Terminal Evaluation Review form, GEF Evaluation Office, APR 2014

1. Project Data

Summary project data			
GEF project ID		1361	
GEF Agency project ID		4837	
GEF Replenishment Phase		GEF-3	
Lead GEF Agency (include all for joint projects)		UNEP	
Project name		Generation and Delivery of Renewable Energy Based Modern Energy Services in Cuba: The Case of Isla de la Juventud	
Country/Countries		Cuba	
Region		LAC	
Focal area		Climate Change	
Operational Program or Strategic Priorities/Objectives		OP6, CC3	
Executing agencies involved		UNIDO, GEPROP, Compañía Fiduciaria/Nueva Banca	
NGOs/CBOs involvement		None	
Private sector involvement		None	
CEO Endorsement (FSP) /Approval date (MSP)		23 March 2005	
Effectiveness date / project start		5 September 2005	
Expected date of project completion (at start)		June 2011	
Actual date of project completion		October 2014	
Project Financing			
		At Endorsement (US $M)	**At Completion (US $M)**
Project Preparation Grant	GEF funding	.325	.325
	Co-financing		
GEF Project Grant			
Co-financing	IA own	.05	.05
	Government	1.624	7.23
	Other multi- /bi-laterals	.37	.17
	Private sector	8.66	0
	NGOs/CSOs		
Total GEF funding		5.662	5.247
Total Co-financing		10.704	7.45
Total project funding (GEF grant(s) + co-financing)		16.366	12.697
Terminal evaluation/review information			
TE completion date		April 2015	
TE submission date		October 2015	
Author of TE		Manuel Blasco & Suani Texieira Coelho	
TER completion date		December 11 2015	
TER prepared by		Molly Watts	
TER peer review by (if GEF EO review)		Dania Trespalacios	

2. Summary of Project Ratings

Criteria	Final PIR	IA Terminal Evaluation	IA Evaluation Office Review	GEF EO Review
Project Outcomes	U	U	NR	MU
Sustainability of Outcomes	NR	L	NR	ML
M&E Design	MS	S	NR	MS
M&E Implementation	MS	MU	NR	MU
Quality of Implementation	MS	S	NR	MS
Quality of Execution	NR	NR	NR	MU
Quality of the Terminal Evaluation Report	--	--	--	MS

3. Project Objectives

3.1 Global Environmental Objectives of the project:

The Global Environmental Objective of the project as stated in the project document is "to reduce the Greenhouse Gas Emissions (GHGs) in Cuba by promoting environmentally sound renewable energy technologies for power generation as well as for providing modern energy services on a commercial basis at the Isla De la Juventud." (ProDoc p. 1)

3.2 Development Objectives of the project:

The project's development objectives are to address key barriers that constrain the use of renewable energy technologies, specifically biomass and wind, on the Isla de la Juventud, and promote business models for sustainable harnessing of renewable energy resources in Cuba.

The project's expected outcomes as stated in the Project Document were:

- Establishment of a legal, institutional and policy framework to provide an enabling environment to the development of renewable energy technologies for power generation in Cuba
- Successful implementation of business models to demonstrate commercial feasibility of renewable energy technologies for power generation on the Isla de la Juventud, and dissemination of results in Cuba as well as in the region
- Capacity building of national institutions and agencies to utilize the commercial potential of renewable energy technologies
- Setting up of new and innovative financial and institutional mechanisms to encourage private sector investment in renewable energy projects on the Isla de la Juventud and rest of the country
- Replication of business models for generation of power and process heat from renewable energy sources (biomass and wind) in Cuba as well as in the region/Small Island States

3.3 Were there any **changes** in the Global Environmental Objectives, Development Objectives, or other activities during implementation?

In 2010 the Project Steering Committee modified some project outcomes and activities. This was due to extreme delays in project implementation. Some of these were caused by the three hurricanes which

struck Cuba in 2008, forcing the government of Cuba to change priorities and allocate scarce financial resources to reconstructing basic infrastructure. The world financial crisis of 2008 also affected the country's economy, and caused the Government to request a reduction in initial project objectives.

The changes were as follows:

Activities as per original project document (June 2005)	**Modified activities requested by Gov of Cuba (January 2010)**
1. Establishment of a policy and regulatory framework enabling environment for renewable energy technologies (RETs)	Establishment of assurance standards and guidelines for renewable energy technologies, on the basis of the policy and regulatory framework formulated by the government **Outputs changed:** the output that a policy and regulatory framework would be established and operational was removed
2. Building local/national capacity to utilize the commercial potential of renewable energy technologies	Capacity building and training of key stakeholders and nationals **Outputs changed**: the output that national manufacturing capacities would be strengthened to manufacture, assemble and maintain biomass gasifier systems and wind farms was removed. The component of training experts and planners on information and dissemination and implementation replication strategy was also removed.
3. Setting up of new and innovative financial mechanisms and private investments in renewable energy technologies	Setting up of new and innovative financial mechanisms and investments management in renewable energy technologies **Outputs changed:** The output "innovative funding mechanism to attract investment set up" was changed to "innovative funding mechanism to manage investment is set up"
4. Implementation of 4 Business Models to demonstrate commercial feasibility of renewable energy technologies and power generation and heating process	Implementation of 4 Business Models to demonstrate commercial feasibility of renewable energy technologies and power generation and heating process **Outputs changed**: The following components were removed "Training on operational and management of business models, conducted", "Supervision of performance of business units conducted", "pilot mini-grid based on biomass gasifier technology set up at Cocodrilo"(moved to component 6). Additionally the wind farm at be developed at Playa Bibijagua was replaced with Implementation of a Demonstrative Component to strengthen national manufacturing capacities to manufacture, assemble and maintain biomass gasifier systems and wind farms **Outputs added**: Cocodrilo electro-biomass pilot plant (moved from component 4) Marabou plantation cutting machines system

	Small aero-generators/wind turbines up to 5 KW Local manufacturing of Compact biomass gasification power plant for isolated communities

(TE p.29-32)

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**

The TE rates relevance as **Satisfactory,** and this TER agrees with that rating. The project is consistent with GEF Priorities. The project is relevant under GEF's Climate Change Focal Area Operational Program 6-promoting the adoption of renewable energy by removing barriers and reducing implementation costs, and Climate Change Mitigation Strategy CC3: "Foster Enabling Conditions to Mainstream Mitigation Concerns into Sustainable Development Strategies."

The project objectives and strategies were also consistent with the environmental issues and needs of Cuba, and in Isla de la Juventud. As noted in the TE, important parts of the soil in Isla de la Juventud are inadequate for agricultural usage, and thus suitable for biomass forestry purposes. Additionally, as stated in the Project Document, the National Program for Development of Local Energy Sources in Cuba places a high priority on the development of indigenous and environmentally benign renewable resources/options for rural/urban areas. (PD p.6) The project was also liked to several ongoing project and programs, including the UNDP/GEF Enabling Activity Project "National Communications to the UNFCCC", and the UNDP/GEF's project "Co-generation of Electricity and Steam Using Sugarcane Bagasse and Trash".

4.2 **Effectiveness**	Rating: **Moderately Unsatisfactory**

The TE rated achievement of direct outcomes as Unsatisfactory**,** and this TE slightly upgrades that rating to **Moderately Unsatisfactory**. At project end several activities were still not completed, however important results, such as a Risk and Replication Management Fund, had been achieved.

The project's first component was the establishment of a policy and regulatory framework to provide an enabling environment for the development of renewable energy technologies. The following outcomes were expected:

- Establishment and operationalization of a policy and regulatory framework to provide enabling environment to the development of renewable energy
- Establishment and dissemination of national quality assurance standards on renewable technology performance and evaluation benchmarks
- Formulation of guidelines on environment impact assessment and carrying capacity to evaluate new and renewable energy investment projects, especially where biomass resources and wind technologies are to be used
- Ensuring the sustainability of the projects.

These results were partially reached during the project. A favorable enabling environment for renewable energy has been created both in Isla de la Juventud and among Cuban authorities, resulting in the adoption by the Cuban government of a general plan for development of renewable energy sources, with quantified objectives for each energy source. In June 2014 the Cuban Council of Ministers adopted a policy encouraging development and supporting the use of renewable energy sources in Cuba. The target date for preparing a corresponding regulatory framework for renewable energy use is March 2015. (TE p.43)

The project's second component was building local and national capacity to utilize the commercial potential of renewable technologies. The project hoped to: (1) train key stakeholders on technology evaluation, benchmarking of renewable energy systems, and management aspects of renewable energy based power plants and process heat generation systems; (2) train experts and planners to manage the technical and financial services for the project, disseminate information and implement the replication strategy; (3) strengthen national manufacturing capacities, assembly and maintenance of the biomass gasifier systems and wind farms; and (4) reduce costs of implementing renewable energy projects. The training results were reached, with the exception of training workers in one of the four planned business models (The Meat Factory), which was not completed. However, the TE states that these trainings did not necessarily lead to strengthened national manufacturing capacities or local universities/research groups, or reduced costs of implementing renewable energy projects, because in some cases the staff trained by the project then left. For one of the project's business models, the meat industry, the TE notes there was no concrete facilitation or capacity building. (TE p. 85) The TE noted that by project end there was insufficient technical capacity for the manufacturing of biomass plant components. (TE p.69)

The third project component involved establishing new innovative financial mechanisms to encourage private sector investment in renewable energy projects on Isla de la Juventud that would be replicated throughout Cuba. The project also hoped to build the capacity of national banks and financial institutions to evaluate and analyze renewable energy technology-based power projects. By the end of the project, a mechanism for funding was created, The Risk and Replication Management Fund, (RRMF), which is designed as a revolving fund for the replication and development of renewable energy investment projects. However, the success of the risk and replication management fund, will depend on its ability to attract external funding.

The fourth project component was the implementation of business models to demonstrate commercial feasibility of renewable energy technologies for power generation and process heat generation. The

project hoped to achieve installation and start-up of four business model-investment projects, as well as training on the operational and management issues to business models and their linkages with productive use activities. This project component also involved close supervision of performance of the business units conducted, and corrective steps taken on regular basis. By the project end of only one of the business plants- the forestry/biomass production plant- was running. The commercial feasibility of renewable energy technologies in Cuba cannot be considered to be fully demonstrated.

The project's fifth component, establishment of project management structures for the implementation, coordination and monitoring of the project activities and dissemination of results, was achieved. (TE p.32)

4.3 **Efficiency**	Rating: **Unsatisfactory**

The TE rated efficiency as **Unsatisfactory,** and this TE Review agrees with that rating. In terms of cost, the TE found the project to be initially well defined and managed, with the exception of one activity all activities were adequately budgeted and costs had no significant differences with corresponding budget lines. However the project experienced major delays and was extended by 3 years. Some delays, such as those caused by the hurricanes of 2008, were out of the project's control, however the TE notes bureaucratic complications of procedures in Cuba and high number of institutions involved as the main causes, as well as the recent restructuring of the government. The evaluation found that delays from procedures and authorization processes in Cuba were underestimated initially, as well as compounded by the high number of Cuban institutions involved. It notes that no concrete time saving measures were taken and even when performance targets were reduced in 2010 this did not help to reduce delays. Finally, communication problems among both the Cuban institutions and the implementing agency were also noted in the TE as contributing to problems with efficiency.

4.4 **Sustainability**	Rating: **Moderately Likely**

The TE rates **Socio-political sustainability** as **Highly Likely (HL)** and this TE review, which uses a different rating scale, rates Socio-political sustainability as **Likely**. Stakeholders have a high level of consciousness about the convenience of use of renewable energy resources. A policy aimed at encouraging the use of renewable resources has been aimed at encouraging the use of renewable energy resources.

The TE rates **Financial Sustainability** as **Likely (L)**, and this TER concurs. As a result of the project, the Compañía Fiduciaria created a Risk and Replication Management Fund (RRMF) to fund the three project Business Models, La Melvis, the forestry activities and the meat industry. As of project end, the RRMF passed under the responsibility of the Cuban government, with the hope of receiving new funding through international collaboration schemes. The TE found that RRMF was functioning adequately at project end, but that it was necessary to find more sources of financing, aside from repayments of the three present business models. However, the creation of this funding mechanism is an important step towards sustainability of project outcomes.

The TE rates **Institutional sustainability** as **Moderately Likely (ML),** and this TE review agrees with that rating. Cuba's energy policy is directed towards reduction of oil imports and use of domestic energy

resources. However, The TE notes that the Cuban authorities do have the technical resources to manufacture biomass gasifiers and other components for installations that use renewable energy resources, but will need further technology transfer to take advantage of these capabilities.

The TE rates achievement of **Environmental Sustainability** as **Highly Likely (HL)**, and this TE review which uses a different rating scale, rates it as Likely. The TE finds there is no risk from the project activities to protection of the environment, as use of wind resources is beneficial and not harmful, and consumption of biomass is contemplated under a scientific approach. The TE notes one possible risk that a delay in implementation of the scientific approach identified as part of the project could result in an excessive use of forest wood during the first 6-7 years after project end.

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?

Original expected co-financing was US $10.704 million, but only US $7.45 million materialized. The co-financing originally expected from the private sector, US $8.66 million, failed to materialize. This was a contributing factor in the necessary reduction in project size and objectives, along with delays caused by hurricanes in 2008. However, the Government of Cuba supplied more co-financing than originally anticipated, largely filling the gap.

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?

The TE notes that the project experienced major delays, which did affect the project's outcomes and potential sustainability. One cause of delays were the hurricanes of 2008. Another was complications arising from the high level of Cuban institutions involved which led to bureaucratic complications, and the recent restructuring of the Cuban government. Another cause listed in the TE was turnover in the position of project director. The project was extended four times, by approximately 3 years (TE p.22), reaching a total duration of almost 10 years. The budget was also revised four times. The delays affected the project's outcomes and sustainability because certain key activities, around training and capacity building, had to be removed from the project. This threatens the project's sustainability because training is necessary for the new technologies introduced by the project to be used going forward. For example, the TE noted that by project end there was insufficient technical capacity for the manufacturing of biomass plant components. (TE p.69)

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 project goal, objectives and activities reflect the priorities of the Cuban government in the field of energy. In 2010 the Cuban state passed into law the National Program for Development of Local Energy Sources, which considered development of renewable energy sources as part of the law. A policy of support for renewable energy sources was also approved, and the TE reported that national and local level authorities expressed firm support for the use of renewable energy resources. Additionally, as noted above, the Government of Cuba supplied more co-financing than originally anticipated, largely filling the gap left by lower than expected levels of co-financing from the private sector. The TE notes that the attitude of both national and local public authorities in Cuba is in favor of use of renewable energy sources and committed to project objectives. (TE p.67)

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: **Moderately Satisfactory**

The TE rates M&E Design at entry as **Satisfactory**, however this TE review rates M&E Design as **Moderately Satisfactory**. The outcomes listed in the Project Planning Matrix do not match those listed in the Project Document (though the components do.) A review of the indicators presented for both outcomes and components in the Project Planning Matrix shows that many are not SMART (Specific, Measurable, Achievable, Relevant and Time-bound. For example, under component 3 "Setting up of innovative financial mechanisms and structures to encourage private sector investment in renewable energy projects" one indicator is: "Capacity of Compañía Fiduciaria, National Bank of Cuba and other financial institutions is enhanced to appraise and evaluate renewable energy based investment projects in Cuba. (Year 3 and 4)" (ProDoc, A-63) The TE notes that responsibilities for M&E were adequately defined, and evaluations were budgeted, although the mid-term evaluation budget was initially too low and had to be increased, resulting in a negative balance for the evaluation budget line, although no targets in terms of timeframe were set in terms of completing these evaluations.

6.2 **M&E Implementation**	Rating: **Moderately Unsatisfactory**

The TE rates M&E Implementation as **Moderately Unsatisfactory**, and this TE concurs. This is mainly due to substantial delays in submitting PIRs, and the fact that according to the TE there are indications that project incidents were not adequately reported. It is noted that the project followed the recommendation of the Mid Term Evaluation report to increase the frequency of reporting in order to improve communications between the project management and UNO agencies, but the TE notes that some reports were overly optimistic. Stakeholder notes included at the end of the TE note that bi-monthly progress reports failed to include relevant information, such as issues with the gasifiers installed in the business plants. (p.77) .

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: **Moderately Satisfactory**

The Implementing agency for this project was the UNEP. The TE rates the quality of UNEP Supervision and Backstopping as **Satisfactory,** however this TE review rates Quality of Project Implementation as **Moderately Satisfactory**. UNEP officers visited Cuba and the project sites in Isla de la Juventud several times and followed up on project development. However the TE notes that UN officers indicated they did not know the real situation of project activities during project implementation. UNEP was realistic following delays caused by the 2008 hurricanes, adapting the project to new circumstances. Additionally, although the TE notes that the fact that Cuban procedures are slow and time-consuming was taken into account during project design, the proposed project duration was too short, and thus overly optimistic.

7.2 **Quality of Project Execution**	Rating: **Moderately Unsatisfactory**

The executing agency for this project was UNIDO. The TE does not rate quality of project execution. This TE reviewer rates Quality of Project Execution as **Moderately Unsatisfactory**. The TE notes that a common cause of delay in the project was that each stakeholder was waiting for the other to act. (TE p.58) It notes that no concrete time-saving measures were found to be taken along the project timeline, and that in several cases UNIDO reports were prepared with delays. It also notes that turnover in the role of the project director also contributed to delays. (TE p.40) However the TE also notes positive aspects of project execution, for example the fact that the project did adopt the majority of

recommendations of the Midterm evaluation, and that the project was well managed in terms of cost. (TE p.23-24, 55)

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 in the relevant sections below that this is indeed the case and identify the information gaps. 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.

According to the TE, the Cocodrilo plant has saved approximately 18 tons of diesel fuel, whereas the Los Canarreos wind farm avoided the consumption of approximately 1,630 Tons of Oil Equivales between 2007 and 2013. Both plants reduced emissions of C02 by 6.500 tons up until June 2014. (TE p.50)

Other environmental changes are improved ecosystem management, for example the supply of biomass fuel to the Cocodrilo plant has resulted in more adequate management of the surrounding national park ecosystem. Additionally, the creation of a new forest nursery to supply biomass fuel to La Melvis electric plant and to the meat industry is also having a positive impact on the management of ecosystems in Isla de la Juventud.

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.

No changes in human well-being are reported as a result of 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 TE notes that Cuban stakeholders have had access to sound technical and policy advice for decision-making through the project activities, including on the types of control equipment to be used in the plants using biomass gas as fuel.

b) Governance

In June 2014 the Cuban Council of Ministers adopted a policy encouraging development and supporting the use of renewable energy sources in Cuba. (TE p.43) This is a notable change in governance which occurred four years before project end, and which the TE notes was "undoubtedly influenced by the project activities." (p.50 & 64)

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.

No unintended impacts are reported as having resulted from the 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.

Sustaining- achieved. The establishment of the Risk and Replication Management Fund (RRMF), which is currently under control of the Cuban government, may fund future projects.

Replication- established The TE notes that there were several plans to replicate at scale, including to generate electricity from residues in sawmills, to electrify isolated areas through forest biomass and/or wind energy, and to develop plants of the "La Melvis" type in other parts of the main island. The TE notes however that this will only occur if the RRMF is successfully implemented and La Melvis performs adequately. (TE p.55)

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.

The Lessons Learned as stated in the TE are as follows: (TE p.71-72)

Lessons learned

1. It is important to select an area of manageable size where renewable resources can make a considerable impact on the energy supply, and where a significant amount of jobs will be created.
2. The involvement of two UN agencies (UNEP and UNIDO) in a project can result in a number of difficulties, such as different accounting systems, and difficulties in the transmission of information about project development.
3. It is important to involve in the project an institution with good knowledge, influence and contacts in the considered sectors of industry (including of course the electricity supply industry).
4. It is important to give due consideration to the political and economic organization of the country and to the bureaucratic difficulties arising as a result of it (process of taking decisions, legal outlook for imports of equipment and purchase of spare parts, bidding procedures, etc.). Experience has shown that underestimating these circumstances can result in long delays and difficulties. It is important to reduce the number of involved institutions and agencies as much as possible as well as give careful consideration to the scope of the project objectives when working in such an environment.
5. It is important to simplify the project organization table as much as possible before project start, defining responsible persons from each institution involved and establishing the obligation to communicate promptly any changes. Whenever possible, the new projects should be linked to only one Ministry.
6. Financing issues are very relevant for any project, but they are especially relevant when future replication of project activities is envisaged. It is of the utmost importance to attain collaboration with agencies or institutions who have a deep knowledge of economic and financing issues in the corresponding country.
7. It is important to pay the necessary attention, budget and effort to monitoring the development of project activities through visits to the project sites.
8. In projects such as this, attention needs to be paid to equipment supply contracts & the technical specifications.
9. It is important to pay adequate attention to improve abilities of working personnel, to create qualified manpower, and to supply enough incentives for this manpower to remain in their posts. In fact, potential for replication of projects can only be guaranteed when adequately qualified manpower exists.

9.2 Briefly describe the recommendations given in the terminal evaluation.

Recommendation 1. The first recommendation is to follow up the future developments of installations and plants already commissioned or just finished. The Executing Agency should carry out this task, in collaboration with UNEP/UNIDO and the local electric utility; this recommendation should be followed immediately after project end, and UNIDO is in a better position to take care of it since it already has an office in Cuba. UNIDO should continue monitoring the commissioning of La Melvis, and performance of Cocodrilo, paying attention to the operation and maintenance of the plants. Whenever possible, for example periodical reports (quarterly?) should be prepared by the

Executing Agency indicating the project developments, problems encountered, solutions adopted, etc., and made available to UNIDO (and UNEP).

Recommendation 2. The Executing Agency should follow up with the development of plants whose construction has been decided but not yet commenced (Meat Factory); in this case a careful follow up is especially important during construction (periodical reports indicating the development of construction and commissioning). Still more important is the training of personnel in charge of the future, guaranteeing technical assistance until that personnel is perfectly able to run the plant according to the necessities and demand of steam of the Meat Factory. In this way, UNIDO (and UNEP) will be in a position to follow up the long term impact of the project This Recommendation should also be followed immediately after project termination and UNIDO should be in charge through its office in Cuba.

Recommendation 3.No replication of La Melvis plant should be initiated before a careful and detailed analysis of the performance of the present unit, using all the different types of biomass available.

Recommendation 4. No replication of the Meat Factory gasifier should even be considered (neither for Meat nor for any other type of industry) before successful operation and careful characterization of the unit currently contemplated in the project.

Recommendation 5. For future projects, only one UN agency should be involved. As indicated in the previous section, involvement of two agencies has resulted in difficulties related to coordination, accounting, adequate monitoring, etc.

Recommendation 6. For future projects of a similar nature, it is strongly recommended that analysis of the most suitable biomass technologies for each type of application should be carried out before selection and implementation. This analysis can be either one of the project activities or be based on results from previous projects or experiences. This approach should be followed by all UN agencies.

Recommendation 7. If the purpose of any future project is the development of technologies, which are not entirely commercially available or are not well known in the countries/areas where they are to be installed, it is recommended to engage universities and /or laboratories where analysis and testing procedures can be adequately carried out. This recommendation should also be applied by all UN agencies.

Recommendation 8. Attention should be paid to dissemination efforts (including creation, maintenance and frequent updates of project websites) and assistance to any future plant of the same or similar type to be built-up either elsewhere in Cuba or in any countries in the area. This help to designers/operators of new plants is a good way to take advantage of the experiences and learning from this project. This task could be coordinated by the Executing Agency, since its existence goes beyond the project termination.

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?	The TE contains an assessment of relevant outcomes and impacts of the project and achievement of objectives, although the discussion of achievement of outcomes and objectives is rather brief, and does not consider directly a project component added to the design during implementation.	**MS**
To what extent is the report internally consistent, the evidence presented complete and convincing, and ratings well substantiated?	The report is internally consistent, however in some cases, such as quality of implementation, ratings are not well substantiated.	**MS**
To what extent does the report properly assess project sustainability and/or project exit strategy?	The TE presents a complete discussion of project sustainability.	**S**
To what extent are the lessons learned supported by the evidence presented and are they comprehensive?	The Lessons learned and recommendations are comprehensive in addressing the key issues encountered during the project.	**S**
Does the report include the actual project costs (total and per activity) and actual co-financing used?	Both final project co-financing and actual project costs (both total and per activity) were reported.	**S**
Assess the quality of the report's evaluation of project M&E systems:	Upon reviewing the Project Document it is clear that many of the indicators are not smart. This is a flaw in the M&E system, and although the TER notes that some indicators could not be quantified, it states that this is due to the nature of the objectives.	**MS**
Overall TE Rating (0.3 * (4+4) + 0.1*(5+5+5+4)=4.3		**MS**

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

No additional sources were used in the preparation of the terminal evaluation report.