



# REQUEST FOR CEO ENDORSEMENT

**PROJECT TYPE: Full-sized Project**

**TYPE OF TRUST FUND: GEF Trust Fund**

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## PART I: PROJECT INFORMATION

Project Title: Project Title: Clean Energy Technologies for the Rural Areas in Cuba (CleanEnergy-Cuba)			
Country(ies):	Cuba	GEF Project ID: <sup>1</sup>	5149
GEF Agency(ies):	UNDP	GEF Agency Project ID:	4899
Other Executing Partner(s):	Estación Experimental Indio Hatuey (EEIH), Matanzas, Cuba	Submission Date:	11 October 2014
GEF Focal Area (s):	Climate Change	Project Duration(Months)	60
Name of Parent Program (if applicable):	n/a	Project Agency Fee (\$):	260,065
<ul style="list-style-type: none"> <li>➤ For SFM/REDD+ <input type="checkbox"/></li> <li>➤ For SGP <input type="checkbox"/></li> <li>➤ For PPP <input type="checkbox"/></li> </ul>			

## A. FOCAL AREA STRATEGY FRAMEWORK<sup>2</sup>

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Grant Amount (\$)	Cofinancing (\$)
CCM-1	Technologies successfully demonstrated, deployed, and transferred	Innovative low-carbon technologies demonstrated and deployed on the ground	GEF TF	1,806,000	16,663,154
	Enabling policy environment and mechanisms created for technology transfer	National strategies for the deployment and commercialization of innovative low-carbon technologies adopted	GEF TF	931,524	3,285,953
<b>Total project costs</b>				<b>2,737,524</b>	<b>19,949,107</b>

## B. PROJECT FRAMEWORK

**Project Objective:** To increase access to bioenergy technology in Cuba by promoting the use of biodiesel and biogas technologies by rural farmers.

Project Component	Grant Type	Expected Outcomes	Expected Outputs	Trust Fund	Grant Amount (\$)	Confirmed Cofinancing (\$)
I. Information and policy development	TA	1. Policy instruments supportive of small-scale bioenergy development have been formulated and recommended for approval.	1.1 Collection and analysis of information concerning the economic, production, social, gender and environmental aspects of integrated food and small-scale bioenergy production by rural farmers. 1.2 Information tools to design, implement and monitor national bioenergy policies and strategies. 1.3 Updated assessment of the	GEF TF	246,000	525,200

<sup>1</sup> Project ID number will be assigned by GEFSEC.

			<p>technical and economic potential for biodiesel and biogas production and usage in small-scale agriculture and livestock farming.</p> <p>1.4 Drafting of concepts for a national small-scale bioenergy strategy (green paper), and consultation thereof with stakeholders and incumbent authorities.</p> <p>1.5 Policy inputs and recommendations on the legal, institutional and regulatory framework for facilitating the implementation of a small-scale bioenergy strategy.</p>			
II. Biodiesel and biogas technology transfer and development	TA	2. State of the art knowledge on the application of small-scale biodiesel and biogas systems has been transferred and assimilated.	<p>2.1 Establishment of a national system to produce certified seeds for vegetal oil plants (<i>Jatropha curcas</i>).</p> <p>2.2 Determination of the technical conditions and parameters for the application of locally produced biodiesel blends in agroindustrial equipment and engines.</p> <p>2.3 Management and evaluation of the biodiesel and biogas technology transfer process.</p>	GEF TF	493,300	936,000
	INV		<p>2.4 Enhanced national manufacturing capabilities for producing small-scale biodiesel plants through investment in production facilities, quality assurance systems, and product and process innovation.</p> <p>2.5 Increased national capabilities to produce synthetic membrane liners and auxiliary equipment for small-scale biogas plants, as well as biogas appliances, through investment in production facilities, quality assurance, and product and process innovation.</p> <p>2.6 Demonstration pilots of small-scale biodiesel and biogas technology, including the use of byproducts, integrated into selected rural farms.</p>	GEF TF	1,296,100	15,727,154
III. Institution building, training and promotion	TA	3. Bioenergy technology diffused through increased knowledge and demonstration of biodiesel and biogas systems.	<p>3.1 Establishment of national expertise center on integrated bioenergy production within EEIH to support the implementation of biodiesel and biogas systems in rural farms.</p> <p>3.2 Implementation of national training and educational activities on small-scale biodiesel and biogas production and use.</p> <p>3.3 Bioenergy technology unit</p>	GEF TF	571,766	2,447,600

		set up within Cubaenergía to support decision makers, promote inter-institutional coordination, and sharing of knowledge and information on bioenergy supply. 3.4 Establishment of networks of trained bioenergy professionals and local agronomic organizations in selected municipalities. 3.5 Database of case studies of bioenergy technology and manuals documenting best practices from completed and disseminated pilot demonstrations.			
Subtotal				2,607,166	19,635,954
Project management Cost (PMC) <sup>3</sup>			GF TF	130,358	313,153
<b>Total project costs</b>				<b>2,737,524</b>	<b>19,949,107</b>

### C. SOURCES OF CONFIRMED COFINANCING FOR THE PROJECT BY SOURCE AND BY NAME (\$)

Please include letters confirming cofinancing for the project with this form

Sources of Co-financing	Name of Co-financier (source)	Type of Cofinancing	Cofinancing Amount (\$)
National Government	EEIH / MES	In-kind	2,034,900
National Government	Cubaenergía / CITMA	In-kind	50,000
Local Government	Local producers	In-kind	6,130,875
Others	EEIH / MES (donor programmes)	Cash	11,683,332
GEF Agency	UNDP	Cash	50,000
<b>Total Co-financing</b>			<b>19,949,107</b>

### D. TRUST FUND RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY<sup>1</sup>

GEF Agency	Type of Trust Fund	Focal Area	Country Name/ Global	(in \$)		
				Grant Amount (a)	Agency Fee (b) <sup>2</sup>	Total c=a+b
UNDP	GEF TF	Climate Change	Cuba	2,737,524	260,065	2,997,589
<b>Total Grant Resources</b>				<b>2,737,524</b>	<b>260,065</b>	<b>2,997,589</b>

<sup>1</sup> In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table. PMC amount from Table B should be included proportionately to the focal area amount in this table.

<sup>2</sup> Indicate fees related to this project.

### F. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:

Component	Grant Amount (\$)	Cofinancing (\$)	Project Total (\$)
International Consultants	189,200	164,900	354,100

### G. DOES THE PROJECT INCLUDE A "NON-GRANT" INSTRUMENT?

(If non-grant instruments are used, provide in Annex D an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF/NPIF Trust Fund).

<sup>3</sup>PMC should be charged proportionately to focal areas based on focal area project grant amount in Table D below.

The project does not foresee the establishment of a non-grant instrument.

## **PART II: PROJECT JUSTIFICATION**

### **A. DESCRIBE ANY CHANGES IN ALIGNMENT WITH THE PROJECT DESIGN OF THE ORIGINAL PIF<sup>4</sup>**

A.1 National strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NAF national communications, TNAs, NCSA, NIPs, PRSPs, NPFE, Biennial Update Reports, etc. **NA**

A.2. GEF focal area and/or fund(s) strategies, eligibility criteria and priorities. **NA**

A.3 The GEF Agency's comparative advantage: **NA**

A.4. The baseline project and the problem that it seeks to address:

The baseline project consists of activities led by Cubaenergía and EEIH in response to national policies and the national biodiesel programme. Cubaenergía is a policy-supporting unit within the Ministry of Science, Technology and Environment (CITMA) in the area of renewable energies. EEIH, the Estación Experimental "Indio Hatuey" operated under the Ministry of Higher Education (MES), has a large track record in innovative agriculture, including combined food and energy production (ProDoc, p.11). Cubaenergía is also a long-term national partner for UNDP Cuba and EEIH implements projects of several international donor organizations. The baseline activities have been updated in the Project Document to reflect the most relevant initiatives and their current implementation status (ProDoc, p.13-14). Moreover, national industries have been involved during the PPG phase to assess the conditions and technical needs underpinning the proposed transfer of small-scale biodiesel and biogas technology, leading to direct working relations with identified industries (See attached letters, ProDoc, Annex C). It is worthwhile mentioning the recent creation of the Ministry of Energy and Mines (MINEM) in Cuba (2013), which demonstrates the commitment of the Government to push forward structural changes to the national energy system. Although incipient, linkages to the national climate change agenda are also being established, for example by the pursuit of a NAMA instrument for the sector of small- and medium-size farmers and livestock holders.

Within the context of a transfer of responsibilities for local food and energy supply to the municipalities, multilateral and bilateral agencies, including UNDP have positioned themselves as partners to build technical capacity and effective institutions at the lowest level (municipal and community) (ProDoc, p.11-12). Since 2007, the Swiss Development Cooperation (SDC) has implemented a range of small-scale activities aimed at integrated food and energy production together with EEIH, including the introduction of biogas and biodiesel systems. The objective of the combined baseline activities is to: (i) secure the supply of energy for household, community, and farming processes in rural areas, thereby contributing to national food security; (ii) reduce the use of subsidized electricity and fuels by the sector, thereby saving fiscal expenses; (iii) reduce dependency on imported fossil fuels; (iv) contribute to the decentralization of electricity generation in Cuba, which avoids transmission and distribution losses and reduces system vulnerability to extreme weather events and climate change; and (v) avoid national greenhouse gas emissions generated by the electricity sector. Since the mid-nineties, Cuba has made remarkable achievements to modernize its energy infrastructure by (i) complementing centralized thermal power plants by more flexible, distributed generators; (ii) combating system losses; (iii) enforcing the rational use of energy and introducing energy-efficient technologies; and (iv) promoting the development of renewable energy sources.

Notwithstanding, Cuba's energy and food situation remains vulnerable due to a range of issues and barriers that were confirmed during the PPG phase: (i) constrained access to modern energy and agricultural inputs in rural areas, adversely affecting productivity; (ii) degraded agricultural soils as a result of long-term overexploitation and

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<sup>4</sup> For questions A.1 –A.7 in Part II, if there are no changes since PIF and if not specifically requested in the review sheet at PIF stage, then no need to respond, please enter “NA” after the respective question.

inadequate agricultural practices; (iii) progressive salinization and desertification in certain areas, leading to losses of agricultural area; (iv) lack of preparation of municipalities to provide expertise to local (non-state operated) farms; (v) lack of innovative technologies, including energy solutions, enabling small-scale, sustainable food production by local farmers; (vi) lack of access to relevant knowledge, best practices, and expertise; (vii) weak or incipient supply chains to provide local farms with prime materials and services to secure production (including support for the design, operation and servicing of bioenergy (biogas and biodiesel) solutions; and (viii) generalized difficult access to investment capital at all levels (farmers, municipalities, industries). (ProDoc, p.9 and p.10).

Specifically, the baseline project consists of the combined activities in the field of integrated food and energy production, the national biodiesel programme, and biogas and anaerobic digester technology for small- and medium-scale producers of agricultural produce and livestock, under leadership of Cubaenergía/CITMA and EEIH/MES: (a) institutional activities by EEIH in the field of research and outreach of agroenergy, as well as training (US\$ 2,034,900 in-kind); liaison and policy support by Cubaenergía (US\$ 50,000 in-kind); participatory processes to develop and implement local agroenergy strategies under leadership of selected municipalities; and baseline production assets and personnel, by manufacturers, combined (US\$ 6,130,875 cash and in-kind); and financing of baseline activities under agroenergy pilots, by bilateral agencies SDC/COSUDE, and EU/Oikos (US\$ 11,683,332 in-kind and cash). UNDP has committed US\$ 50,000 in cash to support strengthening of the institutional framework. The total co-financing budget associated to the baseline project is USD 19,920,286.

- A. 5. Incremental /Additional cost reasoning: describe the incremental (GEF Trust Fund/NPIF) or additional (LDCF/SCCF) activities requested for GEF/LDCF/SCCF/NPIF financing and the associated global environmental benefits/global environmental benefits (GEF Trust Fund) or associated adaptation benefits (LDCF/SCCF) to be delivered by the project:

The PPG phase carefully re-assessed the barriers and root causes affecting the rapid deployment of integrated food and energy production by rural farmers, including the roles and limitations of each of the stakeholders involved. As a result: (i) the scope of the proposed Project is more clearly defined compared to the PIF; (ii) biodiesel and biogas are now addressed separately as they represent two different supply chains; (iii) technical capacity needs for establishing sustainable delivery mechanisms have been specified and integrated into the broader context of institution building at the municipal level; (iv) specific technology needs assessments have been carried out for the industries involved and markets for small-scale biogas and biodiesel generation and appliances, have been quantified; (v) linkages with upstream policy development have been strengthened by supporting Cubaenergía to become the reference knowledge and liaison entity in the field of renewable energy for high-level decision makers. The PPG further confirmed the leading role and track record of the Executing Agency "Estación Experimental Indio Hatuey" in the field of bioenergy development.

During the PPG, the national counterparts and UNDP assessed the options to strengthen the exit strategy of the Project. This has been done by institutionalization (Cubaenergía and local networks, supported by EEIH) and a technology transfer based on market potential and economic viability (national industries). Access to, and consolidation of data about agricultural production and social, economic, and environmental parameters, is the cornerstone for successful policy development, including climate change instruments, and is pursued throughout the Project.

A brief description of the Project Components and the adjustments compared to the PIF are given below:

- Component I. Information and policy development. This component remains focused on creating a solid information base about bioenergy potential and opportunities in the rural areas in Cuba, and providing inputs and recommendations to policy makers, based on analyzed data and relevant development scenarios. The scope of the Project and the beneficiaries have been clarified. The Project primarily addresses biogas and biodiesel production for local consumption<sup>5</sup> under the concept of integrated food and energy production (the "agroenergy farm"). The beneficiaries are small- and medium-size private farmers of agricultural produce and livestock. These include the large group of contracted pig farmers, for which anaerobic digester technology can be a cost-effective solution for

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<sup>5</sup> Local refers to on-farm utilization and distribution of energy within the municipal territory.

manure treatment. Compared to PIF stage, more emphasis is put on enabling access to information by the implementation of ICT tools and databases, with involvement of the National Bureau for Statistics and Information (ONEI). Moreover, opportunities for financing of bioenergy technologies for small- and medium-scale farmers will be explored by scoping of a sector NAMA.

- Component II. Biodiesel and biogas technology transfer and development. This project component allocates the project activities for the transfer of small-scale biodiesel and biogas technology to Cuba. Compared to the PIF, a stronger chain approach is applied to the technology transfer process, ranging from national manufacturing and/or assembly of biodiesel conversion plants and biogas systems, to project development, operation, maintenance and repair services delivered to communities and farms. Concerning biodiesel, *Jatropha curcas* seeds are produced at community level and processed to drive local agricultural processes (equipment, engines and transport) and meet community needs. Upstream the chain, suitable *Jatropha* seeds are produced regionally, which requires a certified production system including germplasm banks, under supervision of EEIH. National industries will be in charge of the manufacturing and assembly of small-scale biodiesel plants. To this purpose, they will receive adapted designs from national engineering bureaus. The GEF Project will contribute to habilitating a production line for biodiesel plants in coordination with the national industry.

The transfer of biogas technology involves the introduction in Cuba of cost-effective biodigester designs, specifically of the covered lagoon type. This requires access to flexible materials for geomembrane production, including EPDM, which is presently not available in Cuba for this purpose. Biogas plant assembly<sup>6</sup> is largely done at the project site itself, hence: (i) upgrading of manufacturer's capabilities is limited to facilitation of a production line for larger (EPDM) sheets and strengthened quality assurance procedures; (ii) mobile teams are trained and equipped to assemble large geomembranes, supervise overall biodigester construction, and perform repair activities when required. Compared to the PIF, the technology transfer process has been extended to adapt appliances for utilization with biogas, which is expected to increase substantially the biogas market potential.

The application of the biodiesel and biogas produced will be assessed by pilot projects in two selected municipalities, to complement baseline activities by EEIH and bilateral agencies in these areas. A first batch of three biodiesel plants will be delivered by the national manufacturer, to be used in the field pilots, and five biogas systems will be installed. During the PPG phase, the importance for external overview and evaluation of the technology transfer process was acknowledged to ensure that adequate standards for production and support are achieved.

- Component III. Institution building, training and promotion. This project component remains unchanged, having the objective to establish an effective institutional framework for accelerating the market introduction of biodiesel and biogas energy systems in Cuba. In order to establish the envisaged outcome, a national expertise center on bioenergy will be created within EEIH, by building upon the strong track record and expertise of the institute in this field, and a training and certification system for key technical stakeholders will be implemented. Furthermore, the formation of stakeholder networks at municipal level will be facilitated, initially backed by EEIH. Beyond the expectations at PIF stage, it is considered opportune to provide institutional support to Cubaenergía for coordinating relevant RE programmes and actively promoting conducive policy. In the end-of-project situation, it is expected that: (a) farmers and other potential beneficiaries of biodiesel and biogas technologies in rural Cuba, have full access to information and are effectively assisted by project developers and technicians; (b) expertise and best practice about bioenergy applications in Cuba are documented and institutionalized within EEIH; and (c) high-level policy makers have adequate access to information about biogas and biodiesel technology in Cuba.

Direct emission reductions under the present Project are delivered by the envisaged pilots (three biodiesel systems and five biogas plants). The equivalent volume of replaced conventional diesel implies emission savings of the order of 400.5 ton CO<sub>2eq</sub>/yr, and 6.0 kton CO<sub>2eq</sub> over lifetime (15 years). The annual greenhouse gas emission savings from the biogas pilots are: 72.4 ton CO<sub>2eq</sub>/yr, and 0.72 kton CO<sub>2eq</sub> over lifetime (10 years). The combined direct benefits (biogas and biodiesel) are 6.7 kton CO<sub>2eq</sub>. There is large scope for the application of biogas and biodiesel technologies in Cuba therefore indirect benefits are expected to be substantial. The estimated combined,

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<sup>6</sup> Involving bonding of geomembrane sheets, welding of piping, extensive civil works, connection of appliances and control devices, and careful testing.

indirect benefits attained by biodiesel and biogas technologies are: 199.4 kton CO<sub>2eq</sub>. The total (direct and indirect) benefits delivered by the Project are estimated at 207.1 kton CO<sub>2eq</sub>.

A.6 Risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and measures that address these risks:

Based on the preliminary risk assessment at PIF stage, the identified risks have been reformulated<sup>7</sup> to clarify cause-effect relations and accordingly define the proposed mitigation measures. (see risk matrix Project Document, Annex B). An additional risk has been identified related to country ownership and project governance, specifically: (risk 1) limited government support hampering market development for small-scale bioenergy technologies; The PPG could not confirm the potential existence of conflicting mandates and policies (PIF, risk 5). Instead, (risk 6) supportive structures at the municipal level (project development, maintenance services and technical assistance) are expectedly weak and required roles and functions may be undefined. EEIH, UNDP and the municipalities will jointly work towards implementing a comprehensive support structure for bioenergy utilization by local farmers and communities. At the highest policy level, Cubaenergía appears better positioned to increase knowledge and awareness about bioenergy.

A risk has been identified related to the transfer process of bioenergy technologies: (risk 4) lack of work capital to produce bioenergy systems (digesters, biodiesel plants) in substantial numbers. Compared to PIF stage, the biodiesel technology transfer process has been clarified, as it will mainly rely on commonly available concepts and designs, which need to be down-scaled, complemented with specific components that will be purchased from international suppliers. Based on experience from other GEF funded projects, (risk 2) international procurement and other national processes related to project approval may affect timely delivery of project activities and contracts. In addition, performance risk arises as a result of potentially inadequate plant operation (risk 5).

Insufficient and/or disrupted supply of feedstock had been identified as a potential risk at PIF stage (PIF, risk 3). For biogas development, this risk is expectedly small as biogas plants will be designed for on-farm operation, and initially limited to activities in which manure is easily collected (pig farming). Biodiesel plants will depend on the production and harvesting of *Jatropha curcas* seeds within a farm or community boundary. Experiences in degraded areas in Guantánamo, as well as use in EEIH, suggest insufficient yields are not a likely scenario.

Finally, adaptation to climate change is an overarching principle guiding the Project, with a number of activities designed to reduce local vulnerabilities (soil protection and recovery, rational use of water resources, appropriate land operation techniques, etc.).

A.7. Coordination with other relevant GEF financed initiatives

Since 2005, the UNDP has worked at the community level in energy-related issues through the Small Grant Programme (SGP) of the GEF. The SGP funds small-scale projects that range from electrification of isolated households or warehouses to the installation of pumping devices using sources of renewable energy. The SGP supported the early initiatives to promote the use of tubular bio digesters in the country, and to facilitate *Jatropha curcas* plantations in degraded areas of Guantánamo for extracting oil from the shrubs and promoting the recovery of degraded lands.

The project will ensure that lessons from the SGP experiences in biogas and biodiesel by liaising with the relevant counterparts in MINEM, MINAG, ANAP and other SGP projects stakeholders.

**B. ADDITIONAL INFORMATION NOT ADDRESSED AT PIF STAGE:**

B.1 Describe how the stakeholders will be engaged in project implementation.

Stakeholders of the Project include the following Ministries, which will be represented in the Project Steering Committee: Ministry of Higher Education (MES), which is responsible for EEIH; Science, Technology and Environment (CITMA), which hosts Cubaenergía; Energy and Mines (MINEM), Foreign Trade and Investment (MINCEX); Agriculture (MINAG); and Industry (MINDUS). Key stakeholders are the public institutions EEIH and Cubaenergía, which are directly responsible for project implementation. Further, municipalities and small

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<sup>7</sup> And renumbered.

farmers associations (ANAP) have roles in the rural areas, as well as farmers and communities, including users of (previously) idle lands, women, and other groups with vulnerabilities in terms of food and energy security, and income generation. Within the national industry: national metal-working industries and chemical industries (rubber and plastics) are also important for the implementation of component 2.

Besides UNDP, as the GEF implementing agency responsible for the adequate spending of GEF funds in line with the Project's objective and outcomes, the Estación Experimental Indio Hatuey EEIH, ascribed to the Ministry of Higher Education (MES), will be the national executing agency in close coordination with the national energy unit Cubaenergía, which is part of the Ministry of Science, Technology and the Environment (CITMA). EEIH has a long track record in agronomical research, including bioenergy development and integrated food and energy production, and is a reference institute inside Cuba and abroad (ProDoc, p.11). UNDP and other donor agencies in Cuba have long-established and successful working relations with Cubaenergía and EEIH. UNDP will closely interact with the Cubanenergía to insert rural energy development into national energy and climate change policies, thereby drawing on its capabilities to link multiple stakeholders at different government levels.

**B.2 Describe the socioeconomic benefits to be delivered by the Project at the national and local levels, including consideration of gender dimensions, and how these will support the achievement of global environment benefits (GEF Trust Fund/NPIF) or adaptation benefits (LDCE/SCCF):**

At the national level, local generation of biomass-based energy increases energy security, reduces Cuba's dependency on imported fuels and strengthens food production chains. The potential for energy generation from biogas and biodiesel in Cuba is very large, as presented in the Project Document, Annex E. With respect to biodiesel based on Jatropha production, large extensions of idle (unused usable) land are theoretically available. However, in the absence of a detailed small-scale bioenergy strategy, as well as municipal development plans, it is not possible to provide a motivated figure for the total viable area for Jatropha plantations. An indicative figure may be based on the first pilot in Guantanamo (approx. 100 ha), by assuming a 100-fold replication over the next 10 years: in total 10,000 ha. Assuming a production of 750 litre/yr per ha at an intercropping ratio of 3:10, total annual production would be around 75 million litre. The economic value would be of the order of USD 8 million. Converted to biodiesel, a value of about USD 18 million would be generated yearly. With respect to biogas, the small- and medium-scale private farmers directly targeted by the Project hold no less than 500,000 pigs, with an estimated manure production of approx. 2.0 million kg/day. The biogas production is 110,000 m<sup>3</sup>/day, equivalent to 241,000 MWh/yr (20,700 ton oil equivalent). In terms of energy content, this replaces 148,000 barrels of oil, with an indicative market value of USD 14.8 million per year. However, only part of this biogas potential can actually be used, since many farmers produce more biogas than needed. Local distribution networks and the introduction of biogas-based appliances can enable a higher penetration rate of biogas in the rural areas. Even if biogas is used for electricity generation in combination with local electricity grids, the total biogas utilization factor will likely be no more than 50%. However, additional biogas potential is found in the state sector, and in cattle farming. These sectors may indirectly benefit from the technology transfer process supported by the Project.

Important social benefits are expected all along the production chain. Locally, increased productivity and energy security will strengthen resilience of rural communities and increase income generation. Experiences under the BIOMAS I project indicate the creation of local jobs with income levels similar to, or above, the local average (CUP 451 per month); 14% of these jobs were occupied by women under similar conditions than men. The increase of local opportunities further encouraged women to become economically independent. These benefits are expectedly reproduced under the GEF Project. Community-level services, including health, education, communication and transport are expected to be expanded due to increased energy supply. At the municipal level, new social, human and technological capital is created by establishing expert centers, workshops and service providers in the field of agroenergy development. Nationally, these efforts are sustained by EEIH and other Government agencies, including Cubaenergía. Finally, the Project will support the Cuban Government to design and implement effective bioenergy development strategies, enhance the national energy supply system, and reduce expenditures in hard currency for accessing the international fuel commodity markets. The cost savings involved can be used for investment in social and human development, as well as infrastructure.



B.3. Explain how cost-effectiveness is reflected in the project design:

The Project builds upon government policies to reduce dependency on fossil fuel imports and cut associated public expenditures. Similarly, increased food production within Cuba will diminish food imports, which are also paid for in foreign currency. Experiences with the integrated production of food and energy in Cuba provide strong indications that integrated food and energy production (the "agroenergy farm" concept) results in higher yields and improved ratios between agricultural outputs and inputs. These benefits have also been acknowledged by international scholars and the FAO<sup>8</sup>. The small-scale, integrated production model, aimed at local closing of production cycles, appears economically and socially feasible in rural Cuba, while exhibiting additional benefits with respect to conservation and rehabilitation of degraded and exhausted lands. A secure and adequate energy supply is a necessary condition for increasing food production in the rural areas. Small-scale biogas and biodiesel technologies expectedly have large scope for distributed energy production, thereby reducing energy costs for end-users and the State.

Domestic manufacturing of biodiesel plants and geomembrane liner for biodigesters reduces total investment costs. While specific components will be imported if required, national production is usually economically rewarding in Cuba given the generalized low cost of qualified labor in the country. Candidate industries for manufacturing and assembly of small-scale biodiesel plants, and for geomembrane (specifically EPDM) production, have been identified during the PPG phase. By using GEF resources for facilitating production processes (instead of purchasing finalized equipment), value is created locally enabling subsequent procurement of raw materials and components from the accrued benefits. The approach followed not only improves leverage of the GEF resources invested, but also strengthens national commitment to co-invest.

Indications of the economic value produced by integrated food and energy production in Cuba have been made under the BIOMAS I project<sup>9</sup>. Progressively gained experience during the coming years will enable a more accurate assessment of these benefits. More difficult to evaluate are the economic benefits associated to the introduction of more sustainable agricultural practices and the recovery of degraded lands. The Project fits into national strategies to combat loss of agricultural land due to adverse environmental phenomena (such as desertification, salinization, droughts), and poor soil characteristics; which in turn, must be conceived within the context of adaptation to the effects of climate change. The presented UNDP/GEF CC mitigation project therefore brings along multiple economic and environmental benefits which increase the resilience of the national economy in the medium and long term.

The cost-effectiveness of the Project is approx. US\$ 13.3 per ton CO<sub>2</sub>eq considering the expected emission reductions as a result of the introduction of small-scale biogas and biodiesel technology (207.1 kton CO<sub>2</sub>eq). Compared to the PIF, the final Project pursues to implement a systematic evaluation of achieved environmental benefits, including greenhouse gas reductions. This will expectedly assist in establishing the conditions for the successful design and implementation of a NAMA instrument with the potential to attract needed investment capital to the sector.

**C. DESCRIBE THE BUDGETED M &E PLAN:** The Monitoring and Evaluation Plan is summarized in the following table (see also Project Document, p.43).

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<sup>8</sup> See, for example, Bogdanski.A., et al. (2011). ProDoc, Annex A, item 1.

<sup>9</sup> See ProDoc, p.25.

<b>Type of M&amp;E activity</b>	<b>Responsible Parties</b>	<b>Budget US\$</b> <i>Excluding project team staff time</i>	<b>Time frame</b>
Inception Workshop and Report	<ul style="list-style-type: none"> <li>▪ Project Manager</li> <li>▪ UNDP CO, UNDP GEF</li> </ul>	US\$ 5,000 (GEF) US\$ 10,000 (GOC)	Within first two months of project start up
Measurement of Means of Verification of project results.	<ul style="list-style-type: none"> <li>▪ UNDP GEF RTA/Project Manager will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members.</li> </ul>	To be finalized in Inception Phase and Workshop.	Start, mid and end of project (during evaluation cycle) and annually when required.
Progress monitoring using indicated means of verification on outputs and implementation	<ul style="list-style-type: none"> <li>▪ Oversight by Project Manager</li> <li>▪ Project team</li> </ul>	To be determined as part of the Annual Work Plan's preparation.	Annually prior to ARR/PIR and to the definition of annual work plans
PIR preparation and approval	<ul style="list-style-type: none"> <li>▪ Project Manager and team</li> <li>▪ UNDP CO</li> <li>▪ UNDP RTA</li> <li>▪ UNDP EEG</li> </ul>	None	Annually
Periodic status and progress reports	<ul style="list-style-type: none"> <li>▪ Project Manager and team</li> </ul>	None	Quarterly
Mid-term Review & Terminal Evaluation	<ul style="list-style-type: none"> <li>▪ UNDP CO and UNDP RTA</li> <li>▪ EEIH</li> <li>▪ External Consultants</li> </ul>	US\$ 55,000 (GEF) US\$ 5,000 (GOC)	24 months after Project start and End of project
Project Terminal Report	<ul style="list-style-type: none"> <li>▪ Project manager and team</li> <li>▪ UNDP CO</li> <li>▪ local consultant</li> </ul>	0	At least three months before the end of the project
Audit	<ul style="list-style-type: none"> <li>▪ UNDP CO</li> <li>▪ Project Manager and team</li> <li>▪ EEIH</li> </ul>	US\$ 5,000 (GEF)	Yearly (from year 2)
Visits to field sites	<ul style="list-style-type: none"> <li>▪ UNDP CO</li> <li>▪ UNDP RCU (as appropriate)</li> <li>▪ Government representatives</li> </ul>	For GEF supported projects, paid from IA fees and operational budget	Yearly
Dissemination of lessons learnt	<ul style="list-style-type: none"> <li>▪ Project Manager and team</li> <li>▪ Local consultant</li> </ul>	US\$ 5,000 (GEF) US\$ 5,000 (GOC)	At least three months before the end of the project
<b>TOTAL indicative COST</b> Excluding project team staff time and UNDP staff, including travel expenses		Total: US\$ 90,000 (GEF: US\$ 70,000, GOC: US\$ 20,000)	


**PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)**

**A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT(S) ON BEHALF OF THE GOVERNMENT(S):** (Please attach the [Operational Focal Point endorsement letter\(s\)](#) with this form. For SGP, use this [OFP endorsement letter](#)).

NAME	POSITION	MINISTRY	DATE (MM/dd/yyyy)
Enrique Moret Hernández	Director, Department for International Relations,	MINISTRY OF SCIENCE, TECHNOLOGY AND THE ENVIRONMENT	12/23/2011

**B. GEF AGENCY(IES) CERTIFICATION**

This request has been prepared in accordance with GEF/LDCF/SCCF/NPIF policies and procedures and meets the GEF/LDCF/SCCF/NPIF criteria for CEO endorsement/approval of project.

Agency Coordinator, Agency Name	Signature	Date (Month, day, year)	Project Contact Person	Telephone	Email Address
Adriana Dinu Executive Coordinator, UNDP GEF		Oct-11-2014	Raul Alfaro Pelico Regional Technical Advisor	(507) 302 4571	raul.alfaro@undp.org

**ANNEX A: PROJECT RESULTS FRAMEWORK** (as presented in the Project Document, p.28).

<b>This project will contribute to achieving the following Country Programme Outcome as defined in CPAP or CPD:</b> Communities and key sectors develop and increase energy efficiency and use of renewable energy					
<b>Country Programme Outcome Indicators: CP Component: Sustainable and Equitable Management of the Environment:</b> : Renewability of energy consumption (up to provincial level)					
<b>Primary applicable Key Environment and Sustainable Development Key Result Area (same as that on the cover page, circle one):</b> Mainstreaming environment and energy					
<b>Applicable GEF Strategic Objective and Program: GEF-CCM 1:</b> Promote the demonstration, deployment, and transfer of innovative low-carbon technologies.					
<b>Applicable GEF Expected Outcomes:</b> 1. Technologies successfully demonstrated, deployed, and transferred; 2. Enabling policy environment and mechanisms created for technology transfer.					
<b>Applicable GEF Outcome Indicators:</b> 1. Percentage of technology demonstrations reaching its planned goals; 2. Extent to which policies and mechanisms are adopted for technology transfer.					
Strategy	Indicators	Baseline	Target (End of Project)	Sources of verification	Assumptions
<b>Project Objective:</b> To increase access to bioenergy technology in Cuba by promoting the use of biodiesel and biogas technologies by rural farmers.	A. Products based on the technology transfers that are approved by the relevant authorities for commercial manufacturing.	A. No products (0).	A. Four products <sup>11</sup> (4)	Project reports, visual inspection, official documents, independent verification.	Sustained commitment of, and dialogue with, national authorities. Project activities can be implemented as planned. Effective engagement of all stakeholders. Adequate technical performance of biodiesel and biogas systems. Successful integration of technologies into local farms and communities.
	B. Extent to which policies and mechanisms are adopted for technology transfer <sup>10</sup>	B. No policies and mechanisms adopted (0)	B. Four policies/ mechanisms adopted (4) <sup>12</sup>		
	C. MWh/yr produced using biogas and biodiesel attributable to project	C. 0	C. 1,540.1 MWH/yr		
	D. Number of people directly and indirectly benefitted from RE due to project action	D. 0	D. 88,100 people		
	E. GHG emissions avoided (tons CO <sub>2</sub> eq).	E. No (0) GHG emission avoided.	E. 6.7 kton CO <sub>2</sub> eq (direct) and 199.4 CO <sub>2</sub> eq (indirect) avoided emissions.		
<b>Outcome 1<sup>13</sup>:</b> Policy instruments supportive of small-scale bioenergy development have been formulated and recommended for approval.	1a) Information tools developed for bioenergy policy and strategy formulation	1a) No tools existing focused on bioenergy.	1a) Information tools focused on bioenergies developed at three levels (information gathering, processing and compilation)	Project documents, official publications, meeting minutes, interviews.	Sustained commitment of, National Statistics and Information Office and dialogue with Ministry of Energy and Mines and Ministry of Agriculture among other national authorities. Project activities can be implemented as planned.
	1b) Draft small-scale bioenergy strategy (green paper) consulted with incumbent authorities.	1b) No draft bioenergy strategy (0)	1b) Draft strategy compiled and consulted with incumbent authorities (1)		

<sup>10</sup> It is suggested to use the scale (0 to 8) in correspondence to the row 29-36 in the GEF CC Tracking Tool (Objective 1).

<sup>11</sup> Biogas plant, biodigester membrane, diverse equipment that use biogas, components for the use of biodiesel generation residues.

<sup>12</sup> These are: (i) Innovation and technology centre and network; (ii) Applied R&D support; (iii) Information dissemination; and (iv) Institutional and technical capacity building.

<sup>13</sup> All outcomes monitored annually in the APR/PIR. It is highly recommended not to have more than 4 outcomes.

	1c). Policy inputs and recommendations on the legal, institutional and regulatory framework for facilitating the implementation of a small-scale bioenergy strategy.	1c) No policy inputs and recommendations (0).	1c) Policy inputs and recommendations formulated and presented to incumbent authorities (1)		
<b>Outcome 2:</b> State of the art knowledge on the application of small-scale biodiesel and biogas systems has been transferred and assimilated.	2a). Production capacity for small-scale (100, 200 and 400l/day) biodiesel plants of national industry (units produced per year).  2b) Flexible geomembrane production (m <sup>2</sup> /yr)  2c) Litre of biodiesel annually produced in demonstration pilots and put to use (l/yr)  2d) Cubic meters of biogas generated in demonstration pilots and put to use (m <sup>3</sup> /yr).	2a) No production capacity (0 per year).  2b) No geomembrane production (0).  2c) No production (0 l/yr)  2d) No production in demonstration pilots (0 m <sup>3</sup> /yr) <sup>14</sup>	2a) Production capacity for small-scale biodiesel plants (100, 200 and 400 l/day) of 10 units per year.  2b) Production capacity for flexible geomembrane material of 68,000 m <sup>2</sup> /yr.  2c) 127,500 l/yr  2d) 39,400 m <sup>3</sup> /yr biogas produced.	Progress reports, site visits, official publications, interviews, mid-term review	Baseline situation of national manufacturers allows for successful facilitation of bioenergy production lines.  Effective engagement of all stakeholders.  Sustained commitment of national industries in engagement with project developers and servicing agents.  Project activities can be implemented as planned.  Successful integration of technologies into local farms and communities.
<b>Outcome 3:</b> Bioenergy technology diffused through increased knowledge and demonstration of biodiesel and biogas systems.	3a) Bioenergy expertise centre established in EEIH.  3b) Number of farmers (m/f) assisted on bioenergy.  3c) Number of advisory/consulting services provided by Cubaenergía to decision-makers on bioenergy	3a) Good track record and individual competences on bioenergy within EEIH.  3b) No (0) farmers assisted.  3c) On average 3 services on bioenergy provided per year	3a) Formal bioenergy expertise centre habilitated within EEIH.  3b) 120 farmers assisted  3c) 8 services on bioenergy provided per year	Progress reports, contracts, physical verification, official publications.	Baseline situation within EEIH allows for successful facilitation of bioenergy expertise centre.  Effective engagement of all stakeholders.  Project activities can be implemented as planned.  Sustained commitment by relevant national authorities
<b>Project Management</b>	4a) Annual progress monitoring reports delivered.  4b) Mid-Term Review (MTR) and Terminal Evaluation (TE) implemented.	4a) No annual progress reports  4b) No evaluations.	4b) four (4) annual progress reports delivered.  4b) MTR and TE evaluations executed and reports approved.	Progress reports, evaluation reports.	Project activities can be implemented as planned.

<sup>14</sup> However, biogas is produced in Cuba in traditional biodigesters used by small farmers.

**ANNEX B: RESPONSES TO PROJECT REVIEWS** (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).

Comments	Response	Reference in documents
<b>Comments from the GEF Council</b>		
<p>GERMANY:</p> <p>We reiterate the comment made by the STAP that yields of Jatropha vary widely across the globe. Simple literature default values should not be relied on as overall feasibility depends significantly on yield.</p>	<p>We are aware of experiences with Jatropha curcas worldwide, specifically with the fact that poor growing conditions tend to result in reduced yields (seed and oil production). The Project will therefore take a very cautious approach by: (i) selecting and certifying plant varieties with known performance under specific conditions; (ii) plant Jatropha initially as an "add-on" where opportunity costs (land, water, labour) are low, and Jatropha can assist in recovering degraded lands; (iii) use Jatropha in intercropping schemes; (iv) take a conservative approach with respect to expected yields. Once these steps prove successful and controllable, the development of small-scale Jatropha plantations will be considered.</p>	<p>See Annex F, p.59</p>
<p>In Component 1, para 5, it is stated that "concepts for a national, small-scale bioenergy strategy" have been developed. Please elaborate on the use and scope of the concepts. Shall the concepts be developed, published and implemented under component 1?</p>	<p>The objective is to support policy makers to develop the mentioned national bioenergy strategy. This is done by providing inputs (analysis, information) and concepts, and discuss these with the authorities. A summary of the concepts shall be published in the form of a "green paper" for nation-wide discussion. In parallel, efforts will be made by Cubaenergia to increase awareness about bioenergy among policy makers and to facilitate access by them to relevant data by implementing tools (databases, maps). These concrete Project outputs are expected to contribute to the adoption of a national bioenergy strategy by the authorities.</p>	<p>See outcome 1, p.19.</p>
<p>We are of the opinion that the investment in local manufacturing capacities should be conditional on the feasibility of the biogas systems planned and the biodiesel systems planned (component 2, para 3). In this context, the mentioned cooperations, including the South-South cooperation with e.g. Mexico and Brazil are seen very positively.</p>	<p>We agree that economic viability should be a condition for technology transfer. Small-scale bioenergy in rural areas is found to be economically and financially viable, considering its cost level and benefits provided, and the inadequacy of present energy supply. Locally generated surpluses are expected to be sufficient to trigger a market for such technology, which can be served by national industries. Compared to imported equipment, national production can result in substantial reductions of total investment costs. Both factors combined (market pull and reduced cost levels) justify the proposed support to national manufacturers to habilitate production lines.</p>	<p>See p.25.</p>
<p>We seek clarification in the final project document on whether it is necessary to invest in modified or special engines in order to use yathropha biodiesel and in that case, if this has been taken into account in the market analysis.</p>	<p>Please note that adaptation of engines for use with biodiesel is not considered. Instead, the biodiesel produced in Cuba is for operating existing engines, agricultural equipment and local vehicles, which currently use conventional diesel fuel. The objective of the proposed research activity is to determine adequate blends of biodiesel, including long-term running tests, to ensure technical performance of equipment prior to distribution of biodiesel among end-users.</p>	<p>See output 2.2, p.21</p>
<p>In terms of market diffusion, we underline the potential for providing market incentive through providing a good maintenance network (biogas has high maintenance requirements, especially when applying CHP-units) and planning capacities (agronomic and engineering). In terms of market potential of CHP-based biogas plants, applications where both heat and electricity can be gainfully used should be concentrated on.</p>	<p>We fully acknowledge the relevance of a good maintenance network to sustain biogas and biodiesel systems in rural areas. The Project envisages building synergies with the municipal initiative, which aims to increase economic output including food production by local communities and farmers. To this purpose, local institutional and human capacities need to be strengthened. The Project aims to establish such capacities in the field of small-scale bioenergies within the municipal institutional framework that is being developed.</p> <p>The market segment that is primarily addressed by the Project consists of small and medium-size farmers, for which heat applications are a basic concern. Electricity generation is considered for larger (pig) farms where opportunities for distribution to nearby communities are feasible. The size of such systems will be no more than several tens of kilowatts.</p>	<p>See output 3.4, p.23-24</p>
<b>Comments from the GEF Secretariat</b>		
<p>14. Is the project framework sound and sufficiently clear?</p> <p>The project includes the following components: 1. Information and</p>		

<p>policy development 2. Technology transfer and development 3. Institution building, training, and promotion.</p> <p>For component 2, which is shown in the PIF at INV, we need to see more clear description of the investment nature of the GEF funding. If indeed, the GEF funding is technical assistance, then it would be appropriate to delineate component 2 into separate rows for the TA portion and the INV portion. Please clarify this at CEO endorsement.</p>	<p>Component 2 effectively includes both TA and INV activities. This has been clarified in Table B of the CEO Endorsement Request (Project Framework).</p>	<p>See Table B, Component II, CEO Endorsement Request</p>
<p>15. Are the applied methodology and assumptions for the description of the incremental/additional benefits sound and appropriate?</p> <p>The installation of biogas and biofuels technologies are estimated to produce direct emissions reductions of 50-100 kton CO<sub>2</sub>e annually, with additional indirect emissions contributing up to 1 million tCO<sub>2</sub>e over 10 years. At CEO endorsement, please provide clear description of the technologies employed, the scale of market penetration, and the amount of energy displaced, and a more developed estimate of GHG benefits.</p>	<p>A detailed estimate of the expected GHG benefits and market penetration rate has been provided in the Project Document.</p>	<p>See Annex D, p.50.</p>
<p>31. Items to consider at CEO endorsement/approval.</p> <p>a) At CEO endorsement, we would like to see clear description of the types of technologies that will be addressed, and the potential to encourage South/South technology transfer.</p> <p>b) For component 2, which is shown in the PIF at INV, we need to see more clear description of the investment nature of the GEF funding. If indeed, the GEF funding is technical assistance, then it would be appropriate to delineate component 2 into separate rows for the TA portion and the INV portion. Please clarify this at CEO endorsement.</p> <p>c) Please provide clear description of the technologies employed, the scale of market penetration, and the amount of energy displaced, and a more developed estimate of GHG benefits.</p>	<p>a) The technologies addressed are small-scale biogas and biodiesel.</p> <p>b) See Question 14. Component 2 effectively includes both TA and INV activities. This has been clarified in Table B of the CEO Endorsement Request (Project Framework).</p> <p>c) Please refer to Q.15.</p>	<p>a) See Outcome 2, p.20-22.</p> <p>b) See Table B, Component II, CEO Endorsement Request</p> <p>c) See Annex D, p.50</p>
<p><b>Comments from STAP</b></p>		
<p>1. There is often variations in quality of biodiesel produced in small-scale plants as proposed. How will the need to maintain fuel standard</p>	<p>Samples will be taken regularly and basic analysis will be carried out locally. Short term variations in quality will be attenuated by mixing of biodiesel production over an appropriate time period (such as a week). This requires a larger tank system to be installed (with a content of approx. 20 oil barrels). Per harvest</p>	<p>See description Output 2.6, p.22</p>

<p>quality (and hence reduce risks to engines) be monitored when the biodiesel is to be sold offsite?</p>	<p>period, biodiesel quality will be controlled and plant parameters adjusted if necessary, to respond to variations of Jatropha seed properties. Please note that most likely, fuel blends will be used; this reduces the effects of fluctuating biodiesel quality.</p>	
<p>2/ Jatropha yields often tend to be less than projected, especially when grown on marginal (or idle) lands. In this example it is not explained exactly how increased food crop productivity results as learned in BIOMAS I; what the food crops were in the study; what the Jatropha oil yields might be; whether land use competition will result; whether the production system might be successful in regions other than Guantanamo. Neither is the harvesting technique mentioned - possibly manual?</p>	<p>The questions raised are appropriate. Please note that practical experience with Jatropha planting and intercropping is available for Cuba and published in literature, such as the "BIOMAS publication". A summary has been compiled for reference and included in the Project Document as Annex F.</p> <p>Jatropha has been intercropped with food crops including beans, soya, peanut, maize, yucca and sorghum, yielding biodiesel outputs of around 0.7 l/tree, or 700-800 l/ha per annum. Competition with land use or labor may exist, but has not been identified up to date.</p> <p>Positive experiences have been obtained in all provinces addressed by the SDC/COSUDE BIOMAS project. However, there are still uncertainties with respect to the upscaling potential, and there is a need for quantification of social, economic and environmental benefits. The quantification is taking place as the results from the baseline work are known.</p>	<p>See Annex F, p.59</p>
<p>3. The hydrogen sulphide gas contained in the biogas. The size and type of "modern digester designs" is not defined. Who will operate and maintain them? Biogas can also provide heat (as well as transport fuel and electricity). This is not covered - for example, in CHP plants.</p>	<p>The word "modern" in "modern biodigester designs" refers essentially to the use of geomembrane material, which enables a range of non-traditional (dome) designs to be implemented. Specifically, a large market for biodigesters has been found among small- and medium-size pig farmers, for which the covered lagoon type is considered as most adequate. Presently, the lack of EPDM geomembrane on the national market, and the lack of successful precedents (proven and implemented designs) impede to develop this market. The GEF Project is instrumental for removing these barriers.</p> <p>The biogas produced will be used to the largest extent possible, given the general scarcity of high-quality energy carriers in the rural areas. Energy services covered include: cooking (for animals and humans); lighting (gas lamps); refrigeration (absorption); electricity generation (small generators). If viable, local biogas distribution will be included. Biogas usage as a transport fuel is not considered.</p>	<p>See description Output 2.6, p.22.</p>
<p>4. I would have thought the FAO would have had a strong interest as well as UNDP - see for example: <a href="http://www.fao.org/docrep/014/i2454e/i2454e00.pdf">http://www.fao.org/docrep/014/i2454e/i2454e00.pdf</a></p>	<p>In fact, FAO is closely involved in the development of the agroenergy farm concept. See for example, Bogdanski and Dubois, FAO.</p>	<p>See Annex A, p.43.</p>
<p><b>Comments from GEF SEC at CEO Endorsement</b></p>		



**ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS<sup>15</sup>**

A. PROVIDE DETAILED FUNDING AMOUNT OF THE PPG ACTIVITIES FINANCING STATUS IN THE TABLE BELOW:

<b>PPG Grant Approved at PIF: USD50,000</b>			
<b><i>Project Preparation Activities Implemented</i></b>	<b><i>GEF/LDCF/SCCF/NPIF Amount (\$)</i></b>		
	<b><i>Budgeted Amount</i></b>	<b><i>Amount Spent To date</i></b>	<b><i>Amount Committed</i></b>
1. Preliminary assessments of critical issues to prepare project design and implementation	15,000	15,000	
2. Conduct of project logical framework analysis (LFA); identification and evaluation of potential demonstration pilots; definition of stakeholder coordination and project implementation and management arrangements	20,000	20,000	
3. Detailed assessment of needs for technological inputs and for capacity building	15,000	15,000	
4. Design of project activities and budget based on agreed LFA and preparation of Project Document and CEO Endorsement Request and tracking tool	0	0	
5. Consolidation and confirmation of co financing sources,	0	0	
<b>Total</b>	<b>50,000</b>	<b>50,000</b>	<b>0</b>

<sup>15</sup> If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue undertake the activities up to one year of project start. No later than one year from start of project implementation, Agencies should report this table to the GEF Secretariat on the completion of PPG activities and the amount spent for the activities.

**ANNEX D: CALENDAR OF EXPECTED REFLOWS (if non-grant instrument is used)**

Provide a calendar of expected reflows to the GEF/LDCF/SCCF/NPIF Trust Fund or to your Agency (and/or revolving fund that will be set up)

**No reflows to the GEF Trust Fund are foreseen under this Project**