

Terminal Evaluation Review form, GEF Evaluation Office, APR 2014

1. Project Data

Summary project data			
GEF project ID		371	
GEF Agency project ID		386	
GEF Replenishment Phase		Pilot Phase	
Lead GEF Agency (include all for joint projects)		UNDP	
Project name		Decentralized win electric power for social and economic development (Alizés-Électrique Project)	
Country/Countries		Mauritania	
Region		AFR	
Focal area		Climate Change	
Operational Program or Strategic		GEF3 OP-6: Removing Barriers to Renewable Energy	
Executing agencies involved		Groupe de recherche et d'échanges technologiques (GRET)	
NGOs/CBOs involvement		Lead executing agency	
Private sector involvement		Secondary executing agency	
CEO Endorsement (FSP) /Approval date (MSP)		12/01/92	
Effectiveness date / project start		09/06/94	
Expected date of project completion (at start)		07/01/96	
Actual date of project completion		11/30/96	
Project Financing			
		At Endorsement (US \$M)	At Completion (US \$M)
Project Preparation Grant	GEF funding		
	Co-financing		
GEF Project Grant		2.100	2.100
Co-financing	IA own		
	Government	0.074	0.074
	Other multi- /bi-laterals		
	Private sector		
	NGOs/CSOs		
Total GEF funding		2.100	2.100
Total Co-financing		0.074	0.074
Total project funding		2.174	2.174
Terminal evaluation/review information			
TE completion date		November 1996	
TE submission date		November 1996	
Author of TE		Not Available (Annex Tables by Vincent Butin, Gilles Goldstein)	
TER completion date		09/02/14	
TER prepared by		Sean Nelson	
TER peer review by (if GEF EO review)		Joshua Schneck	

2. Summary of Project Ratings

Criteria	Final PIR	IA Terminal Evaluation	IA Evaluation Office Review	GEF EO Review
Project Outcomes	N/R	N/R	N/R	MU
Sustainability of Outcomes	N/R	N/R	N/R	U
M&E Design	N/R	N/R	N/R	U
M&E Implementation	N/R	N/R	N/R	U/A
Quality of Implementation	N/R	N/R	N/R	U/A
Quality of Execution	N/R	N/R	N/R	U/A
Quality of the Terminal Evaluation Report	-	-	N/R	MU

3. Project Objectives

3.1 Global Environmental Objectives of the project:

According to the Project Document (PD), the global environmental objective of the project is to reduce emissions of greenhouse gases (GHGs) that contribute to climate change. The project seeks to accomplish this by displacing fossil fuels used for electricity generation in Mauritania with wind energy in rural areas. The PD states that Mauritania has great untapped wind power potential. The PD does not assess the size of GHG emissions from the energy sector, either at the level of project areas or Mauritania as a whole. In addition, the PD does not state a target GHGs to be mitigated. Rural electrification rates were low at the time.

3.2 Development Objectives of the project:

According to the PD, “the overall project objective is to promote sustainable development by improving the quality of life and the socioeconomic situation of the rural populations through installation and diffusion of small decentralized wind electric equipment at the local and national levels” (PD, p. 41). The initial hope was that this experience of using decentralized renewable wind energy could be replicated throughout rural Mauritania. Rural electrification in Mauritania was low at the time, while the wind energy potential in the country was high. In particular, the electricity produced by wind power could be used to power household lighting sources. The project aimed to bring these services to about 100 villages / 20,000 individuals.

A secondary objective was to have the private sector eventually take over managing these wind resources. The PD states “another goal is to establish a self-sustaining private sector-focused mechanism

and infrastructure for the delivery of rural electric power services that can extend throughout windy regions of the country” (PD, p. 41).

The project was designed to be implemented in two phases. GEF funding was only for Phase 1 The project would be scaled up during Phase 2. A primary goal of Phase 1 was to secure funding for Phase 2 and to have enough on-the-ground successes to make Phase 2 viable. The Immediate Objectives had a mix of Phase 1 and Phase 2 deadlines.

The following are the project’s Immediate Objectives from the PD, along with each Objective’s outputs and deadlines:

- 1) Determine what technical, social and economic opportunities are present in rural Mauritania through the use of wind electricity production, including understanding what equipment to use and where.
 - Output 1: Research electrification equipment that can foster rural socioeconomic development in Mauritania. Deadline: End of Phase 1.
 - Output 2: Identify technologies to use in conjunction with small-scale wind power. A cost analysis should be performed. Compare their costs and performance to systems with a similar end-use. Deadline: End of Phase 1.
 - Output 3: Choose the wind turbines and their suppliers for project use. Also select the local Mauritanian companies to maintain these systems. Deadline: End of Phase 1.
 - Output 4: Install wind power systems in the pilot project villages. These systems will have a diverse mix of set-ups. There should be 15 to 20 sites. Deadline: End of Phase 1.
 - Output 5: Test and evaluate the systems from Output 4 based on socioeconomic and technical criteria. Deadline: End of Phases 1 and 2.
 - Output 6: “Testing, application, and assessment of several wind electric systems, and development of the technical adaptations that may be required for reliable operation in Mauritania” (PD, p. 54). Deadline: End of Phases 1 and 2.
- 2) Create a system for promoting the project’s technical, financial and institutional model to other rural areas to encourage the adaptation of wind power turbines for pre-electrification. These systems will be under local control.
 - Output 1: Train a local company to assemble, manufacture (at least in part), install and maintain the wind power generators. Write contracts with these companies for maintaining and servicing this equipment. Deadline: End of Phases 1 and 2.
 - Output 2: Create a mechanism to electrify rural Mauritania. Deadline: End of Phase 2.

- Output 3: Train public and private sector engineers and technicians to improve national capacity. Deadline: End of Phases 1 and 2.
- 3) Install wind power systems in 100 villages. These set-ups should be diverse across these 100 villages.
 - Output 1: Install wind power systems in 100 villages. There will be 2 types of wind systems: 1) “social applications (drinking water, health, and others)” and 2) “Commercial or individual applications” (PD, p. 68). Deadline: End of Phase 2.
 - Output 2: Train end users to perform simple maintenance and manage the wind power generators. Deadline: End of Phases 1 and 2.
- 4) Scale-up the project's methods by pushing for installing similar wind power systems at the regional, sub-regional and national level.
 - Output 1: Create reports and presentations on the project for public education purposes. The key audience is funding agencies. Additional audiences include the Mauritanian government, "financial institutions, the private sector, and the public at large" (PD, p. 76). Deadline: End of Phases 1 and 2.
 - Output 2: Create a Mauritanian wind energy resources database. Deadline: End of Phases 1 and 2.
 - Output 3: Conduct a public information campaign to help other programs working on rural development to adopt this project's methods. This will be conducted in conjunction with the Mauritanian Department of Energy. Deadline: End of Phases 1 and 2.
- 5) Create the financial set-up for the project's Phase 2.
 - Output 1: Ensure financing for Phase 2. Deadline: End of Phase 1.

3.3 Were there any **changes** in the Global Environmental Objectives, Development Objectives, or other activities during implementation? This project covered Phase 1. This pilot phase existed to lay the groundwork for Phase 2, where the project would be scaled up. However, as of June 1997, the project ran out of funding before Phase 1 was complete. The TE does not state that the project was running out of funding as of the TE's writing in November 1996, but a June 1997 UNDP letter to the GEF stated that the project had spent all of its funding. The TE defines the period as of the TE's writing as Phase 1a. The TE recommends adding a Phase 1b that would help to consolidate Phase 1a's gains and lay the groundwork to ensure Phase 2 could be started. This additional sub-phase would last 6 months. Phase 1b was not included in the original PD, but instead was introduced in the TE.

The TE does not mention any changes to GEOs or the DOs. The project was put on hold before Phase 2, so none of the Phase 2 objectives or activities had yet taken place. (Funding as of the TE's writing was only for Phase 1, but the PD's goals were sometimes scheduled to be met during either Phase 1 or Phase 2.) Due to insufficient data at the time of implementation, there was some discussion of using mixed wind-diesel development at some sites, which could have potentially undermined the GEOs. It was unclear if certain sites would be able to meet electricity demand only from wind sources. This was a question for further study.

4. GEF EO assessment of Outcomes and Sustainability

Please refer to the GEF Terminal Evaluation Review Guidelines for detail on the criteria for ratings.

Relevance can receive either a Satisfactory or Unsatisfactory rating. For Effectiveness and Cost efficiency, a six point rating scale is used (Highly Satisfactory to Highly Unsatisfactory), or Unable to Assess. Sustainability ratings are assessed on a four-point scale: Likely=no or negligible risk; Moderately Likely=low risk; Moderately Unlikely=substantial risks; Unlikely=high risk. In assessing a Sustainability rating please note if, and to what degree, sustainability of project outcomes is threatened by financial, sociopolitical, institutional/governance, or environmental factors.

Please justify ratings in the space below each box.

4.1 Relevance	Rating: Satisfactory
---------------	-----------------------------

This project was relevant to both the GEF and Mauritania. For the GEF, the project's objectives are in-line with GEF Operational Program 6: Removing Barriers to Renewable Energy. For the Mauritanian government, this project directly addressed two goals raised in its 1987 energy sector development strategy: "ensuring and enhancing the security of energy supplies over the national territory" and "maximizing the use of clean energy resources" (PD, p. 6). Since Mauritania had high untapped wind energy potential at the time, this project theoretically could serve both of these governmental goals. PD also states that the Mauritanian government has made expanding rural electrification a priority.

4.2 Effectiveness	Rating: Moderately Unsatisfactory
-------------------	--

Summary: The project achieved good results in the pilot project villages. However, the total number of pilot project villages was still under the PD goals. GRET claimed it successfully engaged local communities, which led to a high level of local participation. The GEO appears to have been met within the project villages since wind energy had displaced, oil, gas and candle use. However, no baseline numbers or metrics are given to assess the degree to which the project met the GEO.

With that said, Phase 2 had been suspended as of the TE's writing. The PD states that "the inability to execute Phase 2 would therefore result in certain failure for the project" (PD, p. 86). The project eventually ran out of funds before Phase 1 was complete. The TE recommends adding a Phase 1b that

would allow the project to finish Phase 1's goals outlined in the PD. Phase 1b was not contained in the PD, but instead was suggested once Phase 2 was suspended as a way to consolidate the progress made so far during Phase 1. The project also often failed during Phase 1 to set the institutional framework necessary to carry out Phase 2.

Progress is detailed further under each immediate objective below:

Immediate Objective 1: Determine what technical, social and economic opportunities are present in rural Mauritania through the use of wind electricity production, including understanding what equipment to use and where: **Moderately Satisfactory**

- Output 1: Research electrification equipment that can foster rural socioeconomic development in Mauritania. Deadline: End of Phase 1.

This output was completed. However, the studies of local conditions appear to have overestimated household electricity usage. The project never actually studied the wind generating potential at project sites and compared those sites' potential for generating other forms of electricity (solar power, etc.).

- Output 2: Identify technologies to use in conjunction with small-scale wind power. A cost analysis should be performed. Compare their costs and performance to systems with a similar end-use. Deadline: End of Phase 1.

Support technologies had been integrated into the wind power systems, though it is unclear if any cost-benefit analysis was performed. The battery arrangement used – “2 series-connected batteries in 4 parallel sets” (TE, pp. 14-15) – did not allow users to individually test each battery's charge. The project was still in the process of bringing radio DC/DC converters to project villages to use in conjunction with the wind power systems.

- Output 3: Choose the wind turbines and their suppliers for project use. Also select the local Mauritanian companies to maintain these systems. Deadline: End of Phase 1.

This output was completed. It should be noted that the bidding process accounted for the project's longest delay (4 months). The TE mentions it was too early to tell how well the private maintenance operators were performing.

- Output 4: Install wind power systems in the pilot project villages. These systems will have a diverse mix of set-ups. There should be 15 to 20 sites. Deadline: End of Phase 1.

Wind power systems were set up at 12 sites, which is lower than the goal of 15 to 20 sites. Eighty percent of all site installations were complete as of November 1996. In addition, at 10 out of 12 sites, electricity production was meeting demand, with demand outstripping supply at 2 of the sites. The TE is internally inconsistent over whether or not the project was meeting electricity

supply and demand requirements consistently at these 12 sites. The 12 project villages had attained a 50 percent electrification rate as of November 1996.

- Output 5: Test and evaluate the systems from Output 4 based on socioeconomic and technical criteria. Deadline: End of Phases 1 and 2.

Socioeconomic and technical information is contained in the TE's Annex 1. The technical information is noticeably stronger than the socioeconomic information. No metrics are given to show the role that pilot wind projects have had in improving local socioeconomic conditions.

- Output 6: "Testing, application, and assessment of several wind electric systems, and development of the technical adaptations that may be required for reliable operation in Mauritania" (PD, p. 54). Deadline: End of Phases 1 and 2.

Phase 1's portion of this output had started, but was not complete. The TE claims that the pilot phase was too short to allow for "adequate feedback, in particular where the use of equipment and operation of local structures is concerned" (TE, p. 6).

Note: The TE never specifies under what metrics the project villages are chosen, instead stating that these villages were "appropriate (strong mobilization level)" (TE, p. 13)..

Immediate Objective 2: Create a system for promoting the project's technical, financial and institutional model to other rural areas to encourage the adaptation of wind power turbines for pre-electrification. These systems will be under local control: **Moderately Satisfactory**

- Output 1: Train a local company to assemble, manufacture (at least in part), install and maintain the wind power generators. Write contracts with these companies for maintaining and servicing this equipment. Deadline: End of Phases 1 and 2.

Local companies had been contracted to service and maintain the equipment. However, it is not clear from the TE if local companies had been trained on assembling, manufacturing and installing the wind power equipment.

- Output 2: Create a mechanism to electrify rural Mauritania. Deadline: End of Phase 2.

As this was a Phase 2 output, this task was not yet complete.

- Output 3: Train public and private sector engineers and technicians to improve national capacity. Deadline: End of Phases 1 and 2.

The TE is unclear of the level of training that had been conducted.

Note: Local staffing and capacity at project sites still needed to be improved before project members could then promote expanding the project model elsewhere. In addition, the support unit (CELED) had not yet been created. The project also did not have enough people to staff CELED once it was created.

Immediate Objective 3: Install wind power systems in 100 villages. These set-ups should be diverse across these 100 villages: **Unable to Assess**

- Output 1: Install wind power systems in 100 villages. There will be 2 types of wind systems: 1) “social applications (drinking water, health, and others)” and 2) “Commercial or individual applications” (PD, p. 68). Deadline: End of Phase 2.

This output was not yet complete because it was a Phase 2 initiative.

- Output 2: Train end users to perform simple maintenance and manage the wind power generators. Deadline: End of Phases 1 and 2.

The TE is unclear how much training end users had received.

Immediate Objective 4: Scale-up the project's methods by pushing for installing similar wind power systems at the regional, sub-regional and national level: **Unable to Assess**

- Output 1: Create reports and presentations on the project for public education purposes. The key audience is funding agencies. Additional audiences include the Mauritanian government, “financial institutions, the private sector, and the public at large” (PD, p. 76). Deadline: End of Phases 1 and 2.

The TE is ambiguous over whether or not these reports and presentations were ever drafted. However, it is clear that the project had not yet secured funding for Phase 2, which is the main goal of this objective and the project overall.

- Output 2: Create a Mauritanian wind energy resources database. Deadline: End of Phases 1 and 2.

The project had created a reference database, but the data was still unorganized. As a result, it was seldom used. Baseline data was not expected until Phase 2.

- Output 3: Conduct a public information campaign to help other programs working on rural development to adopt this project's methods. This will be conducted in conjunction with the Mauritanian Department of Energy. Deadline: End of Phases 1 and 2.

The TE is unclear if work on this output was ever started.

Note: The TE asserts that it was too early to tell if the project model could be replicated elsewhere. The TE states that expansion plans should be limited to the Trarza region, where the first 12 sites were. Any attempt to truly scale-up the project model elsewhere would have been a Phase 2 task.

Immediate Objective 5: Create the financial set-up for the project’s Phase 2: **Unsatisfactory**

The project had not yet secured financing for Phase 2. In addition, the project had run out of funds, so Phase 1 was incomplete.

Further notes on project effectiveness:

The TE claims the project resulted in “the near total replacement of petroleum (candles, oil, gas) by a form of energy without impact is confirmed and meets the objective” (TE, p. 19). However, no actual numbers are given to quantify the scale of this replacement. In addition, there is no mention of any quantifiable or anecdotal negative environmental effects the prior use of these petroleum products had on the local environment. As a result, we have no baseline for judging the improvement to the local environment by replacing petroleum product use with wind power.

Building off of the framework of a previous project (Alizés-Trarza), project workers in the field appear to have done a good job engaging the local population and getting them to buy into the project. In some cases, villages paid for part of the initial investment. Since the payment plan consists of paying a monthly fee “based on a relatively simple rate structure,” (TE, p. 8) user payments are more likely to be made. Additionally, local users agreed to pay for a maintenance contract in advance. These processes allow the local cooperatives to collect quality information on three important metrics that affect the future viability of the project: money collected, customer monitoring and battery performance. However, the reference database created was still disorganized and under-utilized.

4.3 Efficiency	Rating: Moderately Satisfactory
----------------	--

The TE does not provide a rating for project efficiency or directly assess project efficiency. However, the TE’s description of project management processes and implementation experiences indicate that project efficiency had significant shortcomings, principle among them were long delays execution of some project activities. Efficiency issues are detailed further along the following lines:

Delays:

In general, the TE does not directly assess efficiency. The biggest efficiency issues addressed in the TE are the multiple delays. The funding dispersed so far was for Phase 1 of a multi-phase project, but Phase 2 had been suspended. The TE did not specify explicitly why Phase 2 had been suspended, but implies that delays were a principle reason. The project’s initial phase was already behind schedule. According to the TE, “the project was based from the start on overly optimistic assumptions... [that] did not take into consideration the time required to make a number of decisions” (TE, p. 4). In particular, the bidding process was delayed for 4 months.

Financial Issues:

Of particular concern is that Phase 2 had been suspended. The TE recommends that GEF additional financing be provided to enact a Phase 1b. This phase’s goal would be to consolidate Phase 1a’s gains before starting Phase 2. While there is no indication that the project’s funds were mismanaged during Phase 1a, the PD explicitly called for project members to ensure that Phase 2 was financially viable. In practice, the project budget was insufficient to complete Phase 1’s expected activities, although the TE does not judge whether or not this was due to the PD having unrealistic expectations or if the Executing

Agency did not manage project funding efficiently. [The fact that the project had run out of money during Phase 1 was not explicitly stated in the TE, but was mentioned in a UNDP letter to the GEF dated June 1997.]TE states that the cost/quality ratio for the equipment used seemed good at the time, however it was still too early to determine if purchased equipment would continue to perform as expected over time.

There was a cost overrun of roughly 25% between initial assumed equipment costs (US\$353,000) versus actual equipment costs at that stage (US\$437,000). This is not a direct comparison since the initial plan assumed that the order would be 40 individual systems operating at under 100 W and 15 units generating 1 to 2 KW. The smaller units would cost US\$1,150 each and the larger units would cost US\$19,000 each.

The actual order was for an average of 40 households across 16 villages, with total equipment ordered for 50 households per village. These orders on average broke down as follows: 25 semi-collective 120 W wind-solar units, 13 1 KW systems and 1 2.5 kW system. This included 1 renovation. The TE does not break down the cost of each of these unit types. The TE includes no other information on expenditures during Phase 1a beyond these equipment costs.

The TE does not discuss if there were any communications issues between the GEF, UNDP, GRET, the Mauritanian government and project members in the field.

4.4 Sustainability	Rating: Unlikely
--------------------	-------------------------

The project had encountered several roadblocks, including suspension of Phase 2 and an uncertain legal environment. Without undertaking Phase 2, TE states that there was almost no chance that the gains made up until that point would be sustainable. The TE proposed a Phase 1b explicitly to prevent the gains from Phase 1a from being lost.

Risks to the sustainability of project outcomes is further detailed along the following 4 dimensions:

Environmental: Unable to Assess

The TE does not mention any environmental risks to the project.

Financial: Moderately Unlikely

The project faces across-the-board energy under-consumption problems combined with local electricity generation problems. This puts the financial sustainability of the project in jeopardy. As the TE states, “no ‘profitability’ should be expected” (TE, p. 4). According to the TE, the initial market study conducted during the planning stages grossly overestimated household energy/electricity usage. The study also did not take into account that many Mauritians live a nomadic lifestyle, so there is a seasonal variation component to baseline household energy usage. Even though electrification rates were high, actual daily use was low. For instance, in 4 villages that were studied, actual household use averaged out to less

than 800 Wh/month, which corresponds to 2.3 hours/day per household. Over one-quarter of participating households used the service under 90 minutes a day. This means that at least some of the projects may not be financially sustainable over the long term.

Sociopolitical: **Moderately Unlikely**

The TE states that the project's future required passing a bill that would move the project from the Ministry of Planning to the Ministry of Energy and Hydraulics, which had not yet passed. At the time, cooperatives and cooperative unions were supposed to replace the interim management committees that were overseeing the projects at the local level, but this legislation was required to allow this to happen. As a result, the cooperatives' legal rights and responsibilities were not well defined and the project as a whole was in an uncertain legal space. Without the support unit CELED in place, the Mauritanian government lacked the institutional framework to scale-up the project.

Institutional: **Unlikely**

Most of the institutional work was planned to take place during the suspended Phase 2, so most of the institution-building had not yet even started. As stated above, the cooperatives and cooperative unions required legislation to pass that had not yet passed. In addition, the support unit (CELED) had not yet been created. There were not enough project employees in the field to staff CELED. Since the Mauritanian government had planned to use CELED to scale-up the project, CELED would need to come into existence for the project to succeed elsewhere.

5. Processes and factors affecting attainment of project outcomes

5.1 Co-financing. To what extent was the reported co-financing essential to the achievement of GEF objectives? 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 so, in what ways and through what causal linkages?

In the original PD breakdown, GEF/UNDP financing was US\$2,000,000, while Mauritanian government financing was US\$73,552. This was a small portion of the overall budget. The TE does not assess to what degree the level of co-financing at this point had contributed to project outcomes. It should be noted that the Mauritanian's co-financing contribution noted below is noticeably higher than in the PD. The project had not yet secured co-financing for Phase 2.

The total contribution to the investment phase was US\$3,300,000. Donors contributed 66.3 percent of this total (US\$2,187,900), with the Mauritanian government contributing 25 percent (US\$825,000) and project villages 8.7 percent (US\$287,100).

The total project contribution minus technical assistance was US\$4,300,000. Donors contributed 70.6 percent of this total (US\$3,035,800), with the Mauritanian government contributing another 22.9 percent (US\$984,700) and villages contributing 6.4 percent (US\$275,200).

5.2 Project extensions and/or delays. 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 so, in what ways and through what causal linkages?

As mentioned in section 4.2, the project faced multiple delays, with the longest delay due to the bidding process taking longer than expected. These delays appear to have caused the study of key local issues to be pushed back. As a result, issues like battery maintenance, local mixed energy source generation and local wind generative capacity were not well understood as of the TE’s writing. Phase 2 had been suspended, but the TE does not state who made the decision to suspend Phase 2 or explicitly why this decision was made.

5.3 Country ownership. 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:

The TE provides insufficient information to assess country ownership, in part due to the project's ambiguous legal standing at the time. While this project built off of the experience of other government-supported projects, the project’s legal status and framework was still unclear as of the TE. According to the TE, the “legal status of local and federated management, operation and control organizations” was still incomplete (TE, p. 5). Local project leaders were still waiting on legislation to clarify their legal definition as of the TE’s writing.

6. Assessment of project’s Monitoring and Evaluation system

Ratings are assessed on a six point scale: Highly Satisfactory=no shortcomings in this M&E component; Satisfactory=minor shortcomings in this M&E component; Moderately Satisfactory=moderate shortcomings in this M&E component; Moderately Unsatisfactory=significant shortcomings in this M&E component; Unsatisfactory=major shortcomings in this M&E component; Highly Unsatisfactory=there were no project M&E systems.

Please justify ratings in the space below each box.

6.1 M&E Design at entry	Rating: Unsatisfactory
-------------------------	-------------------------------

The TE does not provide a rating on M&E Design at Entry. The following is based on the PD, as well as TE’s assessments of some aspects of M&E Design. While the PD does reference an annual Tripartite Review Process involving the Mauritanian government, GEF and UNDP, it does not state what criteria would be used to judge project progress. The clearest quantifiable benchmark was that wind power systems should be installed in 15 to 20 pilot project villages. Besides the total number of pilot project villages, the PD did not provide indicators or clear targets for many of the project outputs and processes.

There was a well-developed reporting schedule through the end of Phase 1 in the PD, but the criteria for these reports was also not yet developed as of the PD’s writing. Instead, the PD states that "the organizational structure, features, and schedule of this exercise [the annual project evaluation] will be

determined by UNDP Headquarters after consultations between the parties (Government, UNDP field office and the executing NGO)" (PD, p. 87). This may have influenced the lack of clear benchmarks noted in section 6.2 below. The TE notes that the project resources and budget were smaller than the project's actual M&E needs. The PD lacks a line item for M&E in the project budget. It is unclear if any particular person was tasked with M&E and given clear directions on what to do or what to measure. In addition, the TE authors state that the M&E process needed to operate under clearer indicators. Villages needed better support in order to ensure that they could measure their progress for M&E purposes.

6.2 M&E Implementation	Rating: Unable to Assess
-----------------------------------	---------------------------------

While the TE critiques problems with M&E design, funding and support, it is often unclear on the quality of actual M&E implementation.

7. Assessment of project implementation and execution

Quality of Implementation includes the quality of project design, as well as the quality of supervision and assistance provided by implementing agency(s) to execution agencies throughout project implementation. Quality of Execution covers the effectiveness of the executing agency(s) in performing its roles and responsibilities. In both instances, the focus is upon factors that are largely within the control of the respective implementing and executing agency(s). A six point rating scale is used (Highly Satisfactory to Highly Unsatisfactory), or Unable to Assess.

Please justify ratings in the space below each box.

7.1 Quality of Project Implementation	Rating: Unable to Assess
--	---------------------------------

Unrealistic project timelines set in the PD caused the project to be behind schedule. The multiple delays involved in making decisions are cause for concern. These delays led to the project being suspended. The suspension of Phase 2 casts the gains made into doubt. According to the PD, "the inability to execute Phase 2 would therefore result in certain failure for the project" (PD, p. 86). M&E planning and support was also insufficient. The lack of study of local wind generative capacity is also a major oversight.. The TE does not address UNDP's role with regard to the project's financial situation or the quality of its supervision of the executing agency.

The TE does not provide sufficient information to determine if the Steering Committee and the Coordinating Committee provided sufficient and timely guidance. Both committees' actual contributions are vague. According to the TE, "both committees dealt with the same themes, actually with a degree of redundancy" (TE, p. 17). In addition, the Scientific and Technical Expert Council did not appear "to have contributed to the progress of the project as expected in the initial document," (TE, p. 17) though the TE does not elaborate on this point.

7.2 Quality of Project Execution	Rating: Unable to Assess
---	---------------------------------

While project funding was only provided for Phase 1 of a multi-phase project at this point, many of the goals in the PD were not originally scheduled to be met until Phase 2. Since Phase 2 was suspended, none of the Phase 2 planned actions occurred. The TE is vague at times on which of the objectives mentioned in the PD were even attempted. Many of the outputs scheduled for the end of Phase 1 were training initiatives. While the PD called for a number of training initiatives to build up local capacity, it is unclear how many of these ever actually took place. The TE also does not address if reports and presentations to inform potential financiers were ever drafted. No plans or mechanism to scale-up the project beyond a few surrounding villages was ever put in place. The project never got around to making Phase 2 financially viable, in part because finishing Phase 1 was not financially viable either.

8. Assessment of Project Impacts

Note - In instances where information on any impact related topic is not provided in the terminal evaluations, the reviewer should indicate below that this is indeed the case. When providing information on topics related to impact, please cite the page number of the terminal evaluation from where the information is sourced.

8.1 Environmental Change. Describe the changes in environmental stress and environmental status that occurred by the end of the project. Include both quantitative and qualitative changes documented, sources of information for these changes, and how project activities contributed to or hindered these changes. Also include how contextual factors have contributed to or hindered these changes.

The TE states that “the near total replacement of petroleum (candles, oil, gas) by a form of energy without impact is confirmed and meets the objective” (TE, p. 19). However, no assessment of the extent to which GHG emissions were reduced as a result of project activities is provided in the TE. In addition, there is no mention of any potentially negative environmental effects the prior use of these petroleum products had on the local environment. As a result, we also have no baseline for judging the improvement to the local environment by replacing petroleum product use with wind power.

8.2 Socioeconomic change. Describe any changes in human well-being (income, education, health, community relationships, etc.) that occurred by the end of the project. Include both quantitative and qualitative changes documented, sources of information for these changes, and how project activities contributed to or hindered these changes. Also include how contextual factors have contributed to or hindered these changes. The TE does not assess the socioeconomic change that did or did not occur due to the project.

8.3 Capacity and governance changes. Describe notable changes in capacities and governance that can lead to large-scale action (both mass and legislative) bringing about positive environmental change. “Capacities” include awareness, knowledge, skills, infrastructure, and environmental monitoring systems, among others. “Governance” refers to decision-making processes, structures and systems, including access to and use of information, and thus would include laws, administrative bodies, trust-

building and conflict resolution processes, information-sharing systems, etc. Indicate how project activities contributed to/ hindered these changes, as well as how contextual factors have influenced these changes.

a) Capacities

The quality of service operation and maintenance was unknown as of writing the TE. The TE also makes the point that further skills training would be required to improve the skills of staff involved in the sites' operation and maintenance (TE, pp. 16-17). The TE does not assess many of the training programs called for in the PD, so it is often unclear of the project's effect on local capacity.

b) Governance

At the time the TE was written, interim management committees oversaw the projects in the field. The plan was for cooperatives and cooperative unions to take over the site management. However, this would require passing a bill transferring the projects from the Ministry of Planning to the Ministry of Energy and Hydraulics, which had not yet passed. As a result, the cooperatives' legal rights and responsibilities were not well defined and the project as a whole was in an uncertain legal space (TE, p. 9).

8.4 Unintended impacts. Describe any impacts not targeted by the project, whether positive or negative, affecting either ecological or social aspects. Indicate the factors that contributed to these unintended impacts occurring. TE does not mention any unintended impacts that occurred as a result of this project.

8.5 Adoption of GEF initiatives at scale. Identify any initiatives (e.g. technologies, approaches, financing instruments, implementing bodies, legal frameworks, information systems) that have been mainstreamed, replicated and/or scaled up by government and other stakeholders by project end. Include the extent to which this broader adoption has taken place, e.g. if plans and resources have been established but no actual adoption has taken place, or if market change and large-scale environmental benefits have begun to occur. Indicate how project activities and other contextual factors contributed to these taking place. If broader adoption has not taken place as expected, indicate which factors (both project-related and contextual) have hindered this from happening.

No mention is made in the TE of GEF's role beyond financing.

9. Lessons and recommendations

9.1 Briefly describe the key lessons, good practices, or approaches mentioned in the terminal evaluation report that could have application for other GEF projects.

- Local engagement: Throughout the report the authors mention that engaging local communities early on and continuously throughout the process is required to build and maintain local support. Project managers have to be flexible responding to local needs and conditions. The TE cites working through the NGO GRET helped make local engagement effective. They helped create local management systems that were expected to eventually lead local cooperatives.

(This approach built on GRET's experience with the local Alizés-Trarza project.) Through this process, participating villages agreed to three main points:

- 1) Villages would contribute to the initial investment.
 - 2) Participants would pay a monthly fee. The fee would have a simple rate structure to make it easy to understand and raise actual payment rates.
 - 3) Participants paid for a maintenance contract ahead of time.
- Records and Data: The record keeping and accounting system in the villages is both simple and effective, which can help ensure that an effective local knowledge base can be built. The data collected is on "cash, customer monitoring and battery monitoring." In addition, project members are also putting together a technical reference database that includes information on local wind conditions at project sites. However, the TE authors note this latter data is rarely used and is still relatively unorganized. Project members were aiming to ensure "baseline data [would be] available on the entire technological approach" (TE, p. 8) as the project entered Phase 2.
 - Gradual Approach: In addition, the TE authors also promote a gradual approach to reaching high levels of electrification and participation in project villages. Local stakeholders believed that this would help create a local norm for electrification that would be more effective than rapid expansion of service to every member of each project village.

9.2 Briefly describe the recommendations given in the terminal evaluation.

It is unclear from the TE if Phase 2 of the project was ever undertaken. With that said, the TE authors made the following recommendations:

- For Phase 1 to be truly complete, a more robust M&E system and support structure would need to be implemented. The TE authors recommend hiring an executive who could split their time between M&E and community outreach. Clear metrics and indicators would have to be chosen to be monitored. Villages would have to receive the proper technical support to be able to track and provide data on these indicators. The authors also suggest setting up a regular schedule of monitoring meetings with each local project partner to review progress. These meetings would be scheduled for every two to three months, which would allow for timely responses to facts on the ground. The authors suggested that the Caisse française de développement as a potential M&E partner during Phase 2.
- The TE authors felt that it was unclear and too early to tell if the project could be replicated elsewhere. However, they asserted that the project needed to be moderately scaled up. Expanding the project to serve 6,750 households/about 100 to 135 villages would help to "secure a balance of the structure being currently established," (TE, p. 20) though it is unclear what the authors meant by this.

- Project expansion should be limited to the Trarza region during Phase 2. Pilot sites could be used to test the feasibility of moving beyond Trarza when Phase 2 was nearing completion.
- The authors mention that “the concept of a rural electrification fund was favorably received” (TE, p. 21). However, they are unclear who looked favorably on such a fund. The TE authors believe such a fund could initially receive funding through the government appropriations process. It later could be financed through the energy sector’s share of the Development Support Fund. However, it is unclear whether or not these government institutions showed any interest in participating.
- Pursuing bank lending would be premature, in part because “rural banks do not show any interest in rural communities.” However, a lending mechanism could later finance equipment replacement as long as the union of cooperatives practiced “good management techniques” (TE, p. 22).

10. Quality of the Terminal Evaluation Report

A six point rating scale is used for each sub-criteria and overall rating of the terminal evaluation report (Highly Satisfactory to Highly Unsatisfactory)

Criteria	GEF EO comments	Rating
To what extent does the report contain an assessment of relevant outcomes and impacts of the project and the achievement of the objectives?	Several of the PD's Immediate Objectives were not met. However, the TE does not systematically address these objectives.	U
To what extent is the report internally consistent, the evidence presented complete and convincing, and ratings well substantiated?	The TE does not provide ratings on individual outputs because this was not a GEF requirement at the time. However, the TE is often internally inconsistent when assessing the projects outputs. The report is also inconsistent at times over whether the project is financially sustainable. The TE is often contradictory over whether the individual wind power installations collected enough in revenue to remain viable. The fact that Phase 2 was suspended is buried towards the end of the TE, which brings the numerous sections discussing the future into question. The suspension of Phase 2 should have been addressed directly to make it clear why this decision was made. With this said, the report is consistent that Phase 1 saw numerous delays due to an unrealistic planning process.	MU
To what extent does the report properly assess project sustainability and/or project exit strategy?	TE does not discuss the project's exit strategy is discussed. While the TE does address financial sustainability, these parts of the report are often inconsistent and make no direct quantifiable relation reference to the local economy. The TE does not address any environmental risks that could affect project sustainability.	MU
To what extent are the lessons learned supported by the evidence presented and are they comprehensive?	The authors are consistent that better planning (setting more realistic timelines) and better M&E support are required for such a project to succeed. While the authors assert that GRET successfully engaged local communities, which is possibly supported by the high electrification rates, the evidence as presented is underwhelming and based largely on assertion. The TE was written with the assumption Phase 2 would come to pass, but it is not clear this ever occurred.	MU
Does the report include the actual project costs (total and per activity) and actual co-financing used?	The TE does not include a table of actual project costs during Phase 1. The PD included tables breaking down projected costs into line items, but actual spending during Phase 1 is not broken down into line items sufficiently in the TE. Equipment costs are mentioned in the body of the report, but actual money spent on human resources is never directly addressed. Projected costs for Phase 1b are	MS

	included at the end of the TE. A breakdown of financing sources is shown on page 21.	
Assess the quality of the report's evaluation of project M&E systems:	As noted earlier, the lack of clear metrics of success for several objectives is an issue of concern. The TE notes that the project team did not have sufficient M&E support. The TE needs to be clearer if the results shown in Annex 1 are from the TE mission or the M&E process. The TE is often unclear when it is discussing evaluation results from the TE mission or separate M&E missions, which makes it difficult to rate the TE's assessment of the M&E system.	MU
Overall TE Rating		MU

Overall TE rating: $(0.3 * (2+3)) + (0.1 * (3+3+4+3)) = 1.5 + 1.3 = 2.8 = \text{Moderately Unsatisfactory}$

11. Note any additional sources of information used in the preparation of the terminal evaluation report (excluding PIRs, TEs, and PADs).

Project Document (PD), 1994.