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**Terminal Evaluation of the UNEP Project
Establishing a Consumer Financing Program for
Solar Photovoltaic Systems in Southern India**

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ACRONYMS AND ABBREVIATIONS

AMC	Annual Maintenance Contract
BIRD	Banker's Institute of Rural Development
IREDA	Indian Renewable Energy Development Agency Limited
KREDL	Karnataka Renewable Energy Development Limited (KREDL)
MDGs	Millennium Development Goals
MEDREP	The Mediterranean Renewable Energy Programme of UNEP
MNRE	Ministry of New and Renewable Energy
NABARD	National Bank for Agriculture and Rural Development
NGO	Nongovernmental Organization
RRB	Regional Rural Bank
SEP	Solar Electrification Programme
SHGs	Self-Help Groups
SHS	Solar Home System
TOR	Terms of Reference
TSU	Technical Support Unit
UNDP	United Nations Development Programme
URC	UNEP Risoe Centre (formerly known as UCCEE -UNEP Collaborating Centre on Energy and Environment)
UNEP/DTIE	UNEP/Division of Trade, Industry and Economics
UNEP	United Nations Environment Programme
UNF	United Nations Foundation
UNFCCC	United Nations Framework Convention on Climate Change
UNFIP	United Nations Fund for International Partnerships

EXECUTIVE SUMMARY

1. An independent terminal evaluation of the four and half year, US\$ 7.6 million “Establishing a Consumer Financing Program for Solar Photovoltaic Systems in Southern India Project” (hereinafter Solar Project) was carried out on behalf of UNEP in the first half of 2008. The objective of the terminal evaluation was to establish project impact, and review and evaluate the extent to which the implementation of planned project activities and outputs has been accomplished. The evaluation was to determine the extent to which the Project has been successful in fulfilling its objectives and obtaining the expected results and whether it has been cost effective in producing its results.
2. The Project was implemented by the UNEP Risoe Centre (URC), under overall guidance of the UNEP Division of Technology, Industry and Economics (DTIE). Technical assistance was provided by URC to Indian partner banks for developing standard specifications for the solar home systems (SHS), vendor qualifications, and empanelment with the banks to ensure quality products and reliable after-sales service. Crestar Capital, a consultancy firm in India, helped coordination with banks and vendors, and monitoring the project.
3. Two of India’s largest banks, Canara Bank and Syndicate Bank, along with their nine associate Regional Rural Banks, partnered with UNEP to establish and run a Solar Loan Programme through their branch offices across Karnataka State and part of the neighboring Kerala State. The loan for SHS became available from more than 2000 branches of eleven banks in Karnataka and Kerala. After successful completion in the State of Karnataka and Kerala, smaller support programmes were launched in February 2007 in the states of Maharashtra and Gujarat in partnerships with Bank of Maharashtra and Sewa Bank respectively. In Maharashtra and Gujarat, UNEP provided technical and support for consumer awareness.
4. The Solar Project was a highly complex and challenging project to design and implement on a multi-state level. There are many important positive aspects as well as some weaknesses to the Project. Most of the weaknesses are attributable either to strategic choices made during the Project design phase. Project implementation and management was generally effective.
5. The Project’s major successes were:
 - Innovating a new way of extending credit to support sale of SHS
 - Mobilize public sector bank networks in market-driven strategies for solar promotion. The Project influenced and enabled two leading public sector banks to add a new product line (Solar Home Lighting Systems) into their portfolio
 - Institutionalise a process of vendor appraisal and enrollment
 - To build a platform for public-private partnership involving banks,

- Reach out to 15,094 households (against a target of 18,000 households), and enterprises in an environmentally sustainable manner. Before the UNEP project only around 1400 SHS systems were financed, this rose 10 tenfold as a result of UNEP intervention.
6. The Project’s successes are mitigated by some weaknesses:
- The Project failed to achieve its object of improving “access to the rural poor to modern and environmentally sustainable energy service...” 44% of India’s population live below USD1 a day. The benefits of the project were captured by bank borrowers belonging to the non-poor sections and middle class.
 - In contrast to the upfront capital subsidy schemes widely prevalent in India, the project pioneered back end interest subsidy. Under the later the banks were paid incentive money when the end borrower had paid in full. The incentive amount was gradually reduced to bring the lending at par with prevailing market interest rates. Unfortunately, this pioneering approach has not found favor with either with UNEP’s two partner banks or with the Government of India’s Ministry of New and Renewable Energy. The banks and MNRE prefer upfront subsidy for customers. They feel front-end capital subsidy is more transparent to the customers.
 - There is little evidence so far that the Project had a significant direct impact on policy formulation and decision making. This is because of limited engagement the Project had with policy makers and MNRE in particular. UNEP has strived hard to engage MNES over loan scheme-based solar light programs. UNEP has used several occasions to highlight the achievements of the Project.

Recommendation

7. Since the Project has already been terminated, no follow-up activities are recommended within the ambit of the Project. This evaluation makes two general recommendations which UNEP may consider in its further efforts to develop renewable energy sector in India and elsewhere. The first relates to strengthening of management of information systems to support decision making at the level of head offices of banks. Solar financing projects may incorporate MIS in the design phase. The Indian Project developed many useful guidelines and tools which might serve well banks and administrators of solar project in other countries. Our second recommendation is to use the rich array of material developed during the course of the Project to produce a set of operation tool kits for senior bank managers to build the capacity of bank managers to handle clients, and vendors supporting solar lending projects.

Lessons

Lessons for Financing

8. Access to financing for renewable energy is a major barrier due to risk perception of the financial institutions and their feeling that the solar markets

are not large enough to provide sufficient loan volumes. Programs require designing a package to address their risk perception, which may include sensitization of bankers, technical support, and financial assistance in the initial stages to provide a greater level of comfort in experimentation.

Lessons for Stakeholder Participation

9. Much has been written about the usefulness of including stakeholders in the design and implementation of UNEP program evaluations. Active involvement of stakeholders during design and implementation phase, in tapping market players, and encouraging participation of official agencies are important components of success. Flexibility to adopt the changes and stakeholders' requirements (without losing sight of the ultimate objective) is vital for project sustainability. Feedback mechanism also needs to be included to help course correction.

Linking poverty alleviation with rural electrification

10. SHS are conveniences which improve quality of living. However, the impact of SHS –indeed of solar electrification - on poverty alleviation is tenuous. Linking poverty alleviation with rural electrification requires financial inclusion of the poor and special efforts to reach out to them. Otherwise, benefits of rural electrification would more likely be captured by the elite. Bank financed solar home electrification may add convenience for those who are moderately poor earning above USD3~5/day, but may not be suitable for those living below poverty line for two reasons: firstly, the relatively cost of solar devices (>USD600 for SHS), and that the power output (<40 watts) is not sufficient to operate machines requiring moderate doses of power such as paddy thrashers, grinders, or small lathe machines.

1. INTRODUCTION AND BACKGROUND

This Report

11. An independent terminal evaluation of the four and half year, US\$ 7.6 million “Establishing a Consumer Financing Program for Solar Photovoltaic Systems in Southern India Project” (hereinafter Solar Project) was carried out on behalf of UNEP in the first half of 2008. This report describes the evaluation approach and findings.

Project Rationale

12. Around 45 percent of households in India, mainly rural ones do not have electricity. Others, though electrified theoretically, remain without electricity due to poor or erratic supply. Even in relatively more advanced states such as Karnataka, 85% of the villages are connected to the grid and the poor are provided highly subsidized electricity, only about 31% of households in the electrified villages had been hooked up. Consequently, these households continue to rely on less efficient and polluting energy sources to the detriment of the environment, and to their own social and economic development.
13. In 2001, the Government of India set a target of electrifying the whole of India by 2012. The Renewable Energy Policy Statement 2005 prepared by an Expert Committee constituted by the Planning Commission describes the measures necessary to meet minimum rural energy needs, in both grid-connected renewable sources and decentralized off-grid supply. The Policy envisions a 10 million square meter solar collector area, to be set up by 2022, and capable of conserving electricity equivalent to that generated from a 500 MW power plant. The state of West Bengal and Karnataka has initiated to make the use of solar power mandatory in new multi-storied buildings. According to the draft Policy, the minimum goals for 2012 are to improve traditional cookers (chulhas) in 30 million households, install 3 million new family-sized biogas plants, and deploy 5 million solar lanterns, 2 million solar home lighting systems and 1 million solar water heating systems. A 10 percent share in renewable – 10,000 MW of installation – is to be achieved in the projected new power capacity for this period. According to figures released by the government in April 2001, renewable energy sources had contributed 3,000 MW to the grid in India (3% of its total capacity). The MNRE has initiated schemes and incentives - like subsidy, soft loan, concessional duty on raw material imports, excise duty exemption on certain devices/systems etc - to boost the production and use of solar energy systems. The Indian Renewable Energy Development Agency (IREDA) provides revolving fund to financing and leasing companies offering affordable credit for the purchase of PV systems.
14. The project was conceived as a short term intervention – to lower risk, increase consumer access to credit, and initially the cost of this credit. Once these key barriers are addressed, it was expected that the market will begin to expand without further external support. The purpose of the project was to improve access of poorly served rural and peri-urban households and small enterprises to modern electricity services. Although solar home systems can provide a reliable and cost-effective electricity service, they have yet to be established as a mainstream electrification technology, in

part due to limited access to financing. Relationship with Indian banking partners was nurtured to develop lending portfolios specifically targeted at financing solar home systems in poorly served regions of South India.

What is a Solar Home System?

A typical SHS is 40-watt solar PV unit costs approximately 420 dollars and consists of four fluorescent 7 watt lamps, lighting for four hours between charges and is also suitable for radios and fans. The system is rechargeable with a 5-year-life battery for prolonging the 4-hour usage time and is customized to cater to individual needs. The vendors monitor units through a decentralized network of technicians.

15. The Project departed from the conventional approach used for supporting solar photovoltaic systems. Official progress to stimulate solar market development in India has relied on front-end capital subsidies. The Project argued that capital subsidies create a dependency syndrome, which in the long run distorts and hampers growth of SHS market. With an interest subsidy the cost of the system remains the same and its only the cost of financing that is subsidized. The approach doesn't therefore distort the cash sales made outside the programme in the same way that capital subsidies do. The interest subsidy also motivated bank branches to promote this lending programme since it made them look good in terms of offering competitive terms of financing, even if they didn't directly benefit from the subsidy. The interest subsidy therefore worked as much as a marketing incentive for the banks as an interest rate incentive for the customers. The point made was that once the banks were actively providing access to credit the customers seemed keen to borrow even if the interest rates weren't subsidized. The Project proponents believed that improving access to credit rather than cost of interest to be the key barrier in SHS adoption. Selecting interest subsidy as the support mechanism is a result of the stakeholder consultations. The Project devised an interest subsidy for a limited duration, conditional on prompt repayment of the entire loan by the customer. The interest subsidy was limited to the life of the Project, although phased out over time, and designed to provide a moderate incentive among the target customers to buy the product. The 'back-end' subsidy also acted as a quasi-Guarantee, which Banks could use in case of default.
16. The expected outcomes were (Source: TOR of Terminal Evaluation [Annex I](#)):
 - Creation of rural credit facilities for financing solar home systems (SHS) in partner banks, leading to development of a credit market for financing SHS
 - Access to clean energy to households, especially rural, who lack access to modern energy
 - Growth of sustainable energy sector in South India as a result of use of clean energy by households, leading to local and global environmental benefits
 - A portfolio of 5000 SHS bank loans after two year and 18,000 after four years

Executing Arrangements

17. The project was implemented by the UNEP Risoe Centre (URC - formerly the UNEP Collaborating Centre on Energy and Environment), under the overall guidance of the

UNEP Division of Technology, Industry, and Economics (Energy Branch – formerly the Energy and Ozone Unit) and in close communication with UNEP’s Regional Office for Asia and the Pacific. Crestar Capital, a consultancy firm in India helped coordination with banks and vendors, and monitored the project. Crestar was hired through competitive procurement at the outset of the Project.

18. The Project Document (Section 5.1, page 17) envisaged working “...closely with staff in the national level UNDP office”. It also called for developing close links to financial institutions critical to the success of the project.
19. Technical assistance was provided by URC, involving two banking partners: namely Canara Bank and Syndicate Bank. These two Banks, along with their nine associate Regional Rural Banks (or Grameen Banks), partnered with UNEP to establish and run a Solar Loan Programme through their branch offices across Karnataka state and part of the neighboring Kerala State. The loan for SHS became available from more than 2000 branches of their banks in Karnataka. After completion in the state of Karnataka and Kerala, a smaller support initiative was also launched in February 2007 in the states of Maharashtra and Gujarat in partnership with Bank of Maharashtra and Sewa Bank respectively. Technical assistance and support for awareness measures was provided to the partners in the two states under the programme. SEWA Bank provided loan for SHS to its members.
20. Originally planned to run for three and half years to April 2006, the project was extended by 13 months to May 2007. Inclusion of new states required additional time, hence, the extension of project completion date.

Budget

21. The original project budget was US\$ 7.6 million of which contribution by
 - a. UNF US\$ 1,200,000
 - b. Shell Foundation US\$ 300,000
 - c. UNEP (in-kind) US\$ 100,000
 - d. Co-financing by bank partners US\$ 6,000,000

2. SCOPE, OBJECTIVE AND METHODS

The Evaluation

22. The Evaluation and Oversight Unit (EOU), which is charged with the responsibility for conducting, coordinating and overseeing evaluations within UNEP, contracted Manab Chakraborty based in India (see Annex II for c.v.), for an independent evaluation of the Project.

Terms of Reference

23. The evaluation TOR describes the primary objective of this in-depth evaluation as establishing project impact, and reviewing and evaluating extent to which implementation of planned project activities and outputs have been accomplished. The evaluation shall determine the extent to which the project has been successful in fulfilling its objectives and obtaining the expected results and whether it has been cost effective in producing its results (Annex II). The TOR identifies five main questions:
 - a) To what extent has the project helped the sustainable energy sector grow in South India through expansion of solar rural electrification service infrastructure in targeted regions?
 - b) Determine how and the extent to which households and small enterprises has been helped to access modern and environmentally sustainable electricity services?
 - c) To what extent has the project built the awareness and confidence of Indian financial institutions to scale-up lending to the solar energy market?
 - d) How has the project allowed UN agencies to develop a new model for catalyzing new financing to a clean energy sector in a replicable and sustainable manner?
 - e) To what extent has the project contributed to alleviation of rural poverty?
24. The evaluation focuses mainly, but not exclusively, on the significance, implementation and impacts of the Solar Project.

Methods

25. The evaluation was carried out via four principal sets of activities between February and April 2008:
 1. Reviews of Key Documents. The documents reviewed included the Project document, outputs, performance reports, correspondence, workshop reports, journal articles, meeting minutes, and documents posted on the web site (Annex III).
 2. Interviews with a wide range of the Solar Project participants and stakeholders. These interviews included UNEP/DTIE project manager, Fund Management

Officer, UNEP/EOU officer, and other relevant staff in UNEP dealing with renewable energy related activities.

3. Telephone and personal interviews with officials of Canara Bank, Syndicate Bank, Grameen Banks, UNDP, and MNRE. People interviewed and respondents to emails are listed in Annex IV.
4. Field visits to the States of Karnataka and Gujarat.

The Evaluation Report

26. The report follows, as far as possible, the approach and outline called for in the TOR. An overall rating of the Project is included.

3. PROJECT PERFORMANCE AND IMPACT

27. Before a detailed description of the project performance and its impact is given, it is worth mentioning that there is some confusion on reporting about the actual numbers of SHS financed with the help of UNEP-subsidized loans. The banks have reported that as of March 2007, Canara Bank and its RRBs have financed 7,533 cases and Syndicate Bank and its RRBs 7,561 cases, yielding a total of 15,094 cases¹ (Source: UNEP Risoe based on reports by the Banks).

Table 1. SHS Financed by Banks

Bank	No. of SHS Financed	Amount Disbursed million Rs.	Amount Disbursed in USD (@Rs 45) In million	Per case in Rs.	Per case in USD
Canara Bank +RRBs	7533	135.7	3.02	18014	400
Syndicate Bank +RRBs	7561	150.1	3.34	19852	441
Total	15,094	285.8	6.35	18935	421

28. This figure of 15,094 Solar Home Systems reported by the banks is considerably lower than that self-reported by the vendors, since the bank figures often had a lag time and UNEP had agreements with vendors to report the SHS sold under the UNEP Programme. Given the systems at the banks, number of branches involved in reporting, change in staff etc., UNEP/DTIE claims that bank figures are not that reliable as that of the vendors.
29. Vendors reported on quarterly basis. UNEP reporting on numbers has been based on vendor data, with bank data (lagged) as a kind of check. The final numbers in June 2007, as reported by the vendors, were as follows:

¹ The same banks have reported slightly different figures to the consultant. As of March 2007, Canara Bank and its RRBs have financed 5,836 cases and Syndicate Bank and its RRBs, 8,180 cases, yielding a total of 14,016 cases.

Table: 2 SHS sales under UNEP Loan Programme - Karnataka/Kerala

	Total					Grand Total
	2007-08	2006-07	2005-06	2004-05	2003-04	
Karnataka State						
Shell Solar India Pvt. Ltd.	374	1136	674	2781	2207	7172
Selco Solar Light Pvt. Ltd.	208	860	285	2747	1552	5652
Tata BP Solar India Ltd.		237	720	2301	846	4104
Kotak Urja Pvt. Ltd.		230	503	443	142	1318
Total	582	2463	2182	8272	4747	18246
Kerala State						
Shell Solar India Pvt. Ltd.	16	105	138	112	0	371
Selco Solar Light Pvt. Ltd.	2	0	0	22	0	24
Tata BP Solar India Ltd.		33	75	382	0	490
Kotak Urja Pvt. Ltd.		0	38	125	0	163
Omega Electronics	4	40	162	33	0	239
Total	22	178	413	674	0	1287
GRAND TOTAL	604	2641	2595	8946	4747	19533

Source: Mr. J.P. Painuly, UNEP Risoe Project Manager, 4th April, 2008

30. It may be noted that total numbers in the table do not include sales by Tata-BP Solar and Kotak Urja due to lack of reported information. The figures for 2007-08 were collected to monitor as to what happens after program is over and also because Canara Bank was allowed to use the remaining money, if any. Later it turned out that there was no remaining money with them after December 2006. Since response from vendors was very poor, UNEP was not able to collect data for the entire second half of 2007.
31. UNEP support had ended in December 2006 (to Canara, and in 2005 for Syndicate), therefore the figures until 2006 can be considered as those including this UNEP programme support which is $19,533 - 604 = \text{USD}18,929$.
32. Another major confusion relates to the choice of customer segment of the Project. The Log Frame describes the Overall Objective of the Project as being "Access of the rural poor to modern and environmentally sustainable energy service is improved". In contrast, the Project Document, Section 2.1.1, describes the typical customer "...to be middle class household (with monthly incomes of Rs. 5,000~Rs. 10,000 per month) in both urban and rural areas". The lack of strict definition of the customer segment has allowed a large portion of the benefit to be captured by the non-poor and urban customers. This point is further elaborated in Section B Assessment of Sustainability of Project Outcome, para 'Socio-Political'.

A. Attainment of Objectives and Planned Results

33. The extents to which the stated Project objectives have been met are analyzed in Table 3.

Table 3. Achievements of Objectives, Purpose and Planned Results

From Logical Framework in Project Document		Evaluation Findings (numbered paragraphs correspond to Verifiable Indicators)
Objectives, Purpose, Outcomes	Verifiable Indicators	
Overall Objective: Access of the rural poor to modern and environmentally sustainable energy service is improved.	1. Trends in number of customers served with modern and environmentally sustainable energy technologies.	1. The project has met the goal of serving rural areas as 70% of demand for SHS has come from off-grid, and poorly-served hinterlands. However, it has not been the poor (see pages 11, 12 for definition of poverty) who have benefitted from the project, but the middle class with annual income levels of Rs. 50,000~Rs. 75,000 (USD 3~5 per day.)
Project Purpose		
To improve access of the rural and peri-urban Indian households and small enterprises to reliable and clean energy services, by helping Indian banking partners develop lending portfolios targeted at financing SHS in poorly served regions of South India.	1. Number of households and small enterprises electrified.	1. There are records at each bank branch that distinguish between loans to households and small businesses. However, several small business loans are run on business-cum-residence models in rural areas and a clear distinction may not always be possible. In any case, no summary data was maintained at bank head offices or made available to the evaluator showing the breakdown of customers by their usage (household consumption or productive use in small enterprises) or by location (rural or peri-urban). There is no information available on urban vs. rural loans. Since, loans are normally granted only to customers who reside in the vicinity of the bank branch, and since most of the bank branches are located in rural areas, it is

From Logical Framework in Project Document		Evaluation Findings (numbered paragraphs correspond to Verifiable Indicators)
Objectives, Purpose, Outcomes	Verifiable Indicators	
		inferred that the majority of loans are in rural areas. It is the general impression that in rural areas SHS was used for household purposes, where as in peri-urban areas grocer stores, vegetable yards, and street vendors put SHS for both consumptive and productive use.
	2. Financial partners scale up retail and commercial lending for SHS after project completion	2. The Project has equipped the banks to scale-up solar lending. With MNES support, and under its' 100% Solar village concept, Syndicate Bank funded electrification of 50% of households in 5 villages in 2007, and will be funding 6 villages in 2008 covering more than 1000 households.
Outputs		
<p><i>Phase I: Project Set-up (Oct. –Dec. 2002)</i></p> <p>Credit schemes for rural customers are established at the partner banks and operationalized smoothly.</p>	Number of loans 1) approved, 2) disbursed 3) repaid	No branch level data on number of loans approved, disbursed, and repaid was provided to the evaluator. Banks maintain their own internal records of all loans sanctioned and disbursed. Detailed information and records about each loan are available at branches where the loans are sanctioned and disbursed. They only send the summary of disbursals to their head offices, which was accessible to the project. The systems at the branches are mostly manual, and the transaction cost of generating additional information (beyond their standard format) was very high. Hence, UNEP did not insist on that. The banks submitted certificates on the number of loans disbursed at the end of the programs.

From Logical Framework in Project Document		Evaluation Findings (numbered paragraphs correspond to Verifiable Indicators)
Objectives, Purpose, Outcomes	Verifiable Indicators	
<p><i>Phase II: Credit Facility Operation (Jan. 2003-Mar. 2006)</i> Solar electrification service infrastructure in targeted regions is enhanced.</p>	1. Increased lending for SHS at the partner banks after project completion.	1. Besides Canara Bank and Syndicate Bank, other major banks in Karnataka such as State Bank of Mysore, Vijaya Bank, Karnataka Bank, Cauvery Grameen Bank, and Krishna Bank have launched their own solar lending project without any UNEP support, but broadly mimicking the same stipulations. State Bank of Travancore, the largest bank in Kerala State, has launched its own loan program.
	2. Similar products are taken up by other Indian financial institutions.	2. By 2003, IREDA in Karnataka had sanctioned Rs. 526.2 million (USD 11 million) to 20,200 beneficiaries, of which 4,146 sanctions were for SHS. SREI Renewable Energy Unit Ltd (SREU), a private finance company has financed over 6,500 units of solar home lighting systems in, States such as Haryana, Jammu & Kashmir, Gujarat, Maharashtra and Uttaranchal, and has also played a key role in the electrification of the Sunderbans area of West Bengal. 20 major banks, half a dozen cooperative banks, and 3 major non-banking finance corporations are engaged in solar lending today.
<p><i>Phase III: Credit Facility Expansion (July 2003-Mar. 2006)</i> Awareness and confidence of Indian financial institution SHS lending increases and their lending portfolio for clean energy grows.</p>	1. Number of SHS installed	<p>This outcome was fully achieved, representing the major tangible output of the Project.</p> <p>1. Before the Project, only 1,400 SHS were financed in Karnataka (Crestar 2006, page 3). This has risen to 15,094 (or 18.929) after the project</p>

From Logical Framework in Project Document		Evaluation Findings (numbered paragraphs correspond to Verifiable Indicators)
Objectives, Purpose, Outcomes	Verifiable Indicators	
		completion in December 2007.
	2. Share of systems carrying full warranty and maintenance contracts	2. Vendors with strong after sales service such as SELCO and Shell are offering free warranty and maintenance service. Two factors have reduced dependence on AMCs: a) higher quality of equipments due to defect control at the manufacturer's level; and b) increased capacity among SHS owners for routine check-up and maintenance.
	3. Comparison of the number of reported system failures before and after project implementation	3. A measurement of the verifiable indicator was not done for two reasons: a) warranty from manufacturers covered repair, maintenance of SHS items, and b) Banks were wary of high transaction costs of collecting any additional information beyond their systems- for small equipment like this (in terms of loan), any additions to the costs means the product may not be worthwhile for their business. In their system, the information is captured is through bad loans, and they did not report any during the project.
<i>Phase IV: Outreach (July 2003-March 2006)</i> Expand access to loan facility and contribute to poverty alleviation efforts through provision of clean energy.	1. Number of Rural Regional Banks accessed through Canara and Syndicate bank.	1. 1,115 branches of Syndicate Bank and Canara Bank and an additional 961 branches of their sponsored Grameen Banks participated in the Project. Grameen Banks accounted for 55% of the borrowers as the focus moved to the rural areas.

From Logical Framework in Project Document		Evaluation Findings (numbered paragraphs correspond to Verifiable Indicators)
Objectives, Purpose, Outcomes	Verifiable Indicators	
	2. No. of Self Help Groups (SHGs) ² reached through the project.	2. SHG route of lending was not found feasible, because banks preferred a direct relationship with the customers wishing to buy SHS. Contracts for AMCs and loan documents were executed in the name of individual borrowers.
	3. Detailed Number of installations which are specifically productive-use applications at household/micro business level.	3. Detailed data for productive-use applications at household/micro business level is not available.

34. In the evaluator's view, the Project failed to reach its' overall objective of improving "access to the rural poor to modern and environmentally sustainable energy service..." The term "rural poor" is not defined in the Log Frame or in the Project Document. According to the Planning Commission, Government of India (<http://www.planningcommission.gov.in/news/prmar07.pdf>), in 2004-05, adults with per-capita income per month of Rs. 324.17 in rural Karnataka, and Rs. 356.30 in rural India was considered below the poverty line. Assuming, two adults per household, an annual income less than Rs. 7780 (i.e. USD 178) would qualify being poor. In a 2005 customer survey, 75% of households in a portfolio of 850 loan accounts in several branches of Canara and Syndicate Banks revealed that most borrowers earn above Rs. 50,000 (i.e. USD 1146) per annum (Crestar 2007, page 14). A Report on Compliance Review at Syndicate Bank by Crestar Capital, May 2005, page 5, found that loans were mostly granted to existing customers with incomes over Rs. 75,000 (i.e. USD 1720) per annum. The Project customers with household incomes at Rs. 50,000 and Rs. 75,000 are roughly 6 to 9 times higher than those described as rural poor by the Government of India.
35. The' World Development Report for 2000-2001 seems to have put the poverty level in India at 44 per cent adopting international level poverty criterion of living with a per capita expenditure of less that Rs.46/- per day or \$ 1. The World Bank technically describes extreme poverty as a person who lives under USD1 a day. If a criterion of less than \$ 2 per capita per day or Rs.92/- is adopted, this proportion rises to 83 per cent.
36. The Project relied on the partner banks to select the customers eligible for subsidized loan based on conventional banking criteria of credit worthiness and risk rating. Loans were available to all those buying SHS and met the credit-worthiness criteria

² Self-Help Group (SHG) is a small voluntary association of poor people, preferably from the same socio-economic background. They come together for the purpose of solving their common problems through self-help and mutual help. As of 31st March 2005, 59,332 SHGs having a membership of 889,980 persons availed credit from banks in Karnataka (<http://ifmr.ac.in/cmfmSUscd/districts/karnataka.html>).

of the Banks. The poor simply did not qualify the credit-worthiness criteria of the banks nor could afford SHS equivalent to their 3 years of income. It is the view of the evaluator that the market-led approach adopted by the Banks was not effective in reaching the poor.

B. Assessment of Sustainability of Project Outcomes

Financial Resources:

37. The Project outcomes are not at all dependent on the continued financial support of UNEP. The partner banks are large entities with substantial resources at their command. In addition, Central and State government assistance is available for renewable energy.
38. The Project was successful in identifying and leveraging 6 times of UNEP's capital support to the banks. The figure of USD6 million co-financing by the banks in the project document was an estimated figure based on the calculations that interest subsidy and support would work out to about 15% of the SHS cost, and balance will come from banks. The figure of 6 million was not a specific commitment from banks. They were supposed to meet all the costs, not covered by the UNEP support-which they did. If the vendor-reported numbers are considered until end of 2006 (18929 until end 2006- see explanation above) then the co-financing works out more than USD 7 million (USD 7.43 million on proportionate basis). However, if bank-reports are considered, then the co-financing is placed at USD 6.5, slightly higher than USD 6 million anticipated in the project document.

Socio-political:

39. For the consultative process designing the project, key stakeholders were chosen from a large selection of the following (Crestar Capital 2001, page 5):
 - Government and government agencies
 - Vendors and service providers of SHS
 - Banks, financial institutions and rural financial institutions
 - Non-governmental organizations
40. Of these, ownership of the Project is quite strong among vendors, and banks. The SHS owners emerged as important stakeholders given their close bonds with banks and vendors tied to borrowing and the continued performance of SHS.
41. However, in the later phases of the project, there was relatively little involvement of the government entities. There was lack of meaningful engagement of MNRE, IREDA, and its state counterpart in Karnataka. Karnataka Renewable Energy Development Limited (KREDL) is a nodal agency of the Government that facilitates the development of non-conventional energy sources. At the time of UNEP project, KREDL was actively its scheme "Popularizing the Solar Photovoltaic (SPV) System in Karnataka". Till 2003, under the Scheme, KREDL subsidized vendors for sale of 7,334 solar lanterns, 4,146 home lighting systems, 865 street lighting systems, 339 solar pumps

(<http://pib.nic.in/archieve/lreng/lyr2002/rdec2002/11122002/r1112200228.html>). 20 major banks, half a dozen cooperative banks, and 3 major non-banking finance corporations are engaged in solar lending today.

42. UNEP's effort to engage MNRE yielded little positive results. UNEP representatives met with Ministry of Non-Conventional Energy Resources (predecessor of MNRE) during the project formulation stage in July-August 2001, and later in September 2002. The Director of UNEP DTIE met with the Secretary of MNES on 29th January 2004 to update MNES on UNEP's Solar Loan Programme in Karnataka. MNES also participated in a side event on renewable energy held at the margins of UNFCCC COP 8 in October 2002 and UNEP-Euromoney Renewable Energy forum, December 2006. In November 2006, a UNEP/DTIE/GEF project team, met with the MNES Secretary and Advisor. The view taken by MNES was that UNEP should simply pass on the money to MNES, which in turn would make the disbursement through their channels. This position was unacceptable to UNEP. Despite UNEP's unilateral efforts, the Project was not able to foster a mutually meaningful relationship. UNEP neither had the clout, nor resources to move the Government of India to actively collaborate on the Project. MNRE continued with their capital subsidy approach. Without the support of MNRE in the Centre and KREDL at the State level, UNEP lost a valuable channel to disseminate its knowledge, and know-how in financing and managing solar lending projects.

Institutional framework and governance:

43. The solar policy environment has been quite favorable. At a macro-level, India has a renewable energy policy, a dedicated ministry, Ministry of New and Renewable Energy Sources (MNRE), and a tangible set of targets outlined in successive five year plans. India's Eleventh Five Year Plan (2007-2012) is likely to continue subsidy for off-grid stand alone devices so as to meet the national goal of energy for all by 2012 (<http://mnes.nic.in/pdf/11th-plan-proposal.pdf>). Subsidy would be linked to equipment conforming International Electrotechnical Commission (IEC) standards or nationalized standards that are harmonized with international standards.
44. Renewable energy projects of the United Nations in India are normally executed by MNRE and implemented by the IREDA and its State counterparts. A key decision was *not* to carry out the Solar Project through an official governmental process. This helped the project engage the two public sector banks and their affiliated regional rural networks. Other benefits of working outside a straitjacketed governmental process were the opportunities to engage the private sector and civil society organizations in a partnership mode, as well as greater autonomy and flexibility for the Project. The downside of implementing the Project through conventional government channels are: (i) significant lack of awareness or engagement by political actors in both state and national level, and (ii) limited impact on MNRE policies and thinking regarding structuring of interest subsidy mechanism.

Environmental:

45. Since SHS generate no air pollution during operation, the primary environmental, health, and safety issues involve how they are manufactured, installed, and ultimately disposed of. An important question is how much fossil energy input is required for

manufacture, transport, and disposal of SHS compared to the fossil energy consumed by comparable conventional energy systems. In the initial phase of the Project, meetings were arranged between the solar vendors and an organization concerned with environmental and health impacts of lead in batteries, particularly after they are disposed of. The meetings were intended to help the vendors consider how battery recycling programmes could be used to limit adverse environmental/health impacts. In the project document, environmental impacts of SHS are not discussed, as it is taken as eco-friendly, non-polluting source of energy.

C. Achievements of Outputs and Activities

46. The evaluators findings on the stated Project outputs and activities have been met are analyzed in Table 4.

Table 4. Description of project outputs and activities achieved

Outputs and Activities	Evaluation Findings (numbered paragraphs relate to Activities)
Output 1: Project Set-up Credit facilities for SHS in rural communities are established at the partner banks and operationalized smoothly.	
Activities 1. Design credit facility in Indian partner banks.	1. Loan Product designed.
2. Formulate system standardization and vendor qualifications.	2. Technical Specifications framed and vendors qualified based on UNEP-stipulated criteria.
3. Develop strategies for awareness raising.	3. Strategies for awareness raising developed, which included a) sensitization of bank senior staff and branches; b) distribution of information at local fairs and community events; c) conduct door-to-door marketing; d) distribution of information, education and communication materials.
Output 2: Credit Facility Operation Solar rural electrification service infrastructure in targeted regions is enhanced.	
Activities 1. Implement training and awareness raising activities for loan managers.	1. Training for loan managers was held regularly every three months. Both Syndicate and Canara Bank have extensive capacity, qualified manpower, and facilities to conduct in-house training. Crestar Capital occasionally imparted know-how on the conduct of village level group meetings.
2. Provide technical support to finance policy bodies.	2. UNEP's technical support was limited to the participating banks and consisted in practical advice on best practices, procedures for loan disbursement, and matters related to project implementation.
3. Operation of credit facility in partner banks.	3. Documentation on credit facilities prepared and reviewed by bank officials and UNEP Project Manager. Between June 2003 and December 2007, Syndicate Bank officials and UNEP Manager held seven such reviews.
Output 3: Credit Facility Expansion Awareness and confidence of Indian financial institution SHS lending increases and their lending portfolio for clean energy grows.	
Activities 1. Develop a strategy for extending the credit facilities through to their Regional Rural Banks	1. Strategy for participation of RRBs prepared by Canara and Syndicate Bank. Initially, loans were on offer through 600 branches of Syndicate Bank and Canara Bank, but over time this figure grew to a further 115 branches of both banks and an additional 961 branches of their affiliated RRBs in Karnataka and Kerala States. As the focus of lending shifted to the rural

Outputs and Activities	Evaluation Findings (numbered paragraphs relate to Activities)
(RRBs)	areas, lending through RRBs assumed importance.
2. Loans processed through RRBs.	2. 55% of the SHS clients borrowed from RRBs and the balance came from Syndicate Bank and Canara Bank (Source: Crestar Capital June 2007, page 16).
3. Targeted project partnerships with SHGs and enterprise initiatives.	3. A targeted partnership with SHGs was not executed because individual borrowers wished to deal directly with RRBs for approval of loans and vendors for procurement, installation, and after-sales service of SHSs.
Output 4: Outreach Expand access to loan facility and contribute to poverty alleviation efforts through provision of clean energy.	
Activities 1. Sponsored conferences/workshops through NABARD/BIRD ³ /State-level Bankers Conference.	1. This activity was not carried out. When the Program was conceived, it was envisaged that NABARD could play a significant role in influencing Bank lending policies for SHS. This was because Banks normally availed lines of credit from NABARD. Once the Program started, it was found that Banks were flush with liquidity and not drawing on their resource lines with NABARD - in other words, it mattered less what NABARD's views or policies were - and there did not appear to be any sense in using the communication platforms of NABARD/BIRD. Furthermore, one year into the Program, several Banks directly approached UNEP for guidance/assistance for their own SHS Loan Programs, which obviated the need to disseminate information through a broader platform of the Bankers' Conference. The banks (i.e. Bank of Maharashtra and SEWA Bank) that approached UNEP were also offered technical support.
2. Participation in and organization of vendor-banks summits and promotional forums	2. Vendor and bank meetings were held every six months.
3. Preparation of documentation on the credit facilities, its operation and periodic reviews	3. Documentation on credit facilities prepared and reviewed by bank officials and UNEP Manager. Between June 2003 and December 2007, Syndicate Bank officials and UNEP Manager held seven reviews of documentation on credit facilities.
4. Dissemination of documents and reports	4. Very active in disseminating information on the project through UNEP and URC websites, press releases, newsletters, popular journals and presentations at conferences and workshops of energy practitioners (see Annex III for details). UNEP also co-sponsored two workshops in December 2006 in India and the other in October 2002 at the margins of COP8 of UNFCCC. The participants were financial institutions, banks and NGOs.

D. Assessment of Monitoring and Evaluations Systems

47. According to the Project document, monitoring of the Project would consist of: (i) half-yearly and annual progress reports on substantive and technical matters; (ii) quarterly project expenditure accounts in line with budget codes as set out in the project document; (iii) an Inception report including a monitoring and evaluation

³ Bankers Institute of Rural Development (BIRD) is an autonomous institute promoted and funded by National Bank for Agriculture and Rural Development (NABARD). BIRD was established primarily to cater to the training needs of RRB personnel. NABARD is set up as an apex Development Bank with a mandate for extending assistance to the government, the Reserve Bank of India and other organizations in matters relating to rural development, and offers training and research facilities to banks, and State Governments. State Level Bankers Conference, mandated by RBI, is a forum. to secure co-ordination amongst the Banks, Government and other development agencies.

plan by UNEP DTIE to Shell Foundation; and (iv) a terminal report by UNEP DTIE for submission to UNFIP. In general, the Progress reports are descriptive in nature, and reporting does not follow SMART indicators. This is because UNEP reporting formats are not designed with SMART indicators in mind.⁴

M & E Design:

48. UNEP's partnership was based with the two banks on contracts that included clearly defined procedures for the monitoring of the credit facility covering activities to be undertaken jointly, the disbursement of monies, reporting and verification. In addition to auditing and monitoring, provisions were made for annual evaluations of the credit facility. Detailed monitoring and verification protocols were developed.
49. The Project devised close monitoring and reporting system.
 - a. Canara Bank and Syndicate Bank provided UNEP Business Plans every 6 months.
 - b. Periodic meetings were held with vendors to review progress, discuss adherence to best practices in sales and services
 - c. UNEP Representatives carried out field visits to vendors and the banks were carried out at least once every two months
 - d. Crestar Capital conducted Bank branch audits in March and April 2002, and Compliance Review of Canara Bank and Syndicate Bank in May 2005.
 - e. Customer Satisfaction Surveys were conducted in 2004 and 2005.

M & E Plan Implementation:

50. The information provided by the M&E system was used for highlighting areas demanding intervention. The Annual Report of December 2006 for example, documented the "sluggish" performance of two partner banks during 2005 and 2006. Their affiliated RRBs worked smoothly. The sluggish off-take of resources by Canara Bank, eventually led UNEP to seek partnership with SEWA Bank and Bank of Maharashtra and extension of the Project to Gujarat and Maharashtra respectively.
51. During the first two years, UNEP representatives from UNEP/DTIE, URC and Crestar Capital undertook visits to offices of vendors and banks at least once every two months with most districts of the Karnataka State visited over a period of several months. Participating bank branches were audited during the tenure of loan programmes. Branch audit reports suggested suitable remedial actions to rectify variances including:
 - Stricter vigilance over the sales/service practices of dealers/agents of qualified vendors
 - Higher standards of price transparency and information disclosures for the customer.
52. One such audit of Syndicate Bank in May 2005 pointed out several irregularities including wrong subsidy claim, purchases from unauthorized vendors, and excessing

⁴ SMART indicators are Specific, Measurable, Achievable and Attributable, Relevant and Realistic, and Time bound, Timely, Trackable, and Targeted.

charging of SHS (Source Report on Compliance Review at Syndicate Bank, Crestar Capital, May 20, 2005, page 14). It was recommended that all vendors reaffirm that 5year AMC support is available in respect of all systems financed through bank branches, and that the prices charged include the fee for this support. In several cases, Bank branches blacklisted vendors for discrepancies, and in at least one case an internal enquiry was instituted by the Bank concerned. Most of the excessive prices were levied by resellers of one specific vendor – UNEP had not approved any of these resellers to sell and service the products. The vendor concerned was warned and a better system of monitoring the work of resellers was put in place which included – a set of practices for validating sales through resellers, qualifying resellers, etc. Thanks to close monitoring of all complaints through a surveillance system and field visits, the instances of discrepancies were reduced to a minimum.

53. The Project M&E was handicapped without reliable disaggregated branch level data. It is surprising that a project of this importance did not devise ways to capture the provenance of the borrowers (urban vs. rural), usage of electricity (household vs. small enterprise), and their repayment behavior. The Bank's had informed UNEP that large scale data capturing was not feasible considering extra work it would require. They explained that branch prepares the records in standard formats and branch managers are too busy to fulfill any extra requirement. The Project Management conceded to the demands of the banks. As a result, customer profile data –a key verifiable indicator - was not properly recorded or reported. Without reliable baseline information on customer's demographic, income, and provenance, the Project is neither in position to effectively understand the profile of its typical customer, nor report on how many households and small enterprises were electrified.

Budgeting and Funding for M&E activities:

54. USD 19,516 was specifically earmarked for contingency evaluation (Budget Line 5501). In addition, two credit facility audits and customer satisfaction surveys, using about \$12 K under budget line 1201. Besides this, monitoring of the programs at banks and vendors was an important component of the program. This was included in the technical support component, in which field visits were required to be carried out by Crestar and regular meetings with the vendors as well with the banks were conducted to monitor the progress.

E. Catalytic Role

55. UNEP intellectual and financial contribution has been instrumental in building a market infrastructure of vendors and after sales service. **By December 2004, Vendors Participation Agreements were signed with five vendors who agreed to adhere to specified technical standards, best practices for sales, service and disclosing information, and provision of after sales-service.** UNEP's input in building technical specifications to international standards has become the hallmark for bankers and vendors. The standards mandated product testing and certification by independent bodies, and defined parameters for warranty support and after-sales service. One of the lasting achievements of the Solar Project is that of having been able to build a market infrastructure of vendors and after sales service. The standards mandated product testing and certification by independent bodies, and defined parameters for warranty support and after-sales service. The Loan Programme set

high standards for sales and service that gave lot of comfort to both the bankers and the SHS buyers. The quality of after sales-service became a distinct differentiator and weighed heavily on the minds of SHS buyers. The Loan Programme set high standards for sales and service that gave a lot of comfort to both the bankers and the SHS buyers.

56. Other UNEP partners, such as the Bank of Maharashtra, have launched a solar lending scheme without UNEP subsidies but only with its technical support. Canara Bank and Syndicate Bank both propose to take their South India solar experience in other states, particularly to Northern India.
57. This Indian solar project managed to capture interest from other parts of the world where UNEP is currently planning and implementing similar projects. The most advanced of these is in North Africa where UNEP has been running a number of projects as part of the MEDREP Finance program aimed at increasing financing for renewable energy in the region, mostly solar water heating. The main approach used there is based on the Indian experience, providing finance subsidies and related support to help banks start to lend for solar water heaters on households. A similar program has started in Morocco and Tunisia targeting hotels and a smaller effort also in Egypt. UNEP has also just secured funding for similar efforts in Montenegro and through GEF support are planning programs in Albania, Algeria, Chile and Mexico. A solar PV lending program is being prepared for Indonesia. All of these programs have been inspired by this first project in India even if the exact approach used varies somewhat depending on the local conditions (e.g. in Tunisia the electric utility plays an important role by including the loan payments on their customer utility bills which really lowers the risks for the banks and therefore the cost of financing). UNEP is also now looking to move beyond renewable energy technologies. One new effort in development in Tunisia is to use such a loan program to accelerate the phase-out of old inefficient refrigerators. Utility customers are offered low cost financing to upgrade their refrigerators, with the savings in electricity costs initially used to pay off the loans for the new high efficient unit.

F. Preparation and Design

58. High quality preliminary work in the form of a meeting with Stakeholders on August 20, 2001 set the direction and engaged reasonably broad support for the project. Lessons from other projects were incorporated in this project design.
59. The Project objectives and components were clear, practicable and feasible within the time frame. The capacities of executing institution and counterparts were considered, suitable partnership arrangements were identified, and the roles and responsibilities were codified in Programme Documents with Syndicate Bank and Canara Bank. Both the banks made available: funding, staff, and facilities for training of their field personnel, reporting, and monitoring.
60. A planned phase-out of the interest subsidies was the main post-project sustainability strategy and this received a lot of attention during project planning. Post-project sustainability issues were given limited attention in the Project document beyond the expectation that the Project approach would be replicated. Similarly, the level of

personal and institutional commitment needed to move the project forward was probably not made explicit, at least in the short term. The Project now faces the difficult challenge of mainstreaming and/or institutionalizing its products and approaches, even as the diverse approaches used by the MNRE to promote solar lending have yet to be systematically assessed. Moreover, the limited engagement of government stakeholders in the project's implementation and oversight has further limited opportunities for policy impact or institutional mainstreaming. As a result, the sustainability of project activities is likely to be uneven - and the opportunities to improve this may be diminishing as time erodes momentum and institutional memories.

61. The Project departed from UNEP's conventional approach of financing technological adoption in India. Official progress to stimulate solar market development in India has relied on front-end capital subsidies. In contrast to UNEP, MNRE and IREDA both favor upfront capital subsidy to the customer. The Project argued that capital subsidies create a dependency syndrome, which in the long run distorts and hampers growth of SHS market. As opposed to MNRE and IREDA approach, the UNEP Project devised a 'back-end' interest subsidy which was conditional on prompt repayment of the entire loan by the customer. Thanks to UNEP interest subsidy grant to the Banks, the borrower had to pay an effective interest rate of only 5%. The interest subsidy was phased out in 3 stages:

- October 2004 increase interest to 7.0%
- October 2005 increase interest rate to 9.0%
- October 2006 increase interest rate to Prime Lending Rate (PLR) or beyond as a result of complete withdrawal of subsidy.

The interest subsidy was limited to the life of the Project, and designed to provide a moderate incentive among the target customers to buy the product. The 'back-end' subsidy also acted as a quasi-Guarantee Fund, which Banks could use in case of default.

62. The project had hoped that the market should not suffer from withdrawal symptoms when interest rates are aligned with commercial rates for equivalent loans. Partner banks and vendors claimed that there is a perceptible drop in demand/sales with increase in interest rate as a result of withdrawal of UNEP subsidy. One of the major vendors, SELCO has experienced sharp decline in sale of SHS (as demonstrated in Table 5 below). According to UNEP management, vendors lost sales because of (a) rising cost of PV panels, and (b) increased competition. Panel shortages started in 2005, driven by demand from Europe, primarily Germany. Prices went up, and are still high. Many vendors suffered because of that. The reasons for drop in sales on the part of Selco are not corroborated by good performance of other vendors. Our information is that (a) SELCO faced a major manpower crunch during the latter years, (b) at least 2 new vendors established operations in Karnataka, carving out market share and resulting in major manpower churns in all existing vendors, including Shell Solar and Tata BP Solar, and (c) power shortages in many of the major marketing territories reduced, leading to decline in SHS sales. UNEP management believes that fall in sales of one vendor is due to increased interest costs and is neither justified nor representative of market conditions.

Table 5: Selco Sales of SHS

Financial Year	No. of Lighting Systems
2002-03	2516
2003-04	3929
2004-05	4566
2005-06	1344
2006-07	1603
Apr 07 - Dec 07	1129
Total	15087

Source: K. Revathi, SELCO personal communication, 26th March 2008

63. UNEP project proponents earlier believed that "... it is the availability of credit that is driving demand and not low interest rates." (Crestar Capital June 2007, page 12). SELCO's experience indicates that cost of interest perhaps play a more significant influence in customer decision making than what was assumed earlier.
64. Both Syndicate and Canara Bank officials are not convinced of the benefits of back-end subsidy. At the design stage, banks were offered various options including a front-end subsidy and a levelized subsidy, but Banks preferred back-end subsidy and that was the main reason why this approach was adopted. There seems to be change in their position. Now, they prefer upfront capital subsidy for customers on the lines adopted by MNRE for promotion of water heater schemes. They feel front-end capital subsidy is more transparent to the customers and involves less paper work.
65. Under the Project, participating banks drew support funds in advance based on half-yearly Business Plans, and branches followed simplified procedures for calculating subsidies and reporting on their loan disbursements. The Banks complained that for the size of the Project, paperwork required by UNEP was excessive. This is surprising as compared to the paper work involved in claiming MNRE subsidy; reimbursement process adopted by UNEP is minimal.

G. Country Ownership

66. The project is clearly relevant to national development and environmental agendas, and works towards supporting the effective implementation of ecosystem-related conventions and climate change management. The Project conforms to India's aspirations to develop renewable energy resources to fill in the gap between supply and demand, and improving environmental standards.
67. As previously explained, however, country ownership of the Project and its outputs by national or state governments has been limited, and there is little sign so far of the project having led to any changes in national policies or decision making involving solar lending for rural electrification. This is because of the limited engagement that the Project had with policy makers and MNRE in particular. The solar policy environment has been quite favorable. On the recommendation of MNRE, India's Eleventh Five Year Plan (2007-2012) is likely to continue subsidy for off-grid stand alone devices so as to meet the national goal of energy for all by 2012

(<http://mnes.nic.in/pdf/11th-plan-proposal.pdf>). Subsidy would be linked to equipment conforming IEC standards or nationalized standards that are harmonized with international standards. UNEP missed an opportunity to bring to bear its rich experience in setting standards for solar equipments, and managing a solar lending project.

68. Given the high level thrust for renewables in India, the project's contribution lies in demonstrating a model of solar lending in off-grid rural areas. To that extent the lessons of the project would be effective in catalyzing actions from banks and financial institutions.

H. Stakeholder Participation/Public Awareness

69. The project made use of the skills, experience and knowledge of many NGOs, community groups, private vendors, and elected village councils (Panchayats). The project used the following mechanism for engaging stakeholders:
- Periodic meeting between banks, vendors, and service providers
 - Meetings between bank representatives and village councils
 - Discussion between UNEP officials, banks, vendors, and NGOs
70. The attempted inclusion of representatives from the business community differentiated the project from most other renewable projects. The project made a deliberate and successful effort to encourage representatives of qualified solar vendors on the basis that increased knowledge about technology delivery was a key ingredient in corporate strategies for sustainability. Vendors actively participated in various phases of the Project, and found it worthwhile to engage with the banking community and customers already involved in the process.
71. The Project effectively created a market by raising consumer awareness and linking customers, vendors, and banks. The market for SHS loans was developed through village meetings, focus group discussions, demonstration of products, and explaining how bank loans may be obtained for SHS. UNEP contribution for publicity material used by banks, and a demonstration van deployed by Sewa Bank helped in customer mobilization. The Banks were paid Rs. 300 (approx USD7) per promotion meeting to help them undertake special promotions in the form of publicity and information activities, and to partly reduce the transaction costs of processing small ticket loans.
72. The Project developed a training tool for bank staff. In the case of the Bank of Maharashtra, they had decided to use the kit to train their managers, after a few of them had been trained by the UNEP.

I. Financial Planning

73. An analysis of the project budget versus actual cost is included in Annex V. UNEP provided the evaluator with an analysis of expenditures incurred against donor funds, showing the expenditures incurred by UNEP and URC. A summary of the Project budget is presented in Table 6 below.

Table 6. Project Budget

<u>Expenditure Category</u>	<u>US\$</u>
Project Personnel	246,861
Consultants	129,615
Travel	29,865
Subcontract (Support to Banks)	1,002,668
Miscellaneous	4,562
Program Support	70,679
Total	1,484,250

74. As per the details of expenditures reported by UNEP for USD 1.5 million received from UNF and Shell Foundation, the project had made an expenditure of USD 1.48 million leaving an unspent balance of USD 15,750. Salaries, consultants and staff travel totaled \$406,341 – i.e. 27% of the total allocation. Over \$1,002,668 –i.e. 68% of the total allocation- was used to support three banks, namely:
- Canara Bank USD 930,642
 - Syndicate Bank USD 50,699
 - Bank of Maharashtra USD 21,372
75. While the evaluator was not requested to, and did not carry out any financial audit procedures, there seem to be no indications that the finances of the Project were not managed soundly.
76. UNEP’s in-kind contribution was budgeted to be USD 100,000. UNEP and URC’s contribution was in terms of staff time and overhead exceeded by 2.2 times of that originally projected. The services of UNEP Project Manager were free of charge for the years 2002-2005, and 2007. The imputed value of this contribution over five years is valued at ~USD105, 656. The expenditure on the URC expert, for the years 2003-2006 was USD 141,206 or approximately USD35, 301 per year. The services of the URC expert were available for free for the year 2002 and 2007. The value for free services estimated for the two years is USD 70,602. No overhead and management support cost was included as these are already accounted for in the Program Support Costs (budget line 99). Thus, we estimate that the total in-kind is estimated at USD 176,228 being the shadow salary of UNEP Project Manager USD 105,656 and URC Expert USD 70,602.
77. The Project had in-built design for the monitoring of the utilization of credit facility extended, the release of disbursement of money against business plan, reporting and verification. Detailed monitoring and verification protocols were developed. Both

banks were offered equal support up to 50% of the subsidy amount allocated, actual disbursement to them being based on their progress in field. Finally, Canara Bank actually got less support (proportional to their case load), and the residual funds were used to support Sewa Bank and Bank of Maharashtra. Canara Bank was somewhat slow compared to Syndicate Bank, and with the interest subsidy per system coming down in 2005, support per SHS through them was actually marginally lower than through Syndicate Bank in 2005.

78. Changes were made in fund allocation for various activities based on the project dynamics, and in consultation with vendors and banks and need assessment. The Project was extended by 13 months which also resulted in some reallocation to some activities. The output table is reproduced below, along with the main changes during the course of the project. By and large, except for the changes indicated, other budget heads were spent as mentioned in the table below.

Table 7: Actual Output Budget

Phase I: Project Set-up	
Consultation with partner banks and vendors, Completion of LoCs (15+15UNEP)	30,000
Prep. Of Product Standards and Vendor Qualification guidelines (20+10UNEP)	30,000
Development of bank manager training curriculum * (5UNEP)	5,000
Completion of financial support agreements* (10UNEP)	10,000
Sub-total	\$75,000
Phase II: Initial Operations (Syndicate and Canara)	
Credit facility interest subsidies (About \$780000 was spent on subsidies and balance for technical support to Bank of Maharashtra and Sewa Bank.)	\$900,000
Loan Marketing costs (\$6/unit up to 10,000 SHS, \$4/unit thereafter)	\$90,000
Credit facility Audits (About \$12000 was spent on two audits; balance was used for technical support and monitoring)	\$25,000
Credit facility Technical Support (40)	\$100,000
Policy coordination with MNES, NABARD (20UNEP) (Major part of this was used for technical support to the credit facility).	\$20,000
Sub-total	\$1,135,000
Phase III: Expanded Operations (Ext. to RRB's, SHGs, Micro-enterprises)	
Rural credit initiatives (20+20UNEP) (This was used for technical support and monitoring. Subsequently, Sewa Bank initiative was specially for supporting the poor and rural, as Sewa works with poor rural women). Special initiative was not needed as Grameen Banks were involved through Canara and Syndicate Bank.)	\$70,000
Sub-total	\$70,000
Phase III: Outreach	
Bank/vendor promotional meetings	\$10,000
Clean energy finance workshop (10UNEP)	\$25,000
Other outreach activities (20+10UNEP)	\$30,000
Sub-total	\$65,000

Other	
Program Management (169)	\$168,571
Project Monitoring and Evaluation	\$15,000
Sub-total	\$183,571
Project Support Costs (5% of UNF/Shell contr.)	\$71,429
TOTAL PROJECT COST (inclusive of UNEP in-kind contribution)	\$1,600,000
Sources of Funds	
UNF/UNFIP	\$1,200,000
UNEP Contributions (those marked with *)	\$100,000
Shell Foundation	\$300,000
Estimated Co-financing from partner Indian Private banks	\$6,000,000
TOTAL Cost of Project	\$7,600,000

J. Implementation Approach

79. This section assesses the development and effectiveness of the Project's governance and management arrangements.

Implementation Timeline:

80. The first three months were used to finalize and formalize the structure of the credit facilities, including the SHS financing terms that the banks would have had to offer to end customers, the structure of the interest rate buy-down to be provided through UNEP, and the process used to qualify vendors. The next 39 months (Jan. 2003-March 2006) were dedicated to the operation of the credit facilities in each bank and the related awareness raising activities among customers. Phase III (Jan 2003-March 2006) expanded the credit facilities to the rural regional banks affiliated to Syndicate and Canara Bank. The last phase (Jan 2003-May 2007) involved replication of the loan program to other regions of the country.

Governance and Management Arrangements:

81. UNEP URC directly administered the Project. No Steering Committee was constituted. Without the participation of national institutions and representatives from concerned stakeholders, 'country ownership' remained low. The projects' organizational and institutional arrangements were not effective in generating momentum and commitment, building consensus and validating outputs. The burden of governing and implementing the project squarely fell on UNEP. If national institutions had participated in governing the Project through steering committee or such oversight body, both accountability and ownership might have improved.
82. The project implementation mechanism basically followed what was envisaged in the original project document. However, it deviated in three aspects:
- a) The life of the project was extended by 13 months; the project ended in May 2007
 - b) Two new partners namely Bank of Maharashtra in Maharashtra and Sewa Bank in Gujarat were added

- c) The geographical area was expanded from Karnataka and Kerala in South India to Gujarat and Maharashtra in Western parts of India.
83. The reason for adding the two new partners has much to do with sluggish off-take of resources by Syndicate Bank and Canara Bank in the years 2005 and 2006 as discussed earlier in Part 3 Project Performance and Impact, Section D M&E Plan Implementation. The Bank of Maharashtra and Sewa Bank have strong holds in Maharashtra and Gujarat respectively; it was natural therefore to expand the Project in these two new states.

K. UNEP Supervision and Backstopping

84. UNEP DTIE was the implementing agency and provided overall coordination for the Project. The Department played an active part leaving the associated implementing partner URC and the banks relatively autonomous. UNEP/DTIE and URC offered effective supervision and backstopping through regular field visits, email, telephonic discussions, and written guidance. URC provided very valuable technical services in developing standard specifications for the SHS, and devising selection procedures for vendor selection.
85. Crestar Capital, a consultancy firm in India, helped with the coordination of the banks, and vendors, and by monitoring the Project.

4. CONCLUSION AND RATING

86. With reference to the five questions posed in the TOR (see Part 2 Scope, Objective and Methods), we may conclude:
- a) Helping Expansion of Solar Rural Electrification Infrastructure in targeted regions
87. The project has created a self-sustainable network of qualified solar manufacturers, and vendors who will continue to work closely with banks to deliver consumer goods to its clientele. The Project helped to develop equipment standards for use in bank-financed installation; and provided capacity building to vendors to meet standards and for financiers to verify compliance with standards. The codes for AMC, after sales service and follow-up on customer feedbacks have raised the bar for solar vendors. The vendors have opened sales offices, and trained hundreds of young technicians in repair and maintenance of solar equipments. This infrastructure created in the target region is self-sustainable as it is driven by the exigencies of market.
- b) Extent to which households and small enterprises have been helped
88. Against the Project target of 18,000 households, the project reached out to 15,094 households (or 18,929 as reported by the vendors) and enterprises in an environmentally sustainable manner. Before this UNEP project, only 1,400 SHS systems were financed, this rose 10 tenfold as a result of UNEP intervention. Since summary data is not available for analysis by user types, we are not in the position to answer what percentage of the users are households and small enterprises.
- c) Building awareness and confidence of Indian financial institutions to scale-up lending in the solar energy market
89. UNEP's partnership with Canara Bank and Syndicate Bank and in turn their rural affiliates, gave them the comfort and confidence to lend six times more than what they received as subsidy from UNEP. The Project influenced and enabled two leading public sector banks to add a new product line (Solar Home Lighting Systems) into their portfolio. Though the SHS Project ceased in 2007, Canara Bank and Syndicate Bank have continued to lend under commercial rates and conditions for SHS systems. This shows that commercial viability of lending for solar products is established. Interestingly, Bank of Maharashtra and SEWA Bank, who did not receive any interest subsidy from UNEP, have priced their loans around the same interest rates as those of Canara Bank and Syndicate Bank.
- d) Catalyzing new financing to a clean energy sector in a replicable and sustainable manner
90. The experience of the UNEP project has paved the way for expansion of solar lending by other Indian banks such as the State Bank of Mysore, Vijaya Bank, Karnataka Bank, the Bank of Travancore, Cauvery Grameen Bank, and Krishna Bank. These banks have launched their own solar lending project without any UNEP support, but broadly replicating the same stipulations.

91. In contrast to the upfront capital subsidy schemes widely prevalent in India, the project pioneered back end interest subsidy. Under the later the incentive did not go to the bank, but to the customer who had his last few loan payments covered. The incentive amount was gradually reduced to bring the lending at par with prevailing market interest rates. Unfortunately, this pioneering approach has not found favor with both with UNEP's two partner banks nor with the Government of India's Ministry of New and Renewable Energy. The banks and MNRE prefer upfront subsidy for customers. They feel front-end capital subsidy is more transparent to the customers and involves less paper work. There is little evidence so far that the Project has had a significant direct impact on policy formulation and decision making. This is because of limited engagement the Project had with policy makers and MNRE in particular.

e) Contribution to alleviation of rural poverty

92. The Project failed to achieve its object of improving "access to the rural poor to modern and environmentally sustainable energy service..." 44% of India's population live below USD1 a day. At the time of the implementation of this UNEP project, Karnataka's rural poor households earned barely US 50 cents a day. The benefits of the project were captured by bank borrowers who had household incomes between 6 to 9 times higher than those described as rural poor by the Government of India.

Assessment and Rating

93. The evaluation TOR requires the success of project implementation to be assessed and rated on a scale from 'highly satisfactory' to 'highly unsatisfactory' in ten of the eleven different categories. Sustainability of project outcomes are assessed and rated on a scale from 'likely' to 'unlikely'. The results are shown in Table 8 which contains a very brief summary of comments on points made in this report.

Table 8. Overall Rating

Criterion	Evaluator's Summary Comments	Evaluator's Rating	EOU Rating
Attainment of objectives and planned results (overall rating) Sub criteria (below)	Highly complex and challenging undertaking. Many positive aspects. Overall purpose of bank financing electrification of poor rural households not achieved.	Moderately Satisfactory	EOU agrees with the consultant MS
Effectiveness	Actual outputs were generally good, including innovative partnership with local banking institutions. Some effective capacity building of vendors. Communication and outreach efforts were optimal.	Moderately Satisfactory	
Relevance	Important highlighting of value of financial access in escalating adoption of solar devices and role of interest subsidy.	Satisfactory	
Efficiency	Significant benefits from mobilizing three national banks and a cooperative bank.	Moderately Satisfactory	
B. Sustainability (overall rating) Sub criteria (below)	Limited or no impact on policy makers in mainstreaming the Project approach on back-end interest subsidy. Limited convincing indications of long-term benefits.	Unlikely	There seems to be a better chance for the activities to continue and to sustain themselves beyond the project timeframe and intervention, even without the governmental support. ML
Financial	Continuation of the Project activities is not dependent on UNEP support as banks are themselves well endowed. Banks will finance solar projects based on normal financial considerations, particularly if capital subsidy is available.	Likely (L)	
Socio Political	Seems more likely to affect those involved in supply or financing of solar devices than policy agenda	Unlikely (U)	
Institutional framework and governance	There were gains from the decision to implement the project with minimal involvement of Central and State Government bodies, although this limits institutionalization of the Project experience among policy makers.	Unlikely (U)	
Environmental	Environmental gains from SHS is clear, but less so how much fossil energy input is required for manufacture, transport, and disposal of SHS compared to the fossil energy consumed by comparable conventional energy systems	Moderately Likely (ML)	
C. Achievement of outputs and activities	The project achieved its major objectives: <ul style="list-style-type: none"> - Credit facilities for SHS for rural customers are established at the partner banks - Solar rural electrification service infrastructure was enhanced through a network of solar vendors - Awareness and confidence of Indian financial institutions in SHS lending was increased 	Satisfactory	EOU agrees with the consultant S

Criterion	Evaluator's Summary Comments	Evaluator's Rating	EOU Rating
	<p>- Expanded access to loan facility... through provision of clean energy</p> <p>Against the Project target of 18,000 households, the project reached out to 15,094 households (or 18,929 as reported by the vendors) and enterprises – a ten fold jump of sales over the pre-project commencement year.</p>		
D. Monitoring and Evaluation (overall rating) Sub criteria (below)	<p>The Project M&E was handicapped without a robust management information system for capturing and analyzing trends in SHS sales, disbursement of loans, SHS loan portfolio quality, and the socio-economic background of clients. It is surprising that a project of this importance did not devise ways to capture the provenance of the bank clients (urban vs. rural), usage of electricity (household vs. small enterprise), and their repayment behaviour. As a result, customer profile data – a key verifiable indicator – was not properly recorded or reported. Without reliable baseline information on customer's demographic, income, and provenance, the Project is neither in position to effectively understand the profile of its typical customer, nor report on how many households and small enterprises were electrified.</p> <p>A project implementation review process with participation of national government, banks, and UNDP, and civil society members was not put in place. The Project Document (page 17) had committed itself to “.work closely with staff in the national level UNDP office.” This did not happen. The decision not to seek branch level data from banks should have been reflected in the revisions to the project document, and annual reports. The Project document lacks adequate indicators to measure the impact at lower levels and ways of using indicators as a monitoring tool. Close monitoring, besides the timely preparation of progress reports and field visits, and close communication between the project manager, UNDP, and banks would have been beneficial in maintaining a high level of accountability and transparency in the project decision making process and management. .</p>	Unsatisfactory	EOU agrees with the consultant U
M&E Design	Adequate. Detailed monitoring and verification protocols were developed.	Satisfactory	
M&E Plan Implementation (use for adaptive management)	Adaptive management refers to a systematic process for continually improving management policies and practices by learning from the outcomes of operational programs. There was no in built mechanism in the Project design to compare selected policies or practices, by evaluating alternative hypotheses about the system being managed. The lack of a reliable MIS and a forum for independent review of	Highly Unsatisfactory	

Criterion	Evaluator's Summary Comments	Evaluator's Rating	EOU Rating
	management policies and outcomes militated against adaptation. The Project management however, periodically assessed problems, evaluated options, and made many critical adjustments. The inclusion of new partners in Gujarat and Maharashtra is a good example of adaptive management followed by the Project.		
Budgeting and Funding for M&E activities	Adequate resources were provided for Terminal Evaluation, contingency evaluation, credit facility audits and customer satisfactions surveys.	Satisfactory	
E. Catalytic Role	The project has strongly influenced lending practices of partner banks, and other banks in India. The Project experience has been built-in other UNEP renewable projects in other parts of the world, particularly in the Mediterranean countries.	Satisfactory	EOU agrees with the consultant S
F. Preparation and readiness	The Project objectives and components were clear, practicable and feasible within the time frame. Post-project sustainability issues did not receive adequate attention.	Moderately Satisfactory	EOU agrees with the consultant MS
G. Country ownership	Limited involvement or awareness of decision makers, especially in national and State level. Since, MNRE and IREDA, two key players in Indian renewable market, were not actively involved; national ownership of the project is low.	Moderately Unsatisfactory	EOU agrees with the consultant MU
H. Stakeholders participation	Broad consultations among stakeholders in initial stage, and good communications through out the active life of the Project.	Satisfactory	EOU agrees with the consultant S
I. Financial planning	Good financial management, budgetary control, and internal audit.	Satisfactory	EOU agrees with the consultant S
J. Implementation approach	UNEP URC directly administered the Project. No Steering Committee was constituted. Without the participation of national institutions and representatives from concerned stakeholders, 'country ownership' remained low. The projects' organizational and institutional arrangements were not effective in generating momentum and commitment, building consensus and validating outputs.	Moderately Satisfactory	EOU agrees with the consultant. Furthermore, UNEP and URC do not seem to have systematically collected and recorded figures in order to comprehensively quantify the benefits obtained from the report MS
K. UNEP Supervision and Backstopping	Adequate and high quality.	Satisfactory	EOU agrees with the consultant S
Overall Rating		Moderately Satisfactory	Moderately Satisfactory

5. RECOMMENDATIONS

94. Since the Project has terminated, no follow-up activities are recommended within the ambit of the Project. This evaluation makes general recommendations which UNEP may consider in its further efforts to develop a renewable energy sector in India and elsewhere.

Strengthen Management Information System

95. A weakness of the present project was the lack of management information system (MIS) to support decision making at head office level of the banks. The project had very basic information systems which was not adequate to analyze customer profile, guide operational activities or solve business problems. We refer to 'MIS' as a planned system of collecting, storing and disseminating data in the form of information needed to carry out the functions of management. It is essential that as part of a good monitoring practice, project design should outline a MIS architecture that would be needed to support management decisions, monitor ongoing activities and evaluate project impacts.

Develop Operation Tool Kits

96. Senior managers of banks have underlined the importance of manuals to guide their solar lending work. UNEP had prepared guidelines for every special aspect of the Loan Program – Technical Specification, Qualifying Criteria, Sales Billing, and Approval Procedures. UNEP's Technical Specifications and Codes of good marketing and after-sales practices have been well appreciated by banks and experts. UNEP may take this opportunity to use the materials generated during this Project to develop sets of operational tools and methods that can be adopted and applied in other Solar financing projects promoted by banks, donors, and the United Nations. The contents of the operational manual may include, inter alia:

- Techniques of client identification used by banks
- Considerations involved in structuring subsidy e.g. interest subsidy, capital subsidy, provision of margin money for securing loans etc
- Tracking loan portfolio for banks and vendors
- Use of loan portfolio audits
- Application of customer satisfaction surveys
- Process for appraising vendors
- MIS required for monitoring participating banks
- List of reputed solar equipment manufacturers and service providers

97. The tools and methods should be also published on-line.

6. LESSONS

Lessons for Financing

98. Access to financing for renewable energy is a major barrier due to risk perception of the financial institutions. There is no single solution on which approach may be used to overcome the banker's fears. There is room for experimenting with different approaches, for example, interest subsidy as demonstrated by the project, capital subsidy by Government of India for water heaters, and provision of margin money which bankers often demand as collateral for loans. Programs require designing a package to address their risk perception, which may include sensitization of bankers, technical support, and financial assistance in the initial stages to provide a greater level of comfort in experimentation.

Lessons for Stakeholder Participation

99. Much has been written about the usefulness of including stakeholders in the design and implementation of UNEP program evaluations (M.J. Silisbury et al, 2007. **Lessons Learned from Evaluation**, UNEP, Nairobi, January 2007). Active involvement of stakeholders during design and implementation phase, in tapping market players, and encouraging participation of official agencies are important components of success. Flexibility to adopt the changes and stakeholders' requirements (without losing sight of the ultimate objective) is key to project sustainability. A feedback mechanism also needs to be included to help correction.
100. The project did have a strong feedback mechanism between direct participants. Both the banks and solar vendors were consulted regularly and in a formal fashion to provide feedback on how the project was operating and what could be done to improve it. Once the Project was up and running, UNEP felt that maintaining a wide diversity of inputs would be difficult. It is hard to get uninvolved parties giving useful input to a project mechanism once it is running and can't be fundamentally changed.
101. In the initial phase of this Project, UNEP project management actively sought inputs in identifying information needs and project design. Thereafter, there was no mechanism for reconciling a wide diversity of both expert and public inputs. The project implementation became an "in-house" technocratic process guided by UNEP and bank officials. The non-participation of MNRE and IREDA in the project implementation process undermined national ownership of the project and integration within the mainstream renewable energy projects. Consequently, this UNEP project had a sub-optimal impact. The lesson learnt is that the project design should be such that key governmental entities are involved in implementation stage and interpreting the results of the project. The key question is to be answered by UNEP projects that seek to influence policy which must directly relate to the key national institutions in order for the project outputs to be relevant for the decision-making processes.

Linking poverty alleviation with Solar Home Systems

102. SHS are conveniences which improve quality of living. However, the impact of SHS –**indeed of solar** electrification - on poverty alleviation is tenuous. Linking poverty alleviation with rural electrification requires financial inclusion of the poor and special efforts to reach out to them. In India, bank financed solar home electrification may add convenience for those who are moderately poor i.e. earning above USD3~5/day, but may not be suitable for those living below poverty line for two reasons: firstly, the relatively cost of solar devices (>USD800 for SHS), and that the power output (<40 watts) is not sufficient to operate machines requiring moderate doses of power such as paddy thrashers, grinders, or small lathe machines.

ANNEXES

I. TERMS OF REFERENCE

Terminal Evaluation of the UNEP project “Establishing a Consumer Financing Program for Solar Photovoltaic Systems in Southern India”. UNE-IND-02-247

1. PROJECT BACKGROUND AND OVERVIEW

Project rationale

Although the solar photovoltaic (PV) industry in India grew by a factor of ten during the 1990s, rural populations have yet to benefit significantly from this promising new technology. An initial barrier was the lack of wide spread service infrastructure for PV products and systems. This issue began to be addressed in the latter 1990s with the establishment of the first true solar rural electrification companies having extended dealer and service networks in rural areas. Since 1995, Selco India has used this ‘mini-utility’ model to sell 7,500 systems in the States of Karnataka and Kerala. Shell Renewables also began using such a model in 2000. It is expected that others will follow if sales begin to meet expectations.

With decentralized services starting to become available in rural and peri-urban areas, accessibility to these becomes less a question of location and more one of affordability. Only a small percentage of rural households and entrepreneurs can purchase solar systems on a cash basis. The rest need some access to credit that allows them to match their existing energy expenditures with the regular payments that rural credit schemes involve.

The overall goal of the project was: *to bring modern and reliable electricity services to poorly served rural and peri-urban Indian households and enterprises in an environmentally sustainable manner.*

The specific objective of the project was to help Indian banking partners develop lending portfolios specifically targeted at financing solar home systems in poorly served regions of South India. The project was meant to be a short term intervention, to lower the risk, increase consumer access to credit and initially lower the cost of this credit. Once these key barriers were overcome, it was expected that the market would begin to expand without further external support.

The expected outcomes from this project included:

1. Creation of rural credit facilities for financing solar home systems (SHS) in partner banks, leading to development of a credit market for financing SHS;
2. Access to clean energy to households, especially rural, who lack access to modern energy;
3. Growth of sustainable energy sector in South India as a result of use of clean energy by households, leading to local and global environmental benefits;
4. A portfolio of 5000SHS bank loans after two year and 18,000 after four years

The project targets at leveraging UNF/UNFIP and Shell/SEP resources by a minimum of four to one towards the electrification of twenty thousand homes and small businesses. This impact will increase as Canara, Syndicate and other finance institutions build confidence and begin to increase retail and commercial lending to the solar energy sector.

Executing Arrangements

The project was implemented in the Southern Indian State of Karnataka, with the possibility to eventually expanding activities to the State of Kerala. It was implemented by the UNEP Collaborating Centre on Energy and Environment (UCCEE), under the overall guidance of the UNEP Division of Technology, Industry, and Economics (Energy and Ozone Action Unit) and in close communication with UNEP's Regional Office for Asia and the Pacific. The envisaged technical assistance was to be provided by UCCEE, involving two banking partners (Indian private enterprises):

- Canara Bank
- Sydicate Bank

UNEP provided support to the banks by providing standard specifications for the equipment (SHS), SHS appraisal methodology and vendor qualification and empanellment with the banks to ensure quality products and reliable after-sales service.

Developing close links to financial institutions was crucial to the success of the project, and started during the project formulation. The project complemented UNEP's other finance sector initiatives as it demonstrated one approach that allowed financial institutions to support sustainable energy growth consistent with policy goals advocated under UNEP's Finance Initiative and Sustainable Energy Finance Initiative.

With regard to coordination with national agencies, the project team coordinated their work and shared information with governmental agencies such as MNES, NABARD as and when required. The coordination was expected to develop policy guidelines for encouraging loans by banks for buying SHS and also to provide the platform for dissemination of awareness in the Banks.

Legislative mandate

- Agenda 21, Chapter 38 (Creating Capacity for Sustainable Development)
- UNEP GC 16/33 (promoting ways and means to facilitate access to ESTs)
- UNEP GC 16/41 (assisting developing countries in identifying climate friendly technologies and technology needs)
- UNEP GC 17/32 (requesting UNEP's Executive Director to implement Agenda 21)
- UNEP GC 20/29 (policy and advisory services in the key area of economics, trade, and financial services)
- UNEP GC 20/40 (functioning of UNEP's specialised offices).

Project Activities

The project duration was planned for three and half years starting November 2002 and ending April 2006. The project was subsequently extended, with most activities finishing by early 2007.

The project activities were organized into four phases, including a setup phase, two operating phases and an outreach phase. The operating and outreach phases were to be operated mostly in parallel during the 3½ year project.

Phase I (Setup) was to be used to finalise and formalise the structure of the credit facilities, including the SHS financing terms that the banks offered to customers, the structure of the interest rate buy-down was provided through UNEP, the process used to qualify vendors, and the awareness raising activities that will support lending activities in each bank.

Phase II (Operating) was to initiate the credit facilities in each bank, and the related awareness raising activities needed to build a customer base for these loan programmes.

Phase III (Expansion) was to extend the credit facilities to the rural regional banks supported by Syndicate and Canara and will work with local organisations and Self-Help Groups to develop focused activities that provide SHS financing for poorer customers or small rural enterprises.

Phase IV (Outreach) will focus on disseminating the approach and outputs from the project.

Budget

The total budget for this project was US\$7,600,000, of which:

- US\$1,200,000 was funded through UNF/UNFIP;
- US\$300,000 from the Shell Foundation;
- US\$ 6,000,000 from Canara and Syndicate Banks; and
- UNEP's additional in-kind contribution of US\$100,000 (represented by expert staff services and part of the management cost of this project).

2. TERMS OF REFERENCE FOR THE EVALUATION

2.1. Objective and Scope of the Evaluation

The evaluation shall be conducted as an in-depth evaluation. The objective of the evaluation is to establish project impact, and review and evaluate the extent to which implementation of planned project activities and outputs have been accomplished. The evaluation shall determine the extent to which the project has been successful in fulfilling its objectives and obtaining the expected results and whether it has been cost effective in producing its results.

The evaluation will cover all key activities undertaken within the framework of the project as described in the project document. The evaluator will compare planned outputs of the project with actual outputs and assess the actual results to determine the impact of the project. The evaluation will answer the following key questions:

- a) To what extent has the project helped grow the sustainable energy sector in South India through expansion of solar rural electrification service infrastructure in targeted regions?
- b) Determine how and the extent by which households and small enterprises has been helped to access modern and environmentally sustainable electricity services?
- c) To what extent has the project built the awareness and confidence of Indian financial Institutions to scale-up lending to the solar energy market?
- d) How has the project allowed UN agencies to develop a new model for catalysing new financing to a clean energy sector in a replicable and sustainable manner?
- e) To what extent has the project contributed to alleviation of rural poverty?

2.2. Methods

This terminal evaluation will be conducted as an in-depth evaluation using a participatory approach whereby the UNEP/EOU, UNEP Project Manager, key representatives of the executing agencies and other relevant staff are kept informed and regularly consulted throughout the evaluation. The consultant will liaise with the UNEP/EOU and the UNEP/DTIE Project Manager on any logistic and/or methodological issues to properly conduct the review in as independent a way as possible, given the circumstances and resources offered. The draft report will be circulated to UNEP/DTIE Project Manager, key representatives of the executing agencies and the UNEP/EOU. Any comments or responses to the draft report will be sent to UNEP/EOU for collation and the consultant will be advised of any necessary revisions.

The findings of the evaluation will be based on the following:

- a) Desk review of project documents, output, half-yearly progress reports, monthly financial reports, terminal report, minutes of meetings and relevant correspondence.
- b) Review of specific products including publications, management and action plans, database and web-site updates (<http://www.unep.fr/energy/act/fin/india/>).
- c) Telephone interviews with relevant UNEP/DTIE project manager and Fund Management Officer, and other relevant staff in UNEP dealing with renewable energy related activities as necessary.

- d) Telephone and personal interviews with relevant stakeholders involved including the two banks.
- e) Field visit to India to the States of Karnataka and Kerala

Key Evaluation principles.

In attempting to evaluate any outcomes and impacts that the project may have achieved, evaluators should remember that the project’s performance should be assessed by considering the difference between the answers to two simple questions “*what happened?*” and “*what would have happened anyway?*”. These questions imply that there should be consideration of the baseline conditions and trends in relation to the intended project outcomes and impacts. In addition it implies that there should be plausible evidence to attribute such outcomes and impacts to the actions of the project.

Sometimes, adequate information on baseline conditions and trends is lacking. In such cases this should be clearly highlighted by the evaluator, along with any simplifying assumptions that were taken to enable the evaluator to make informed judgements about project performance.

2.3. Project Evaluation Parameters

The success of project implementation will be rated on a scale from ‘highly unsatisfactory’ to ‘highly satisfactory’. In particular the evaluation shall assess and rate the project with respect to the eleven categories defined below:⁵

A. Attainment of objectives and planned results:

1. *Effectiveness*: Evaluate how, and to what extent, the stated project objectives have been met (by activities), taking into account the “achievement indicators” in the project logframe/project document. The analysis of outcomes achieved should include, *inter alia*, an assessment of the extent to which the project has directly or indirectly assisted policy- and decision-makers to apply information supplied by this project:
 - Evaluate the immediate impact of the project on national management measures necessary to improve accessibility to affordable, reliable and environmentally sound energy services based on decentralised, renewable energy-based technologies. As far as possible, assess how the project has provided financial and technical assistance that helps with the involvement of the government’s banking sector, to meet the growing need for clean energy services to achieve sustainable development. Assess the success of the created rural credit facilities for financing solar systems sales in partnership with banks and other local partners.
 - As far as possible, also assess the potential longer-term impacts considering that the evaluation is taking place upon completion of the project and that longer term impact is expected to be seen in a few years time. Frame

⁵ However, the views and comments expressed by the evaluator need not be restricted to these items.

recommendations to enhance future project impact in this context. Which will be the major ‘channels’ for longer term impact from this project at the national and international scales? Determine whether the project has helped India lower its projected carbon emissions and thus played a role in addressing the climate change challenge.

2. *Relevance*: In retrospect, were the project’s outcomes consistent with the focal areas/operational program strategies and country priorities? Ascertain the nature and significance of the contribution of the project outcomes to the Energy and Ozone Action Sub-programme and the wider portfolio of the DTIE.
3. *Efficiency*: Was the project cost effective? Was the project the least cost option? Was the project implementation delayed and if it was, then did that affect cost-effectiveness? Assess the contribution of cash and in-kind co-financing to project implementation and to what extent the project leveraged additional resources. Did the project build on earlier initiatives? Did it make effective use of available scientific and / or technical information? Wherever possible, the evaluator should also compare the cost-time vs. outcomes relationship of the project with that of other similar projects.

B. Assessment of Sustainability of project outcomes:

Sustainability is understood as the probability of continued long-term project-derived outcomes and impacts after the UNEP project funding ends. The evaluation will identify and assess the key conditions or factors that are likely to contribute or undermine the persistence of benefits after the project ends. Some of these factors might be outcomes of the project, e.g. stronger institutional capacities or better informed decision-making. Other factors will include contextual circumstances or developments that are not outcomes of the project but that are relevant to the sustainability of outcomes. The evaluation should ascertain to what extent follow-up work has been initiated and how project outcomes will be sustained and enhanced over time.

Four aspects of sustainability should be addressed: financial, socio-political, institutional frameworks and governance, and ecological (if applicable). The following questions provide guidance on the assessment of these aspects:

- *Financial resources*. To what extent are the outcomes of the project dependent on continued financial support? What is the likelihood that any required financial resources will be available to sustain the project outcomes/benefits once the UNEP assistance ends (resources can be from multiple sources, such as the public and private sectors, income generating activities, and market trends that support the project’s objectives)? Was the project successful in identifying and leveraging co-financing?
- *Socio-political*: To what extent are the outcomes of the project dependent on socio-political factors? What is the likelihood that the level of stakeholder ownership will allow for the project outcomes/benefits to be sustained? Is there sufficient public / stakeholder awareness in support of the long term objectives of the project?
- *Institutional framework and governance*. To what extent are the outcomes of the project dependent on issues relating to institutional frameworks and governance? What is the likelihood that institutional and technical achievements, legal frameworks, policies and governance structures and processes will allow for, the project outcomes/benefits to be sustained? While responding to these questions

consider if the required systems for accountability and transparency and the required technical know-how are in place.

- *Environmental.* The analysis of ecological sustainability may prove challenging. What is the likelihood that project achievements will lead to sustained ecological benefits? Are there any environmental risks that can undermine the future flow of the project environmental benefits? The Terminal Evaluation should assess whether certain activities in the project area will pose a threat to the sustainability of the project outcomes. For example: construction of a dam in a protected area could inundate a sizeable area and thereby neutralize the biodiversity –related gains made by the project.

C. Achievement of outputs and activities:

Delivered outputs: Assessment of the project’s success in producing each of the programmed outputs, both in quantity and quality as well as usefulness and timeliness.

D. Catalytic role:

The terminal evaluation will also describe any catalytic or replication effect of the project. What examples are there of replication and catalytic outcomes that suggest increased likelihood of sustainability? Replication approach, in the context of UNEP projects, is defined as lessons and experiences coming out of the project that are replicated or scaled up in the design and implementation of other projects. Replication can have two aspects, replication proper (lessons and experiences are replicated in different geographic area) or scaling up (lessons and experiences are replicated within the same geographic area but funded by other sources). Specifically:

- Do the recommendations for the implementation of Consumer Financing Program for Solar Photovoltaic Systems in Southern Indian have the potential for application in other countries and locations?

If no effects are identified, the evaluation will describe the catalytic or replication actions that the project carried out.

E. Assessment of Monitoring and Evaluation Systems:

The evaluation shall include an assessment of the quality, application and effectiveness of project monitoring and evaluation plans and tools, including an assessment of risk management based on the assumptions and risks identified in the project document. The Terminal Evaluation will assess whether the project met the minimum requirements for ‘project design of M&E’ and ‘the application of the Project M&E plan’. UNEP projects must budget adequately for execution of the M&E plan, and provide adequate resources during implementation of the M&E plan. Project managers are also expected to use the information generated by the M&E system during project implementation to adapt and improve the project.

- **M&E design.** Projects should have sound M&E plans to monitor results and track progress towards achieving project objectives. An M&E plan should include a baseline (including data, methodology, etc.), SMART indicators (see Annex 4) and data analysis systems, and evaluation studies at specific times to assess results. The time frame for various M&E activities and standards for outputs should have been specified
- **M&E plan implementation.** A Terminal Evaluation should verify that: an M&E system was in place and facilitated timely tracking of results and progress towards projects objectives throughout the project implementation period

(perhaps through use of a logframe or similar); annual project reports were complete, accurate and with well justified ratings; that the information provided by the M&E system was used during the project to improve project performance and to adapt to changing needs; and that projects had an M&E system in place with proper training for parties responsible for M&E activities.

- **Budgeting and Funding for M&E activities.** The terminal evaluation should determine whether support for M&E was budgeted adequately and was funded in a timely fashion during implementation.
- **Long-term Monitoring.** Is long-term monitoring envisaged as an outcome of the project? If so, comment specifically on the relevance of such monitoring systems to sustaining project outcomes and how the monitoring effort will be sustained.

F. Preparation and Readiness

Were the project's objectives and components clear, practicable and feasible within its timeframe? Were the capacities of executing institution and counterparts properly considered when the project was designed? Were lessons from other relevant projects properly incorporated in the project design? Were the partnership arrangements properly identified and the roles and responsibilities negotiated prior to project implementation? Were counterpart resources (funding, staff, and facilities), enabling legislation, and adequate project management arrangements in place?

G. Country ownership

This is the relevance of the project to national development and environmental agendas, recipient country commitment, and regional and international agreements. The evaluation will:

- Assess the level of country ownership. Specifically, the evaluator should assess whether the project was effective in catalyzing action taken by the authorities in the country that received assistance from the project.
- Assess the level of country commitment to facilitating financial mechanisms towards the implementation of SHS

H. Stakeholder participation / public awareness

Stakeholders are the individuals, groups, institutions or other bodies that have an interest or stake in the outcome of the UNEP financed project. The term also applies to those potentially adversely affected by a project. The evaluator will specifically assess if the project involved the relevant stakeholders through information sharing, consultation and by seeking their participation in project's design, implementation, and monitoring and evaluation. For example, did the project implement appropriate outreach and public awareness campaigns? Did the project consult and make use of the skills, experience and knowledge of the appropriate government entities, NGOs, community groups, private sector, local governments and academic institutions in the design, implementation and evaluation of project activities? Were perspectives of those that would be affected by decisions, those that could affect the outcomes and those that could contribute information or other resources to the process taken into account while taking decisions? Were the relevant vulnerable groups and the powerful, the supporters and the opponents, of the processes properly involved? Specifically the evaluation will:

- Assess the mechanisms put in place by the project for identification and engagement of stakeholders in each participating country and establish, in

consultation with the stakeholders, whether this mechanism was successful, and identify its strengths and weaknesses.

- Assess the degree and effectiveness of collaboration/interactions between the various project partners and institutions during the course of implementation of the project.
- Assess the degree and effectiveness of any various public awareness activities that were undertaken during the course of implementation of the project.

I. Financial Planning

Evaluation of financial planning requires assessment of the quality and effectiveness of financial planning and control of financial resources throughout the project's lifetime. Evaluation includes actual project costs by activities compared to budget (variances), financial management (including disbursement issues), and co-financing. The evaluation should:

- Assess the strength and utility of financial controls, including reporting, and planning to allow the project management to make informed decisions regarding the budget and allow for a proper and timely flow of funds for the payment of satisfactory project deliverables.
- Present the major findings from the financial audit if one has been conducted.
- Identify and verify the sources of co-financing as well as leveraged and associated financing
- Assess whether the project has applied appropriate standards of due diligence in the management of funds and financial audits.
- The evaluation should also include a breakdown of final actual costs and co-financing for the project prepared in consultation with the relevant UNEP Fund Management Officer of the project

J. Implementation approach

This includes an analysis of the project's management framework, adaptation to changing conditions (adaptive management), partnerships in implementation arrangements, changes in project design, and overall project management. The evaluation will:

- Ascertain to what extent the project implementation mechanisms outlined in the project document have been closely followed. In particular, assess the role of the various committees established and whether the project document was clear and realistic to enable effective and efficient implementation, whether the project was executed according to the plan and how well the management was able to adapt to changes during the life of the project to enable the implementation of the project.
- Evaluate the effectiveness and efficiency and adaptability of project management and the supervision of project activities / project execution arrangements at all levels (1) policy decisions: Steering Group; (2) day to day project management in each of the country executing agencies and UNEP

K. UNEP Supervision and Backstopping

- Assess the effectiveness of supervision and administrative and financial support provided by UNEP/DTIE

- Identify administrative, operational and/or technical problems and constraints that influenced the effective implementation of the project.

The *ratings will be presented in the form of a table*. Each of the eleven categories should be rated separately with **brief justifications** based on the findings of the main analysis. An overall rating for the project should also be given. The following rating system is to be applied:

HS	= Highly Satisfactory
S	= Satisfactory
MS	= Moderately Satisfactory
MU	= Moderately Unsatisfactory
U	= Unsatisfactory
HU	= Highly Unsatisfactory

2.4. Evaluation report format and review procedures

The report should be brief, to the point and easy to understand. It must explain; the purpose of the evaluation, exactly what was evaluated and the methods used. The report must highlight any methodological limitations, identify key concerns and present evidence-based findings, consequent conclusions, recommendations and lessons. The report should provide information on when the evaluation took place, the places visited, who was involved and be presented in a way that makes the information accessible and comprehensible. The report should include an executive summary that encapsulates the essence of the information contained in the report to facilitate dissemination and distillation of lessons.

The evaluation will rate the overall implementation success of the project and provide individual ratings of the eleven implementation aspects as described in section 3 of this TOR. *The ratings will be presented in the format of a table with brief justifications based on the findings of the main analysis.*

Evidence, findings, conclusions and recommendations should be presented in a complete and balanced manner. The evaluation report shall be written in English, be of no more than 50 pages (excluding annexes), use numbered paragraphs and include:

- i) An **executive summary** (no more than 3 pages) providing a brief overview of the main conclusions and recommendations of the evaluation;
- ii) **Introduction and background** giving a brief overview of the evaluated project, for example, the objective and status of activities;
- iii) **Scope, objective and methods** presenting the evaluation's purpose, the evaluation criteria used and questions to be addressed;
- iv) **Project Performance and Impact** providing factual evidence relevant to the questions asked by the evaluator and interpretations of such evidence. This is the main substantive section of the report and should provide a commentary on all evaluation aspects (A – F above).
- v) **Conclusions and rating** of project implementation success giving the evaluator's concluding assessments and ratings of the project against given evaluation criteria and standards of performance. The conclusions should provide answers to questions about whether the project is considered good or bad, and whether the results are considered positive or negative;
- vi) **Lessons learned** presenting general conclusions, based on established good practices that have the potential for wider application and use. Lessons may

also be derived from problems and mistakes. The context in which lessons may be applied should be clearly specified, and lessons should always state or imply some prescriptive action. A lesson should be written such that experiences derived from the project could be applied in other projects or at portfolio level;

- vii) **Recommendations** suggesting *actionable* proposals for improvement of the current project. In general, Terminal Evaluations are likely to have very few (perhaps two or three) actionable recommendations.

Prior to each recommendation, the issue(s) or problem(s) to be addressed by the recommendation should be clearly stated.

A high quality recommendation is an actionable proposal that is:

1. Feasible to implement within the timeframe and resources available
2. Commensurate with the available capacities of project team and partners
3. Specific in terms of who would do what and when
4. Contains results-based language (i.e. a measurable performance target)
5. Includes a trade-off analysis, when its implementation may require utilizing significant resources that would otherwise be used for other project purposes.

- viii) **Annexes** include Terms of Reference, list of interviewees, documents reviewed, brief summary of the expertise of the evaluator/evaluation team, a summary of co-finance information etc. Dissident views or management responses to the evaluation findings may later be appended in an annex.

Examples of UNEP Terminal Evaluation Reports are available at www.unep.org/eou

Review of the Draft Evaluation Report

Draft reports submitted to UNEP EOU are shared with the corresponding Programme or Project Officer and his or her supervisor for initial review and consultation. The DGEF staff and senior Executing Agency staff are allowed to comment on the draft evaluation report. They may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions. The consultation also seeks agreement on the findings and recommendations. UNEP EOU collates and review comments and provides them to the evaluators for their consideration in preparing the final version of the report.

2.5. Submission of Final Terminal Evaluation Reports.

The final report shall be submitted in electronic form in MS Word format and should be sent to the following persons:

Segbedzi Norgbey, Chief, Evaluation and Oversight Unit

UNEP, P.O. Box 30552-00100

Nairobi, Kenya

Tel.: (254-20) 7623387

Fax: (254-20) 7623158

Email: segbedzi.norgbey@unep.org

With a copy to:

Eric Usher, Head Renewable Energy and Finance Unit

DTIE, Energy Branch

Paris

Tel: +46733121528 or +33144371429

Fax: +33144371474

Email: eric.usher@unep.fr

Mark Radka, Head of Energy Branch

DTIE

Paris

Tel: 33 1 44 37 14 27

Fax: 33 1 44 37 14 74

Email: mark.radka@unep.fr

Mr. John Christensen Head of Centre

UNEP Collaborating Centre on Energy and Environment (UCCEE)

Denmark

Tel: + 45 46 77 51 30

Fax: + 45 46 32 19 99

Email: john.christensen@risoe.dk

The final evaluation report will be printed in hard copy and published on the Evaluation and Oversight Unit's web-site www.unep.org/eou. Subsequently, the report will be sent to DTIE for review. In addition the final evaluation report will disseminated to: The relevant DTIE Focal points, Relevant Government representatives, UNEP DTIE Professional Staff, The project's Executing Agency and Technical Staff.

2.6. Resources and schedule of the evaluation

This terminal evaluation will be undertaken by an international evaluator contracted by the Evaluation and Oversight Unit, UNEP. The contract for the evaluator will begin on 29th of January 2008 and end on 26th April 2008 (one month spread over 3 months). After an initial telephone briefing with EOU and UNEP/DTIE, the evaluator will travel to India: Bangalore, Mangalore and Ahmadabad (7 days of travel and 23 days desk study). The evaluator will submit a draft report no later than 3rd of March to UNEP/EOU. Any comments or responses to the draft report will be sent to UNEP/EOU for collation and the consultant will be advised of any necessary revisions. Comments to the final draft report will be sent to the consultant by 19th of April after which, the consultant will submit the final report no later than 24th of April.

The evaluator should not have been associated with the design and implementation of the project. The evaluator will work under the overall supervision of the Chief, Evaluation and Oversight Unit, UNEP. The evaluator should be an international expert in environmental economy. The consultant should have the following minimum qualifications: (i) experience in the renewable energy sector and with financing of renewable energy technologies; (ii) experience with management and implementation of development projects in developing countries; (iii) experience with project evaluation. Knowledge of UNEP programmes is desirable. Fluency in oral and written English is a must.

2.7. Schedule Of Payment

The consultant shall select one of the following two contract options:

Lump-Sum Option

The evaluator will receive an initial payment of 30% of the total amount due upon signature of the contract. A further 30% will be paid upon submission of the draft report. A final payment of 40% will be made upon satisfactory completion of work. The fee is payable under the individual Special Service Agreement (SSA) of the evaluator and is **inclusive** of all expenses such as travel, accommodation and incidental expenses.

Fee-only Option

The evaluator will receive a payment of 40% upon submission of 1st draft report. Final payment of 60% will be made upon satisfactory completion of work. The fee is payable under the individual SSAs of the evaluator and is **NOT** inclusive of all expenses such as travel, accommodation and incidental expenses. Ticket and DSA will be paid separately.

In case, the evaluator cannot provide the products in accordance with the TORs, the timeframe agreed, or his products are substandard, the payment to the evaluator could be withheld, until such a time the products are modified to meet UNEP's standard. In case the evaluator fails to submit a satisfactory final product to UNEP, the product prepared by the evaluator may not constitute the evaluation report.

Annex 1. OVERALL RATINGS TABLE

Criterion	Evaluator's Summary Comments	Evaluator's Rating
A. Attainment of project objectives and results (overall rating) Sub criteria (below)		
A. 1. Effectiveness		
A. 2. Relevance		
A. 3. Efficiency		
B. Sustainability of Project outcomes (overall rating) Sub criteria (below)		
B. 1. Financial		
B. 2. Socio Political		
B. 3. Institutional framework and governance		
B. 4. Environmental		
C. Achievement of outputs and activities		
D. Monitoring and Evaluation (overall rating) Sub criteria (below)		
D. 1. M&E Design		
D. 2. M&E Plan Implementation (use for adaptive management)		
D. 3. Budgeting and Funding for M&E activities		
E. Catalytic Role		
F. Preparation and readiness		
G. Country ownership / drivenness		
H. Stakeholders involvement		
I. Financial planning		
J. Implementation approach		
K. UNEP Supervision and backstopping		

RATING OF PROJECT OBJECTIVES AND RESULTS

Highly Satisfactory (HS): The project had no shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Satisfactory (S): The project had minor shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Moderately Satisfactory (MS): The project had moderate shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Moderately Unsatisfactory (MU): The project had significant shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Unsatisfactory (U) The project had major shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Highly Unsatisfactory (HU): The project had severe shortcomings in the achievement of its objectives, in terms of relevance, effectiveness or efficiency.

Please note: Relevance and effectiveness will be considered as critical criteria. The overall rating of the project for achievement of objectives and results **may not be higher** than the lowest rating on either of these two criteria. Thus, to have an overall satisfactory rating for outcomes a project must have at least satisfactory ratings on both relevance and effectiveness.

RATINGS ON SUSTAINABILITY

A. Sustainability will be understood as the probability of continued long-term outcomes and impacts after the UNEP project funding ends. The Terminal evaluation will identify and assess the key conditions or factors that are likely to contribute or undermine the persistence of benefits after the project ends. Some of these factors might be outcomes of the project, i.e. stronger institutional capacities, legal frameworks, socio-economic incentives /or public awareness. Other factors will include contextual circumstances or developments that are not outcomes of the project but that are relevant to the sustainability of outcomes..

Rating system for sustainability sub-criteria

On each of the dimensions of sustainability of the project outcomes will be rated as follows.

Likely (L): There are no risks affecting this dimension of sustainability.

Moderately Likely (ML). There are moderate risks that affect this dimension of sustainability.

Moderately Unlikely (MU): There are significant risks that affect this dimension of sustainability

Unlikely (U): There are severe risks that affect this dimension of sustainability.

According to the GEF Office of Evaluation, all the risk dimensions of sustainability are deemed critical. Therefore, overall rating for sustainability will not be higher than the rating of the dimension with lowest ratings. For example, if a project has an Unlikely rating in any of the dimensions then its overall rating cannot be higher than Unlikely, regardless of whether higher ratings in other dimensions of sustainability produce a higher average.

RATINGS OF PROJECT M&E

Monitoring is a continuing function that uses systematic collection of data on specified indicators to provide management and the main stakeholders of an ongoing project with indications of the extent of progress and achievement of objectives and progress in the use of allocated funds. Evaluation is the systematic and objective assessment of an on-going or completed project, its design, implementation and results. Project evaluation may involve the definition of appropriate standards, the examination of performance against those standards, and an assessment of actual and expected results.

The Project monitoring and evaluation system will be rated on ‘M&E Design’, ‘M&E Plan Implementation’ and ‘Budgeting and Funding for M&E activities’ as follows:

- Highly Satisfactory (HS): There were no shortcomings in the project M&E system.
- Satisfactory(S): There were minor shortcomings in the project M&E system.
- Moderately Satisfactory (MS): There were moderate shortcomings in the project M&E system. Moderately Unsatisfactory (MU): There were significant shortcomings in the project M&E system. Unsatisfactory (U): There were major shortcomings in the project M&E system.
- Highly Unsatisfactory (HU): The Project had no M&E system.

“M&E plan implementation” will be considered a critical parameter for the overall assessment of the M&E system. The overall rating for the M&E systems will not be higher than the rating on “M&E plan implementation.”

All other ratings will be on the UNEP six point scale.

UNEP Performance Description	Alternative description on the same scale
HS = Highly Satisfactory	Excellent
S = Satisfactory	Well above average
MS = Moderately Satisfactory	Average
MU = Moderately Unsatisfactory	Below Average
U = Unsatisfactory	Poor
HU = Highly Unsatisfactory	Very poor (Appalling)

Annex 2. CO-FINANCING AND LEVERAGED RESOURCES

Co-financing (basic data to be supplied to the consultant for verification)

Co financing (Type/Source)	IA own Financing (mill US\$)		Government (mill US\$)		Other* (mill US\$)		Total (mill US\$)		Total Disbursement (mill US\$)	
	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual	Planned	Actual
- Grants										
- Loans/Concessional (compared to market rate)										
- Credits										
- Equity investments										
- In-kind support										
- Other (*)										
-										
-										
-										
-										
Totals										

* Other is referred to contributions mobilized for the project from other multilateral agencies, bilateral development cooperation agencies, NGOs, the private sector and beneficiaries.

Leveraged Resources

Leveraged resources are additional resources—beyond those committed to the project itself at the time of approval—that are mobilized later as a direct result of the project. Leveraged resources can be financial or in-kind and they may be from other donors, NGO's, foundations, governments, communities or the private sector. Please briefly describe the resources the project has leveraged since inception and indicate how these resources are contributing to the project's ultimate objective.

Annex 3 REVIEW OF THE DRAFT REPORT

Draft reports submitted to UNEP EOU are shared with the corresponding Programme or Project Officer and his or her supervisor for initial review and consultation. The DTIE staff and senior Executing Agency staff provide comments on the draft evaluation report. They may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions. The consultation also seeks agreement on the findings and recommendations. UNEP EOU collates the review comments and provides them to the evaluators for their consideration in preparing the final version of the report. General comments on the draft report with respect to compliance with these TOR are shared with the reviewer.

Quality Assessment of the Evaluation Report

All UNEP GEF Mid Term Reports are subject to quality assessments by UNEP EOU. These apply GEF Office of Evaluation quality assessment and are used as a tool for providing structured feedback to the evaluator.

The quality of the draft evaluation report is assessed and rated against the following criteria:

GEF Report Quality Criteria	UNEP EOU Assessment	Rating
A. Did the report present an assessment of relevant outcomes and achievement of project objectives in the context of the focal area program indicators if applicable?		
B. Was the report consistent and the evidence complete and convincing and were the ratings substantiated when used?		
C. Did the report present a sound assessment of sustainability of outcomes?		
D. Were the lessons and recommendations supported by the evidence presented?		
E. Did the report include the actual project costs (total and per activity) and actual co-financing used?		
F. Did the report include an assessment of the quality of the project M&E system and its use for project management?		
UNEP EOU additional Report Quality Criteria	UNEP EOU Assessment	Rating
G. Quality of the lessons: Were lessons readily applicable in other contexts? Did they suggest prescriptive action?		
H. Quality of the recommendations: Did recommendations specify the actions necessary to correct existing conditions or improve operations ('who?' 'what?' 'where?' 'when?'). Can they be implemented? Did the recommendations specify a goal and an associated performance indicator?		
I. Was the report well written? (clear English language and grammar)		
J. Did the report structure follow EOU guidelines, were all requested Annexes included?		
K. Were all evaluation aspects specified in the TORs adequately addressed?		
L. Was the report delivered in a timely manner		

GEF Quality of the MTE report = 0.3*(A + B) + 0.1*(C+D+E+F)

EOU assessment of MTE report = 0.3*(G + H) + 0.1*(I+J+K+L)

Combined quality Rating = (2* 'GEF EO' rating + EOU rating)/3

The Totals are rounded and converted to the scale of HS to HU

Rating system for quality of terminal evaluation reports

A number rating 1-6 is used for each criterion: Highly Satisfactory = 6, Satisfactory = 5, Moderately Satisfactory = 4, Moderately Unsatisfactory = 3, Unsatisfactory = 2, Highly Unsatisfactory = 1, and unable to assess = 0.

Annex 4 GEF Minimum requirements for M&E

Minimum Requirement 1: Project Design of M&E⁶

All projects must include a concrete and fully budgeted monitoring and evaluation plan by the time of Work Program entry (full-sized projects) or CEO approval (medium-sized projects). This plan must contain at a minimum:

- SMART (see below) indicators for project implementation, or, if no indicators are identified, an alternative plan for monitoring that will deliver reliable and valid information to management
- SMART indicators for results (outcomes and, if applicable, impacts), and, where appropriate, corporate-level indicators
- A project baseline, with:
 - a description of the problem to address
 - indicator data
 - or, if major baseline indicators are not identified, an alternative plan for addressing this within one year of implementation
- An M&E Plan with identification of reviews and evaluations which will be undertaken, such as mid-term reviews or evaluations of activities
- An organizational setup and budgets for monitoring and evaluation.

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<http://gefweb.org/MonitoringandEvaluation/MEPoliciesProcedures/MEPTools/meptstandards.html>

Minimum Requirement 2: Application of Project M&E

- Project monitoring and supervision will include implementation of the M&E plan, comprising:
- Use of SMART indicators for implementation (or provision of a reasonable explanation if not used)
- Use of SMART indicators for results (or provision of a reasonable explanation if not used)
- Fully established baseline for the project and data compiled to review progress
- Evaluations are undertaken as planned
- Operational organizational setup for M&E and budgets spent as planned.

SMART INDICATORS GEF projects and programs should monitor using relevant performance indicators. The monitoring system should be “SMART”:

1. **Specific:** The system captures the essence of the desired result by clearly and directly relating to achieving an objective, and only that objective.
2. **Measurable:** The monitoring system and its indicators are unambiguously specified so that all parties agree on what the system covers and there are practical ways to measure the indicators and results.
3. **Achievable and Attributable:** The system identifies what changes are anticipated as a result of the intervention and whether the result(s) are realistic. Attribution requires that changes in the targeted developmental issue can be linked to the intervention.
4. **Relevant and Realistic:** The system establishes levels of performance that are likely to be achieved in a practical manner, and that reflect the expectations of stakeholders.
5. **Time-bound, Timely, Trackable, and Targeted:** The system allows progress to be tracked in a cost-effective manner at desired frequency for a set period, with clear identification of the particular stakeholder group to be impacted by the project or program.

Annex 5: Contact list for all Project Main stakeholders

Organization & address	Name	Responsibility/role within the project	Phone numbers & Email
UNEP Nairobi	Gregory Patilis	Financial Management Officer	(254-20) 7624722 Gregory.patilis@unep.org
UNEP DTIE/Energy Branch, France	Eric Usher	UNEP Project Manager	+46 733121528 eric.usher@unep.fr
	Amanda Lees	Energy Branch Finance admin officer	+33 144371428 Amanda.lees@unep.fr
UNEP Risoe Centre, Denmark	Jyoti Painuly	UNEP Risoe Project Manager	+45 4677 5157 j.p.painuly@risoe.dk
UNEP-URC Crestar Capital Pvt. Ltd. 4, Vishnu Mahal, D Road Churchgate Mumbai 400 020	Mr H.V. Kumar	India Project Manager	Tel: +91-22-22819944 9821045167 (M) Email: Crestar@gmail.com
Partner Banks			
Canara Bank	Mr .Akshya Kumar	General manager	Tel: +91- 80-22128840; pcwing@canbank.co.in
Syndicate Bank	Mr. I.P.Parthasaradhi	General manager	Tel: +91- 80-2570172; ipparthasaradhi@syndicatebank.co.in
	Mr. Vasudev Rao	Senior manager	tel-08254-258226
Grameen Bank	Mr. N.Ramesh	Chairman Pragathi Gramina Bank	Tel: +91-8392-255010 pgbankho@sancharnet.in
Vendors			
SELCO Solar Light Pvt. Ltd. #742, 15th Cross, 6th Phase, J P Nagar, Bangalore	H Harish Hande		Tel - +91-80-266-545-09 Tel - +91-80-266-545-10 harish@selco-india.com Mobile No: +91-9845448488
Kotak Urja Private Limited # 378, 10th Cross, 4th Phase, Peenya Industrial Area, Bangalore - 560 058, Karnataka	Mr K Srinivas Kumar	Vice President – Operations	Tel: +91-80-2836 3330 Email: kotakurja@vsnl.com Website: www.kotakurja.com

Tata BP Solar India Limited 78, Electronics City, Hosur Road, Bangalore 561229, Karnataka	Mr Anjan Ghosh	National Sales Manager	Tel: 91-80-2235 8465, 6660 1300 Email: anjan.ghosh@tatabp.com Website: www.tatabpsolar.com
Omega Electronics Industrial Estate Pappanamcode Thiruvananthapuram 695 019, Kerala	Mr. K G Madhu,	Managing Partner	Tel: +91-471-2490508 Email: omega@ammini.com Website: www.ammini.com
Shell Solar India Private Limited 20/1, Betta Chambers, 4 th Cross, 5 th Main, Chamarajpet, Bangalore 560018, Karnataka	Mr. C. N. Anand	General Manager	Tel: +91-80-26604874 Email: anand.cn@shellsolar.co.in Website: www.shell.com/renewables (Shell Solar has been bought by Environ Energy-Tech Service in India)
	Mr Gurucharan,		+91-9845633639

ANNEX II: DOCUMENTS REVIEWED

Sl. No	Type of document.	Document Title and details
1	Background documents	<p>(i) India rural electrification in Southern India; Brief status paper, October 25, 2001 (Preparatory work)- Project Planning Phase</p> <p>(ii) Solar photovoltaic systems: Use & financing in South Asia; Bangladesh, Bhutan, Nepal, Pakistan, Maldives & Sri Lanka (Preparatory work), November 13, 2001- Project Planning Phase</p> <p>(iii) Crestar Report on meetings with stakeholders, July-august 2001, August 20, 2001.(first big meeting with stakeholders) - Project Planning Phase</p> <p>(iv) <i>Economic and Financial Assessment of Solar Home Lighting Systems in Karnataka, March 31, 2002- Project Planning Phase</i></p> <p>(v) Designing a Credit Facility for the Financing of Solar Photovoltaic Systems in Southern India; APPROACH PAPER, September 30, 2001- Project Planning Phase</p> <p>(vi) Solar home lighting systems: Assessment of market conditions Maharashtra state, India, Brief report, January 20, 2007 (preparatory work before launching programme in Maharashtra)</p>
2	Project documents and reports	<p>(i) UNEP/UNF Project Document</p> <p>(ii) Half yearly and Annual Reports to UNEP/ UNF and Shell Foundation</p> <p>(iii) Extension request letter to UNF</p> <p>(iv) Final Report to UNEP/ UNF</p>
3	Operational documents	<p>(i) <i>Agreements with banks Canara, Syndicate, Sewa, and Bank of Maharashtra (BOM)</i></p> <p>(ii) <i>Reduction In Interest Subsidy Grant Discussion Paper – June 10, 2004 (used for discussions with banks)</i></p> <p>(iii) S3IDF Support letter to banks</p> <p>(iv) Record notes of discussions with banks (there are some)</p> <p>(v) Good practice manuals (for banks and vendors, As a result of Audit)</p> <p>(vi) Training Material for Bankers (for Canara, Syndicate, BOM)</p> <p>(vii) Crestar report: guidance note for bank branches, <i>January 29, 2007 (for BOM)</i></p> <p>(viii) Technical specifications and Vendor Qualifications</p> <p>(ix) Vendor agreements</p> <p>(x) Booklets on Solar Loan Programme for the Bank of Maharashtra</p>
4	Progress reports	<p>(i) Annual performance reports; (a) September 2004, (b) March 2005, (c) August 2006, and (d) June 2007 (August 2006 can also be downloaded from http://www.uneptie.org/energy/act/fin/docs/IndianSolarReport-Aug2006.pdf)</p>
5	Project monitoring and feedback	<p>(i) Audit and customer survey reports ; 2004 and 2005 (3 reports for each year; 2 audit reports for two banks (Canara and Syndicate) and 1 customer survey report).</p> <p>(ii) Site Visit Report- Crestar; March 11-13, 2002 (Typical example of visits)</p> <p>(iii) Site Visit Report- Crestar; April 11, 2002 (Typical example of visits)</p>
6	Other-misc	Write up sent to Energy Globe competition: A Consumer Financing Program for Solar Home Systems in Southern India
7	Out reach	<p>Websites, Award, and Press releases</p> <p>(i) DTIE Website; http://www.uneptie.org/energy/act/fin/india/</p>

Sl. No	Type of document.	Document Title and details
		<p>(ii) URC Website; http://uneprisoe.org/IndiaSolar/index.htm</p> <p>(iii) Project won both National and International (Fire Category) Energy Globe Awards, 2006, one of the most prestigious environmental awards. http://www.energyglobe.info/geg/frontend_en/view.php?MENUEID=122&TEMPID=&USE_RNAME and http://www.energyglobe.info/geg/frontend_en/view.php?MENUEID=71&USERNAME=&TEMPID=)</p> <p>Energy Globe award press release UNF / UNEP http://www.unep.org/Documents.Multilingual/Default.asp?DocumentID=504&ArticleID=5562&l=en</p> <p>UNFIP release: http://www.un.org/unfip/YNewsUNEPIndiaSolar.htm</p> <p>(iv) UNEP Press release (on project) http://new.unep.org/Documents.Multilingual/Default.asp?DocumentID=504&ArticleID=5570&l=en http://www.unep.org/Documents.Multilingual/Default.asp?ArticleID=3519&DocumentID=297</p> <p>(v) Shell Foundation releases http://www.shellfoundation.org/index.php?newsID=201 http://www.shellfoundation.org/index.php?newsID=198 http://www.shellfoundation.org/index.php?newsID=196 http://www.shellfoundation.org/index.php?newsID=194</p> <p>Publications and presentations</p> <p>(vi) Painuly Jyoti and Kumar H.V. , 2007. <i>Renewable energy financing; PV solar home systems from South India</i>, Climate Action Network, December (at COP in Bali). http://www.climateactionprogramme.org/features/article/renewable_energy_financing_pv_solar_home_systems_from_south_india1/</p> <p>(vii) Eric Usher, 2007. <i>Taking the plunge</i>, World Conservation, July. http://www.iucn.org/publications/worldconservation/docs/2007_07/23_world_conservation_2007_07.pdf</p> <p>(viii) Jyoti Prasad Painuly and Eric Usher, 2006. <i>Indian Banks Find Interest in UNEP Solar Loan Approach</i>, UN Chronicle, Volume XLIII, Number 2, 2006. http://www.un.org/Pubs/chronicle/2006/issue2/0206cont.htm,</p> <p>(ix) Eric Usher and Myriem Touhami, 2006. <i>Engaging the banks; Financing small-scale renewables in the developing World</i>, Renewable Energy World; May-June 2006.</p> <p>(x) Jyoti Prasad Painuly and H.V. Kumar, 2006. <i>Small-scale Renewable Energy Financing; A case study of UNEP Programme on PV SHS in India</i>, presentation made in the UNEP-Euromoney Renewable Energy Finance Forum, New Delhi, India, November 30-December 1, 2006. A special session on “Small-scale Renewable Energy Financing in Rural Areas” was organized on day 2, in which the presentation was made. Brochure and presentation can be sent, if required.</p> <p>(xi) Jyoti Painuly, 2005., <i>Financial Mechanism for PV Solar Home Systems Market Development; An Indian Case Study</i>, in the proceedings of the Risø International Energy Conference 2005: Technologies for sustainable energy development in the long term, Risø National Laboratory, Denmark, 23 – 25 May 2005.</p>

Sl. No	Type of document.	Document Title and details
		<p>(xii) Kumar H.V., 2005. A presentation on the project was made in the Solar World Congress 2005, Orlando, FL, USA. (with support from UNF).</p> <p>(xiii) As a part of the dissemination activity, project was covered by URC as well as by partner banks (both Syndicate and Canara Banks) in their presentation at International Congress on Renewable Energy for Sustainable Development (ICORE 2004; http://www.icore2004.com/), held in Bangalore from January 21-23, 2004.</p> <p>(xiv) An article “Got Finance? A Model to Develop the PV Market in South India” by Jyoti Prasad Painuly and Eric Usher was published in the “Renewable Energy World”, January-February 2004, Vol. 7, Number 1.</p> <p>(xv) A presentation on the project was made by H.V. Kumar, in the Global Village Energy Partnership Workshop on “Consumer Lending and Microfinance to Expand Access to Energy Services”, May 19-21, 2004 Manila, Philippines.</p> <p>(xvi) Chairman of the Syndicate Bank, our project partner, made a presentation in the UNEP-SEFI workshop, June 1-2, 2004, Bonn (at the time of Renewables 2004).</p> <p>(xvii) A presentation on the project was also made (Jyoti Painuly) at the UNF-UNFIP “Sustainable Energy Practitioners’ Workshop”, May 29 – 31, 2004, Bonn (at the time of Renewables 2004).</p> <p>(xviii) A paper, “Financing PV Solar Home Systems; A Market Intervention Model from a Case Study in India” by Jyoti Prasad Painuly and Eric Usher was presented at the EUROSUN 2004 conference (organised by International Solar Energy Society), held in Freiburg, Germany from June 20-23, 2004. The paper is included in conference proceedings.</p> <p>(xix) An article, “Financing the future” by Eric Usher, featuring the project, was published in the Environmental Finance, July-August 2003.</p> <p>(xx) An article “UNEP sees the dividend in market making for the poor” by Eric Usher, in Shell Foundation newsletter at http://www.shellfoundation.org/. This was followed by other articles in the newsletter. (see Shell web links above).</p> <p>(xxi) Short description of the project has been covered in the past in newsletters and other media. UNEP/URC newsletter E+ has been carrying update on the project regularly. (Note: Two samples from E+, December 2002 when project was starting, and May 2007, when it got over, have been sent).</p> <p>Miscellaneous</p> <p>(xxii) Links on U Tube Part 1 http://www.youtube.com/watch?v=Rg_EgN5c7g Part 2 http://www.youtube.com/watch?v=nQ9Whcf5Oxc</p> <p>(xxiii) Other media coverage; Project launches with Canara Bank and Syndicate Bank in 2003 Project launches with Bank of Maharashtra and SEWA in early 2007.</p> <p>(xxiv) Project has extensive coverage on the web. Articles / small press overages can be found by searching on Google using keywords India Solar, PV Financing India, India Solar Energy Globe etc. as keywords, along with Usher or Painuly or UNEP.</p>

ANNEX III: LIST OF PERSONS INTERVIEWED

Banks and Financial Institutions

Mr. I.P. Pardha Saradhi , General Manager Syndicate Bank, Manipal
Mr. K.S. Karunakar, DGM, Syndicate Bank, Manipal
Mr. Akshay Kumar, General Manager, Canara Bank, Bangalore
Mr Narasa Reddy, DGM of Canara Bank, Bangalore
Mr. C. Santalingam, Senior Manager, Priority Credit Wing, Bangalore
Ms Pinal Shah, Energy lending, Shri Mahila SEWA Sahakari Bank Ltd., Ahmedabad
Ms. Daksha Behan, Friends of Women World Banking, Ahmedabad

Vendors

Mr. Srinivasa Reddy, Kotak Urja, Bangalore
Mr. Shetty, Shell Solar, Manipal
Mr. Guruprakash, SELCO
Ms. Hemlata Madam/Anand, SELCO
Ms. Kruti, In-Charge Gujarat State, SELCO
Mr. Thomas Pullenkav, SELCO

UNEP

Eric Usher, UNEP Project Manager, UNEP DTIE/Energy Branch, France
Jyoti Painuly, UNEP Risoe Project Manager, Denmark
Mr. H. Kumar, UNEP Project Consultant, Crestar Capital, Mumbai
Ms. Cristina Battaglino, UNEP/EOU

Government

Dr. P.C. Maithani, MNRE, Delhi

Others

Dr. Arjun Narayanan, UNDP Energy Consultant, and Adam Smith Institute

ANNEX IV. PROJECT BUDGET AND ACTUAL EXPENDITURE

UNEP+UCCEE CONSOLIDATED EXPENDITURE REPORT

Establishing a Consumer Financing Program for Solar Photovoltaic Systems in Southern India

UNFIP Project Number: UNE-IND-02-247C & D : IMIS ID GAL 2861 & 2862

					2002	2003	2004	2005	2006	2007			
					<i>Total Budget</i>	<i>Actual Expenditures</i>	<i>Total Expenditure</i>	<i>Balance (Budget-Expenditure)</i>	<i>Shae</i>				
IMIS	UNEP CODES												
	10	PROJECT PERSONNEL COMPONENT											
		1100	Project Personnel Grade w/m	Title									
302			1101	UCCEE Expert	171,206	-	70,151	13,732	38,372	18,951	-	141,206	30,000
			1181	Project Manager	105,656	-	-	-	-	105,656	-	105,656	0
			1199	Total	276,862	-	70,151	13,732	38,372	124,607	-	246,861	30,001
		1200	Consultants (Description of activity/service) w/m										
304			1201	Credit Facility Technical Support	142,806	-	66,638	(26,946)	51,736	5,928	32,259	129,615	13,191
			1299	Total	142,806	-	66,638	(26,946)	51,736	5,928	32,259	129,615	13,191
		1600	Travel on official business										
308			1601	UCCEE mission travel	31,825	-	14,000	6,298	1,697	4,630	3,240	29,865	1,960
			1699	Total	31,825	-	14,000	6,298	1,697	4,630	3,240	29,865	1,960
		1999	Component Total		451,493	-	150,789	(6,916)	91,805	135,165	35,499	406,341	45,152
	20	SUB CONTRACT COMPONENT											
		2100	Sub-contracts (MOUs/LAs for										

						2002	2003	2004	2005	2006	2007			
					<i>Total Budget</i>	<i>Actual Expenditures</i>	<i>Total Expenditure</i>	<i>Balance (Budget-Expenditure)</i>	<i>Shae</i>					
			supporting organizations)											
312			2101	Canara bank		-	440,000	118,636	373,056	(1,050)	-	930,642	(930,642)	0.928166
			2102	Syndicate Bank							50,699	50,699	(50,699)	
			2103	Maharashtra Bank							21,327	21,327	(21,327)	
			2199	Total	-	-	440,000	118,636	373,056	(1,050)	72,026	1,002,668	(1,002,668)	
		2200	Sub-contracts (MOUs/LAs for supporting organizations)											
			2201	Grants to Institutions	957,517	-	-	-	-	-	-	-	957,517	
			2199	Total	957,517	-	-	-	-	-	-	-	957,517	
		2999	Component Total		957,517	-	440,000	118,636	373,056	(1,050)	72,026	1,002,668	(45,151)	68%
	50	Miscellaneous Component												
		5380	Sundry											
317			5381	Communications	45	-	-	28	-	17	-	46	(1)	
			5389	Total	45	-	-	28	-	17	-	46	(1)	
		5500	Evaluation											
304			5501	Contingency/ Evaluation	19,516	-	-	-	-	4,516	-	4,516	15,000	
			5599	Total	19,516	-	-	-	-	4,516	-	4,516	15,000	
		5999	Component Total		19,561	-	-	28	-	4,533	-	4,562	14,999	0.31%
		9999	TOTAL AVAILABLE TO UCCEE		1,428,571	-	590,789	111,748	464,861	138,648	107,525	1,413,571	15,000	95%

					2002	2003	2004	2005	2006	2007				
					<i>Total Budget</i>	<i>Actual Expenditures</i>	<i>Total Expenditure</i>	<i>Balance (Budget-Expenditure)</i>	<i>Shae</i>					
	99	TOTAL COST OF PROJECT			1,428,571	-	590,789	111,748	464,861	138,648	107,525	1,413,571	15,000	
		Programme Support Costs (5%)			71,429	-	29,539	5,587	23,243	6,932	5,376	70,679	750	5%
		GRAND TOTAL			1,500,000	-	620,328	117,336	488,104	145,580	112,901	1,484,250	15,750	

ANNEX V: EVALUATOR CURRICULUM VITAE

Mr. Manab CHAKRABORTY

Manab is skilled in the areas of administration, financial management, HR development, social project design and appraisal, training, and facilitation. Initially, his career focused on poverty eradication and natural resource management activities primarily in Asia and Africa. Manab is currently focusing on unleashing economic potential of the billion people at the bottom of the pyramid and devising strategies and tools for newer institutional frameworks that are needed to address development problems. In recent years, he has been providing management consultancy to non profit organizations all around the world. Manab is a regular speaker at national and international events.

Born on 10 January 1956; Indian national

Education

M.Sc. Environmental Economics, University College London, 1992

M.A. Agriculture & Rural Development, Institute of Social Studies, The Hague, 1986

MBA Kellogg School of Business Management & H.K. University of Science and Technology, 2004.

Working Experience: Over 30 countries in Asia, Africa, North and South America.

Jan. 2006 onwards Founder and CEO of Mimo (www.mimofin.com), a non-banking finance corporation providing microfinance services in the Indian Himalayan state of Uttarakhand and U.P. Mimo Finance provides financial services both to micro and meso units in North India.

2000 – Aug. 2004 Executive Director, Kadoorie Farm and Botanic Garden Corporation, Hong Kong (www.kfbg.org, budget US\$12 million). Overall responsibility for program planning, implementation, fundraising, legal compliance, HR & financial management. I also advised several Kadoorie charities engaged in funding education and research, scientific publications, and socio-economic projects.

1993-2000

1997-2000

United Nations

Task Manager, National Biodiversity Strategies + Action Plans in over 30 countries United Nations Environment Programme, Nairobi. Involved in preparation of national strategies, training of national managers, and crafting innovative forms for administering and financing conservation projects.

1995

Asst. Resident Representative (Energy & Environment), United Nations Development Programme, Delhi.

1993

Sr. Programme Officer (Economist) at the Secretariat United

Nations Convention on Biological Diversity, Geneva.

1992-1998 Founded/directed an agriculture and environmental consultancy company in India.

1984-1992 Oxfam (UK)

1991-92 Oxfam Overseas Program Advisor on global environment & poverty alleviation, based at Oxford

1987-90 Oxfam Regional Representative, North India and Nepal

1981-84.1 Grassroots social forestry & watershed management work in India/Nepal

1978-81 Directed a public health and nutrition project in Calcutta.

CONSULTANCY EXPERIENCE: I have offered environmental and rural development advisory services offered to USAID, Canadian, Swedish and German international development aid agencies, World Bank, United Nations, Global Environment Facility (GEF), CARE, Plan, and Oxfam etc.

AFFILIATIONS

Fellow, The Hunger Project, New Delhi, 2006 onwards

Director, Tripod Infrastructure Pvt. Ltd., a social venture for creating low cost housing all over India, May 2007 onwards

Fellow, CUTS Centre for International Trade, Economics & Environment Fellow, 2005-

President Partners in Prosperity, India (a society dedicated to micro-enterprise promotion), 2004 onwards