1. Project Data

GEF Project ID	1281
IA/EA Project ID	1201
Focal Area	Climate Change
	Solar and Wind Energy Resource Assessment - SWERA
Project Name	
Country (Countries	China, Bangladesh, Sri Lanka, Nepal, Ghana, Kenya, Cuba,
Country/Countries	Honduras, El Salvador, Nicaragua, Ethiopia, Brazil, Guatemala
Geographic Scope	Global
Lead IA/Other IA for joint	UNEP
projects	
Executing Agencies involved	UNEP/DTIE
Involvement of NGO and CBO	Not involved
Involvement of Private Sector	UA- Unable to Assess
Operational Program or	OP6- Promoting the Adoption of Renewable Energy by
Strategic Priorities/Objectives	Removing Barriers and Reducing Implementation Costs
TER Prepared by	Anoop Agarwal
TER Peer Review by	Neeraj Negi
Author of TE	Abeeku Brew-Hammond
Review Completion Date	1/2/2013
CEO Endorsement/Approval	6/1/2001
Date	
Project Implementation Start	10/8/2001
Date	
Expected Date of Project	7/31/2004
Completion (at start of	
implementation)	
Actual Date of Project	sometime in 2008; not specified in PMIS
Completion	
TE Completion Date	7/1/2011
IA Review Date	
TE Submission Date	8/30/2012

2. Project Financing

Financing Source	At Endorsement (millions USD)	At Completion (millions USD)
GEF Project Preparation Grant		
Co-financing for Project Preparation		
Total Project Prep Financing	0.00	0.00
GEF Financing	6.81	6.51
IA/EA own		
Government	1.79	2.24
Other*	0.72	0.00
Total Project Financing	9.32	8.75
Total Financing including Prep	9.32	8.75

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

3. Summary of Project Ratings

Criteria	Final PIR	IA Terminal Evaluation	IA Evaluation Office Review	GEF Evaluation Office TE Review
Project Outcomes	S	HS	HS	S
Sustainability of Outcomes	N/A	ML	ML	ML
Monitoring and Evaluation	U	S	MS	MS
Quality of Implementation and Execution	N/A	S	S	S
Quality of the Evaluation Report	N/A	N/A	S	S

4. Project Objectives

4.1. Global Environmental Objectives of the project:

"The pilot project's objective was to make available reliable, high resolution solar and wind resource data in developing countries to support more informed decision-making, science-and-technology based policy, and increased investor interest in renewable energy."

No changes were made.

4.2. Development Objectives of the project:

"The broad objective of the project Solar and Wind Energy Resource assessment was to make available and accessible reliable, high resolution solar and wind energy resource information, thereby removing a significant barrier to widespread use of clean solar and wind technologies. Thus the project aimed at facilitating investment in large-scale use of solar and wind energy technologies in developing countries.

Specific objectives include:

- Development of global, regional, and national solar and wind resource maps
- Development of the GIS framework for planning
- Transfer of the resource data and tools required for use in pre-investment operations"

The aim was to support more informed decision-making, science-and-technology based policy, and increased investor interest in renewable energy.

No changes to development objectives were made.

4.3.	Changes in the	Global Environmental	Objectives,	Development	Objectives, or	other activities:

Criteria	Change?	Reason for Change
Global Environmental Objectives	No	
Development Objectives	No	
Project Components	No	
Other activities	No	

5. GEF EO Assessment of Outcomes and Sustainability

5.1. *Relevance* – **Satisfactory**

This project falls under the GEF focal area of climate change, more precisely the programming framework OP-6; promoting the adoption of renewable energy by removing barriers and reducing implementation costs. 60. The project is also in line with GEF's work on Climate Change Mitigation focusing on renewables:

"...The GEF helps countries remove barriers to developing markets for renewable energies wherever cost-effective. Such opportunities can be found in on-grid and off-grid situations, as well as in the area of renewably generated heat for industrial and other applications. In these cases, GEF support helps create enabling policy frameworks, build the capacity for understanding and using the technologies, establish financial mechanisms to make renewable technologies more affordable, and provide incremental support to strategically important investments." (pg. 12 TE; 3.1.2 Relevance)

The selection criteria for the participating countries is not explained in the TE, other than "project countries were selected through an invitation that included a partnership agreement between SWERA and each study country."

5.2. Effectiveness – Satisfactory

There were 13 different countries involved in this project so effectiveness is difficult to judge across the board, however, there is evidence to support a Satisfactory rating for effectiveness.

Achievement of Outcomes:

*The capacity of local country agencies to conduct their own resource assessment has been increased through targeted capacity building programs such as the use of the Wind Atlas Analysis and Application Program (WAsP) software and also through their collaboration with leading technical partners such as Risø National Laboratory (RISO) and National Renewable Energy Laboratory (NREL), especially in Kenya and Ghana.

*In Nepal, SWERA provided training for four persons from the Alternate Energy Promotion Center (AEPC) in the use of WAsP, which was aimed at building capacity in wind energy resource and project analysis, however, not much has been done on large-scale wind energy since the SWERA project.

*Experts in China have "mastered" the software tools like WAsP and Clean Energy Project Analysis Software (RETScreen) introduced under SWERA, and have expanded their scope to use other tools like WindPro and WindFarm, which have been used to make China the No 2 country in the world as far as wind turbine installations are concerned. Additionally, China has expanded its estimate of onshore wind energy potential from 250GW to over 1000 GW, and "Chinese Renewable Energy Industries Association (CREIA) acknowledges the important role SWERA played in making available high quality data". *Following collaboration with NREL for Solar Resource Assessment activities, Brazil's National Institute for Space Research (INPE) and Laboratory for Solar Energy (LABSOLAR) in August 2009 used their own BRASIL-SR model with the SRING Software to generate low resolution data (40km) for the South American region. The numerical models used for the SWERA project became the basis for comparison of outputs of the BRASIL-SR model.

*In Nicaragua, SWERA assessments of wind resources demonstrated a much greater potential than the 200 megawatts (MW) estimated in the 1980s. The results prompted the Nicaraguan National Assembly to pass the Decree on Promotion of Wind Energy of Nicaragua 2004 that gives wind generated electricity "first dispatch", meaning it has the first priority over other options when fed into electricity grids.

*In Kenya the main national electricity generating company, KenGen, has already made one relatively small wind power investment and is planning a bigger one while the Lake Turkana private company is in the preparatory works for a 300 MW wind farm. In Ghana a wind energy investor NEK Ltd of Switzerland has indicated that "the output of SWERA along the eastern coast has given them confidence in the data they already had and they have taken the decision to go ahead with a 50MW wind project".

*In Ghana, the SWERA project established linkages between the Energy Commission and the Department of Geomatic Engineering in the College of Engineering at the Kwame Nkrumah University of Science and Technology (KNUST) which assisted it with Activity Component 3, there had been no formal collaboration between the two public institutions prior to the SWERA project.

5.3. Efficiency – Satisfactory

According to the TE, "The project was generally cost-effective as the option of deploying wind masts and solar radiation measurement stations across the pilot project countries would be much more expensive than the approach adopted by SWERA – using satellite generated data with simulation tools".

However, the SWERA project went well beyond the initial 3-year duration (ending around 2008 instead of 2004). The delay, however, did not lead to increase in the budgeted cost to GEF as most partners eventually spent less than the budgeted cost (\$8.75 million instead of \$9.32 million). Part of the reason that the project managed to come in under budget was that the project got off to a slow start with minimal disbursement.

There were several indications of project efficiency increases:

*Building upon the work of Alternate Energy Promotion Center (AEPC) of Nepal and the China Renewable Energy Industry Association (CREIA) is quoted to have reduced costs and improved efficiency.

*Data already collected by meteorological service organizations in the pilot countries were brought into the project. For example, the Catholic University of Central America, in Nicaragua, extensive data on solar radiation collected over more than a decade was brought in to enrich the SWERA database.

5.4. Sustainability – Low/Moderate Risks

The TE evaluated the sustainability of the project by examining four independent components: financial, socio-political, institutional framework and governance, and environmental; it did not, however, give an overall rating.

Financial: The risk of the lack of financial resources undermining the persistence of the project outcomes is low. "The capacity developed, awareness created, linkages and networks formed, etc. do not require much financial resources to maintain, although these could fade with time and non-use." Infrastructure costs, to build the network to transport the energy from the fields, as well as the instability of the global financial market, are notable threats. The funding required for policy changes are minimal and therefore not viewed as a significant threat.

Socio-political: The threat of failed bilateral and multilateral diplomatic relations is low. Most of the countries are not under any major international sanctions or embargo with the exception of Cuba which has a long-standing diplomatic issue with the United States, and despite this NREL, RISOE and INPE were able to undertake SWERA project activities without any "ostensible hindrance". Ghana, however, is yet to pass a Renewable Energy Law, and there exists the possibility of rejection or delay by legislators.

Institutional framework and governance: The only risks mentioned come from Nepal, where there is the possibility of "power play" between the significant number of actors. Other countries, however, have shown a high-level of political interest.

Environmental: There are some environmental concerns that are mentioned: Large arrays of solar collectors may interfere with natural sunlight, rainfall, and drainage, which could have a variety of effects on plants and animals. Solar arrays may also create avian perching opportunities that could affect both bird and prey populations. Also, the increased water demand could strain available water resources. Killing of migratory birds and avian collision with wind turbines are concerns that have been raised about wind energy projects. New electric transmission lines could also cause a variety of environmental impacts. However, despite these environmental concerns, the evaluators rate the likelihood of sustainable environmental benefits from SWERA to be Likely because "despite these likely problems, Solar and Wind Energy Technologies remain less polluting and have significantly less environmental cost".

In summary, the rating given by the TE are Financial (ML); Socio-political (ML); Institutional framework and governance (ML); Environmental (L). Overall, the risk to sustainability seems low based on the evidence presented.

6. Processes and factors affecting attainment of project outcomes

- 6.1. Co-financing
 - 6.1.1. To what extent was the reported co-financing essential to the achievement of GEF objectives? Were components supported by co-financing well integrated into the project?

The TE does not mention how the co-financing was used or provide any detail as to how effective it was. The project did come in under the budgeted amount, despite the delays, due to slow disbursement in the early stages of the project. There is no indication that non-GEF money was used in a way that was different than the GEF grant funding.

6.1.2. If there was a difference in the level of expected co-financing and actual co-financing, then what were the reasons for it? Did the extent of materialization of co-financing affect project's outcomes and/or sustainability? If it did, then in what ways and through what causal linkages?

The actual co-financing amount was slightly lower than the budgeted co-financing amount. The executing agency that received the co-financing is document in Table 7 of the Terminal Evaluation; no significant deviations from the expected budget.

6.2. Delays

6.2.1. If there were delays in project implementation and completion, then what were the reasons for it? Did the delay affect the project's outcomes and/or sustainability? If it did, then in what ways and through what causal linkages?

There were significant delays in the project. The project was scheduled to last 36 months, with completion in 2004, but the project ended in 2008-- the exact date is unknown. Some countries took even longer to wrap-up; in China the project had financial closure as recently as April 2010. Hence, even though the project began in 2001, the TE was not written until 2011. The delays did not seem to affect the project's outcomes or sustainability. Given that the project took place in 13 countries, the initial goal of 3 years might have been too ambitious. The reason the project was able to remain under budget was because project execution went more smoothly in the second half and there was little disbursement in the early years of the project.

6.3. Country ownership

6.3.1. Assess the extent to which country ownership has affected project outcomes and sustainability? Describe the ways in which it affected outcomes and sustainability, highlighting the causal links:

Initial project countries were selected through an invitation that included a partnership agreement between SWERA and each study country. The thirteen (13) pilot countries were Bangladesh, Brazil, China, Cuba, El Salvador, Ethiopia, Ghana, Guatemala, Honduras, Kenya, Nepal, Nicaragua, and Sri Lanka.

The level of country ownership was directly linked to the success of the project outcomes. Several countries that showed greater interest in SWERA's data contributed by investing more resources into renewable energy projects. The leading countries seem to be: China, Kenya, Ghana, and Nepal. The lack of communication among countries, the variation of economic status, and the distant geography seems to have made it difficult for cross-collaboration.

7. Assessment of project's Monitoring and Evaluation system

7.1. *M&E design at entry* – **Unsatisfactory**

Minimal M&E framework incorporated in the project design. The UNEP EO also agrees with this assessment.

7.2. *M&E implementation –* **Moderately Satisfactory**

Because of field visits by the SWERA project manager and annual reports from technical partners, M&E was accounted for; however, this does not seem to have been built into the plan. Additionally, there was a lack of coordination between monitoring activities among various countries. As the TE explained, several personnel of SWERA directly involved in Ghana were not even aware of the achievements in China. Had a better M&E plan been implemented, cross collaboration might have enhanced the results.

8. Assessment of project's Quality of Implementation and Execution

- 8.1. Overall Quality of Implementation and Execution Satisfactory
- 8.2. Overall Quality of Implementation- Satisfactory

The project aimed at increasing the amount of information and knowledge behind RE; in that regard it has served to remove the informational barrier in many countries. The design, and the process of implementation, was different in each country. Generally, it seems that the project balanced the diversity of countries well, however, the process of selecting countries is unclear. While UNEP was the implementing agency and also the primary executing agency, it worked with 20 other agencies, which allowed for greater effectiveness as those organizations tended to have better technical knowledge and government influence. The selection process for the executing agencies is also unclear based on the information in the terminal evaluation. Risks to sustainability is rated as Moderately Likely because the project focused on the quality of risk management well through the establishment of certain decrees and SAPs.

8.3. Overall Quality of Execution – Unable to Assess

Over 20 executing agencies were involved on this project and not enough detail is provided to access the quality of execution for each one. Overall, there is no evidence to suggest that the executing agencies did not perform well. The UNEP EO agrees with the evaluator's rating of Satisfactory, but there is not enough information in the TE to make an accurate assessment.

To what extent does the report contain an assessment of relevant outcomes and impacts of the project and the achievement of the objectives?The project objective was quite simple, "to make available and accessible reliable, high resolution solar and wind energy resource information". The terminal evaluation successfully indicates the relevant outcomes and impacts of the project given the challenge for having 13 different countries involved and 20 different executing agencies.To what extent does the report contain an assessment of relevant outcomes and impacts of the project and the achievement of the objectives?Moderately SatisfactoryNo major inconsistencies noted, however, some discrepancy as to the rating given for M&E implementation. Given that M&E design was so poor and unclear, a Satisfactory rating seems unjustified with the evidence presented.To what extent does the report project y assess project sustainability and/or project exit strategy?SatisfactoryProject sustainability was well documented on pages 14-21 of the terminal evaluation. It addressed the 4 components of sustainability (financial, socio-political, institutional framework and governance, and environmental) in detail.To what extent are the lessons learned supported by the evidence presented and are they comprehensive?Only 3 lessons were presented in the TE: 1) Get global centers of excellence to share knowledge and toolsTo what extent are the project exit and are they comprehensive?Only 3 lessons were presented in the TE: 2) Avoid wide disparities in country commitment and capacities	Criteria	Rating	GEF EO Comments
outcomes and impacts of the project and the achievement of the objectives?resolution solar and wind energy resource information". The terminal evaluation successfully indicates the relevant outcomes and impacts of the project given the challenge for having 13 different countries involved and 20 different executing agencies.To what extent does the report contain an assessment of relevant outcomes and impacts of the project and the achievement of the objectives?Moderately SatisfactoryNo major inconsistencies noted, however, some discrepancy as to the rating given for M&E implementation. Given that M&E design was so poor and unclear, a Satisfactory rating seems unjustified with the evidence presented.To what extent does the report properly assess project strategy?SatisfactoryProject sustainability was well documented on pages 14-21 of the terminal evaluation. It addressed the 4 components of sustainability (financial, socio-political, institutional framework and governance, and environmental) in detail.To what extent are the lessons learned supported by the evidence presented and are they comprehensive?Only 3 lessons were presented in the TE: 1) Get global centers of excellence to share knowledge and toolsTo what extent are they comprehensive?2) Avoid wide disparities in country	To what extent does the report	hating	The project objective was quite simple, "to
project and the achievement of the objectives?Satisfactoryinformation". The terminal evaluation successfully indicates the relevant outcomes and impacts of the project given the challenge for having 13 different countries involved and 20 different executing agencies.To what extent does the report contain an assessment of relevant outcomes and impacts of the project and the achievement of the objectives?Moderately SatisfactoryNo major inconsistencies noted, however, some discrepancy as to the rating given for M&E implementation. Given that M&E design was so poor and unclear, a Satisfactory rating seems unjustified with the evidence presented.To what extent does the report properly assess project sustainability and/or project exit strategy?Project sustainability was well documented on pages 14-21 of the terminal evaluation. It addressed the 4 components of sustainability (financial, socio-political, institutional framework and governance, and environmental) in detail.To what extent are the lessons learned supported by the evidence presented and are they comprehensive?Only 3 lessons were presented in the TE: 1) Get global centers of excellence to share knowledge and tools 2) Avoid wide disparities in country			
objectives?Satisfactorysuccessfully indicates the relevant outcomes and impacts of the project given the challenge for having 13 different countries involved and 20 different executing agencies.To what extent does the report contain an assessment of relevant outcomes and impacts of the project and the achievement of the objectives?No major inconsistencies noted, however, some discrepancy as to the rating given for M&E implementation. Given that M&E design was so poor and unclear, a Satisfactory rating seems unjustified with the evidence presented.To what extent does the report properly assess project sustainability and/or project exit strategy?SatisfactorySatisfactorySatisfactorySatisfactoryProject sustainability was well documented on pages 14-21 of the terminal evaluation. It addressed the 4 components of sustainability (financial, socio-political, institutional framework and governance, and environmental) in detail.To what extent are the lessons learned supported by the evidence presented and are they comprehensive?Only 3 lessons were presented in the TE: 1) Get global centers of excellence to share knowledge and tools 2) Avoid wide disparities in country	•		•.
Image: Constraint of the project given the challenge for having 13 different countries involved and 20 different executing agencies.To what extent does the report contain an assessment of relevant outcomes and impacts of the project and the achievement of the objectives?No major inconsistencies noted, however, some discrepancy as to the rating given for M&E implementation. Given that M&E design was so poor and unclear, a Satisfactory rating seems unjustified with the evidence presented.To what extent does the report properly assess project sustainability and/or project exit strategy?Project sustainability was well documented on pages 14-21 of the terminal evaluation. It addressed the 4 components of sustainability (financial, socio-political, institutional framework and governance, and environmental) in detail.To what extent are the lessons learned supported by the evidence presented and are they comprehensive?Only 3 lessons were presented in the TE: 1) Get global centers of excellence to share knowledge and tools2) Avoid wide disparities in country			
To what extent does the report contain an assessment of relevant outcomes and impacts of the project and the achievement of the objectives?No major inconsistencies noted, however, some discrepancy as to the rating given for M&E implementation. Given that M&E design was so poor and unclear, a Satisfactory rating seems unjustified with the evidence presented.To what extent does the report properly assess project strategy?Project sustainability was well documented on pages 14-21 of the terminal evaluation. It addressed the 4 components of sustainability (financial, socio-political, institutional framework and governance, and environmental) in detail.To what extent are the lessons learned supported by the evidence presented and are they comprehensive?Only 3 lessons were presented in the TE: 1) Get global centers of excellence to share knowledge and tools 2) Avoid wide disparities in country	objectives?	Satisfactory	•
Involved and 20 different executing agencies.To what extent does the report contain an assessment of relevant outcomes and impacts of the project and the achievement of the objectives?No major inconsistencies noted, however, some discrepancy as to the rating given for M&E implementation. Given that M&E design was so poor and unclear, a Satisfactory rating seems unjustified with the evidence presented.To what extent does the report properly assess project sustainability and/or project exit strategy?Project sustainability was well documented on pages 14-21 of the terminal evaluation. It addressed the 4 components of sustainability (financial, socio-political, institutional framework and governance, and environmental) in detail.To what extent are the lessons learned supported by the evidence presented and are they comprehensive?Only 3 lessons were presented in the TE: 1) Get global centers of excellence to share knowledge and tools 2) Avoid wide disparities in country			
agencies.To what extent does the report contain an assessment of relevant outcomes and impacts of the project and the achievement of the objectives?No major inconsistencies noted, however, some discrepancy as to the rating given for M&E implementation. Given that M&E design was so poor and unclear, a Satisfactory rating seems unjustified with the evidence presented.To what extent does the report properly assess project sustainability and/or project exit strategy?Project sustainability was well documented on pages 14-21 of the terminal evaluation. It addressed the 4 components of sustainability (financial, socio-political, institutional framework and governance, and environmental) in detail.To what extent are the lessons learned supported by the evidence presented and are they comprehensive?Only 3 lessons were presented in the TE: 1) Get global centers of excellence to share knowledge and tools 2) Avoid wide disparities in country			
To what extent does the report contain an assessment of relevant outcomes and impacts of the project and the achievement of the objectives?No major inconsistencies noted, however, some discrepancy as to the rating given for M&E implementation. Given that M&E design was so poor and unclear, a Satisfactory rating seems unjustified with the evidence presented.To what extent does the report properly assess project sustainability and/or project exit strategy?Project sustainability was well documented on pages 14-21 of the terminal evaluation. It addressed the 4 components of sustainability (financial, socio-political, institutional framework and governance, and environmental) in detail.To what extent are the lessons learned supported by the evidence presented and are they comprehensive?Only 3 lessons were presented in the TE: 1) Get global centers of excellence to share knowledge and tools 2) Avoid wide disparities in country			
contain an assessment of relevant outcomes and impacts of the project and the achievement of the objectives?Moderately Satisfactorysome discrepancy as to the rating given for M&E implementation. Given that M&E design was so poor and unclear, a Satisfactory rating seems unjustified with the evidence presented.To what extent does the report properly assess project sustainability and/or project exit strategy?Project sustainability was well documented on pages 14-21 of the terminal evaluation. It addressed the 4 components of sustainability (financial, socio-political, institutional framework and governance, and environmental) in detail.To what extent are the lessons learned supported by the evidence presented and are they comprehensive?Only 3 lessons were presented in the TE: 1) Get global centers of excellence to share knowledge and tools 2) Avoid wide disparities in country			
outcomes and impacts of the project and the achievement of the objectives?Moderately SatisfactoryM&E implementation. Given that M&E design was so poor and unclear, a Satisfactory rating seems unjustified with the evidence presented.To what extent does the report properly assess project sustainability and/or project exit strategy?Project sustainability was well documented on pages 14-21 of the terminal evaluation. It addressed the 4 components of sustainability (financial, socio-political, institutional framework and governance, and environmental) in detail.To what extent are the lessons learned supported by the evidence presented and are they comprehensive?Only 3 lessons were presented in the TE: 1) Get global centers of excellence to share knowledge and tools 2) Avoid wide disparities in country			-
project and the achievement of the objectives?Moderately Satisfactory design was so poor and unclear, a Satisfactory rating seems unjustified with the evidence presented.To what extent does the report properly assess project sustainability and/or project exit strategy?Project sustainability was well documented on pages 14-21 of the terminal evaluation. It addressed the 4 components of sustainability (financial, socio-political, institutional framework and governance, and environmental) in detail.To what extent are the lessons learned supported by the evidence presented and are they comprehensive?Only 3 lessons were presented in the TE: 1) Get global centers of excellence to share knowledge and tools 2) Avoid wide disparities in country			
project and the achievement of the objectives?design was so poor and unclear, a Satisfactory rating seems unjustified with the evidence presented.To what extent does the report properly assess projectProject sustainability was well documented on pages 14-21 of the terminal evaluation. It addressed the 4 components of sustainability (financial, socio-political, institutional framework and governance, and environmental) in detail.To what extent are the lessons learned supported by the evidence presented and are they comprehensive?Only 3 lessons were presented in the TE: 1) Get global centers of excellence to share knowledge and tools 2) Avoid wide disparities in country	•	Moderately Satisfactory	•
the evidence presented.To what extent does the report properly assess projectProject sustainability was well documented on pages 14-21 of the terminal evaluation. It addressed the 4 components of sustainability (financial, socio-political, institutional framework and governance, and environmental) in detail.To what extent are the lessons learned supported by the evidence presented and are they comprehensive?Only 3 lessons were presented in the TE: 1) Get global centers of excellence to share knowledge and tools 2) Avoid wide disparities in country		,,	
To what extent does the report properly assess project sustainability and/or project exit strategy?Project sustainability was well documented on pages 14-21 of the terminal evaluation. It addressed the 4 components of sustainability (financial, socio-political, institutional framework and governance, and environmental) in detail.To what extent are the lessons learned supported by the evidence presented and are they comprehensive?Only 3 lessons were presented in the TE: 1) Get global centers of excellence to share knowledge and tools 2) Avoid wide disparities in country	objectives?		
properly assess project sustainability and/or project exit strategy?Satisfactoryon pages 14-21 of the terminal evaluation. It addressed the 4 components of sustainability (financial, socio-political, institutional framework and governance, and environmental) in detail.To what extent are the lessons learned supported by the evidence presented and are they comprehensive?Only 3 lessons were presented in the TE: 1) Get global centers of excellence to share knowledge and tools 2) Avoid wide disparities in country			
sustainability and/or project exit strategy?Satisfactoryaddressed the 4 components of sustainability (financial, socio-political, institutional framework and governance, and environmental) in detail.To what extent are the lessons learned supported by the evidence presented and are they comprehensive?Only 3 lessons were presented in the TE: 1) Get global centers of excellence to share knowledge and tools 2) Avoid wide disparities in country	-		
SatisfactorySatisfactorystrategy?sustainability (financial, socio-political, institutional framework and governance, and environmental) in detail.To what extent are the lessonsOnly 3 lessons were presented in the TE: 1) Get global centers of excellence to share knowledge and tools comprehensive?Description2) Avoid wide disparities in country			
strategy?sustainability (financial, socio-political, institutional framework and governance, and environmental) in detail.To what extent are the lessonsOnly 3 lessons were presented in the TE: 1) Get global centers of excellence to share knowledge and toolspresented and are they comprehensive?2) Avoid wide disparities in country		Satisfactory	-
and environmental) in detail.To what extent are the lessonsOnly 3 lessons were presented in the TE:learned supported by the evidence1) Get global centers of excellence to sharepresented and are theyknowledge and toolscomprehensive?2) Avoid wide disparities in country	strategy?	-	
To what extent are the lessonsOnly 3 lessons were presented in the TE:learned supported by the evidence1) Get global centers of excellence to sharepresented and are theyknowledge and toolscomprehensive?2) Avoid wide disparities in country			
learned supported by the evidence1) Get global centers of excellence to sharepresented and are theyknowledge and toolscomprehensive?2) Avoid wide disparities in country			
presented and are theyknowledge and toolscomprehensive?2) Avoid wide disparities in country			
comprehensive? 2) Avoid wide disparities in country			
			-
commitment and cabacities	comprenensive?		, , , ,
		N/a dayata ku	•
Moderately3) Promote frequent consultations atUnsatisfactorycountry and international levels		-	, ,
Unsatisfactory country and international levels		Unsatisfactory	country and international levels
These lessons are very high level and generic			These lessons are very high level and generic
and do not speak to the lessons that could			
be learned from doing a project that spans			•
globally.			
Does the report include the actual Co-financing and actual costs are poorly	Does the report include the actual		
project costs (total and per activity) documented. The only indication of where	•		
and actual co-financing used? Moderately the money went was in Table 7. The TE does		-	-
Unsatisfactory Unsatisfactory		Unsatisfactory	-
used.			
Assess the quality of the report's The TE's evaluation of the M&E system was	Assess the quality of the report's		The TE's evaluation of the M&E system was
evaluation of project M&E systems: Satisfactory Satisfactory Satisfactory Satisfactory		Satisfactory	•

9. Quality of the Terminal Evaluation Report

10. Other issues to follow up on

Annex I – Project Impacts as assessed by the GEF Evaluation Office

	Did the project have outputs contributing to knowledge being generated or improved?	Yes
--	---	-----

WHAT OUTPUTS CONTRIBUTED TO KNOWLEDGE BEING GENERATED OR IMPROVED?

The essence of this project was to expand the knowledge of solar and wind energy in several countries to encourage government and private sector investment in this sector. SWERA brought data to several countries, which led to some governments expanding their RE capacity with the knowledge generated.

Is there evidence that the knowledge was used for management/ governance?

HOW WAS THIS KNOWLEDGE USED AND WHAT RESULTED FROM THAT USE?

In Nicaragua, for example, SWERA assessments showed a much greater potential for wind energy than previously believed, which prompted the Nicaraguan National Assembly to pass the Decree on Promotion of Wind Energy of Nicaragua 2004. This decree gives wind generated energy the first priority over other options when fed into the grid.

In Ghana, SWERA's data gave a wind energy investor, NEK Ltd of Switzerland, confidence to invest in a 50MW wind project.

In China, the government expanded its investment when the capacity of RE was deemed 4x greater than before SWERA's assessment.

Did the project have outputs contributing to the development of databases and information-sharing arrangements?

WHAT OUTPUTS CONTRIBUTED TO INFORMATION BEING COMPILED AND MADE ACCESSIBLE TO MANY?

Is there evidence that these outputs were used?	UA
TO WHAT EXTENT HAVE THESE OUTPUTS BEEN USED? WHAT HAS RESULTED FROM INFORMATION BEING MADE ACCESSIBLE TO OTHERS?	
Did the project have activities that contributed to awareness and knowledge being raised?	Yes
WHAT ACTIVITIES CONTRIBUTED TO AWARENESS AND KNOWLEDGE BEING RAISED?	
In Nepal, SWERA provided training to 4 people from Alternate Energy Promotion Center (AEPC) in the Analysis and Application Program (WASP). Experts in China have learned WASP and Clean Energy Pro-	

Analysis and Application Program (WASP). Experts in China have learned WASP and Clean Energy Project Analysis Software (RETScreen) under SWERA. Increased awareness about the potential of RE in several countries, but minimal at the public level.

Yes

No

Was any positive change in behavior reported as a result of these activities?	No		
WHAT BEHAVIOR (POSITIVE OR NEGATIVE) HAS CHANGED AS A RESULT?			
The project does not seem to have done much with regards to outreach to the public.			
Did the project activities contribute to building technical/ environmental management skills?	UA		
WHAT ACTIVITIES CONTRIBUTED TO TECHNICAL/ENVIRONMENTAL MANAGEMENT SKILLS BEING BUIL	T OR IMPROVED?		
It is possible that some skills were developed indirectly after the SWERA data was used to encourage w investments, but the extent to which this might have happened and which activities can be given credit assess.			
	N		
Is there evidence of these skills being applied by people trained?	No		
HOW HAVE THESE SKILLS BEEN APPLIED BY THE PEOPLE TRAINED?			
Did the project contribute to the development of legal / policy / regulatory frameworks?	Yes		
	Г		
Were these adopted?	Yes		
WHAT LAWS/ POLICIES/ RULES WERE ADOPTED AS A RESULT OF THE PROJECT?			
SWERA's data accumulation and knowledge gathering has contributed to policy development in China, (to a lesser extent in Ghana and Nepal).	Nicaragua, and Kenya		
Data generated by SWERA has encouraged the mainstreaming of RETs into national energy plans, and stimulated the enactment, or the initiation of enactment of policies and laws making it easier for large-scale renewable energy investments in most of the pilot countries. In Nicaragua, SWERA's work led to the Decree on Promotion of Wind Energy of Nicaragua 2004, which gave wind generated energy first priority in the electric grid.			
Did the project contribute to the development of institutional and administrative systems and structures?			
	No		
Were these institutional and administrative systems and structures integrated as permanent structures			
	No		

WHAT OFFICES/ GOVERNMENT STRUCTURES WERE CREATED AS A RESULT OF THE PROJECT?

Did the project contribute to structures/ mechanisms/ processes that allowed more stakeholder participation in environmental governance?

Were improved arrangements for stakeholder engagement integrated as permanent structures?	

No

UA

No

WHAT STRUCTURES/ MECHANISMS/ PROCESSES WERE SUPPORTED BY THE PROJECT THAT ALLOWED MORE STAKEHOLDERS/
SECTORS TO PARTICIPATE IN ENVIRONMENTAL GOVERNANCE/ MANAGEMENT ACTIVITIES?

Did the project contribute to informal processes facilitating trust-building or conflict resolution?

WHAT PROCESSES OR MECHANISMS FACILITATED TRUST-BUILDING AND CONFLICT RESOLUTION? WHAT RESULTED FROM THESE?

It is unclear how much focus on collaboration between countries was given. The executing agencies, if working in multiple countries, might have been able to inspire some trust-building, although the need for it does not seem directly apparent.

Please specify what was

contributed:

Did the project contribute to any of the following	ng:
Technologies & Approaches	No
Implementing Mechanisms/Bodies	No
Financial Mechanisms	No

Did replication of the promoted technologies, and economic and financial instruments take place?

Yes

SPECIFY WHICH PLACES IMPLEMENTED WHICH TECHNOLOGIES/APPROACHES OR ASPECTS OF A TECHNOLOGY/APPROACH.

WHAT WAS THE RESULT IN THOSE PLACES (ENVIRONMENTAL & SOCIOECONOMIC)?

The SWERA project is deemed highly replicable by the Evaluator since the national agencies have developed or increased capacity to undertake solar and wind resource assessment projects in parts of the countries that were not covered by the SWERA pilot project. Technical partners have also had the opportunity to refine their numerical models by comparing their outputs with ground-based data, which would make subsequent projects easier and more accurate. In the expanded phase of SWERA, the NREL has replicated solar and wind resource measurements in countries like Pakistan, Afghanistan and Bhutan. The Abu Dhabi Future Energy Company has also funded SWERA-type assessment for the United Arab Emirates under the MASDAR initiative . Ghana is undertaking additional wind measurements along its eastern coast (an area identified by the SWERA project as having good prospect), with the support from the World Bank, although the technique of measurement is the direct mounting of wind masts.

Did scaling-up of the promoted approaches and technologies take place?

No

SPECIFY AT WHAT ADMINISTRATIVE & ECOLOGICAL SCALE AND WHICH TECHNOLOGIES/APPROACHES OR ASPECTS OF A TECHNOLOGY/APPROACH WAS ADOPTED. HOW WAS IT MODIFIED TO FIT THE NEW SCALE? WHAT WAS THE RESULT AT THE NEW SCALE/S (ENVIRONMENTAL &

SOCIOECONOMIC)?

Did mainstreaming of the promoted app	No			
SPECIFY HOW (MEANS/ INSTRUMENT) AND WHICH ASPECTS OF THE TECHNOLOGY/APPROACH WAS INCORPORATED INTO THE EXISTING SYSTEM. WHAT WAS THE RESULT OR STATUS (ENVIRONMENTAL & SOCIOECONOMIC)?				
Did r emoval of market barriers and susta	ainable market change take place?	No		
SPECIFY HOW DEMAND HAS BEEN CREAT	ED FOR WHICH PRODUCTS/ SERVICES THAT CONTRIBUTE TO (GEBs.		
While there wasn't a removal of a market an expansion wind and solar investment	t barrier, per se, SWERA did help to remove an informational k due to better information.	parrier that resulted in		
Based on most of the project's componer is?	nts and/or what it generally intended to do, what type of proje	ect would you say this		
Combination] <dropdown menu<="" td=""><td></td></dropdown>			
If "combination", then of which types?				
Knowledge & Information	& Broader Adoption <dropdown menu<="" td=""><td></td></dropdown>			
QUANTITATIVE OR ANECDOTAL DETAILS ON HOW ENVIRONMENTAL <u>PRESSURE HAS BEEN REDUCED/PREVENTED</u> OR ON HOW ENVIRONMENTAL <u>STATUS HAS CHANGED</u> AT THE DEMONSTRATION SITES AS A CONTRIBUTION/RESULT OF PROJECT ACTIVITIES. FOR SYSTEM LEVEL CHANGES, SPECIFY THE ADMINISTRATIVE AND/OR ECOLOGICAL SCALES.				
		04		
If so, at what scales?	Please mark 'x' for all that apply Local Intended (local) Unintended	ed (local)		
	Systemic (systemic) Unintende	ed (systemic)		
How was the information obtained?	Measured Anecdotal			
Was there a change in environmental status?		UA		
If so, at what scales?	Please mark 'x' for all that apply			

	Local	Intended (local)	Unintended (local)
	Systemic	Intended (systemic)	Unintended (systemic)
How was the information obtained?	Measured	Anecdotal	

Evidence of intended stress reduction achieved at the local level

Evidence of intended stress reduction at a systemic level

The expansion of wind and solar energy production as a substitute to higher polluting alternatives, such as coal and gas, will hopefully lead to stress reduction at a systemic level, but based on the information presented in this terminal evaluation, it does not seem to be the case that this project has yet accomplished such a result.

Briefly describe the key lessons, good practice or approaches mentioned in the terminal evaluation report

- a. Getting global centers of excellence to share knowledge and tools yields positive results ;
- b. Avoid wide disparities in country-level commitment and capacities; and
- c. Promote frequent consultations at country and international levels.

Briefly describe the recommendations given in the terminal evaluation

a. Update and re-launch SWERA website at global level to ensure that more interested parties are aware of the resources available; and

b. Establish an internet-based knowledge network for all participants in the pilot countries and organize a series of webinars so that experts and interested parties in the SWERA pilot project countries can share developments in their countries or institutions.