PROJECT IDEA NOTE (PIN)

Description of size and quality expected of a PIN

Basically a PIN will consist of approximately 5-10 pages providing indicative information on:

- **A.** Project participants
- **B.** Project description, type, size, location and schedule
- **C.** Avoided / reduced GHG emissions
- **D.** Financial aspects
- **E.** Expected environmental and socio-economic benefits
- **F.** Risks
- **G.** Other relevant information

A. PROJECT'S PARTICIPANTS

Name of the Project Participant	Development Bank of Mauritius (DBM) + MID Fund project Manager
Role of the Project Participant	a. Project Operator b. Owner of the emission reduction credits c. Seller of the emission reduction credits
Organizational category	Private/Public
Temporary Contact person	Mr. Desha – MID project Coordinator
Address	La Chaussée Street, Port Louis, Mauritius
Telephone/Fax	+203 211 53 57
E-mail and web address, if any	www.dbm.mu
Main activities *Describe in not more than 5 lines*	**DBM:** A nationally owned financial institution of excellence and a strategic partner in providing an array of flexible support facilities to all individuals, associations or companies, big and small, engaged in the socio economic activities. Products: Loans, credits, leases, saving accounts, special projects (e.g. soft loans for SWH since 1991) **MID:** "Maurice Ile Durable" or "Mauritius Sustainable Island" is a Fund created by the Government of Mauritius to promote and support projects that enter the Mauritian sustainable development framework. Those projects are mostly geared towards energy efficiency and renewable energy yet should be able to demonstrate benefits for society at large. Three projects have been identified at initiation time: 1. Provide grants to support the acquisition of Solar Water Heaters (SWH) – First phase completed, 25,000 grants of Rs. 10,000 were allocated to home-owners. 2. Provide financial assistance to bus companies and owners to acquire new modern buses – more comfortable and economical (project under review by consultants) 3. Distribution of 1 millions CFL lamps to home-owners (NB: this project was started under the CDM but dropped as the Central Electricity Board could not support the operational burden of complete monitoring). **NB:** It is important to note that there are 2 main actors in MID projects. The first is the MID itself, which grant the necessary finance for the project to happen. The second is the project "driver" which makes sure that the funds of the MID are well used. The DBM has been appointed by the Government of Mauritius to driver the SWH phase 1 project. The DBM is managing the grant scheme without any financial assistance from anyone – for free. This situation is causing tension as the top management of DBM doesn't want to keep on spending scarce resources on unprofitable activities. Phase 2 will therefore be with or without DBM, but in all cases will have to involve an interested party. This party could be interested by CER's revenue sharing for example.
Summary of the financials *Summarize the financials (total assets, revenues, profit, etc.) in*	• The Group operating profit before provisions is Rs. 118.7 M. The restated figure for the year 2006 was Rs. 122.1 M. • Profit after tax of the Group is Rs. 241.7 M compared to Rs. 213.7 M for

not more than 5 lines	the previous year. • Group's total assets in 2007 aggregated to Rs. 13.4 billion compared to Rs 12.4 billion in 2006. • Loan portfolio was Rs. 4.7 billion gross and Rs. 3.9 billion net in 2007. The amount in 2006 was Rs. 6.9 billion gross and Rs 5.5 billion net. The figures for the year 2007 exclude the loan balances for First City Bank, which have been reclassified as 'assets held for sale'. • Savings and fixed deposits placements made by customers were Rs. 7.4 billion in 2006. • After adjusting for First City Bank, the figure is Rs. 3.8 billion in 2007. Please refer to Annual report 2007 for more detailed information - www.dbm.mu
Summary of the relevant experience of the Project Participant *Describe in not more than 5 lines*	The Bank is a good potential project promoter because it is currently handling the grant fund from MID and has been managing the SWH soft loan scheme for 17 years.

B. **PROJECT DESCRIPTION, TYPE, LOCATION AND SCHEDULE**

OBJECTIVE OF THE PROJECT *Describe in not more than 5 lines*	The objective of the project is to finance a grant scheme program partly through CER in order to give Mauritian households incentives to switch from LPG or Electricity water heaters to renewable solar water heaters.
PROJECT DESCRIPTION AND PROPOSED ACTIVITIES *About ½ page*	At present, the Development Bank of Mauritius (DBM) is managing a fund of about Rs. 250 millions (€ 6.25 millions) to help 25,000 households to acquire solar water heaters (SWH) instead of cheaper and more carbon intensive LPG or Electric water heaters. The carbon benefits for the project will come from avoided gas importation and electricity generation. Basically, this Rs. 10,000 is a "one-off gift" provided by the "Maurice Ile Durable" (MID) fund to future buyers of SWH. The fund is already earmarked and is administered by the Development Bank of Mauritius (DBM).I It might be difficult, unfortunately, to include this part of the scheme in the overall CDM project. If so, it is suggested that this current period should be considered as a pilot test-case. Of course, all efforts should be made to try to produce CER's from these early SWH grants – as was the case in Tunisia and South Africa. Although the idea of creating a Phase 2 scheme is sound, its additionality clear and ER impact potential of significant size, it is worth noting that at current time, no organization (statal, parastatal or private) has yet taken the lead on this matter and discussion as to "Who to entrust with this CDM" is still an ongoing concern at governmental level. We shall, therefore, tentatively, identify the Project promoters as the Development Bank of Mauritius yet will have to remain flexible as this could happen under any other organization's supervision. The contact person for this project will be the Head of Operation of the newly created MID operational team who will liaise with the DBM. The second phase of the project, during which the MID fund would be putting

	1 billon rupees into the SWH grant fund, is not yet defined and remains at a highly conceptual level. The basic idea follows the same lines of thought as the first phase of the project (described in details above and below) but is still open to changes and improvements, especially since the scope of the grant will increase to encompass industrial and commercial SWH users – which are not the case today. If the second phase of the project is based on the first phase, its operational structure will be as follow: 1. The Government puts money in the MID fund (loaned, granted or offered to them or from retaining part of the tax proceeds from the national budget) to assist hot water users to acquire SWH. 2. The hot water users that would like to benefit from the grant contact the Development Bank of Mauritius (DBM) and fill in a request for the grant, backed by the proof of acquisition of the SWH from a registered shop. 3. The DBM checks the submitted file and verifies that the SWH has been bought or ordered and that the file submitter has not already asked for a grant. 4. The money is disbursed and the user buys its SWH. The sustainable benefits of this project are high. Out of the 300,000 households that exist in Mauritius, a third would be getting hot water from a natural, renewable resource – the sun. State wise, it represents billions of savings from avoided gas importation or electricity generation. It also represents monthly savings for households between Rs. 4,000 and Rs. 11,000 per year, representing nearly a month's worth average salary! This will enable households to free some of their income, benefit from higher standard of living and therefore boost the local economy. The other sectors that will benefit from the use of SWH and the grants from the state to acquire this technology are the local industries. Mauritius is competing with countries that have lower labor cost. The textile industry, the best example, is struggling to stay in business. Large investments in renewable energy are not possible for those cash starved companies. A grant to acquire industrial sized SWH to pre-heat the water that will be used for steam generation or direct process uses will help those companies to become more environmentally friendly and more competitive by lowering the fossil fuels needed to boil the water without SWH's pre-heating to 82 degrees Celsius. This will help companies stay in business and retain their employees. The benefits being environmental, economical and social, this project has a very high Sustainable Development Benefits. The overall structure of the project, however, needs to be defined along with the future partner. For example, discussions with CEF from South Africa as to

	how to best build the project structure in order to fit CDM are currently under way. This lack of precise structure is both the strength and weakness: It is strength because it allows for the best structure to be created with the financing and other partners; a weakness because fixed structures comfort specific investors in fully defined projects. Mr. Desha from the MID fund has accepted to be the temporary contact person while a proper structure is put in place to manage the MID SWH fund phase 2 program (if and when validated by the Cabinet of Ministers). DBM is kept as the potential project promoter for it has all the necessary experience, has been involved with phase 1 (that it could try to get credit for) and could be interested to continue with this project if it were to be paid (by CER proceeds for example) to undertake the grant management scheme – something for which it is not being paid for in phase 1.
TECHNOLOGY TO BE EMPLOYED[1] *Describe in not more than 5 lines*	Solar Water Heaters used by households, industries and commercial buildings instead of LPG or Electricity driven Water heaters. No specific brand or type of SWH will be favored in the framework of this program – some minimum technical requirements will be set in the framework of the CDM/PDD. The grant will be fixed for households and adjusted for commercial and industrial sites so as to reflect the size differential.
TYPE OF PROJECT	
Greenhouse gases targeted $CO_2/CH_4/N_2O/HFCs/PFCs/SF_6$ *(mention what is applicable)*	CO_2
Type of activities Abatement/CO_2 sequestration	GHG's abatement
Field of activities	Energy efficiency improvement
LOCATION OF THE PROJECT	
Country	Republic of Mauritius
City	All cities in Mauritius
Brief description of the location of the project *No more than 3-5 lines*	Mauritius is a 2,040 km² Island in the Indian Ocean with a population of about 1,200,000 inhabitants. The island counts 337,242 households as of Mid-2007 all of which would be potential targets for this CDM. Industries, offices and commercial buildings, accounting for another potential sector in which to develop the CDM make up another 300,000 SWH units (household equivalent). The overall Republic of Mauritius comprised mainly of Mauritius Island and Rodrigues Island is the project boundary.
EXPECTED SCHEDULE	
Earliest project start date *Year in which the plant/project*	1st Jan 2010 – by this time the first phase of the MID fund program will be finished (grants for 25,000 units). The idea is for the project to launch a second

[1] Please note that support can only be provided to projects that employ commercially available technology. It would be useful to provide a few examples of where the proposed technology has been employed.

activity will be operational	phase to cater for 100,000 grants from the MID fund. At this stage, the Government will increase the scope of the entities having access to the grant from "domestic users" to "any user": domestic, commercial and industrial.
Estimate of time required before becoming operational after approval of the PIN	Time required for financial commitments: 2 months Time required for legal matters: 2 months Time required for construction: 0 months
Expected first year of CER/ERU/VERs delivery	2011
Project lifetime *Number of years*	
Expected Crediting Period for CDM project:	10 years fixed crediting period
Current status or phase of the project	• Pilot Phase • Pre-feasibility of financial scheme Since project is a continuation of current undertaking and since project will not involve building or setting up "concrete" things the stage reached is actually 2nd of 3 stages (i.e. 3rd stage = feasibility acceptance by Cabinet of Ministers)
Current status of acceptance of the Host Country	No firm proposal put forward to Ministry of Environment (DNA).
The position of the Host Country with regard to the Kyoto Protocol	The Host Country acceded to the Kyoto Protocol in 2001

C. AVOIDED / REDUCED GHG EMISSIONS

ESTIMATE OF GREENHOUSE GASES ABATED/ CO_2 SEQUESTERED *In metric tons of CO_2-equivalent, please attach calculations*	Annual (Increases over first 3 years and then stabilizes): Year 1 = 13,522 tCO_2-equivalent Year 2 = 27,045 tCO_2-equivalent Year 3 (stabilized) = 30,050 tCO_2-equivalent Up to and including 2012: 70,617 tCO_2-equivalent Up to a period of 7 years: 190,815 tCO_2-equivalent

BASELINE SCENARIO

Baseline methodology to be used

This project is covered by an existing Approved CDM Small-Scale Methodology - I.C./Version 14: "*Indicative simplified baseline and monitoring methodologies for selected small-scale CDM project activity categories*" – *Renewable energy project*. Please note that the methodology directly applicable to SWH is in development, with the latest Meth Panel recommendations dated Aug 29-2008 herein to be taken into account: F-CDM-NMSUMmp version 01 - NM0263

What modifications the project would induce?

This project will induce a profound change in Mauritius consumption and hot water production pattern. Firstly, it will boost the solar energy commercial sector and render the old (electric and gas) heating system obsolete. This project will help a third of the population to have access to SWH and will help some industries to reduce their energy needs and therefore be more competitive. As for commercial buildings, the needs for hot water is quite

low when compared to domestic and industrial sectors but by opening the grant to all the public at large will be interested and motivated to participate.

What would the future look like without the proposed CDM project?

In the absence of the Government's SWH scheme, domestic water heating in the Island would be performed using gas or electricity. This would increase GHG's emissions to the atmosphere and contribute to the problem of global warming.

Note: In the absence of empirical data to establish the baseline scenario for water heating in Mauritius,[2] import data for gas and electric water heaters have been compiled (see Table 1).[3] Re-exportation of heaters is negligible and assumed to be zero in this analysis.[4] It is assumed here that the market responds well to the demand of heaters, and hence the import data are a good proxy for situational or end-use analysis. It is clear from Table 1 that gas heaters have superseded electric heaters as the prevalent form of water heating appliance (gas being subsidized by the State and therefore cheaper than electricity). The average ratio between total number of imported gas heaters and total number of imported electric heaters was 5.5 between 2001 and 2007, with the value being 4.5 for the past two years. For the baseline, the ratio of solar to electric to gas heaters is taken as 1:1.15:5.2. Solar water heaters that already exist on the market are included in the baseline but the one accruing from the pilot phase will not, at this stage be taken into account. At PDD stage, expert will have to assess whether those can be discarded or not. See Annex 2 for calculation

ADDITIONALITY Please explain which additionality arguments apply to the project: (i) there is no regulation or incentive scheme in place covering the project (ii) the project is financially weak or not the least cost option (iii) country risk, new technology for country, other barriers (iv) other	The study entitled 'Attitude Survey on the Use of Solar Water Heaters – Final Report (2007)' prepared by KPMG for the Ministry of Public Utilities is the core document used for justifying barriers detailed below. • Legal framework: There is no legislation to make the use of SHW systems mandatory in Mauritius. Hence, end-users opt for the least expensive, and apparently more reliable, option for water heating such as gas or electric water heaters. Gas and electric water heaters emit more CO_2 into the atmosphere than SHW systems. • Investment barrier: The cost of SHW units is perceived as being very expensive by end-users. For instance, without rebate, the pay back time for a SHW unit is 6.2 years or 12.8 years relative to electric or gas water heaters, respectively. The upfront capital investment for a gas water heater is more than one order of magnitude lower than for a SHW unit. So, any carbon credits generated by the project can be used to support the rebate scheme or increase its threshold and scope to make SHW units more affordable relative to gas water heaters. • Barriers due to prevailing practice: SHW systems have a market penetration of around 8% (of households). Estimates from trade data (2001-2007) show that the gas and electric water heaters already occupy at least between 50% and 62% of the household market. In the absence of the proposed rebate scheme, it is expected that the market penetration of instantaneous gas heaters will dominate the market for water heating.

[2] A field survey is currently being carried out by the University of Mauritius, and results will be published in December 2008.
[3] Data obtained from Central Statistics Office website at http://www.gov.mu/portal/sites/ncb/cso/series/hs9903.htm - accessed 19 August 2008.
[4] For instance, 226 gas water heaters of household type were re-exported in 2004, constituting a mere 0.46% of total importation.

	• Technological barrier: There is a perception by end-users that SHW systems are not reliable and do not perform as expected. Further, there is no mandatory quality standard imposed on manufacturers and suppliers of SHWs. • Other barriers: Respondents in the study mentioned above report on the deficiency of information regarding the use and benefits of SHW systems. Also, subsidy on LPG puts SHW units at a disadvantage, especially when there is already broad cultural acceptance of LPG in households. Close to 100% of households in Mauritius use LPG for cooking.
SECTOR BACKGROUND Please describe the laws, regulations, policies and strategies of the Host Country that are of central relevance to the proposed project, as well as any other major trends in the relevant sector. Please in particular explain if the project is running under a public incentive scheme (e.g. preferential tariffs, grants, Official Development Assistance) or is required by law. If the project is already in operation, please describe if CDM/JI revenues were considered in project planning.	The Government of Mauritius, as previously stated is trying to promote the usage of renewable energy and other energy efficient solutions in view of lowering demand for energy and in the framework of that policy, has issued a grant to the general public to provide incentive to users to switch to SWH instead of using fossil fuel intensive ones. The sector is not regulated as such as we are talking of a general commodity will probably never be. The DBM soft loan program exists and it is not foreseen that it will end in the near future.

D. FINANCIAL ASPECTS

TOTAL CAPITAL COST ESTIMATE (PRE-OPERATIONAL)	
Installed costs	33.3 million US$ million (equipment = SWH)
Total project costs	33.3 US$ million
SOURCES OF FINANCE TO BE SOUGHT OR ALREADY IDENTIFIED	
Equity Name of the organizations, status of financing agreements and finance (in US$ million)	None
Debt – Long-term Name of the organizations, status of financing agreements and finance (in US$ million)	MID fund grant of 1,000,000,000 Rs for the scheme. Partial replenishment of state fund by CER while consequent savings on electricity and Gas imports will "repay" the Government for the capital and interests on the 1 billion Rs advance through fund.
Debt – Short term Name of the organizations, status of financing agreements and finance (in US$ million)	None

Carbon finance advance payments[5] sought from the World Bank carbon funds. (US$ million and a brief clarification, not more than 5 lines)	None at present
SOURCES OF CARBON FINANCE Name of carbon financiers other than any of the World Bank carbon funds that your are contacting (if any)	None at present
INDICATIVE CER/ERU/VER PRICE PER tCO_2e[6] *Price is subject to negotiation. Please indicate VER or CER preference if known.*[7]	12 Euro per CER pre 2012 and 10 Euro per CER post 2012
TOTAL EMISSION REDUCTION PURCHASE AGREEMENT (ERPA) VALUE	
A period until 2012 (end of the first commitment period)	To be negotiated US$ / €
A period of 10 years	To be negotiated US$ / €
A period of 7 years	To be negotiated US$ / €

Please provide a financial analysis for the proposed CDM/JI activity, including the forecast financial internal rate of return for the project with and without the Emission Reduction revenues. Provide the financial rate of return at the Emission Reduction price indicated in section "Indicative CER/ERU/VER Price". DO NOT assume any up-front payment from the Carbon Finance Unit at the World Bank in the financial analysis that includes World Bank carbon revenue stream.

Provide a spreadsheet to support these calculations. The PIN Financial Analysis Model available at www.carbonfinance.org is recommended.

E. EXPECTED ENVIRONMENTAL AND SOCIAL BENEFITS

LOCAL BENEFITS E.g. impacts on local air, water and other pollution.	• Reduction in household accident related to gas
GLOBAL BENEFITS Describe if other global benefits	None foreseen

[5] Advance payment subject to appropriate guarantees may be considered.
[6] Please also use this figure as the carbon price in the PIN Financial Analysis Model (cell C94).
[7] The World Bank Carbon Finance Unit encourages the seller to make an informed decision based on sufficient understanding of the relative risks and price trade-offs of selling VERs vs. CERs. In VER contracts, buyers assume all carbon-specific risks described above, and payment is made once the ERs are verified by the UN-accredited verifier. In CER/ERU contracts, the seller usually assumes a larger component - if not all – of the carbon risks. In such contracts, payment is typically being made upon delivery of the CER/ERU. For more information about Pricing and Risk, see "Risk and Pricing in CDM/JI Market, and Implications on Bank Pricing Guidelines for Emission Reductions".

than greenhouse gas emission reductions can be attributed to the project.	
SOCIO-ECONOMIC ASPECTS	
What social and economic effects can be attributed to the project and which would not have occurred in a comparable situation without that project? Indicate the communities and the number of people that will benefit from this project. *About ¼ page*	• Higher income retained and freed by savings on gas or electricity (400,000 people – 1/3rd of population) • Positive impact on electricity demand and therefore or investments needs into new power plants, consequent increase on the price of electricity and also on tax increases needed to partially finance investments (all population)
What are the possible direct effects (e.g. employment creation, provision of capital required, foreign exchange effects)? *About ¼ page*	• Positive impact on balance of payment through lowered imports on gas (direct) and fuels like coal, HFO and Kerosene (indirect through lowered electricity demand).
What are the possible other effects (e.g. training/education associated with the introduction of new processes, technologies and products and/or the effects of a project on other industries)? *About ¼ page*	• Increased awareness of Eco-friendly equipment and general attitude – change in overall mindset
ENVIRONMENTAL STRATEGY/ PRIORITIES OF THE HOST COUNTRY A brief description of the project's consistency with the environmental strategy and priorities of the Host Country *About ¼ page*	This project is the second phase of a scheme launched by the Government of Mauritius in the framework of Maurice Ile Durable action plan – a scheme designed to invest in the energy self sufficiency of the Island, Social improvement and increase competitiveness.

F. RISKS

Risks in the Project	Please describe the factors that may cause delays in, or prevent implementation of the project
Estimate the Degree of Risk	
Technical risk	Medium-Low – there are many water heaters types displaying various degrees of efficiency. The risk of the scheme at hand is for low quality SWH to swamp the market and bought thanks to the grant. The risk is that no norms are set in order to ensure some "lowest efficiency" factor, something that has not been done and has yet to be made.
Timing risk	None – as soon as finances are released, the project can start – technical and financial are the real risks here.

Budget risk	Medium-high – the government has started the MID fund and SWH scheme phase 1 when the price of fossil fuel was high and rising. With current fuel prices, depressed world economy (affecting Mauritius), it might be harder to pass the bill for such a large, ambitious project. Talks are in the process with South African agencies that could be willing to put together an interesting financing scheme for this second phase. This "cash starved" situation the world experiences today could well create unexpected delays in setting up the project.

G. OTHER RELEVANT INFORMATION

Please mention any additional information or precisions to justify the project under CDM

Annex 1 – Baseline: import data of water heaters in Mauritius

Table 1. Number of gas and electric water heaters imported in Mauritius: 2001-2007.

Type of heater	2001	2002	2003	2004	2005	2006	2007
Instantaneous gas water heater of household type	0	13291	25430	49560	34582	18408	21107
Instantaneous gas water heater, excluding household type	8571	42	247	48	216	20	44
Total gas water heater	8571	13333	25677	49608	34798	18428	21151
Electric instantaneous/ storage water heaters/ immersion heaters	8176	7037	5949	3886	3661	4304	4572
Total electric water heater	**8176**	**7037**	**5949**	**3886**	**3661**	**4304**	**4572**
Total Gas:Total Electric	**1.04**	**1.89**	**4.31**	**12.76**	**9.50**	**4.28**	**4.62**

Annex 2. SWH Baseline calculations

Data	Value	Unit	Average Cost, in Rs	Cost range, in Rs	units
Solar Water Heaters			22,500	15,000 to 30,000	
Average solar radiation in Mauritius	660	kWh/m^2/yr			
Heat Transfer efficiency	60	%			
Heat generated per m2	396	kWh/m^2/yr			
For 1.5 m2 panel	594	kWh/m^2/yr			
Equivalent electric heating			7,500	6,000 to 9,000	
Loss on grid	10	%			
Energy consumption	653.4	kWh/yr	**7**		**rs/kWh**
Grid emission factor	1.1	tCO2/MWh			
Emission per unit, per year	718.74	kgCO2e/MWh			
Equivalent LPG heating			2,500	2,000 to 3,000	
Net calorific value, NCV of LPG	13.7	kWh/kg			
Efficiency of conversion into heat	60	%			
Net heating value of LPG	8.22	kWh/kg			
Mass of LPG required to obtain same work as SWH of 1.5 m2 in Mauritius	72.263	kg/yr	**25**		**per kg**
LPG carbon emission factor	2.985	kgCO2e/kg			
Emission per unit	215.7	kgCO2e/yr			

Weighted average baseline

5% SWH (max)	0	kgCO2e/yr
76% LPG	163.94	kgCO2e/yr
19% Electric	136.56	kgCO2e/yr
W. Av. Baseline	300.5	kgCO2e/yr