PROJECT IDENTIFICATION FORM (PIF)
PROJECT TYPE: FULL-SIZE PROJECT
THE GEF TRUST FUND

Submission Date: 4 September 2009
Re-submission Date: 18 September 2009
Re-submission Date: 06 May 2010

INDICATIVE CALENDAR	
Milestones	**Expected Dates**
Work Program (for FSP)	June 2010
CEO Endorsement/Approval	Dec. 2011
GEF Agency Approval	March 2012
Implementation Start	March 2012
Mid-term Review (if planned)	March 2014
Implementation Completion	March 2016

PART I: PROJECT INFORMATION

GEFSEC PROJECT ID: 4099 **PROJECT DURATION:** 4 years
GEF AGENCY PROJECT ID: 4333
COUNTRY(IES): Mauritius
PROJECT TITLE: Removal of Barriers to Solar PV Power Generation in Mauritius, Rodrigues and the Outer Islands
GEF AGENCY(IES): UNDP
OTHER EXECUTING PARTNER(S): Ministry of Renewable Energy and Public Utilities, Rodrigues regional Assembly and Outer Islands Development Corporation
GEF FOCAL AREA(S): Climate Change (CC-4 Promote on-grid electricity from renewable sources)
GEF-4 STRATEGIC PROGRAM(S): SP3 Promoting Market Approaches to Renewable Energy
NAME OF PARENT PROGRAM/UMBRELLA PROJECT: N/A

A. PROJECT FRAMEWORK

Project Objective: Significant acceleration of the development of on- grid Solar Photovoltaic (PV) Systems by removing institutional barriers, including through technology transfer and developing sustainable delivery models and financing mechanisms.

Project Components	**Indicate whether Investment, TA, or STA****	**Expected Outcomes**	**Expected Outputs**	**GEF Financing***		**Co-financing***		**Total ($)**
				($)	%	($)	%	
1. Institutional, policy planning and legal framework and decision-making	TA	Adapted enhanced legislative and regulatory framework for solar photovoltaic (PV) development. Approved policy framework for stimulating investment in up to 400 kW and up to 15 MW PV plants. Policy barriers to grid-connected PV systems removed.	1. Government policy documents updated to include new realistic targets for PV grid-connected electricity. 2. Public Sector planning documents updated to include PV projects as supply options. 3. Policy recommendations on the incorporation of solar energy in the energy sector restructuring. 4. Completed review of policy and regulatory framework presented to the national authorities. 5. Completed analysis of institutional requirements for further enabling the spread of PV systems.	200,000	38%	320,000	62	520,000

			6. Comprehensive manuals for installation of PV-based energy generation facilities.					
2. Building public awareness of solar PV technology	TA	Increased social acceptability and public awareness of the benefits of PV.	1. Completed awareness raising workshops & demonstrations on the benefits of PV projects and other RETs; Awareness raising workshops held and dissemination reports prepared. 2. Pamphlets and other sensitization medium such as radio and TV programs designed and broadcast. 3. Redesigned university/polytechnic engineering curriculum that includes RETs, PVs in particular.	100,000	50%	100,000	50%	200,000
3. Assessment of the solar energy resource endowment and identification of specific sites	STA, TA	Power developers using the solar and resource map/reports for PV and other project developments. Commercial on-grid solar PV power generation systems designed in solar energy resource rich areas of the country	1. Completed detailed report on RE resources. 2. Identified potential sites for installation of commercial RE based plants identified in Mauritius, Rodrigues, Agalega and one other outer island.	250,000	19%	1,100,000	81%	1,350,000
4. Capacity building in public and private sectors and NGOs	TA	Increased human capacity and resources in the private sector, NGOs and government institutions to identify, design, appraise, manage and implement sustainable energy projects.	1. State agencies carrying out RETs project planning and implementation. 2. Operationally dedicated website on the project and on enabling access to technical information on how to set up PV systems. Knowledge disseminated on the setting up of PV systems. 3. Documented and disseminated lessons learnt for knowledge sharing. 4. Private sector technicians and NGOs trained in	100,000	28%	260,000	72%	360,000

			deployment of PV systems. 5. Local service providers skilled and capable of installing and maintaining PV panels and other RET systems.					
5. Strengthening the technology support and delivery system through technology transfer	TA	Enhanced technical and planning know-how of stakeholders and market chain for PV developed.	1. Completed review of PV development in other selected countries. 2. Established contacts with RE agencies.[1] 3. Technicians and planners in public and private sectors and NGOs trained on solar PV applications. 4. Completed feasibility analysis and business planning on the provision of installation, and repair service of PV systems. 5. Local entrepreneurs engaged in the solar PV business with improved business management capabilities and skills. 6. Completed technology transfer (e.g., theoretical and practical/hand-on training) from solar PV power generation technology developers and/or suppliers abroad.	300,000	60%	200,000	40%	500,000
6. Capacity building in the financial sector	TA	Easily accessible and affordable financing schemes for purchase, installation and maintenance of PV panels Banks/FIs financing solar PV projects and other RE based-power generation projects.	1. Financial tools developed for use in solar PV projects.[2] 2. Established and operational smart subsidies/tax incentives enhancing the consumers' willingness to pay. Finance professionals trained and skilled on the evaluation of bankable PV projects.	400,000	25%	1,200,000	75%	1,600,000

[1] This includes IRENA, and the private sector in other countries, namely Namibia, where a similar project was developed.
[2] For example: Cost-benefit analysis/Cost-effectiveness analysis (CEA)/Multi-Criteria Decision Analysis (MCDA).

7. Removing technical barriers	TA	Enforced norms, standards and codes for the manufacture, installation and operation of solar PV systems.	1. Standards for solar PV systems and systems components developed for the Mauritian context and adapted to the Rodrigues and Outer Islands context. 2. Private service providers fully qualified and capable to maintain PV equipment. 3. Trained local agencies and firms providing operation and maintenance services for PV systems, either by bringing expertise from Namibia to Mauritius or sending Mauritians for training in Namibia.	435,000	59%	300,000	41%	735,000
8. Demonstration projects[3]	Invest-ment by JICA and TA by GEF	Public-private partnerships and investments enhanced. Stakeholders' acceptance of viability of PV technology enhanced. PV projects designed, assessed, constructed and put in operation.	1. Completed site selection and pre-feasibility analyses 2. Completed installation of 10 grid-connected PV power generation systems (at various locations in the island to demonstrate technical and economic viability[4].). 3. Homeowners and private sector entities expressing interest in installing solar PV power systems.	135,000	2%	7,100,000	98%	7,235,000
9. Project management; Monitoring, evaluation and information dissemination		Proper, effective and successful project implementation	1. Monitoring and evaluation reports (PIR, mid-term, terminal, etc.). 2. Compiled and disseminated lessons learnt, experiences and best practices related to the development of solar PV systems are compiled and disseminated.	85,000	15%	478,000	85%	563,000
Total Project Costs				**2,005,000**		**11,058,000**		**13,063,000**

* List the $ by project components. The percentage is the share of GEF and Co-financing respectively to the total amount for the component.

** TA = Technical Assistance; STA = Scientific & technical analysis.

B. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME (in parenthesis) if available

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Sources of Co-financing	Type of Co-financing*	Amount ($)
Project Government Contribution	In Kind	278,000
Project Government Contribution	Cash	1,080,000

[3] Specifically for PV - about 2 m USD worth from the Japanese International Cooperation Agency (JICA).

[4] The locations include 5 key educational institutions (1university and 4 secondary schools).

GEF Agency		
Bilateral Aid Agency (JICA)	Cash	9,700,000
Multilateral Aid Agency		
Private Sector		
NGO		
Others		
TOTAL		**11,058,000**

C. INDICATIVE FINANCING PLAN SUMMARY FOR THE PROJECT

	Previous Project Preparation Amount (a)	Project (b)	Total c = a + b	Agency Fee
GEF		2,005,000	2,005,000	200,500
Co-financing		11,058,000		
Total		13,063,000	2,005,000	200,500

PART II: PROJECT JUSTIFICATION

A. STATE THE ISSUE, HOW THE PROJECT SEEKS TO ADDRESS IT, AND THE EXPECTED GLOBAL ENVIRONMENTAL BENEFITS TO BE DELIVERED:

The Government of Mauritius has embarked on an ambitious programme of transforming Mauritius into a sustainable island through the Maurice Ile Durable Project, thereby making it a model for the world in terms of ecological sustainability on a scale which is considerably bigger than what has been done elsewhere in proportional terms. However, in spite of the Government's commitment to Renewable Energies (RE), there have been constraints to a broader and more sustained application of Renewable Energy Technologies (RETs) in Mauritius.

Already bagasse and hydro power account for 20% of the total electricity generation in the country. The bagasse is obtained from the processing of sugarcane and is used for steam production to meet the energy needs of the sugar factories and for production of electricity for sale to the grid. This amount has been stagnating, if not decreasing, over the years, particularly with the decrease in area under sugar cane cultivation; on the other hand demand has kept increasing. In order to achieve 40% of generation from renewable energy resources in a decade, the barriers to the adoption of additional RE technologies, such as PV and wind energy, have to be identified and understood, and thereafter, addressed.

These are a number of barriers (as noted below) specifically for PV systems:

1. Lack of Policy, Legal, Institutional and Regulatory Framework: While the Government has prepared a grid code for the implementation of small-scale generators from RE below 50kW with the help of UNDP, this is unlikely to be sufficient to catalyze the PV market in a way that it becomes part and parcel of the Mauritian electricity landscape. Moreover, PV installations of less than 50kW would not be financially attractive unless feed-in tariffs and incentive schemes are put in place to support the initiatives. As there are no standardized provisions for facilities above 50kW, the development of medium-sized PV initiatives is hampered. This policy, legislative, institutional and regulatory gap therefore needs to be filled.

2. Lack of Financial Resources and Confidence: The Government has implemented a Solar Water Heater (SWH) incentive scheme for encouraging the use of solar energy for water heating purposes. The grant scheme was favorably accepted by Mauritian communities, but institutional and financial barriers have impeded the continuity of the project. The ability of Government to embark on a subsidy scheme for PV installations is curtailed, especially when we consider that the confidence in the capacity of PV to meet daily energy needs is absent in the country. However, the high initial costs associated with PV have to be partly overcome and the reliability thereof to provide electricity in the long term need to be established in the minds of Mauritians.

3. Lack of Appreciation of Technical Feasibility and Commercial Viability of PV Applications: Renewable energy projects in the past have focused on promoting PV systems such as solar home systems, mainly in households and hotels. Only one industrial facility is known to maximize the use of Solar Energy for water heating. While efforts have been made in the development of new PV systems, these would not be sufficient to achieve the aims set for the next decade. There is a need to enhance the appreciation in Government, in the private sector, and in local populations of the benefits (social, environmental and commercial) of such facilities through better understanding of their practical operation.

4. While proven and very mature RETs such as biomass conversion into electricity that have a track record from other projects in the past can be used, the use of PV has no such record in the Mauritian context. The pilot projects to be implemented and the associated capacity building efforts along the whole chain for the transfer of the technology will provide a means to catalyze further adoption of the technology in the medium-to-long term.

5. Technologies which are brought to Mauritius are often not resistant to cyclones. Standards will have be developed to ensure that good quality technology is adopted and this would allow confidence in the technology as a reliable supply option for meeting the energy needs of the country.

6. Increased investments in PV do not provide high financial returns with appropriate financial incentives. The market for PV is small. There is a lack of funding for replicating the pilot projects. The project aims at mobilizing part of the investments from development partners that can provide concessionary financing terms and also focus on providing energy for productive uses.

7. Market barriers to the deployment of solar PV technology therefore include the high associated investment costs and the lack of information on the various types of PV installations and their life cycle. Moreover, technicians who are able to provide the necessary installation and maintenance facilities for PV systems are almost nonexistent on the local market.

THE PROJECT:

The project is designed to offer a systematic approach to removing associated market barriers to investments in RE, more specifically PV in Mauritius, Rodrigues and the Outer Islands. Crystalline silicon technologies currently account for most of the overall cell production in the developed countries

The principal system components of a PV system are as follows:

- PV Modules - convert sunlight instantly into DC electric power.
- Inverter - converts DC power into standard AC power for use in the home, synchronized with utility power whenever the electrical grid is distributing electricity.
- Battery - stores energy when there is an excess coming in and distributes it back out when there is a demand. Solar PV panels continues to re-charge batteries each day to maintain battery charge.
- Utility Meter - utility power is automatically provided at night and during the day when the demand exceeds your solar electric power production.
- The utility meter actually spins backwards when solar power production exceeds in-house demand, allowing the owner of the PV to credit any excess electricity against electricity consumption from the grid
- Charge Controller - prevents battery overcharging and prolongs the battery life of your PV system.

In addition, an assortment of balance of system hardware; wiring, over current, surge protection and disconnect devices, and other power processing equipment. The PV industry is expected to evolve through continuous improvement in efficiencies and material technology. New materials from nano-science may create technology breakthroughs, but not overnight. Further R&D is improving the efficiency of all basic types of cells, achieving laboratory efficiencies for single crystal over 25 %, and for thin film technologies over 19 %.

The project would favour the use of grid-connected PV systems on the main island of Mauritius where the electricity network is well developed and access to electricity does not pose any problem, except for few isolated locations. For these locations and in Rodrigues and the outer islands, off-grid connected pilot projects would be looked into under the project so that any barriers for its adoption are thoroughly addressed, including through technology transfer.

Photovoltaic (PV) systems, like every other product, do need energy for manufacturing. But PV systems pay back this energy input with 1 to 3 years, depending on cell type and location. During its expected lifetime of 30 years, the PV system produces therefore 10 to 30 times the energy it originally consumed.

The lack of experience with distributed PV generation means that it is critical, as a confidence building measure, to demonstrate the technical feasibility and commercial viability of PV to national decision-makers and to the local populations at large. The project aims to achieve these objectives by implementing pilot schemes specifically for solar PV power generation as regards GEF funding.

During implementation, the lessons learnt from running pilot projects will be disseminated widely as part of the awareness raising campaign. The private sector in particular will be targeted for awareness raising since a broader and accelerated scaling up of renewable energy across the country can only be achieved if it is led by the private sector. Building on this pr, the project will create a market environment conducive to a wider adoption of PV-based technologies in the country.

To create the enabling conditions for a market-led growth in PV systems, the project will establish the necessary legal and regulatory framework for the RE sector in general but with special focus on PV, including clear guidelines and protection to potential markets players in the sub-sector. This work will build on the experiences with the Independent Power Producers (IPPs) and Small Independent Power Producers (SIPPs) in the country.

The project will increase the institutional capacity of the Ministry of Renewable Energy and Public Utilities (MREPU) and Central Electricity Board (CEB), as the national focal institutions in promoting RET in general, to enable them to discharge their duties effectively. Specifically GEF funding will be used for the solar PV technology training to be provided to state agencies. The involved MREPU will be able to offer support services to RE market players in the country that include awareness raising and capacity building, services to market players such as project identification and development, business development advice and services, market assessment, technology assessment, quality assurance of RE equipment, policy studies, implementation, monitoring and evaluation of RE projects. These services will be important in sustaining a viable renewable energy market in the country. Moreover, the utility regulator, which is in the process of being set up, needs to be able to provide a regulatory environment which reassures operators about the viability of their investments via adequate tariffs and technical oversight.

GLOBAL BENEFITS:

The overall immediate outcome of this project will be that Mauritius will immediately and significantly reduce greenhouse gas (GHG) emissions through the 10 pilot projects and in the future through an increased and systematic deployment of PV that will be catalysed by this project. The GHG emissions reduction will be derived from the reduced consumption of fossil fuel generated power in current and planned power plants mainly using coal. In addition to these global benefits, the project will lead to economic and social benefits in Mauritius and Rodrigues and the Outer Islands by removing barriers to further implementation of PV systems which will ensure energy security while creating a good knowledge base which will be beneficial, even on a regional basis. For instance, the experience aquired in Mauritius will benefit the Renewable Energy programme being developed by the Indian Ocean Commission.

B. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH NATIONAL PRIORITIES/PLANS:

The Government of Mauritius has been advocating a shift from conventional fossil fuels to renewable sources for a long time. The first power plant in Mauritius was a small hydro plant in Reduit in the 1906. However, from then on the share of fossil fuels considerably increased and became the greater part of the island's energy supply . Production of electricity on a large scale in the form of biomass started in late 1950's when sugar factories used bagasse for the first time. With the continued increase in the prices of fossil fuels over the years, the Government favoured a return to renewable sources with the Bagasse Energy Development Plan in 1990s. The implementation of the plan allowed for a significant increase in the share of bagasse in the production of electricity. Consistent with this approach of favouring RE, the Government first installed wind turbines in the late 1980s. Unfortunately, those turbines rapidly fell prey to cyclones and were abandoned. With the recent surge in the price of oil, the Government has reinvigorated its interest in furthering the development of RE. With already 20% of its electricity production from renewable sources, Mauritius is an international leader in this respect. The challenge is now to increase it to 40% over the next ten years with the application of all kinds and sizes of RE installations, and principally the challenges exist at the lower scale.

The Government has therefore given special attention to RE utilisation through the implementation of various policies and institutional measures as shown below:

Energy Policy: The Outline of the Energy Policy was adopted by Government in April 2007 which was followed by the adoption of the Long-term Energy Policy in December 2008. The policy framework covers all sectors, including electricity, petroleum products, RE, local energy sources and energy efficiency. In the RE sector, the thrust is on promotion of RET, especially in distributed and decentralised systems, not only to increase access to modern energy services, but also to enhance energy security. Legislation to regulate the electricity sector was introduced in 2005 with the adoption of the Utility Regulatory Authority Act. The Government is now elaborating two key policy documents, namely the development of the long-term Energy Strategy and the Renewable Energy Master Plan in support of the Long-term Energy Policy.

Grid Code: In addition, with the collaboration of UNDP, the Government has embarked on the preparation of the Grid Code and accompanying feed-in tariffs and incentive schemes which are still under development for the small-scale distributed generators below 50kW. Regional: The project is also in line with the mandate of the Indian Ocean Commission which is to promote the sustainable development of member states (Mauritius, Reunion, Madagascar, Comoros, Seychelles) and which is currently embarking into a RE project for all member states through the tenth European Development Fund. This RE project is expected to materialise in 2011.

Renewable Energy Technologies are mentioned in the Technology Needs Assessment as requiring increased attention, including interms of an evaluation of available resources regarding solar PV as well. Moreover, solar PV power generation technology is a priority CC mitigation technology identified during the CC Enabling Activities project that developed Mauritius' First National communication to the UNFCCC**.**

C. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH GEF STRATEGIES AND STRATEGIC PROGRAMS

The activities proposed will remove important barriers to the adoption of RET, consistent with GEF strategic objectives in climate change and those stated in the strategic programming for GEF-4:

1. To promote RE as part of the mitigation strategies: The project will contribute to increase production of RE for supply in the electriciy grid, having a direct impact in market penetration (% of share from renewables) and GHG emissions from electricity generation (ton CO_2eq/kWh).
2. The project will also contribute to OP-6 in promoting the adoption of RE by reducing implementation costs, following two strategic priorities:
    a. Increased access to local sources of financing for RE
    b. Increased awareness and reduced technical barriers to implementation of RE projects.

D. JUSTIFY THE TYPE OF FINANCING SUPPORT PROVIDED WITH GEF RESOURCES

The GEF resources being requested for this project will be targeted towards establishing a market environment that will promote investments in PV distributed generation and transfer of technology. The project will support the necessary adaptations in the legal and regulatory framework as well as capacity building and technology transfer activities specifically for PV technologies. Where possible. e.g., from Namibia and Thailand, expertise acquired through GEF funded projects will be tapped into, thus engaging in South-South cooperation for the transfer of technologies. Initial discussions with Namibian counterparts in UNDP have resulted in the following ideas: learning from the Renewable energy and energy efficient institute (REEEI) based at the Polytechnic, the ministry concerned (i.e. mines and energy), the trained technicians (i.e. suppliers and providers for PV technology), as well as the project management unit and the vocational training institute which has been capacitated to provide the trainings through a vocational module. More specifically, the GEF funding will be used to co-finance the following project activities: (i) developing demonstration projects to demonstrate the technical feasibility and economic viability of PV facilities at selected sites and enhancing the capacity of institutions that focus on energy for productive uses; (ii) technical assistance to establish a legal and regulatory framework that will create a level playing field for PV-based applications in particular; (iii) technical assistance in institutional strengthening, capacity building and awareness raising; and (iv) technical assistance in the creation of PV markets and supporting the project management unit.

Owing to the high initial costs associated with the development of such a sector i.e. a PV market, catalytic investments are required to generate the positive conditions for the RE market to be developed. In each of the initiatives, possibilities to effect exchanges with Namibia and Thailand will be explored for example, through either sending technicians from the Central Electricity Board of Mauritius to Namibia for training or hosting technicians from institutions in Namibia. Moreover, an on-grid PV project is being prepared for submission to GEF for Seychelles. Should both projects materialize, the possibility of exchanges between the two countries will be explored.

E. OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES

The Ministry of Renewable Energy and Public Utilities has the overall responsibility for implementing the vision of the Governement of Mauritius as stated in the Outline Energy Policy of April 2007which is to drive the country towards better self-sufficiency in energy supply and improving affordability to all citizens. With the aid of GEF and UNDP, a first step in the path has been made through the project "Removal of Barriers to Energy Efficiency and Conservation in Buildings". An important outcome of this project was the development of the mentioned Grid Code that will enable small-scale distributed generators to connect to the grid. The code has been completed and comprises all the technical requirements, but there is not yet any installation in place. The grid code which now belongs to the MREPU and the CEB will enable the latter to have a good start in the implementation of the project as the initial requirements for connection will have been defined.

The MREPU is preparing a Master Plan for RE development that will look into the design of appropriate incentive schemes in an effort to make projects in RETs attractive to private investors. Since the Renewable Energy Masterplan will have identified barriers to the implementation of PV technology in Mauritius, it is anticipated that it will be an important input to the project at PPP stage.

Specifically for Climate Change Adaptation and Mitigation, the Government is embarking on a project to develop policies and plans with the help of the Japan International Cooperation Agency (JICA) and UNDP. Project implementation jointly with MREPU by the latter will overlap with the implementation of the ongoing GEF project on the removal of barriers to RE. Coordination with the JICA project will be effected through the MREPU and also the Ministry of Finance and Economic Empowerment, and Ministry of Environment and NDU.

Implementation for other renewable energy aspects through the JICA benefitting the MREPU and other implementing partners will supplement the implementation of the GEF project on the removal of barriers to RE thereby enabling a more comprehensive tackling of barriers to project implementation. While the JICA component will enable the acquisition of equipment for the demonstration and the mapping exercise, the GEF component will be used to provide technical assistance and capacity building. Same coordination mechanisms as above will be implemented.

Finally as mentioned above, technical exchanges with Namibia/Thailand where GEF renewable energy projects have been completed will definitely be explored. Moreover, the possibility of exhanges between Seychelles and Mauritius will be explored should the projects from both countries be approved. Throughout the project, coordination with the UNDP GEF RCU will be maintained so that appropriate advice is obtained in a timely manner whenever required. Moreover, advice from the RCU will also be obtained in the selection of the technology and the preparation of the final project document.

F. DISCUSS THE VALUE-ADDED OF GEF INVOLVEMENT IN THE PROJECT THROUGH INCREMENTAL REASONING:

1. Without the GEF project, the “business as usual” scenario will involve unavoidable development of fossil fuel power plants, such as the diesel plants, with the associated emissions of GHG. In addition, it is expected that there will be a very feeble future development of RE resources mainly due to existing market barriers. At the local level, to ensure security of energy supply there will continue to be heavy reliance on the existing and decreasing sources of bagasse from sugar production. In addition, the policy objectives of Mauritius of exploiting the available RE resources to support sustainable development will not be achieved.
2. The institutional framework in Mauritius is still in the process of being modified to allow the entry of small scale RETs in the market, but there are no examples of a successful project that demonstrates the viability and profitability of the technologies. Without the pilot projects, which are designed to show the way forward, it will take longer for private investors to take the required initiative, and for financial institutions to overcome

the lack of confidence to promote investments in RETs. The incremental activities for facilitating the design, construction, installation and operation of the pilot plants will enable the showcasing of the design, engineering, financing, and the business angle of RET (particularly solar PV technology) applications in the Mauritian context.

The main Global Environmental Benefit (GEB) from the project is mainly from the avoided GHG emissions from the power plants that would have used fossil fuels to produce the amount of electricity that the 1 MW on-grid PV-based power generation demonstration units will generate. The pilot projects will account for 1% of the total electricity generation. Since the emission factor of the Mauritian grid in 2008 is 1.1773 kg CO_2/kWh, the expected reduction of CO_2 emissions will be in the order of 26,300 ton/year. These GEB will be achieved through activities under the GEF focal area of climate change, particularly the GEF-4 strategic program SP3 – "Promoting market approaches for RE", specifically PV in the case of this project. Increasing the share of RE in the electricity sector in Mauritius will avoid significant amounts of GHG emissions with direct GEB. Taking into consideration that as per the Long-term Energy Policy for Mauritius, the share of the RE concerned (solar, wind) will increase to 3%, the project will only partly contribute to meeting those national targets , but will serve to further catalyze emission reductions over the years. In 2025 it is expected that the emission reductions will be of an amount of 526,500 tons of CO_2 , based on the current emission factor. However, the emission factor would have then be reduced to 0.7521 t CO_2/MWh.

G. INDICATE RISKS, INCLUDING CLIMATE CHANGE RISKS THAT MIGHT PREVENT THE PROJECT OBJECTIVE(S) FROM BEING ACHIEVED, AND IF POSSIBLE INCLUDING RISK MEASURES THAT WILL BE TAKEN:

The main risks and assumptions for successful implementation of the project are:

Assumption: Political and economic conditions in Mauritius remain favorable. Risk Low: The political and economic conditions suffer from a downturn. Risk level - Low Mitigation: Politicians are always being sensitized to the importance of renewable energy and among the general class of politicians there is consensus on their importance.

Assumption: Willingness of the Government of Mauritius to cooperate. Risk: The willingness of Government to cooperate decreases. Risk level- Low Mitigation: Good relations are always maintained through different meetings and workshops with Government stakeholders so as to provide confidence in the delivery mechanisms.

Assumption: Willingness of stakeholders to strengthen their capacity. Risk: there is no willingness of stakeholders to continue to acquire technology and continue development in the sector. Risk level – Low Mitigation: Through the various existing activities of UNDP with regards climate change mitigation, the need to move towards renewable energy is continually transmitted to stakeholders and the latter's response has always been positive, the more so with the background of increasing oil prices.

Assumption: Interest of the financial sector to support development of PV projects. Risk: There is no interest of financial sector in supporting development of PV projects. Risk level – low to moderate Mitigation. Through coordinated action with various donors, the awareness of stakeholders from the financial sector is being raised. One donor is providing soft loans through the commercial banks for RE and PV projects.

Assumption: Willingness of the private sector to co-finance RE pilot systems. Risk: The willingness of private sector to co-finance the RE pilot systems is not present. Risk level – low to moderate. Mitigation: The Ministry of Finance has recently decided that 2% of company profits should be geared towards Corporate Social Responsibility. UNDP will request that the contribution of private sector to projects is considered as CSR. Moreover, there are leaders in the sector who are instilling the mindset at the levels of Chambers of commerce etc and UNDP is in discussion with them to mitigate such risks.

Assumption: Willingness of local business people to invest in applications. Risk: Local business people are not willing to invest in applications. Risk level - low to moderate. Mitigation: The interest of local business people in investing in such applications is kept at high level through dissemination of information on the need to ensure energy security while at the same time creating the right environment for investment in PV through the project.

Technical risks: The non-availability of electricity from grid-connected electricity at night and lower performanve on cloudy days. Mitigation Measure: Power system would be designed to include a range other RETS that can supplement any shortfall in output at night or on cloudy days. Risk Level: moderate.

Technical Risk: Technologies which are brought to Mauritius are not resistant to cyclones. Mitigation measure: Standards will be developed to ensure the dissemination of good quality technology. Risk Level: Low.

Economic and financial risks: Lower prices of fossil fuel alternatives can impact the adoption of PV technology. Mitigation Measure: environmental levy to impute true cost of electricity generation from fossil fuels. Focus on RE where the energy generated is used to create value/service for the communities, which they are able and willing to pay for. Risk level: low, levy system already in place.

Market risks: Private sector operators do not provide the service for the sustainability of the PV technology in the country. Mitigation measures: Government commitment through MID Fund would help to develop critical mass for the use of RETs. Risk level: Moderate.

H. DESCRIBE THE EXPECTED COST-EFFECTIVENESS OF THE PROJECT:

The cost effectiveness of the project will be determined during the project preparatory phase using the following steps: (i) from the feasibility study of potential RE facilities to be established under this project, estimate total power capacity in MW that could be achieved; (ii) based on the current power generation system, including distribution and transmission losses, establish the fuel consumption from current installed capacity that would deliver the same energy as that is delivered by the RE facilities; (iii) using the emission factors, calculate the GHG emissions that could be reduced by the use of RETs and associated potential revenue from carbon finance ; (iv) from the cost of the RE systems to be installed as part of this project, calculate the cost-effectiveness, particularly taking into account the benefit in terms of $/ton of CO_2 abated. Considering the potential market to be created by this project, there is huge potential for post project activities that will result in avoided GHG emissions and further improve the cost-effectiveness of the project via the sale of carbon credits. During the PPG phase, the exact number of plants and total installed capacity will be determined and the specific amount of avoided GHG emissions by this project will be calculated.

The project is designed to ensure that all its inputs and outputs are achieved in the best possible way. In all situations UNDP will guarantee that subcontracting does not erode the budget of the project in exceeding staff, office and overhead expenditures. On the contrary, the experience of subcontractors will be used to achieve the best cost-effectiveness possible. Any subcontracting will be done through a competitive selection process in accordance with UNDP's rules and regulations.

I. JUSTIFY THE COMPARATIVE ADVANTAGE OF GEF AGENCY: UNDP

The project has a strong focus on RET adoption and technical assistance which is what UNDP has been delivering over the past years, being the only UN agency with a permanent base in Mauritius and actively involved in this sector[5]. UNDP has got a strong anchorage in the field of RE in Mauritius, having been involved in the implementation of the grid code for small-scale distributed generators. It also benefits from a very good relationship with the stakeholders including the MREPU. Moreover, UNDP is seen as a credible partner by JICA as it is already acting as implementing agency for the Climate Change Adaptation and Mitigation project under the Cool Earth Partnership with funding from JICA.

[5] The project fits well into the UNDP Mauritius Country Strategy Focal Area concerning capacity building in the environmental sector and mitigation of climate change. UNDP will continue to support local and regional initiatives to promote environmental protection in Mauritius and enhance regional collaboration. By fostering sustainable development principles, UNDP will strengthen the national capacities to enforce new environmental measures and legislation, enhance accountability and transparency in environmental decision-making. Emphasis will be placed on strengthening and maintaining synergies with national and regional initiatives. It will continue to focus on developing the enabling policy, institutional framework and adaptive strategies and creating conditions for effective co-management and sound natural resources management practices as well as public-private partnerships in environmental protection. More specifically, the focus on climate change mitigation and adaption strategies, which includes the reduction of GHG emissions, demonstrates the commitment of UNDP to achieve the aims of the project.

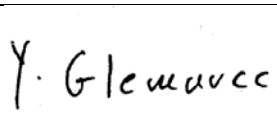
PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT(S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the country endorsement letter(s) or regional endorsement letter(s) with this template).

NAME	POSITION	MINISTRY	DATE *(Month, day, year)*
Mr. A. M. Mansoor	Financial Secretary GEF Operational Focal Point	MINISTRY OF FINANCE AND ECONOMIC EMPOWERMENT	August 11, 2009
Mr. S. Seebaluck	Permanent Secretary UNFCCC Focal Point	Ministry of Environment and National Development Unit	August 12, 2009

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies and procedures and meets the GEF criteria for project identification and preparation.

Agency Coordinator, Agency name	Signature	Date *(Month, day, year)*	Project Contact Person	Telephone	Email Address
Yannick Glemarec, UNDP/GEF Executive Coordinator		May 06, 2010	Lucas Black Regional Technical Advisor Climate Change Mitigation – East & Southern Africa UNDP	+212-9066230	lucas.black@undp.org