness and appreciation for NRE. Because of the nature of NRE technology deployment to be applied to support livelihood, productive use, income generation and community development in poor rural villages, much more mobilization of resources is needed to fully achieve the objective.* This will now constitute the need for leveraging of resources by CRREE and other project participants that the PRODOC has

conceptualized. PNRELSP was designed only for capacity building as a medium size project.

- *CRREE's capacity self-development is greatly hampered by the practice in the project to subcontract major components to outside groups thus resulting to limited skills development of in-house staff/personnel.* The PNRELSP PRODOC which was formulated for a medium-size project described CRREE as a qualified NGO in NRE and could have enhanced its NRE it worked closely together with the subcontractors, e.g. UP Solar Lab, etc.
- *CRREE's limited organizational structure and high dependence on outside subcontractors affect its decision-making capability.* This reflects CRREE's qualification as an executing agency for this project. On the other hand, the Project Steering Committee (PSC) met only twice a year and may not be relied upon for critical management and operational concerns of the project.

## 4 CONCLUSIONS AND RECOMMENDATIONS

### 4.1 Conclusions

The following are the conclusions derived from the Evaluation.

#### 4.1.1 Project Design

- a. In the light of emerging needs and capabilities of the PNRELSP participants and the target beneficiaries, the Project had clearly defined the development needs and problems to be addressed by the project in Palawan in its project development stage. This was made possible through the findings and recommendations of the feasibility study on "A Project To Provide Environmentally Friendly Electricity Services To Off-Grid Communities In Palawan" conducted in 1999 which has taken into account Palawan's prevailing institutional, social, political economic and environmental situation then.
- b. The project approach of linking energy and environmental needs to livelihood opportunity of a rural community is new in the country. It 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 gathered by Shell in its RESCO project in Aklan.
- c. The performance indicators for use in monitoring evaluation, however, has to be defined further in the course of project implementation review because it was not very clearly established at the outset of the project.
- d. The project is very relevant to the development priorities at the local community levels being targeted especially the capacity development for the targeted beneficiaries as well as the stakeholders of the project.
- e. The project was so designed to enhance the enabling environment so that the market for NRE will be developed 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.
- f. Not all participants, particularly those with committed inputs on co-financing, e.g. Shell Philippines Corporation, signed the project agreement which might not be advantageous for the project in connection with

compliance of commitments. On the other hand, the private sector as much as possible would like to maintain business flexibility.

#### *4.1.2 Project Implementation*

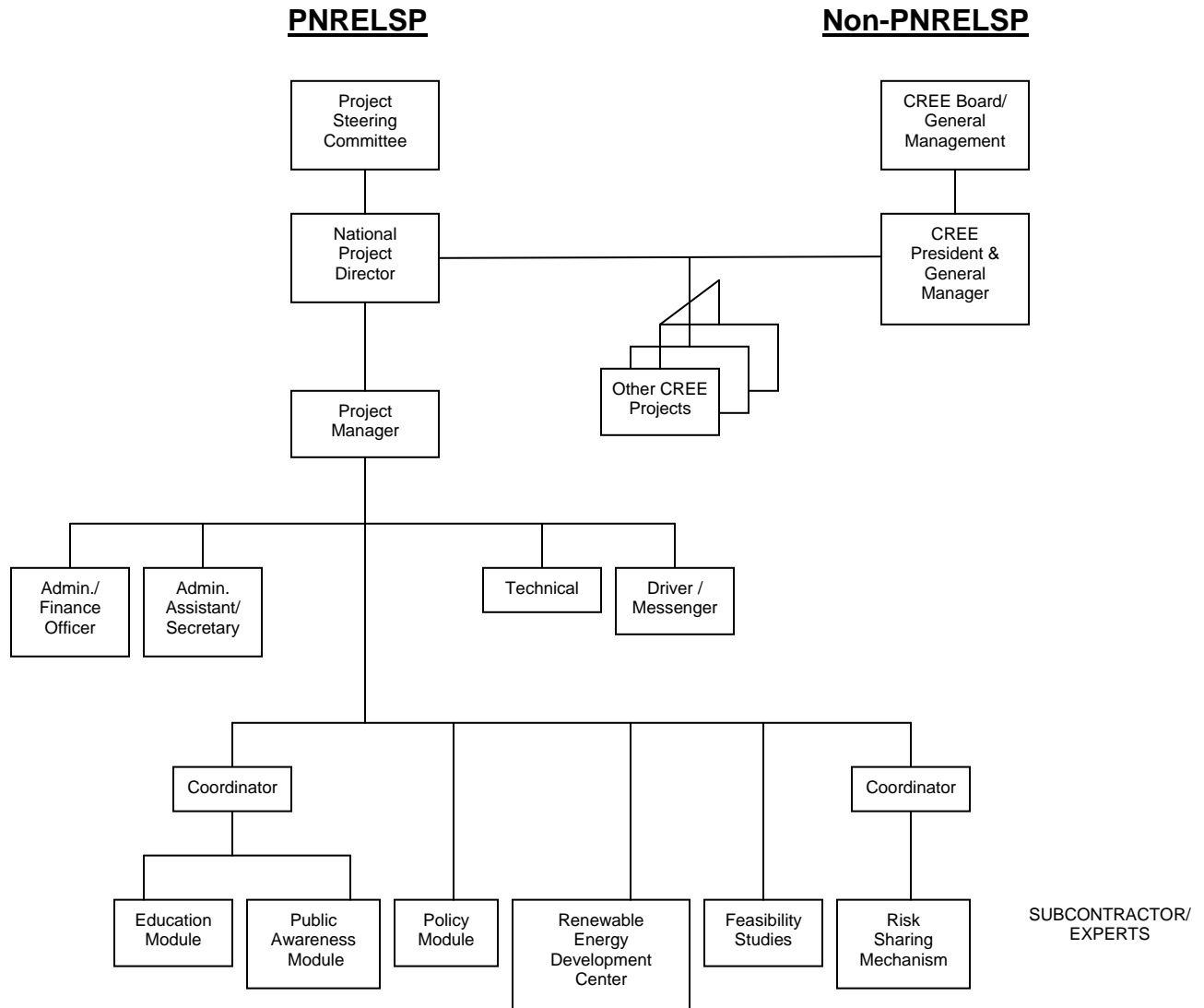
- a. The project experienced substantial delays brought about by the change in political leadership of the province caused by the early demise of the government who was the primary leader in pushing for the project. The NRE advocacy of the new provincial administration has to be renewed again. The outputs of the project in terms of merely capacity building may not be appreciated very well because there was a perception that the PNRELSP activities are addressing directly the needs of the direct beneficiaries. There was much expectation regarding the actual NRE power supplies hardware that were mentioned during the training and education aspects of the project in spite of the explanation that the hardware will come as programmed. The solar home systems and the Mud crab farm lighting system have raised the awareness and acceptance level of the beneficiaries provided by Shell Solar Philippines as their co-financing inputs to the project. The real test is how the delivery of the technology can be effectively done by the private sector where Shell is taking the lead as Shell establishes marketing under market-based approach. This portion of the project will still be determined by the Risk-Sharing Mechanism design and implementation.
- b. Another cause of delay is the failure of the IREPE to deliver the outputs as planned. Up to now, there is not clear indication of how the IREPE's output on the Formulation of NRE Policies can be derived.
- c. The project therefore experienced difficulties in managing the use its resources to produce targeted outputs due to the delays and changes in project direction,. The quantity and quality of project inputs relative to targeted outputs appear inadequate.
- d. 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 staff them being mostly contractual personnel. However, this was the assumption that PGP will eventually develop its own staff for the Renewable Energy Development Center in Palawan or absorb the staff trained under the PNRELSP. Therefore, the capacity building has been focused on PGP and its assigned personnel.

- e. The stakeholders participate in the management of the project through their representation in the Project Steering Committee. The direct beneficiaries are also invited as members. However, lack of continuity and consistency of representation also affected decision-making process.

The following are some problems in project implementation that needs to be resolved:

1. Where will the Renewable Energy Development Center be attached after the project? At present, CRREE has been performing the functions envisioned for the proposed Renewable Energy Development Center in the course of PNRELSP implementation. The REDC design is yet to be finalized by the sub-contractor UP Solar Lab. The post-project role of CRREE has to be defined in the operation and management of REDC in relation to the role of the PGP.
2. The Risk-Sharing Mechanism (Design Component) is yet to be awarded in September 2002 and to be finished in nine (9) months, while the Project is supposed to end already by December 2002. The extension up to December 2003 as recommended by the Project Steering Committee has to be approved officially by UNDP.
3. The contract with the International Renewable Energy Policy Expert, in terms of reviewing the outputs of the National Renewable Energy Policy Expert needs to be decided with respect to its termination and continuance by another policy expert. This has resulted to substantial delays in the NRE policy and REDC components of the project.
4. The post-project role of CRREE has to be defined in the operation and management of REDC in relation to the role of the PGP.
5. The shift in the delivery mechanism scheme from RESCO to Direct Sales has to be addressed in relation to its effect and new gaps created in the capacity building so far achieved.
6. PGP has to finalize and implement its plan to create regular department to handle energy related activities and programs in Palawan.
7. While the NRE policy has been adapted to the PGP level, there's a great need to issue policy guidelines and action plans for the policy to be understood and accepted to be implementable and sustainable.
8. CRREE's expertise (being primarily environmental and community livelihood development and NRE applications to livelihood projects) needs to be augmented in terms of NRE technical aspects. A very wide technical gap is identified as UP Solar Lab completes its subcontracts with PNRELSP and very minimal continuing linkage and working relationship between the two is yet established.
9. On the project execution, CRREE's policy, planning, monitoring and evaluation, functions need to be beefed up. Presently, there is no group or system to handle centralized planning and coordination for the project

in the needs of other projects of CRREE. At the strategic level, the national project director and the project manager need advisory support in order to carry out the second half of the project more effectively as it faces critical stage of project implementation to resolve about mentioned problems and concerns. This is illustrated in Figure 1a.



**Figure 1a.**  
**Present CRREE/PNRELSP Organization**

#### 4.1.3 *Indications of Potential Success*

1. The financial package to fund rural electrification projects in Palawan to come from the natural gas sharing revenues is forthcoming as indicated by PGP's assurance in getting this fund. However, the actual amount of the funds is still being debated and if reduced significantly, say to 70%, will affect the electrification program, which was originally anticipating a bigger amount.
2. PGP has issued direction in assigning full-time personnel to attend to the functions of the Renewable Energy Development Center and the revision of the Palawan Energy Master Plan and other energy related projects of the province.
3. The project has initially leveraged its resources for PGP to have additional funding support from different sources to fund its NRE program in relation to the Energy Master Plan. The JICA project will be completed within the PNRELSP project life and therefore will mean opportunities for synchronization and re-enforcement of its others plans of action.
4. PGP has continued to establish working linkages with CRREE, University of the Philippines/Solar Laboratory, PALECO, private sector represented initially by Shell Solar and other interested NRE 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 submitted a proposal to the PGP to establish a regular department to oversee and manage all energy-related functions of PGP under the Special Program Services group, including NRE deployment in its Energy Master Plan.
5. PGP has received a JICA Technical Assistance to review and finalize the Palawan Energy Master Plan, which should significantly introduce programs for NRE deployment in Palawan.
6. PGP has passed a PGP Resolution adopting as a policy to promote and deploy NRE as source of power supply particularly for rural electrification.
7. PGP has initiated a study to review NRE resources in Palawan.
8. PGP is in the process of finalizing the MOA on financial package coming from shares in Malampaya natural gas revenue, which may allocate about 20% of the funds for energy supplies and for the NRE Guarantee Fund.

9. The Governor has stressed in his State of the Province Address the program for NRE deployment to augment significantly rural energy supplies consistent with environmental protection for the province.
10. PGP has formally designated staff to continue to perform under the PNRELSP project, JICA-assisted review of the Energy Master Plan and other energy-related functions of PGP.
11. PGP has arranged with the University of the Philippines a program of technical assistance from UP Solar Lab for training purposes along its plan to organize its energy related functions and interest to establish a Renewable Energy Development Center for Palawan.
12. PGP has indicated that CRREE will be a member of PGP's Energy Sector Consultative group and would co-operate in the establishment of the Palawan Renewable Energy Development Center.



## 4.2 Recommendations

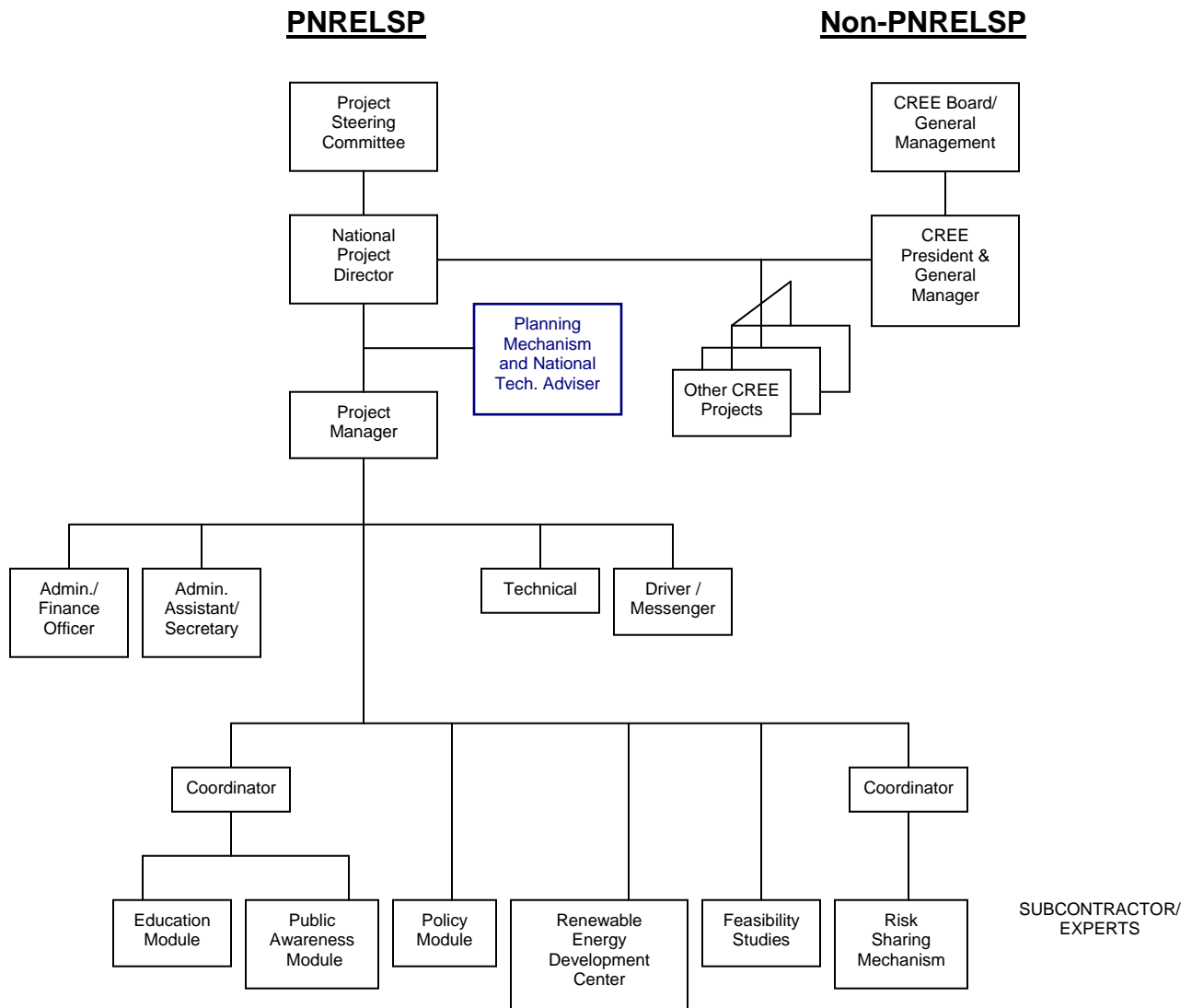
The following are the recommendations resulting from the Evaluation:

- a. The plans for the Renewable Energy Development Center should be ascertained already. Closer discussions between CRREE and UP Solar Laboratory should be done in order to finalize the design of the proposed Center. This should be discussed and approved by the Project Steering Committee. The decision about the location, staffing, network linkages, business sustainability, plans and program, and the overall role of the REDC should be attuned with the directions and objectives of the Palawan Energy Master Plan. The likely location of the REDC is the PGP with CRREE providing technical support and project development assistance particularly in NRE applications to livelihood and other productive projects. The functions envisioned for the proposed Renewable Energy Development Center that are being performed by CRREE in the course of PNRELSP implementation should be systematically transferred to PGP or working relationship clearly defined. The post-project role of CRREE has to be delineated in the operation and management of PREDC in relation to the role of the PGP. CRREE's expertise (being primarily environmental and community livelihood development and NRE applications to livelihood projects) will complement the needs of PGP.
- b. The prime mover of the PREDC should be the PGP with CRREE providing support and project development assistance particularly in livelihood and other productive application of NRE . PGP-own staff trained under the PNRELSP and UP Solar Lab under the PGP-UP arrangement can provide the technical aspects. The functions envisioned for the proposed Palawan Renewable Energy Development Center that are being performed by CRREE in the course of PNRELSP implementation should be systematically transferred to PGP or working relationship clearly defined. The post-project role of CRREE has to be delineated in the operation and management of PREDC in relation to the role of the PGP. CRREE's expertise (being primarily environmental and community livelihood development and identification of NRE applications to livelihood projects) will complement the needs of PGP.
- c. With the Risk-Sharing Mechanism (Design Component) yet to be awarded in September 2002 and be finished in nine (9) months, the extension up to December 2003, as recommended by CRREE/PMO to the Project Steering Committee, has to be subsequently approved officially by UNDP. Thereafter, the PMO should initiate a strategic planning workshop to identify the plan of action and strategies with active participation of the stakeholders to realize PNRELSP goals in the remaining project life and

extension. This component is allocated one-fourth of the total resources and is the focus of the capacity building objectives of UNDP/GEF support for barrier removal to NRE commercialization.

- d. The contract status with the International Renewable Energy Policy Expert should be reviewed and gaps be identified to do some remedial measures. The shift in the delivery mechanism scheme from RESCO to Direct Sales has to be addressed in relation to its effect on the capacity building done previously.
- e. PGP should finalize and implement its plan to create a regular department with the mandate to handle all energy-related activities and programs, including NRE deployment, in Palawan.
- f. While the NRE policy has been adapted at the PGP level, PGP should issue policy guidelines and action plans for the policy to be understood and accepted and therefore be implementable and sustainable.
- g. CRREE needs to continue to augment itself in terms of NRE technical aspects brought about by the big technical gap as UP Solar Lab completes its subcontracts with PNRELSP and very minimal continuing linkage and working relationship between the two is yet established.
- h. PGP should complete the renewable energy resources survey in the project sites and results be incorporated in the NRE database for Palawan as an initial step towards completing the provincial NRE database.
- i. PNRELSP should continue to use the performance indicators adopted in PIR 2002 in actual monitoring and evaluation of project outputs so that measurable parameters can be used also in assessing the impact of the project in the global environment, in addition to its capacity building accomplishments.
- j. On the project administration, PNRELSP should be able to include documentation of the accomplishments of Shell Solar Philippines Corporation in its solar home systems marketing project that is a very significant activity in Palawan's NRE program. For the remaining part of PNRELSP consisting of the design and implementation of risk sharing mechanisms, PNRELSP should also have memorandum of agreement with its project partners, particularly the private sector participants in addition to the usual informal cooperation and networking commitment in project inputs and outputs for the successful completion of the project.

- k. On the project execution, CRREE's present policy, planning, monitoring and control functions should be reinforced into a system to handle centralized planning and coordination for the project in view of the PNRELSP needs and implementation gaps mentioned above and by other projects of CRREE. At the strategic level, the PMO needs advisory support in order to carry out the second half of the project more effectively in view of the more critical stage of implementation for PNRELSP. The engagement of the services of a National Technical Adviser (as shown in Figure 1b) strong in NRE program implementation and financial mechanisms is highly recommended.
- l. Other more recent developments about the PNRELSP and related projects and activities of the major stakeholders, such as the micro financing projects initiated by Shell Solar, related activities by other private sector players, solar projects by DOE, initiatives by PGP and other agencies, etc. need to be integrated to ensure more coherent direction for PNRELSP and NRE proliferation in general.



**Figure 1b.**  
**Proposed CRREE/PNRELSP Organization**

## 5 LESSONS DRAWN FROM PNRELSP

- a. The choice of delivery mechanism for NRE technology ( i.e. solar PV power systems) deployment may not be that straight forward even if success stories were experienced in other given situations. Under the new PNRELSP direction, the risk sharing mechanism that the project will design and implement is actually intended to support whatever delivery mechanism the Shell project will carry out. However, PNRELSP will evaluate all possible delivery mechanisms in Palawan as well as the appropriate risk sharing mechanism and financing scheme for each delivery mechanism.
- b. 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
- c. It is easy to raise the expectations of the people in the rural community specially when there are no apparent options for their energy needs. However, their enthusiasm drastically drops if they fail to see tangible results of what were spoken of during information campaigns and trainings. This is a measure of whether the awareness raising and even the promotional efforts of the PNRELSP are really effective.
- d. Still the first-cost barrier for NRE systems is first and foremost consideration in designing sustainable small power systems for low-income communities
- e. Non-provision of experienced staff and service technicians in project budget can result to serious implementation problems.
- f. Unclear performance standards and deadlines for deliverables give way to reasons for non-compliance of commitments or delays.
- g. All project partners and key project implementers should all officially sign project agreements and related documents in order to formalize commitments on inputs, outputs and processes involved in the implementation of a project. All project inputs and outputs whether in cash or in-kind should be monitored and evaluated by the PMO to have an integrated and cohesive implementation of the project.

## 6 ANNEXES

### ANNEX 6.1 Terms of Reference Mid-Term Evaluation of the UNDP-GEF Palawan New and Renewable Energy and Livelihood Support Project (PNRELSP) PROG/PHI/99/G35

#### 1. Purpose

The purpose of the overall evaluation of the UNDP-GEF Palawan New and Renewable Energy and Livelihood Support Project (PNRELSP) is to review the performance of the program beginning at the start of the project up to the present. The review will include both evaluation of the progress in program implementation, measured against planned outputs set forth in the Project Document in accordance with rational budget allocation, and an assessment of features related to the impact of the project. The evaluation will also identify “lessons learned and best practices” from the PNRELSP and offer recommendations to enhance the PNRELSP’s performance. This TOR refers to the evaluation of the UNDP-GEF PNRELSP being executed by the Center for Renewable Resources and Energy Efficiency (CRREE) with the Provincial Government of Palawan as its cooperating agency.

#### 2. Background

The 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 is intended 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. Specifically, the expected outcomes are as follows:

- 1) Increased awareness of renewable energy systems;
- 2) Increased information and services of renewable energy for potential investors; and
- 3) A commercial and sustainable RESCO set up to provide renewable energy services in the province of Palawan;

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

- a. Capacities for the Provincial Government, Local Government Units and Rural Electric Cooperatives improved;
- b. Public demand for renewable energy systems increased;
- c. A renewable Energy Development Center established in Palawan; and
- d. Risk sharing mechanism to support RESCO (renewable energy service company)

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.

### **3. Specific Objectives**

The evaluation of the PNRELSP performance involves analysis at two levels: (a) at project management level; and (b) at stakeholders/beneficiaries level. Each level of analysis will have four (4) components:

- a. Assessment of progress in project implementation

In this context, implementation means the provision of inputs and achievement of outputs as well as processes of implementation. The project is now halfway towards its project life and as such progress should be measured against outputs stated in the project document. The evaluation will focus on such aspects as appropriateness and relevance of work plan, compliance with the work plan along side with budget allocation; timeliness of disbursements; procurement, quantity and quality of goods and services created; coordination among different project actors and UNDP country office support. Any issue that has impeded or advanced the implementation of the program should be highlighted.

- b. Assessment of project impact

Since the project is only on its halfway of its implementation, it might be too early to assess the impact (defined as contribution to the GEF's overall goals) of the PNRELSP on the global environment, the evaluation will focus on some aspects which are closely related to impact assessment such as:

#### Capacity Development

- the effects of the project activities on strengthening the capacities of the provincial government, LGUs, peoples'/community organization or civil society organization will be assessed.

#### Sustainability

- an assessment of efforts undertaken to ensure that the results of successful projects are sustained beyond the period of GEF financing.

#### Leverage

- an assessment of the project's effectiveness in leveraging funds that would influence larger projects or broader policies to support its goal.

#### Awareness Raising

- PNRELSP's contribution to raise awareness of environmental issues and of the GEF will be examined;
- PNRELSP's contribution to promote policy or advocacy activities and collaboration among communities will be assessed.

#### c. Identification of Lessons Learned and Best Practice

To shed light on the debate on "acting locally and thinking globally," and to show how to address environment issues of global concern with medium-scale province wide or community-based activities, the evaluation will:

- identify "lessons learned" and "best practices";
- document the integration and application of experience from the various components of the project (holistic approach).

#### d. Development of operational recommendations

Recommendations will be developed to help the executing agency and project partners improve its operational and support activities for renewable energy development in the province in line with GEF priorities. The recommendations would aim to:

- help executing agencies and partners do a better job to address operational lapses and gaps;
- strengthen the work of the PMO and Project Steering/Advisory Committee/s;
- enable Country office and headquarters to provide effective support;
- improve ways to draw, share and document lessons learned and best practices experience to the various stakeholders; and



- provide effective operational guidance for effective implementation of the remaining part of the project and onwards for future project prospect/s.

#### **4. Methodology**

Review relevant project documents and reports related to the planned evaluation and of the GEF's and conduct focused group discussions with the Project Director on topics and issues that relate to the implementation and impact of the project. The Expert or Team of Experts is expected to become well versed as to the objectives, historical developments, institutional and management mechanisms, project activities and already documented "lessons learned" of the project. Information will be gathered through document review, group and individual interviews and site visits. More specifically, the evaluation will be based on the following sources of information:

- Review of documents related to the project such as project document, quarterly and annual progress reports, other activity/component specific reports and evaluation, if there are any, etc.
- Structured interview with knowledgeable parties, i.e., Project Director, Project Personnel, Sub-Contracting Parties/Entities, National Consultants, UNDP Country Office Counterparts, PGP and City Govt. representatives, Shell Renewables, members of the Project Steering/Advisory Committee/s, Community-Based/Peoples Organization/s, Project Beneficiaries or grantees, etc.
- A number of visits to various pilot project sites, if feasible. The site visits should be discussed with the Project Coordinator.

#### **5. Timing and Submission of the Report**

The PNRELSP evaluation will begin in July 2002. A report will be produced after a month (August 2002), highlighting important observations, analysis of information and key conclusions including its recommendation/s. The report will be initially shared with the Executing Agency (CRREE) to solicit comment/s or clarification/s and will be presented to the Project Steering Committee for further deliberations. Consequently, the final evaluation report (in three copies) will be made and submitted to the UNDP Country Office copy furnished the Executing Agency.

#### **6. Roles and Responsibilities**

An independent highly qualified expert or a team of experts will carry out the evaluation. The executing agency shall provide in advance copies of the necessary documents needed by the expert/s during the evaluation period. Likewise, the EA shall provide the list of contact persons representing the various stakeholders of the

project. The UNDP Country Office shall designate a UNDP Programme Staff to assist the Evaluation Expert/s.

## **7. Budget**

All the costs incurred for the conduct of the evaluation shall be charged against project funds allocated for the conduct of such activity. Payment of Expert/s' professional fees shall be made in accordance with the Service Contract to be issued in this regard.

## **ANNEX 6.2**

### **Itinerary and Activity Schedule of the Evaluation**

During the first week of the Mid-Term Review, the Evaluator reviewed available documents from the UNDP CO in electronic format and some in hard copy, submitted a draft Table of Contents for the Mid-Term Evaluation Report, and analyzed with CRREE Manila Office the reporting system and drew up the list of reports generated by the project. The reports are classified as Subcontractors (Consultants) Reports, PMO-generated reports including periodic management reports, staff progress reports, and PMO-initiated studies and researches. Minutes of the Tripartite Committee and Project Steering Committee meetings were later requested. The said reports are mostly available in the CRREE Palawan Office. The Commission on Audit also did a Project Management and Financial Audit last March 2002.

Missing documents and other required information were identified that were considered relevant to the Mid-Term Evaluation. For example, available reports did not indicate breakdown of activities into the main-activities-level of aggregation and their respective budget and actual expenses in order to further analyze project operational and management planning and control that could lead to pinpointing more specific barriers and gaps affecting the rate of delivery of the expected outputs and impact to target groups. The Mid-Term Evaluation TOR has emphasized this aspect of evaluation. Regular and continuing discussions, either person-to-person, through phone calls or by e-mail messages were done to clarify, validate and document observations and data pertinent to the project evaluation process.

For the second week of July 23, 2002, the Evaluator interviewed in Puerto Princesa City, Palawan, the Project Management Office (PMO) team and the CRREE staff directly involved in the PNRELSP. Some of the documents mentioned in Reference List 2 were made available in the CRREE Office for ready reference.

Structured interviews were done with knowledgeable parties in different occasions with follow-up discussions to gain a deeper understanding of the actual implementation of PNRELSP, paying close attention to the issues and concerns affecting the project. A summary of persons interviewed is shown in Annex 6.3.

The Evaluator together with UNDP/CO representatives visited Palawan in two schedules: July 23-26, 2002 with Mr. Francisco Morito and August 13-15, 2002 with Ms. Imee Manal. While significant discussions were done regarding the project, remaining data gaps and additional required information were agreed to be forwarded by concerned resource persons to the Evaluator in Manila with clarifications and validations to be than through the usual communication modes. These included the requested information on physical accomplishment and expense accounting to be disaggregated into main activities as mentioned above to be

provided by the Project Manager and assigned PNRELSP staff. The initial schedule of having the first draft by August 15, 2002 as indicated in the Mid-Term Evaluation contract was not realized. The Project Management Office expressed that present reporting system do not require such details such that the requested information would still be worked out and prevailing staff load did not allow an earlier submission of the needed information.

## ANNEX 6.3 GUIDE QUESTIONS FOR MID-TERM EVALUATION

The following guide questions were adopted from the UNDP guidelines on mid-term evaluation of capacity development projects to be the basis of data gathering and interviews in order to meet the requirements of the mid-term review TOR mentioned above:

### *PNRELSP DESIGN AND ITS DEVELOPMENT CONTEXT*

- ❑ What are the developmental needs and problems that PNRELSP originally seeks to address?
- ❑ What are the immediate and development objectives of PNRELSP?
- ❑ Who are the main stakeholders and their functional relationships in achieving PNRELSP goals?
- ❑ What specific results are expected?

### *FINDINGS AND CONCLUSIONS*

#### *a. Project Concept and Design*

- ❑ Did PNRELSP project document (i.e., the most recent approved version) clearly define the:
  - developmental needs and problems to be addressed by PNRELSP, taking into account the institutional, socio-political, economic and environmental contexts as well as gender considerations?
  - project approach or strategy?
  - linkages among objectives, inputs, activities, output, expected outcomes and impact?
  - implementation and management arrangements?
  - indicators for use in monitoring and evaluation, differentiated by gender as applicable?
- ❑ How relevant is PNRELSP to development priorities of the Philippines at the local barangay level being targeted, specifically in terms of capacity development?
- ❑ Was PNRELSP designed to support the country's objective of establishing or enhancing the enabling environment to promote the development of selected barangays?
- ❑ Was PNRELSP aligned with UNDP areas of thematic focus (i.e., poverty eradication and sustainable livelihoods, gender in development, environmental and natural resource sustainability, and sound governance)?

- Was PNRELSP designed to strengthen the capacities of relevant government agencies, private sector entities or civil society organizations to initiate and sustain development initiatives in these areas?
- Was there UNDP comparative advantage vis-à-vis other United Nations agencies and development partners?
- Was PNRELSP designed to capitalize on UNDP expertise and experience in capacity development at the particular level of intervention and areas of focus described above?
- Was PNRELSP designed to address the needs of the direct beneficiaries, i.e., institutions and/or individuals who are the direct recipients of technical cooperation aimed at strengthening their capacity to undertake development tasks that are directed at specific target groups?
- Was PNRELSP designed to address specific issues relating to individual learning, organizational structures, processes, management systems, networking and linkages that affect the performance of the direct beneficiaries?
- Were gender considerations taken into account in designing PNRELSP's strategy to address these issues?
- Did the direct beneficiaries participate in designing PNRELSP? If yes, what were the nature and extent of their participation?

### *Project Implementation*

#### a. Efficiency

- How well has PNRELSP used its resources to produce target outputs?
- How adequate are the quantity and quality of project inputs relative to the target outputs?
- To what extent are local expertise (by gender) and indigenous technologies and resources used?

#### b. Effectiveness

- What is PNRELSP status with respect to target outputs in terms of quantity, quality and timeliness? What factors impede or facilitate the production of such outputs?
- How useful are the outputs to the needs of the direct beneficiaries? Is there general acceptance of the outputs by these beneficiaries? Is there a significant gender differentiation in the usefulness of the outputs to direct beneficiaries?
- Do the outputs contribute to the achievement of the immediate objectives of PNRELSP? What signs indicate this? Are monitoring and evaluation

indicators appropriate or is there a need to establish or improve these indicators?

c. Implementation and management arrangements of PNRELSP

- How appropriate are the execution and implementation modalities?
- How well is PNRELSP managed?
- How adequate are monitoring and reporting mechanisms?
- How adequate is the support provided by the UNDP Country Office?
- How effective are support-cost arrangements, if any, with United Nations agencies?
- Do stakeholders, particularly the direct beneficiaries, participate in the management of PNRELSP? If yes, what are the nature and extent of their participation, by gender?

d. Areas for corrective action

- What problems in project implementation need to be resolved?
- What are the flaws, if any, in design, implementation, monitoring and evaluation?

e. Areas of potential success

- Are there early indications of potential success?

*Project Results*

Given the indicators established by PNRELSP and/or recommended by the evaluation team:

- How has PNRELSP contributed to the development of the capacity of the direct beneficiaries to carry out their tasks in an environment of change in terms of (a) individual learning, by gender, and (b) improving organizational structures and interrelationships?
- What is the likely impact of PNRELSP beyond the direct beneficiaries?
- Are there any signs of a potential contribution to the enabling environment or to the broader development context (i.e., institutional, socio-political, economic and environmental)?
- What factors affect the implementation of PNRELSP?
- Is there adequate government commitment to PNRELSP?
- Do the stakeholders have a sense of ownership of PNRELSP?
- Have mechanisms been put in place to ensure the sustainability of project results?

### *RECOMMENDATIONS*

- What corrective actions are recommended for the design, implementation, monitoring and evaluation of PNRELSP?
- What actions are recommended to follow up or reinforce initial benefits from PNRELSP?

### *LESSONS LEARNED*

- What are the main lessons that can be drawn from PNRELSP experience that may have generic application? What are the best and worst practices in formulating, implementing, monitoring and evaluating a capacity development project?



## ANNEX 6.4 Resource Persons Interviewed

PNRELSP Director	Antonio de Castro
PNRELSP Manager	Angelo Miclat
PNRELSP Staff	
Public Information	Amy Eugenio
Enterprise Livelihood (SPEX)	Isodoro Manal
Technical (SPEX)	Kenneth Caabay
Marketing	Joyce Dumayas
Community Education (SPEX)	Derrick Valona
Sub-Contractors	
Formulation of NRE Policies	Wally del Mundo UPERDFI/Solar Laboratory
Establishment of Renewable Energy Development Center	Wally del Mundo UPERDFI/Solar Laboratory
Funding Counterparts (UNDP Country Office)	Clarissa Arida Imee A. Manal Francisco Morito
Provincial Government of Palawan	Mr. Alvarez Member, Sanggunian Panlalawigan
	Nelson P. Devanadera Head, Provincial Planning and Development Office
	Darrell S. Elivera Energy Coordinator, SPS
	Engr. Aileen L. Marcaida
	Engr. Roberto D. Abacial
	Engr. Jonas Rafael R. Absalon
	Dennis P. Valdeztamon
	June R. Valencia
Private Sector	Eric Piedad Shell Renewables (Manila)

	Al Rama Franchised Distributor Solar Home Systems Shell Renewables (Palawan)
Representative Members of the Project Steering Committee	Reuben T. Quejas Chief Non-Conventional Energy Division Department of Energy  Bernardo S. Ocampo State Polytechnique College of Palawan (also DOE-ANEC)  Melencio Gener Palawan State University  Palawan Electric Cooperative
Community-Based Peoples' Organization	Cabayugan Multipurpose Cooperative  Marble Mountain Women's Association  Tagbuross Multipurpose Cooperative Kagawad Noli Canillo Napsan (interviewed in Puerto Princesa since site visit to Napsan was cancelled due to bad weather)

## ANNEX 6.5 Reports Generated by the Project

### UNDP-GEF PROG/PHI/99/G35 PALAWAN NEW AND RENEWABLE ENERGY AND LIVELIHOOD SUPPORT PROJECT (PNRELSP)

	Planned Period of Preparation	Status	Remarks
<b>A. CONSULTANT REPORTS</b>			
<b>A.1 Local Consultants</b>			
1. UP Solar Lab/ UPERDFI			
1.1 Formulation of RE Policies	Mar 2000 – June 2002	Completed	
1.2 Establishing an RE Development Center in Palawan	Mar 2000 – Dec 2002	Ongoing	
2. Strategic Advantage, Inc.			
2.1 Feasibility Study: Marketing Component	2001 (?)	Completed	
3. Education for Life Foundation			
3.1 Popular Education on RE	2001	Completed	
4. National Policy Experts			
4.1 Prof. Wally del Mundo (in coordination with R. White) Renewable Energy Policy	Feb 2000- 2002	Ongoing	
4.2 Education Consultant	Feb 2000- Dec 2002	Ongoing	
4.3 Enterprise Development Consultant: Livelihood Component	Feb 2000- Dec 2002	Ongoing	
<b>A.2 International RE Consultants (Ron White)</b>			
1.1 Revision of Palawan Energy Master Plan			
1.2 Technical Review of Participatory Market Research			
1.3 Review of Shell RESCO (Palawan)			
<b>A.3 Commission on Audit (COA)</b>			
Project Management Audit	Feb 2002	Completed	
<b>A.4 Planned Consultant Studies</b>			
1. Risk Sharing Mechanism			
1.1 Design	Aug 15, 2002 – April 2003	For Bidding	
1.2 Implementation	Mid 2003		
<b>B. PMO-GENERATED REPORTS</b>			
<b>B.1 Routine Management Reports</b>			
1. Work and Financial Plan	Annually January	3 reports for 2000, 2001 and 2002	

2. Accomplishment Reports	Quarterly	8 reports for 2000 and 2001	
3. Financial Report and Planned Expenditures	Quarterly	10 reports for 2000 and 2001	
4. Annual Project Report (APR) to UNDP	Annually Start of Year	2 reports for 2000 and 2001	
5. Project Implementation Report (PIR) to GEF	Annually Mid-year	2 reports for 2000 and 2001	
6. Actions Taken on COA Findings and Recommendations		2 reports for 2000 and 2001	
7. PMO Staff Accomplishment Report	Monthly	12 reports for 2001	
8. Post-Training Report	After every training course	As available	
<b>B.2 PMO-Initiated Studies/Researches</b>	As needed	As available	
<b>C. Tripartite Committee Meetings</b>	Annually	2 reports for 2000 and 2001	
<b>D. Project Steering Committee Meetings</b>	As scheduled	Two (2)	

\* Two (2) quarterly reports were included in the Annual Project Report for 2000 and 2001.

\*\* PIR and APR were combined as a single common report for UNDP and GEF starting middle of 2002

## ANNEX 6.6 List of References

1. Annual Work and Financial Plan for PNRELSP for Years 2000, 2001 and 2002
2. Approved Budget for Years 2000, 2001, and 2002 for PNRELSP
3. Combined Delivery Report UNDP for 1 January – 31 March 2002
4. Combined APR and PLR for Year 2002, June 2002
5. Commission on Audit Report to UNDP on the PNRELSP for Years
6. CRREE, 2<sup>nd</sup> Qtr. Financial Report April – June 2002
7. Excerpts from the Minutes of the 2<sup>nd</sup> Meeting of the PNRELSP Project Steering Committee, April 26, 2002, Puerto Princesa City, Palawan
8. Memorandum of Agreement between CRREE and UPERDFI/Solar Laboratory for the Formulation of the Palawan NRE Policies and Work Plan, signed March 28, 2000 up to December 2001
9. Memorandum of Agreement between CRREE and UPERDFI/Solar Laboratory for the Capacity Building of Palawan Renewable Energy Development Center, signed 28 March 2000 up to December 2002
10. Memorandum Order on the Designation of Technical Staff in the Renewable Energy Development Center and other energy projects dated August 16, 2002
11. Mid-Term Evaluation of PNRELSP Terms of Reference, July 2002
12. Minutes of Discussions of CRREE 2001 Yearend Review and Assessment and 2002 Planning
13. Palawan Sanguniang Panlalawigan Resolution No. 4763-01 Recognizing the Importance of NRE in the Palawan Energy Program and for other purposes, dated October 9, 2001
14. Production Capacity of Mud crab Farms in six (6) PNRELSP sites
15. Project Implementation Review (PIR) 2001/2 for UNDP/GEF
16. Proposed Budget for site Mud crab project and schedule of quarterly amortization of loan
17. Sample Memorandum of Agreement (Kasulatan ng Pakikipagkasunduan) between CRREE and a cooperation on Mud Crab Contract Grooming
18. Sample Monthly Accomplishment Report by Staff
19. Sample Monthly Calendar of Activities by Staff
20. Solar Power and Micro Enterprise Project in Palawan Mud Crab Culturing and Filtering project by CRREE
21. Terms of Reference of the International Renewable Energy Policy Expert (IREPE)
22. UNDP Letters to CRREE, 7 March 2002, 18 January 2002, 8 January 2002 and 16 November 2001 on the proposed revision in the activity on Designing a Risk-Sharing Mechanism for PNRELSP

## ANNEX 6.7

**Table 3a. PNRELSP Mid-Term Outputs vs. Original PRODOC Indicators**

PRODOC INDICATORS	MIDTERM-OUTPUT
<p><b>1. Capacities for Provincial Government, Local Government Units and Rural Electric Cooperatives improved.</b></p> <p>1.1. Increased awareness and information in renewable energy and RESCO model among LGU and REC staff</p> <p>a. 50 LGU and REC staff trained in renewable energy and RESCO model</p> <p>b. Increased funding allocation on renewable energy from the provincial and local governments. A large portion of the anticipated revenues from natural gas will be spent on renewable energy development, rather than diesel generators as currently planned.</p> <p>c. Increased information and knowledge in renewable energy 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>	<p>a. 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 for pre-RESCO operations, which was originally intended by the Project.</p> <p>b. PGP has authorized P100 million for PALECO as financial assistance for augmenting rural electrification, a significant part of which could be used as NRE Guarantee Fund. PGP is in the process of finalizing an MOA with the national government regarding the national wealth share from the Malampaya natural gas production, as a financial package, which may allocate about 80% of the share for rural energy supplies under an MOA. A portion of which has been earmarked also for possible NRE Trust Fund. In related development, PGP will implement an eight-month JICA-assisted project to review and finalize the Palawan Energy Master Plan. NRE has been identified to have significant contribution to the provincial energy mix.</p> <p>c. The Governor Joel Reyes has stressed in his State of the Province Address the program for NRE deployment to augment significantly rural energy supplies consistent with environmental protection for the province. The Palawan Sangguniang Panlalawigan has issued Resolution 4763-01 dated October 9, 2001 adopting a policy recognizing the importance of NRE in the provincial energy program. In the previous year, an official delegation composed of Gov. Reyes, the General Manager of PALECO and the former Executive Director of PGP/Special Program Services, toured the Shell-</p>

<p>d. Signed agreement between REC and RESCO to allow RESCO installation of renewable energy systems within REC's franchise.</p>	<p>managed RESCO facilities in Aklan. They were able to gain 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>d. The PNRELSP originally intended to demonstrate the viability of the RESCO (Rural Energy Service Company) approach as a delivery mechanism for NRE systems, together with economic applications of productive uses of NRE services to support livelihood for rural communities. Considering the unfavorable results in using the RESCO approach in a similar project in Aklan in 1999 to 2001 by Shell Renewables, Inc. (now Shell Solar Philippines), one of the PNRELSP partners, Shell decided to shift its own delivery mechanism to "Direct Sales" scheme. In April 2002, twenty-five (25) months from the start of the PNRELSP, the PNRELSP PMO, consulted with stakeholders in its 2<sup>nd</sup> Project Steering Committee to focus on the "direct sales" approach rather than RESCO approach, as suggested by Shell Solar, in comparison with other delivery mechanisms. The PSC chaired by Vice Governor David Ponce de Leon approved Resolution No. 1-02 endorsing the proposed change in delivery mechanism. It is noted that Shell Solar has established in Year 2000 a direct selling/marketing office in Puerto Princesa City to sell Solar Home Systems in Palawan. Some 203 units of SHS (including 63 units in retail sales to homeowners, the rest in sales to institutions) were sold as of September 2002 since it was established.</p>
<p>1.2. Financial incentive policies for renewable energy formulated and Provincial Energy Master Plan revised</p> <p>a. 20 provincial government staff trained</p> <p>b. A report of recommended financial incentive policies for renewable energy ready for submission to the provincial government for approval</p> <p>c. A revised Provincial Energy Master Plan with increased share of renewable energy in future electricity supply in</p>	<p>a. The Seminar-Workshop on Energy Planning was held last May 17-18, 2002, Puerto Princesa City 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>b. The UP/SL has submitted policy recommendations and financial incentive options. Review by concerned agencies and public consultation are 20% completed while the finalization of Palawan NRE Policies and financial incentives is 50%</p>

<p>Palawan</p>	<p>completed.</p> <p>c. A draft of the proposed revision guidelines for the 1999 Palawan Energy Master Plan was submitted to PNRELSP Director on 28 June 2002, which is supposed to have been finalized by that date. In another development, PGP has received an eight-month JICA Technical Assistance to begin October 2002 to review and finalize the Palawan Energy Master Plan, which should affirm the introduction of NRE systems in Palawan. PGP has designated five persons to be the technical staff to be counterpart staff to the JICA-assisted formulation of the Palawan Energy Master Plan.</p>
<p><b>2. Public demand for renewable energy systems increased</b></p> <p>2.1 Increased public awareness of renewable energy systems and RESCO concept.</p> <p>a. The benefits of renewable energy technologies widely known</p> <p>b. Increased productive use from renewable energy services</p> <p>c. Increased demand and requests for renewable energy systems</p>	<p>a. Preliminary surveys were done to measure increased public awareness of NRE systems and their benefits. Surveys to validate the findings are programmed within project duration. The Project continues to showcase NRE in public events (PGP Baragatan, Earth Day, Quiz Bee Contests, School exhibits, etc.)</p> <p>b. Only the application of solar PV lighting in mud crab culture has been demonstrated as an example of productive use of NRE. Research and conduct of feasibility studies for other NRE productive applications are programmed by CRREE within project duration.</p> <p>c. 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. Affordability still remains the big issue for increased demand for NRE. 203 customers have purchased SHS and the installed systems are currently operational.</p>
<p><b>3. A Renewable Energy Development Center established in Palawan</b></p>	



<p>3.1 Increased public awareness of renewable energy systems and RESCO concept.</p> <ul style="list-style-type: none"> <li>a. A number of staff for the Renewable Energy Development Center hired</li> <li>b. The office of the Renewable Energy Development Center set up</li> <li>c. Information and services on renewable energy available for potential investors</li> </ul>	<ul style="list-style-type: none"> <li>a. For staff training, PGP has initially seconded five (5) contractual PGP staff to CRREE starting June 2001 for eight months as the first batch and another batch in January 2002 for five months. To formalize their assignment, PGP has designated five persons to be the technical staff of the Renewable Energy Development Center for Palawan, last August 16, 2002 in a Memorandum Order noted by the Governor, PPDO has submitted a proposal to create a regular department under the Special Program Services Group to oversee and manage all energy-related functions of PGP, including the Renewable Energy Development Center and the Palawan Energy Master Plan.</li> <li>b. At present, the Renewable Development Energy Center has not been formally set up yet. PGP has expressed interest to host the REDC while preparing its manpower to operate the REDC with the assistance of CRREE. CRREE has hired an NRE technician, an enterprise development officer, and a marketing specialist. CRREE has likewise rehired the services of the 5 Community Educators/Organizers. The project management is currently evaluating key PMO staff whose services will be renewed for REDC work beyond PNRELSP.</li> <li>c. In the meantime, CRREE acts as a renewable energy center or a focal point of NRE activities in Palawan while performing the functions of information dissemination, overall coordination and other related functions regarding the promotion of NRE with potential investors and the general public under the PNRELSP activities. Shell Solar Philippines has been accessing technical assistance and livelihood development support from CRREE for productive uses of solar energy in Palawan, aside from solar home systems.</li> </ul>
<p>Improved capacities to conduct market feasibility studies for renewable energy projects and increased market information available</p>	<ul style="list-style-type: none"> <li>a. CRREE continues to identify possible</li> </ul>

<ul style="list-style-type: none"> <li>a. A list of potential productive use of renewable energy services in Palawan identified</li> <li>b. A number of sites for the pilot projects selected</li> <li>c. The results of market survey published</li> <li>d. Increased social-economic information on unelectrified barangays available</li> <li>e. Services to conduct future market feasibility studies available</li> <li>f. A list of local partners available</li> <li>g. Matchmaking service to find a local partner for RESCO available</li> <li>h. 10 people trained in market feasibility studies</li> </ul>	<p>productive applications of NRE in Palawan in addition to mud crab culture in mangrove locations.</p> <ul style="list-style-type: none"> <li>b. There are presently six (6) pilot sites developed by CRREE showcasing application of solar lighting systems in mud crab culture towards enhancing livelihood opportunities in these areas and creating a market for NRE technologies:             <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. Tagbueros, Puerto Princesa City</li> </ol> </li> <li>c. The final report for the conduct of Market Surveys using participatory approach in the first five of six selected project sites mentioned above was submitted by Strategic Advantage, Inc. to CRREE. The results were used in the local seminar/workshops conducted and internal planning but have not been published for public consumption.</li> <li>d. Information on socio-economic aspects of unelectrified barangays at least in the vicinity of the PNRELSP project sites were included in the Market Surveys.</li> <li>e. Services for the conduct of feasibility studies at the community livelihood level was being done by CRREE staff, e.g. for Mud Crab Culturing and Fattening Project. Capacity for CRREE staff to render service for conduct of feasibility study on similar NRE-assisted livelihood projects can be further developed.</li> <li>f. Capacity building for enterprise development and identification of possible local partners is an ongoing concern of CRREE. At present, only Shell Solar (Philippines) is very active in market enterprise development while the other potential partners are still waiting for the progress of Shell's initiative.</li> <li>g. Matchmaking with a RESCO has been dropped to give way to direct sales of NRE technologies. Shell Solar (Philippines) is presently in the market not as RESCO but as a retailer of Solar Home Systems. Other retailers could emerge as encouraged by the Shell Solar experience.</li> <li>h. The conduct of market feasibility studies as</li> </ul>
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	<p>applied to direct sales approach, compared to what was originally envisioned for RESCOs, takes a different situation in view of this new project direction. A training course for market feasibility for NRE applications is programmed for implementation.</p>
<p>3.2 Improved capabilities on renewable energy resource assessment and increased renewable energy resource data available.</p> <ul style="list-style-type: none"> <li>a. Renewable resource measurement data available for a few selected sites</li> <li>b. A renewable energy resource database set up for Palawan</li> <li>c. Services of future renewable energy resource assessment available</li> <li>d. (Ten) 10 people trained in renewable resource assessment</li> </ul>	<ul style="list-style-type: none"> <li>a. Renewable energy resource measurement data are available for solar energy in the selected project sites. However, for the other NRE resources such as wind, micro hydro and biomass, specific site resource measurements are still lacking, particularly in the barangay and sitio levels. Resource data is programmed for translation at the barangay level once the GIS data at this level is made available. In general, based on past studies conducted by US/NREL and Philippine DOE, Palawan municipalities have moderate-to-excellent potential for solar, wind and hydro resources where preliminary feasibility studies can be conducted.</li> <li>b. A one-day orientation on computer software use on Palawan Rural Energy Database and a Management Information System was completed. Upgrading of the system into the barangay level and updating of the database for Palawan municipalities are ongoing and 50% complete.</li> <li>c. An external expert will execute services for future renewable energy assessment in the selected sites and other potential areas. Contract negotiation is still ongoing.</li> <li>d. Training courses on energy technology and resource assessment on solar, wind, hydro and hybrid energy conversion systems were completed, while that for biomass will still be conducted. On-the-job training of CRREE and PGP staff and other personnel of key project stakeholders will be done along side the programmed resource assessment activities for the project.</li> </ul>
<p>3.3 Skills on installation and maintenance of renewable energy systems improved.</p>	

<ul style="list-style-type: none"> <li>a. Skilled local staff capable of installation and maintenance of renewable energy systems available</li> <li>b. Skilled local staff capable of providing training to other local technicians and providing technical back up available</li> <li>c. 10 people trained in technical aspects of installation and maintenance</li> </ul>	<ul style="list-style-type: none"> <li>a. PNRELSP has initiated development of local staff capable of installing and maintaining NRE systems through training and actual experience. For solar, PMO has two (2) staff, PGP has three (3), PALECO has three (3). For micro hydro, PMO has one (1); for biomass, PMO has one (1); while for wind energy, none. This mid-term evaluation did not evaluate the level of skills and competency so far achieved by the local technicians. Reports indicate that they can respond to needs of the NRE users.</li> <li>b. CRREE and UP/SL staff members have provided technician training up to actual OJT for local NRE technician manpower development and technical back-up.</li> <li>c. 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). Similar training workshops on Biomass Gasifier and Hybrid Drying Systems are also programmed within the year.</li> </ul>
<p>3.4 Capacity in economic and financial evaluation of various NRE projects improved and business plan for the Center developed</p> <ul style="list-style-type: none"> <li>a. Five (5) people trained in business management and financial evaluation of NRE projects.</li> <li>b. The Center will be able to provide financial advisory services to developers of NRE projects</li> <li>c. A business plan for the Center prepared.</li> <li>d. The Center becomes financially independent by the end of the project</li> </ul>	<ul style="list-style-type: none"> <li>a. <i>Nil.</i> According to the UP/SL report, with the advice of the NREPE, the UP/SL decided to replace this task with the Seminar-Workshop on Renewable Energy Project Planning and Evaluation because of more pressing needs of PGP on energy policy formulation and planning. Task 5 consisting of the conduct of three (3) related workshops, viz., Training Workshop on Basic Accounting Principles and Practices, Training Workshop on Basic Business Management, and Training Workshop on Project Feasibility Evaluation were all dropped by UP/SL. According to CRREE, there was no formal approval on the action taken by UP/SL.</li> <li>b. Ongoing capacity building for financial advisory services by CRREE and</li> </ul>

	<p>eventually the REDC. This emphasizes the need for business-related capacity building for the project participants.</p> <p>c. The preparation of the proposed Objectives, Mandate, Organization and Programs of REDC is 80% complete, while the business plan for the REDC is 20% complete.</p> <p>d. <i>Nil.</i> On-going programming of schemes for REDC's financial independence by the end of the project. Efforts to leverage for external fund sourcing and identify income generation towards REDC financial viability are also planned by CRREE beyond PNRELSP.</p>
<p><b>4. Risk sharing mechanism to support RESCO established and implemented.</b></p> <p>4.1 Risk sharing mechanism to support RESCO designed</p> <p>a. An agreed-upon risk-sharing mechanism set up between the Government of Palawan and the RESCO</p> <p>b. The government's regulatory roles defined and capacity improved</p> <p>c. A RESCO Decree formulated Signed agreement between provincial government and RESCO to award the concession right to the RESCO and allow RESCO installation of renewable energy systems in Palawan.</p>	<p>a. With the change in project direction, the RESCO approach has been replaced by the "direct sales" approach for SHS. Shell Solar Philippines Corp. has been retailing SHS in Palawan, with a total sales amounting to 203 units including 63 units in retail sales to homeowners and the rest as sales to institutions. The PNRELSP originally intended to demonstrate the viability of the RESCO approach as a delivery mechanism for NRE systems, together with economic applications of productive uses of NRE services for rural communities. Considering the unfavorable results in using the RESCO approach in a similar project in Aklan by Shell Renewables, Inc. (now Shell Solar Philippines), one of the PNRELSP partners, Shell decided to shift its own delivery mechanism to "Direct Sales" scheme. In May 2002, twenty-five months from the start of the project, the PNRELSP PMO, consulted with stakeholders and adopted the decision to focus on the direct sales approach, rather than RESCO approach, as suggested by Shell Solar, in comparison with other delivery mechanisms.</p>

	<p>b. The subcontract for the Design of the Risk Sharing Mechanism has been awarded by UNDP involving recommendations on the structure, operational requirements and regulatory provisions. The nine-month study beginning September 2002 will focus on the direct sale modality in comparison with other delivery mechanisms.</p> <p>c. <i>Nil.</i> No RESCO legislation will be drafted.</p> <p>d. <i>Nil.</i> No RESCO agreement will be made by PGP with any entity.</p>
<p>4.2 Risk sharing mechanism to support RESCO implemented</p> <p>a. The RESCO can provide renewable energy services to all households in the pilot projects, including low, medium, and high-income households, with the risk-sharing support from UNDP/GEF.</p> <p>b. Consumers are satisfied with the service charge and service delivered.</p> <p>c. The RESCO can recover its operating costs including a capital recovery charge, with the support from UNDP/GEF.</p>	<p>a. <i>Nil.</i></p> <p>b. <i>Nil.</i></p> <p>c. <i>Nil.</i></p>
<p>4.3 Other risk sharing and/or investment schemes designed for the Palawan Government to utilize its natural gas revenues to support renewable energy development</p> <p>a. Risk sharing and/or investment schemes are designed for the PGP to support private investment in NRE</p> <p>b. PGP allocates a portion of its budget (e.g. natural gas royalties) to NRE investments</p>	<p>a. The subcontractor for the Design of the Risk Sharing Mechanism has been finally selected and contract will start September 2002. This has experienced several slippage compared to the original start up of August 2000, and then September 2001 which has drastically affected the PNRELSP timetable.</p> <p>b. PGP has authorized P100 million for PALECO as financial assistance for augmenting rural electrification, a significant part of which could be used as NRE Guarantee Fund PGP is in the process of negotiating with the national</p>

	<p>government regarding the national wealth share from the Malampaya natural gas production, as a financial package which may allocate about 80% of the share for rural energy supplies under an MOA. A portion of which has been earmarked for possible NRE Trust Fund.</p>
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## ANNEX 6.8

**Table 3b.**  
**Palawan New and Renewable Energy and Livelihood Support Project (Mid-Term Evaluation)**

PLANNED ACTIVITIES (Implementation Period)	ACTUAL ACCOMPLISHMENT	IMPLEMENTOR/ SUB-CONTRACTOR	PROJECT BUDGET (\$) (A)	ACTUAL EXPENSES as of July 2002 (\$) (B)	STATUS OF EXPENSES VS. BUDGET (B/A)
A. <i>Formulation of RE Policies</i> *					
1. Review and Assessment of RE Policies (Apr 00-Jun 02)	a. Gathering (100%). About 100 Phil. Laws on energy and related fields compiled in CD-ROM.	UPERDFI/SOLAR LABORATORY	29,850.00	27,398.00 <sup>2</sup>	92%
	b. Analysis (100%). Palawan energy policies are based on national policies. Submitted report on policy recommendations.	CRREE	<u>53,011.00</u> <sup>1</sup>	<u>23,329.00</u>	44%
		Sub-Total	82,861.00	50,727.00	61%
2. Formulation of Financial Incentives for RE (Apr 00-Jun 02)	a. Development of options (100%) b. Concerned agencies' review (20%) c. Public consultation (20%) d. Finalization of Palawan RE policies and financial incentives (50%) (Awaiting presentation of proposed policies and financial incentives to PGP thru CRREE for its approval).		(covers line item budget 1101, 1102, 1601, 1602, 1703, 2101, and portion of 1501, 1603, 4501, 4502, 5301)		

<sup>1</sup> Including associated budget line items using Budget Revision "C" & "D" in equivalent \$ contract amount at the time of transaction.

<sup>2</sup> As released by CRREE to sub-contractor, and converted to \$ equivalent using current \$ exchange rate at the time of transaction.



## ANNEX 6.8

**Table 3b.**  
**Palawan New and Renewable Energy and Livelihood Support Project (Mid-Term Evaluation)**

PLANNED ACTIVITIES (Implementation Period)	ACTUAL ACCOMPLISHMENT	IMPLEMENTOR/ SUB- CONTRACTOR	PROJECT BUDGET (\$)  (A)	ACTUAL EXPENSES as of July 2002 (\$)  (B)	STATUS OF EXPENSES VS. BUDGET  (B/A)
3. Revision of Palawan Energy Master Plan <b>(Apr 00-Jun 02)</b>	a. Review of Palawan Energy Plan (100%) b. Development of Palawan Reference Energy System (100%) c. Analysis of Palawan Energy Supply and Demand Pattern (100%) d. Development of Palawan Energy Model (100%) e. Forecasting of Palawan Energy Demand (100%) f. Analysis of Resource Assessment in Palawan (80%) g. Development of Rural Electrification Program (80%) h. Development of Power Development Plan (80%) i. Development of Renewable Energy Program (80%) j. Review by Stakeholders (20%) k. Finalization of the Palawan Energy Master Plan (50%) <i>(Draft submitted to NPD June 28, 2002)</i>				

## ANNEX 6.8

**Table 3b.**  
**Palawan New and Renewable Energy and Livelihood Support Project (Mid-Term Evaluation)**

PLANNED ACTIVITIES (Implementation Period)	ACTUAL ACCOMPLISHMENT	IMPLEMENTOR/ SUB- CONTRACTOR	PROJECT BUDGET (\$)  (A)	ACTUAL EXPENSES as of July 2002 (\$)  (B)	STATUS OF EXPENSES VS. BUDGET  (B/A)
4. Training of PGP Staff (Apr 00-Jun 02)	<ul style="list-style-type: none"> <li>a. Workshop on Policy Formulation (100%)</li> <li>b. Seminar-Workshop on Energy Planning (100%)</li> <li>c. OJT on Policy Studies and Energy Planning (60%)</li> </ul>				
<b>B. Public Awareness Program</b>	<ul style="list-style-type: none"> <li>1. Exploratory/Consultative Meetings (80%) At least 100 courtesy calls made/exploratory talks held/consultative meetings attended</li> <li>2. Information Materials Development <ul style="list-style-type: none"> <li>a. Logo (100%)</li> <li>b. Newsletter (25%)</li> <li>c. Briefing kits (75%)</li> <li>d. Powerpoint presentations (75%)</li> <li>e. Web page (50%)</li> <li>f. CD-ROM profile (50%)</li> </ul> </li> </ul>	<p>ELF</p> <p>CRREE</p> <p>Sub-Total</p>	<p>44,177.00</p> <p><u>45,737.00</u></p> <p>81,911.00</p>	<p>44,177.00</p> <p><u>16,974.00</u></p> <p>61,151.00</p>	<p>100%</p> <p>37%</p> <p>68%</p>
			(covers line item budget 1708, 2103, 3206 and portion of 1501, 1603, 4501, 4502, 5301)		

**ANNEX 6.8**

**Table 3b.  
Palawan New and Renewable Energy and Livelihood Support Project (Mid-Term Evaluation)**

PLANNED ACTIVITIES (Implementation Period)	ACTUAL ACCOMPLISHMENT	IMPLEMENTOR/ SUB- CONTRACTOR	PROJECT BUDGET (\$)  (A)	ACTUAL EXPENSES as of July 2002 (\$)  (B)	STATUS OF EXPENSES VS. BUDGET  (B/A)
	3. Radio Campaign a. Guestings (20%) b. Plugs (25%)  4. NRE Showcasing (80%) At least 25 fairs, exhibits, and other public events were attended/conducted.  5. Study Tours (20%) Aklan, Tagbueros and New Ibayay in El Nido, Napsan  6. NRE Library/Database (75%^) 350 information materials, brochures, books, journals, periodicals, magazine, maps, flyers, etc in printed electronic formats.				



## ANNEX 6.8

**Table 3b.**  
**Palawan New and Renewable Energy and Livelihood Support Project (Mid-Term Evaluation)**

PLANNED ACTIVITIES (Implementation Period)	ACTUAL ACCOMPLISHMENT	IMPLEMENTOR/ SUB- CONTRACTOR	PROJECT BUDGET (\$)  (A)	ACTUAL EXPENSES as of July 2002 (\$)  (B)	STATUS OF EXPENSES VS. BUDGET  (B/A)
<p>2. INFORMAL TRAININGS (Jun 02 to Jun 02)</p>	<p>four pilot sites.</p> <p>d. Trainors training evaluation &amp; trainees evaluation and reinforcement (0%)</p> <p>Three-Day NRE Training for barangay development council members in New Ibajay, and Turda.</p> <p>Two sets of informal trainings on selected topics on New and Renewable Energy every month in five pilot sites. Participants are cooperative members, students, teachers, local leaders, and church workers, Brgy. Health Workers, farmers, fishers, barangay officials, and women's group.</p>				
<p><b>D. Establishment of</b></p>		<p>UPERDFI</p>	<p>45,000.00</p>	<p>35,200.00</p>	<p>78%</p>

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<b>Palawan REDC</b>					
1. Design of PREDC	a. Objectives, Mandates, Organization and Programs of PREDC (80%)		42,911.00	24,928.00	58%
	b. Business plan for PREDC (20%)		87,911.00	60,128.00	68%
2. Training on Energy Planning	a. Seminar-Workshop on Socio-Economic Assessment of Rural Communities for RE Projects (20%)		(covers line item budget 21104, 3201, 3202 and portion of 1501, 1603, 4501, 4502, 5301)		
	b. OJT on identifying opportunities for productive uses of RE, market surveys and feasibility studies (30%)				
3. Training in RE System Design, Installation, Operation and Maintenance	a. Training Course on Solar Energy Technology and Resource Assessment (100%)				
	b. Training Course on Wind Energy Technology and Resource Assessment (100%)				
	c. Training Course on Biomass Energy Technology and Resource Assessment (50%)				

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4. Training in RE Project Evaluation	<ul style="list-style-type: none"> <li>d. Training Course on Hydro Power and Resource Assessment (100%)</li> <li>e. OJT in RE Resource Assessment (20%)</li> <li>a. Training Workshop on PV Systems (100%)</li> <li>b. Training Workshop on Solar Drying (100%)</li> <li>c. Training Workshop on Biomass Gasifier (50%)</li> <li>d. Training Workshop in Wind Energy Conversion (100%)</li> <li>e. Training Workshop in Wind Pumping Systems (100%)</li> <li>f. Training Workshop on Micro hydro Systems (100%)</li> <li>g. Training Workshop in Hybrid Drying Systems (50%)</li> </ul>				

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PLANNED ACTIVITIES (Implementation Period)	ACTUAL ACCOMPLISHMENT	IMPLEMENTOR/ SUB-CONTRACTOR	PROJECT BUDGET (\$) (A)	ACTUAL EXPENSES as of July 2002 (\$) (B)	STATUS OF EXPENSES VS. BUDGET (B/A)
5. Development of Palawan RE Data and Management Information System (Apr 00 – Dec 02)	h. Training Workshop on Hybrid Energy Conversion Systems (100%)				
	a. One-day Orientation on computer software use on Palawan Rural Energy Database /MIS (National Statistics) provided to PMO staff (100%)				
	b. Upgrading data base for Palawan municipalities (50%)				
<b>E. Conduct of Feasibility Studies</b>	1. Conduct of Market Survey using participatory rural appraisal (PRA) approach (100%)	SAI	66,400.00	52,678.00	79%
1. Capacity	conducted by the Strategic	CRREE	<u>35,211.00</u>	<u>19,687.00</u>	56%



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Building for Enterprise Development	Advantage Inc. (SAI)  a. Stakeholders Mobilization by CRREE (100%). The study commenced with the initial phase of project mobilization by the CRREE team.  b. Training for Conduct of Participatory Research. (100%). Submitted report on Participatory Market Research Workshop  c. Data Collection (100%) The gathering of information was guided by eight basic principles of PRA. Submitted reports on Consolidated Observation and Result of the Focus Group Discussion.  d. Data Validation, Analysis, Interpretation and Report Preparation (100%)	Sub-Total	101,611  (covers line item budget 2105, 1707, 3205 and portion of 1501, 1603, 4501, 4502, 5301)	72,365.00	71%

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<p>2. Mud crab Project</p> <p>a. Capacity Building of cooperative leaders and members</p> <p>b. Facilitation of Trainings</p>	<p>e. Submission of Final Report (Final Market Survey) (100%)</p> <p>1. Site inspection and consultation meeting with BFAR/CDA and Coop leaders and members in the 6 pilot sites.</p> <p>2. Facilitation of Cooperative Registration</p> <ul style="list-style-type: none"> <li>▪ Napsan Multi-Purpose Cooperative</li> <li>▪ New Ibayay Multi-Purpose Cooperative</li> <li>▪ Samahan ng Maliliit na Mangingisda ng Caramay</li> <li>▪ Bulalacao Multi-Purpose Cooperative (reactivated)</li> <li>▪ Turda Multi-Purpose Cooperative</li> <li>▪ Tagbueros Aqua Venture Multi Purpose Cooperative</li> </ul>				

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	<ol style="list-style-type: none"> <li>1. Training Needs Assessment</li> <li>2. Pre-Membership Education Seminar</li> <li>3. Advance Leadership and Organization Management Training</li> <li>4. Mud Crab Training cum NRE</li> <li>5. Mission and Vision and Gender Sensitivity Training</li> <li>6. Bookkeeping and Basic Accounting</li> <li>7. Work and Financial Planning</li> </ol>				
c. Mobilization of Community	<ol style="list-style-type: none"> <li>1. Establishment of Mud Crab culture and fattening project structures and policies</li> </ol>				

## ANNEX 6.8

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<p>d. Developme nt of MOA</p> <p>e. Marketing Arm</p> <p>3. FS for Small Scale Livelihood Project and for RE Resource Assessment</p>	<p>1. Drafting and finalization of MOA on marketing and financing</p> <p>2. Preparation of necessary documents and requirements for the issuance of Special Use Permits</p> <p>1. Formulation of Marketing Schemes</p> <p>a. Create demand</p> <p>b. Provide linkages</p> <p>c. Sales Activity</p> <p>d. Provide forecasting and selling strategy</p> <p>1. Market Research</p> <p>a. Gathering (100%) Submitted report on Market Research and Conduct of Mini FS.</p>				

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4. Micro financing	<ul style="list-style-type: none"> <li>b. Development of Marketing Plan (80%)</li> <li>c. Review of project proposal on small scale NRE related livelihood projects. (30%)</li> <li>d. Development of the Research and Demonstration Site as Ecotourism (30%)</li> </ul> 2. Conduct Analysis of Resource Assessment (0%)	CRREE			
	1. Formulation of micro-financing design applied to NRE (100%) <ul style="list-style-type: none"> <li>a. Consultation meetings (Shell Solar Phil. Corp,</li> </ul>	CRREE			

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	DBP Land Bank, Palawan Cooperative Bank, Provincial Cooperative Development Office (PCDO)				
<b>F. Risk Sharing Mechanism</b>					
1. Design of RSM	<b>A. Design of Direct Sales (10%)</b>	IIEC	63,000.00	0.00	
	1.a. Gathering of data. Copies of relevant laws and DOE-DILG joint circulars filed.	CRREE	<u>204,171.00</u>	<u>22,997.00</u>	
	1.b. Research work at DILG	Sub-Total	267,171.00	22,997.00	
	1.c. Review design of the Risk Sharing Mechanism		(covers line item budget 2107, 2108, 1704 and portion of 1501, 1603, 4501, 4502, 5301)		
	1.d. Review by Stakeholders				
	1.e. Designed NRE support schemes for the PGP				

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	2.a. Action Plan for Phase I developed  2.b. Stakeholders meeting  2.c. Recommendation for the formulation of Design Risk sharing Mechanism presented  2.d. Change in the delivery of risk sharing mechanism from RESCO to direct sales of SHS  2.e. Other appropriate delivery mechanism(s) for the pilot sites identified  <b>B. Identification of other appropriate delivery mechanism (10%)</b>  <b>C. Drafted financial support schemes and research works</b>				
	<b>D. Development of NRE Trust Fund (10%)</b>				

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2. Implementation of RSM		Subcontractor For bidding	150,000.00	0.00	0%
<b>G. PROJECT MANAGEMENT.</b>		CRREE	162,886.00	121,037.00	74%

TOTAL

51%

850,000.00

434,081.00



## ANNEX 6.9 Site Pictures



**Solar Assisted Mud Crab Culture Project  
Caramay Site**



**Solar Assisted Mud Crab Culture Project  
Napsan Site**



**Solar Assisted Mud Crab Culture Project  
New Ibajay Site**



**Solar Assisted Mud Crab Culture Project  
Tagbueros Site**