



GEF-6 GEF SECRETARIAT REVIEW FOR FULL-SIZED/MEDIUM-SIZED PROJECTS THE GEF/LDCF/SCCF TRUST FUND

GEF ID:	9789		
Country/Region:	Trinidad and Tobago		
Project Title:	Energy Efficiency through the Development of Low-carbon RAC Technologies in Trinidad and Tobago		
GEF Agency:	UNDP	GEF Agency Project ID:	5957 (UNDP)
Type of Trust Fund:	GEF Trust Fund	GEF Focal Area (s):	Climate Change
GEF-6 Focal Area/ LDCF/SCCF Objective (s):	CCM-1 Program 1;		
Anticipated Financing PPG:	\$150,000	Project Grant:	\$5,152,392
Co-financing:	\$13,619,809	Total Project Cost:	\$18,772,201
PIF Approval:		Council Approval/Expected:	
CEO Endorsement/Approval		Expected Project Start Date:	
Program Manager:	Masako Ogawa	Agency Contact Person:	Kasper Koefoed

PIF Review			
Review Criteria	Questions	Secretariat Comment	Agency Response
Project Consistency	1. Is the project aligned with the relevant GEF strategic objectives and results framework? ¹	MO March 8 2017 Yes. The proposed project is aligned with CCM1 Program 1.	
	2. Is the project consistent with the recipient country's national strategies and plans or reports and assessments under relevant conventions?	MO March 8, 2016 Please include the following information in the PIF: When was the INDC submitted to the UNFCCC? MO March 16 2017 Comment cleared.	It was submitted on Aug. 2015. Please, see Para. 4 for addition.
Project Design	3. Does the PIF sufficiently indicate the	MO March 8, 2017	Upon this request, please find in the text

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	<p>drivers² of global environmental degradation, issues of sustainability, market transformation, scaling, and innovation?</p>	<p>The approved project on energy efficiency by IABD (GEF ID 5733) was cancelled. Please provide sustainability and scale-up opportunity based on the experience of this cancellation. Also please delete this project from paragraph 66.</p> <p>MO March 16, 2017 Comment cleared.</p>	<p>the following adjusted paragraphs: It is not clear what the specific reason was for the cancellation of the IADB project. UNDP and the Government of TT have in the current proposal put strong emphasis on the sustainability of the intervention. The pilot projects were chosen based on their environmental benefits and economic viability. They are expected to have a good Internal Rate of Return and short repay times. It is therefore expected that they will generate trust in the private sector and trigger additional investments in similar projects and thereby leading to improved sustainability, replicability and potential scale-up over time. The paragraphs have been amended the following way in the PIF.</p> <p>58. Sustainability will be assured through a variety of means. The Project will support substantial institutional strengthening and establishment of the necessary architecture to permit more coordinated future policy and regulatory frameworks in both thematic areas, i.e.: the mitigation of Greenhouse Gases (GHG) and the reduction of Ozone-Depleting Substances (ODS). Sustainable approaches will be ensured by fully involving the relevant stakeholders in the</p>

¹ For BD projects: has the project explicitly articulated which Aichi Target(s) the project will help achieve and are SMART indicators identified, that will be used to track the project's contribution toward achieving the Aichi Target(s)?

² Need not apply to LDCF/SCCF projects.

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			<p>design of the Project at the PPG stage, its implementation in particular, with regard to technical (capacity building), economic (energy pricing) and environmental (marketing of low carbon technologies), aspects that are key to ensuring the long-term use of highly EE technologies. The project will also increase human capital in the country by establishing high level training programs, enabling technical and professional staff by training them to handle more advanced RAC systems and, as result, by also increasing their incomes indirectly. In addition to these considerations, it is anticipated that the sustainability of this project will be propelled by the current economic prevailing factors in Trinidad and Tobago. As an oil-based economy and given the low oil prices, the introduction of these new RAC systems will allow for energy and cost savings, both of which are finding favour currently with public and private stakeholders, and it is anticipated this will continue in the long term; as it is in the best interest of these groups to derive cost-effective ways to move forward their operations.</p> <p>59. The Project will also look for guidance from national stakeholders, their related institutions and thematic areas under their expertise, and will promote the enhancement of a set of regulations and</p>

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			<p>minimum standards for energy efficiency to be further used in the national decision making process, as guidance, for future interventions, for instance, in the large energy-intensive industrial sector. It is foreseen in its framework to scale up the results through the awareness-raising campaign and promote the replicability of activities and outputs nationwide. The successful implementation of this project in the public sector will also serve as an attractive a model for replication and scale up by triggering significant investments within the private sector; given the local economic environment based on the dependence of low oil prices. Additionally, since other Eastern Caribbean countries share similar challenges, this FSP will create innovative tools and a knowledge learning path to help other Caribbean SIDS states, through the Caribbean Community platform (CARICOM), to become more resilient towards climate change, ODS, and sustainable development.</p> <p>Please see Para. 66, statement related to IABD (GEF ID 5733) project was deleted as indicated.</p>
	<p>4. Is the project designed with sound incremental reasoning?</p>	<p>Mo March 8, 2017 (1) Outcome 1.2 on safety standard does not support incremental reasoning. Please delete. (2) Please address if any GEF funding</p>	<p>(1) As indicated, Outcome 1.2 deleted on Table B. It was also deleted on Para. 38. However, it would be important to state that the safe handling of natural</p>

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		<p>will pay for RAC using non-natural refrigerants. If so, please justify.</p> <p>MO March 20 2017 Comments cleared.</p>	<p>refrigerants would dealt with under the HCFC Phase-Out Management Plans (HPMPs) for T&T in the context of the Montreal Protocol. This comment was added to Para. 39.</p> <p>(2) The dominant technology in the RAC sector is High GWP refrigerants (HFCs and HCFCs). Currently, there is only a very limited penetration of natural refrigerants in T&T. In this regard, no GEF funding will be used to promote the use of equipment with High GWP refrigerants, and the focus will be on the introduction of natural refrigerants. Please, see addition in Para. 48.</p>
	<p>5. Are the components in Table B sound and sufficiently clear and appropriate to achieve project objectives and the GEBs?</p>	<p>MO March 8 2017</p> <p>(1) Market is largely supported by the private sector. Please explain why output 1.1.6 provides capacity building for academia. Also please explain what is informal academia.</p> <p>(2) Output 1.1.6 and component 2 are duplicating, and title of outcome 2.1 and detail activities are not aligned with. If fuel subsidies will continue, only awareness may not be able to transform the market. Please avoid duplication and strengthen the intervention.</p> <p>(3) Please include local financial sector as stakeholder to support output 2.1.4. Please consider including them as co-financier.</p>	<p>(1) A significant barrier pointed out that was identified during the PIF preparation in T&T was: "Insufficient technical assistance and high upfront costs for implementing early EE investments that could lead to a significant "market-push" for more energy efficient technologies". Therefore, the demonstration effect of this project is likely to result in increased demand from the private sector for similar technologies. Private sector entities source technical expertise from within the national training institutions. Capacity building for these training institutions is required in order to ensure academic and technical colleges have adequate capacity to support the expected increase in demand from the private sector for the EE</p>

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		<p>(4) Please explain if output 2.2.3 and 2.2.4 will also introduce low-GWP systems. The current activities only focus on retirement of old system.</p> <p>(5) On output 3.1.2, please explain how the capacities for calculation and monitoring will be exercised in reality, and will be sustained. There are no incentives for especially private sector to calculate and monitor the impact, and this capacity building will end as one time activity.</p> <p>(6) Please improve cost-efficiency of the proposed project. The current expected GEBs is very low.</p> <p>MO March 20 2017 (1)-(5) Comments cleared. (6) The amount is improved but the benefits will be achieved in 20 years, which is still low. Please improve cost-benefits. Also please strengthen justification and incremental reasoning to support cost-benefit of the proposed project. Paragraph 68-71 discusses government policy on mitigation action including energy efficiency and standards. The proposed project may be able to expand its scope to increase benefits. Paragraph 3 discusses that all activities related to phase-out of HCFCs and HFCs and introduction of e.g. natural refrigerants will be</p>	<p>technologies such as the innovative District Cooling system that the project will promote.</p> <p>In this case, informal academic sector was meant specifically to address the role of the Air Conditioning and Refrigeration Association (ARIA), a CSO that provides technical capacity for assembling and manufacturing of RAC equipment in T&T, as part of its institutional mission. ARIA is a key player for the current and future introduction of Low-carbon alternatives in the country.</p> <p>Output 1.1.6 in Table B now reads as follows:</p> <p>"1.1.6 Strengthening technical capacities in the formal academic sector and in the specialized technical CSO (ARIA) to promote market development of energy efficient, low carbon refrigeration and cooling systems, including: design, assembling, installation, operation and maintenance.</p> <p>(2) Agree. The intend of Outcome 2.1 is to enhance a full market transformation by creating the market conditions for the private sector from the investment perspective. In this regard, title of Outcome 2.1 has been changed to "2.1 Investment path along the RAC market chain enhanced".</p> <p>Also, in tune with comment from the GEF Reviewer, former Output 2.1.2 was</p>

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		<p>financed and implemented via projects funded by MLF. This is the baseline project and GEF financing for output 2.2 may be reduced to improve cost-efficiency.</p> <p>MO April 18 2017 Comment cleared.</p>	<p>deleted and Output 1.1.6 modified as follows: "1.1.6 Strengthening technical capacities in the formal academic sector and in the specialized technical CSO to promote market development of energy efficient, low carbon refrigeration and cooling systems, including: design, assembling, installation, operation and maintenance.", as indicated above.</p> <p>(3) Please, refer to Stakeholder Table in Para. 61 where new addition referring to a Private Sector cofinancier is now included; the name of "national private entities" that will be providing an estimated cofinancing of about US\$2 million, as indicated on Table C.</p> <p>(4) The project, including co-finance from the Multilateral Fund, will support the introduction of low GWP systems. On top of that, these two outputs not only support the retirement of low-efficiency, light commercial and air conditioning units but also their replacement with improved energy efficiency units that comply with outdated energy efficiency standards. These two outputs read now in Table B. and Para. 42 as follows: 2.2.3 Early-retirement of decentralized, energy-intensive old units and replacement with more energy efficient, centralized-based AC units in two large facilities with high visibility in public</p>

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			<p>facilities installed and operating (Tobago Island Intl. Airport and EMA Building). 2.2.4 Early retirement of low-efficiency, light units (split/window systems) and their replacement with more energy efficient commonly used units in the residential and commercial sectors triggered.</p> <p>The following sentence was added at the end of para. 42: "however, the project will not promote the use of High GWP alternatives in the pilots and early retirement programmes."</p> <p>(5) The forthcoming activities related to Output 3.1.2 will be sustained overtime by twofold: one, from the political stand point, the commitment of T&T to implement a Carbon Reduction Strategy developed for its industrial, power generation and transportation sectors; a national path led by the Ministry of Planning and Development since 2011, the executing partner of this project, with a long term vision and consistent with implementing the provisions stated in the National Climate Change Policy, which will be monitored in terms of tons of CO₂eq by this official entity during project execution and afterwards. The other one, from the private sector perspective, the change in the current paradigm of switching from an old,</p>

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			<p>inefficient RAC stock equipment in the residential and commercial sectors to a more cost-effective, energy efficient equipment can be sustained and monitored with its active participation in the National Carbon Reduction Strategy project and previous work done by the LECB programme.</p> <p>The capacity for monitoring of GHG emissions at a sectoral level is currently being addressed through two major initiatives. Trinidad and Tobago is due to initiate work on its Third National Communication and continue work on its Low Emissions Capacity Building Programme (both referenced in paragraph 25(c)). Between these two initiatives, a baseline inventory will be established for the current period for GHG emissions by sector and a national and sectoral monitoring, reporting and verification system will be established. Capacity building for both these activities has already been initiated under the National Carbon Reduction Strategy project and previous work done by the LECB programme. The private sector is an active stakeholder in these activities both as a contributor and as a focus of the interventions.</p> <p>The above statement was added as a new paragraph, number 46.</p> <p>(6) Preliminary figures for GEBs has been</p>

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			<p>revised and increased by adding the benefits due to the development of a District Cooling system and centralized RAC systems in major public facilities. The identified opportunity to advance this technology will bring about an estimated reduction of 135,000 tons of CO2 eq. by implementing this technology at the Priarco Intl. Airport (4,000 Tons of Refrigeration “TR-) and the University of T&T (800 TR), over a 20-year period. In addition, preliminary calculations were estimated by the replacement of centralized existing units at the Tobago Intl. Airport and EMA Main Building by installing more energy efficient centralized RAC systems, in the order of 11,000 tons of CO2 over the same period. The expected GEBs now increased from the previous calculation of 584,500 to 901,000 tons of CO2 eq. over a 20-year period, as indicated in Table F.</p> <p>(6) R/: We have reviewed our numbers. Over the long run (20 years) additional GEBs can be achieved if a full market for low-carbon, more efficient RAC technologies is developed; for two main reasons, i. an increased use of natural refrigerants for a variety of cooling devices operating in T&T, and ii. by expanding the District Cooling alternative with higher efficiency to the downtown area Port of Spain in the</p>

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			<p>Island of Tobago, including shopping malls and office buildings. The new figure, that will be reviewed and tuned up during the PPG stage, is in the order of 1.5 million tons of CO2 mitigated. Please, see Para. 55 with the addition in the text and the new calculation in Table F.</p> <p>R/: Agree. This is precisely the overall scope of Component 1, specifically, Outputs 1.1.2 and 1.1.3. The first one focuses on two aspects, planning and policy; while the second is more focused on the main driver of any public policy on energy efficiency, the use of standards and labels as the key entry point to achieve EE gains over the long-run.</p> <p>Please, see new sentence added on Para. 37. "In tune with the two national policies noted above, standards and labels will be the main driver of the national energy policy for energy efficiency in T&T, where alternative RAC technologies produced or sold in the country must have to comply with these new regulations.</p> <p>R/: The GEB target has been modified to 1.5 m tons of CO2 over a 20-year period after a further analysis of the potential impact of the project. In reality, this number is expected to be higher. However, the detailed calculation will be</p>

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			<p>made during the PPG phase. Additionally, real co-finance for the output 2.2 is also expected to be much higher than what has been included in the proposal. Detailed discussion will be made for each of the pilot projects with the owners/administrators as well as with potential financiers. It is important to note that significant investments, mainly from private financiers, will be needed for the implementation of all the pilot projects.</p> <p>Please, see new sentence added on Para. 53: "The co-finance from the Multilateral Fund (MLF) for the implementation of the Montreal Protocol is dedicated to the safe introduction of natural refrigerants (HC, NH3, CO2, H2O, etc.) in T&T.</p> <p>MLF funding will not be used to improve the energy efficiency, which is the main focus of the GEF funding. Therefore, MLF funding will be complementary to the GEF funding. The incremental cost of introducing for example District Cooling systems is huge, but the Global Environmental Benefits are also expected to be substantial. The cost of implementing a new technology is always higher in the beginning, and GEF funding will assist with the RAC market transformation towards new and more energy efficient technologies".</p>
	6. Are socio-economic aspects,	MO March 8 2017	

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	including relevant gender elements, indigenous people, and CSOs considered?	Yes.	
Availability of Resources	7. Is the proposed Grant (including the Agency fee) within the resources available from (mark all that apply):		
	<ul style="list-style-type: none"> The STAR allocation? 	<p>MO March 8 2017 (1) On Table D, please revise the total amount of resource under climate change focal area. It should be \$2,019,937. (2) On Table C, please revise the total amount of co-financing. It should be \$11,731,386. (Please also see box 5).</p> <p>MO March 16 2017 (1) This project is aligned with CCM. On table D, please delete focal area of BD and LD, and put all financing under focal area of climate change. (2) comment cleared.</p>	Table D., first row, adjusted Please, refer to the new increased cofinancing on Table C for US\$13,619,809.
	<ul style="list-style-type: none"> The focal area allocation? 		
	<ul style="list-style-type: none"> The LDCF under the principle of equitable access 		
	<ul style="list-style-type: none"> The SCCF (Adaptation or Technology Transfer)? Focal area set-aside? 		
Recommendations	8. Is the PIF being recommended for clearance and PPG (if additional amount beyond the norm) justified?	<p>MO March 8 2017 Not at this time. Please address comments in box 2-5 and 7.</p> <p>MO March 20, 2017</p>	

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		<p>Not at this time. Please address comments in box 5.</p> <p>MO April 18 2017 All comments cleared. The Program Manager recommends PIF clearance.</p>	
Review Date	Review	March 08, 2017	
	Additional Review (as necessary)	March 20, 2017	
	Additional Review (as necessary)	April 18, 2017	

CEO endorsement Review			
Review Criteria	Questions	Secretariat Comment at CEO Endorsement	Response to Secretariat comments
Project Design and Financing	1. If there are any changes from that presented in the PIF, have justifications been provided?		
	2. Is the project structure/ design appropriate to achieve the expected outcomes and outputs?		
	3. Is the financing adequate and does the project demonstrate a cost-effective approach to meet the project objective?		

CEO endorsement Review

Review Criteria	Questions	Secretariat Comment at CEO Endorsement	Response to Secretariat comments
	4. Does the project take into account potential major risks, including the consequences of climate change, and describes sufficient risk response measures? (e.g., measures to enhance climate resilience)		
	5. Is co-financing confirmed and evidence provided?		
	6. Are relevant tracking tools completed?		
	7. <i>Only for Non-Grant Instrument:</i> Has a reflow calendar been presented?		
	8. Is the project coordinated with other related initiatives and national/regional plans in the country or in the region?		
	9. Does the project include a budgeted M&E Plan that monitors and measures results with indicators and targets?		
	10. Does the project have descriptions of a knowledge management plan?		
Agency Responses	11. Has the Agency adequately responded to comments at the PIF ³ stage from:		
	• GEFSEC		
	• STAP		

³ If it is a child project under a program, assess if the components of the child project align with the program criteria set for selection of child projects.

CEO endorsement Review

Review Criteria	Questions	Secretariat Comment at CEO Endorsement	Response to Secretariat comments
	<ul style="list-style-type: none"> • GEF Council • Convention Secretariat 		
Recommendation	12. Is CEO endorsement recommended?		
Review Date	Review		
	Additional Review (as necessary)		
	Additional Review (as necessary)		