CTCN Technical Assistance
Request Submission Form

Please fill in the form in the grey spaces, by following the instructions in italic.

Country:	*Mauritius*	**Date**	*31 October 2014*

Title	*Assessment and identification of technology needs and best practices for reducing the GHG emitting potential of the energy sector in Mauritius*

Contact information:

Please fill in the table below with the requested information. The request proponent is the organization that the request originates from, if different from the National Designated Entity (NDE).

	National Designated Entity	**Request Proponent**
Contact person:	*Mrs Sin Lan NG YUN WING*	*Mrs Sin Lan NG YUN WING*
Position:	*Director of Department of Environment*	*Director of Department of Environment*
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Geographical focus:

{Select below the most relevant geographical level for this request:}

☐ *Community-based*
☐ *Sub-national*
☒ *National*
☐ *Multi-country*

{If the request is related to the sub-national or multi-country level, please indicate here the areas concerned (provinces, states, countries, regions, etc.)}

Theme:

{Select below the most relevant theme(s) for this request:}

☐ *Adaptation to climate change*
☒ *Mitigation to climate change*
☐ *Combination of adaptation and mitigation to climate change*

Sectors:

{Please indicate here the main sectors related to the request. e.g. energy, industry, transport, waste, agriculture/fisheries, forestry, water, ecosystem/biodiversity, coastal zones, health, education, infrastructure/human settlement, tourism, businesses, early warning/disaster reduction, institutional design and mandates, cross-sectorial}

Energy

Problem statement *(up to one page):*

{Please describe here the difficulties and specific gaps of the country in relation to climate change, for which the country is seeking support from the CTCN. Please only provide information directly relevant to this request, and that justifies the need for CTCN technical assistance.}

As per the Mauritius Second National Communication to the UNFCCC, the energy sector in Mauritius is the largest contributor of GHG emissions in the country. In 2013, CO2 emissions have increased by 2.6% as compared to 2012 with the energy sector accounting for some 61.6% of total CO2 emissions on the island. During the past decade, with the sustained economic growth of the island, the national energy requirement has grown on average at an annual rate close to 5%. Electricity generation, for instance, has increased by 3.1% between 2012 and 2013 with coal (52.8%) and fuel oil (25.9%) being the main fuel used. If the trend in energy demand continues and given than the energy mix of Mauritius is heavily reliant on fossil fuels, it is expected that the per capita CO2 emissions may reach approximately 4.5 tonnes in 2020 and 10.25 tonnes by 2050 compared to 2.8 tonnes in 2012.

Presently in Mauritius, about 56% of electricity generation is from 4 power plants making use of bagasse and coal (40.5 MW to 83 MW) and one power plant operating solely on coal (34.5 MW), using the grate type stocker boiler technology. Some 683,000 tonnes of coal and 1,000,000 tonnes of bagasse have been used for electricity production in 2013. The current utilisation of bagasse enables the country to save on the import of some 375,000 tonnes of coal, thereby preventing the emission of some 1, 200, 000 tonnes of CO2. However, over the past decade, the area under cultivation of sugar cane has significantly decreased and so has the amount of bagasse available. It has moreover been observed that the amount of coal used for electricity production in recent years has increased. For instance, between 2012 and 2013, the amount of coal used has increased by 5%.

Mauritius is however determined to contribute to the reduction of GHGs, be it in an infinitely small amount since it is already feeling the global impacts of climate change through stronger cyclone events, heavier rainfall episodes, and warmer temperatures and reduced rainfall. The current energy challenge in Mauritius is to provide reliable affordable energy while shifting towards more renewable sources thereby meeting the energy needs of its growing economy with the minimum environmental costs. Whilst renewable energy will form an increasing proportion of the energy mix, it will still be necessary to use conventional power such as coal which will need to abide by environmental safeguards. These safeguards will help to decrease the CO2 emissions of the country. Unfortunately, there is currently a lack of capacity locally to properly:

a) Assess the boiler technology being used by the existing power plants running on coal and advise on the Best Environmental Practices and Best Available Techniques that could be recommended

in the local context to reduce their GHG emitting potential.

b) Evaluate and monitor the effectiveness of GHG mitigating measures, best practices and techniques to be implemented

Past and ongoing efforts *(up to half a page):*

{Please describe here past and on-going processes, projects and initiatives implemented in the country to tackle the difficulties and gaps explained above. Explain why CTCN technical assistance is needed to complement these efforts, and how the assistance can link or build on this previous work.}

In view of reducing its GHG emissions in the energy sector the Government of Mauritius has adopted a Long Term Energy Strategy for the period 2009-2025 and an Energy Strategy (Action Plan) 2011 – 2025 that outlines a series of actions that pertains to increasing the share of renewable in the energy mix (35% by 2025), energy conservation and energy efficiency. The salient points addressed in this strategy, in the electricity sector are:

- Increase the share of renewable sources of energy in electricity supply (from about 21% presently to 35% in 2025);
- Improve energy efficiency and conservation in all sectors through demand-side management measures (with targeted energy efficiency gains of 10% by 2025 over the 2008 baseline); and
- Create a financially sound and self-sustainable modern electricity sector and a transparent and fair regulatory environment

About 60 MW of renewable energy projects are currently in the pipeline with a gross private investment of Rs 5 billion and a subsidy of about Rs 235 million per year by Government for the next 20 years. With the coming into operation of the renewable energy projects, the total energy generation from renewable energy sources will represent about 20% of the power generation in 2015. Mauritius has significant renewable energy potential but an important structural barrier to its widespread use is the high initial investment costs. Mauritius, through the Energy Efficiency Management Office (EEMO) is also implementing a series of measures in view of decreasing the energy requirement in various sectors thereby decoupling economic growth from energy demand in the country. However in the short and medium term, Mauritius also needs to support its economic development by meeting the growing energy requirements through the use of conventional fossil fuel sources at minimum environmental costs.

Furthermore, other mitigating measures are being implemented for instances reforestation programmes that shall increase carbon dioxide capture.

Assistance requested *(up to one page):*

{Please describe here the scope and nature of the technical assistance requested from the CTCN and how this could help address the problem stated above and add value vis-à-vis the past and on-going efforts. Please note that the CTCN facilitates technical assistance and is not a project financing mechanism.}

The objective of this request is to seek technical assistance from the CTCN in view of strengthening the capacities of Mauritius to identify, assess and recommend the most appropriate technologies,

practices and process for the existing power plants operating on coal in order to reduce their GHG emissions and address associated environmental concerns.

In this context, this request requires CTCN assistance for the following components:

A. Stage 1: Assessment of technology, processes and practices to reduce GHG emissions

   Identify, evaluate and assess the current boiler technology, processes and practices at the five power plants operating on coal in the country. Subsequently, advise on the Best Environmental Practices (BEP) and Best Available Techniques (BAT) that could be recommended, through a benchmarking exercise, to reduce GHG emissions from the operation of those power plants. These recommendations will subsequently be implemented to ensure the transition of the energy sector towards a low GHG emitting one.

B. Stage 2: Assistance and Capacity Building in the evaluation and monitoring of GHG mitigating measures

   Build capacity and assist in the evaluation of the effectiveness of the implementation of BEP, BAT and other GHG mitigating measures. Consequently, develop a strategy for the proper monitoring of the existing coal fired power plants in view of ensuring optimum operation and limit their GHG emitting potential.

This will thereby help the country to achieve its sustainable development policy of meeting the growing energy needs while limiting its GHG emissions through the use of efficient technologies.

Expected benefits *(up to half a page):*

{Please outline here the medium and long-term impacts that will result from the CTCN technical assistance, including how the assistance will contribute to mitigate and/or adapt to climate change.}

The expected benefits from CTCN technical assistance are:

- Decouple GHG emissions from energy demand
  With the implementation of more efficient processes, BEP and BAT, it is expected that meeting the increasing energy demand in the short and medium term will result in a much lower increase in GHG emissions.
- Sustain economic development at minimum environmental cost
  The assistance will enable the country to reduce the environmental impacts namely in regards to GHG emissions associated with economic growth.
- Improve the quality of living and the health of citizens
  With the proper practices and operating conditions, the power plant will be able to mitigate its environmental impacts thereby ensuring a good air quality and a healthy environment.
- Induce foreign exchange savings
  With the proper implementation of measures to be recommended, it is expected that the power plant will operate at its optimum efficiency thereby reducing the amount of coal needed. This will in turn reduce the country`s fossil fuel imports.

Post-technical assistance plans *(up to half a page):*

{Please describe here how the results of the CTCN technical assistance will be concretely used by the applicant and national stakeholders, to pursue their efforts of resolving the problems stated above after the completion of the CTCN intervention (list specific follow-up actions that will be undertaken).}

Thanks to the possible assistance from CTCN, it is expected that these efforts will translate into a better understanding at the Ministry level and other institutions of the most appropriate technology, the Best Environmental Practices and the Best Available Techniques. This will eventually result in the following:

a) Improve the capacity of the monitoring team of the Ministry and other relevant institutions to ensure the effectiveness of measures implemented to reduce the GHG emitting potential of the energy sector.
b) Reinforce the capacity of the EIA process of the Ministry in assessing, reviewing and making recommendations for technologies and practices that limit GHG emissions.
c) Strengthen the mainstreaming of climate mitigation into national policies through a better knowledge of gaps, challenges and solutions for reducing GHG emissions in the local context.

Key stakeholders:

{Please list in the table below the main stakeholders who will be involved in the implementation of the requested CTCN technical assistance, and what their role will be in supporting the assistance (for example, government agencies and ministries, academic institutions and universities, private sector, community organizations, civil society, etc.). Please indicate what organization(s) will be the main/lead counterpart(s) of CTCN experts at national level, in addition to the NDE.}

Stakeholder	Role to support the implementation of the assistance
Ministry of Environment & Sustainable Development	*Coordinate and facilitate stakeholder consultations as well as provide knowledge on local environmental aspects and relevant legislation (Will act as the Lead counterpart of CTCN experts)*
Ministry of Energy and Public Utilities	*Provide information on the energy sector of Mauritius and on measures or projects implemented to reduce CO2 emissions in the country with particular attention to the energy sector*
Ministry of Local Government and Outer Islands, Local Authorities (Municipal Council of Port Louis)	*Provide information on any developments, settlements and activities in the surrounding of the project site*
Mauritius Sugar Producers Association	*Provide information on the operation of coal fired plants in Mauritius and best environmental management practices in view of limiting GHG emissions.*

Alignment with national priorities *(up to half a page):*

{Please demonstrate here that the technical assistance requested is consistent with documented national priorities (examples of relevant national priorities include: national development plans, poverty reduction plans, technology needs assessments (TNAs), LEDS, NAMAs, TAPs, NAPs, sectorial strategies and plans, etc.). For each document mentioned, please indicate where the priorities specifically relevant to this request can be found (chapter, page number, etc.).}

Mauritius as a small island developing state is highly vulnerable to the impacts of climate change and as such has placed the issues of climate change high on its agenda. The Republic of Mauritius is committed to come up with strategies toward tackling climate change and mitigation of greenhouse gases in order to embrace a sustainable development pathway.

To reach this objective, the Government of Mauritius has come up with:

- A Maurice Ile Durable (MID) Policy, Strategy and Action Plan (*Pg 46 Section 5.2.2.1*)
  The MID Policy, Strategy and Action Plan outlines a set of strategies and some 130 implementable projects and activities for achieving a sustainable future for Mauritius. It consists of four priority programmes namely Energy Conservation and Renewables (Pg 46); a Cleaner and Greener Mauritius; Green Economy; and Ocean Economy.
- A Technology Needs Assessment (TNA) and Action Plan (*Pg 29 Section 3.2.4*)
  The Technology Needs Assessment (TNA) and Action Plan has been developed and prioritises the key areas for enhanced climate change mitigation in the Energy sector and adaptation in the Agriculture, Water and Coastal Zone sectors.
- Long-Term Energy Strategy of the Republic of Mauritius 2009 – 2025 (*Pg 36 Section 8.0*)
  The long term energy strategy is the country's energy roadmap to address the energy and environmental challenges. It lays emphasis on the development of renewable energy, reduction of the country's dependence on imported fossil fuel and the promotion of energy efficiency in view of promoting sustainable development in the context of the Maurice Ile Durable context. The plan provides for the energy portfolio of Mauritius to inter alia include renewable sources and traditional fossil fuel linked with new technologies to reduce their environmental impact (including their GHG emissions).
- A Nationally Appropriate Mitigation Actions for Mauritius (*Project is at inception stage*)
  A Low Carbon Development Strategy and Nationally Appropriate Mitigation Actions (NAMA), with a view to mainstream climate change mitigation in the institutional framework and into core development plans, policy and strategies for Mauritius are presently being developed. Funding for the project has been secured.
- A Climate Change Bill 2014 (*Draft*)
  A Climate Change Bill is also being finalized with the State Law Office and will be a major step forward. Mauritius would be among the very few countries to have such a law (The draft bill may be consulted upon request to the Ministry of Environment and Sustainable Development).

Furthermore, this request supports the national commitment towards international agreements namely to reduce GHG emissions under the UNFCCC

Development of the request *(up to half a page):*

{Please explain here how the request was developed at the national level and the process used by the NDE to approve the request before submitting it (who initiated the process, who were the stakeholders involved and what were their roles, and describe any consultations or other meetings that took place to develop and select this request, etc.)}

In the light of the significant increase in the country GHG emissions – the increase of which is mainly due to a rise in emissions from electricity production – and environmental concerns raised in regards to the use of coal for power production on the island, a working group was set up at the level of the Ministry of Environment and Sustainable Development with the aim of identifying appropriate solutions to address these issues. Given the cross cutting nature of tackling the challenge of limiting, as far as possible, GHG emissions from the energy sector, a holistic consultative approach was adopted whereby all major stakeholders including other governmental bodies and the civil society were invited to contribute to the discussions of the working group.

Whilst identifying the main challenges that need to be addressed in the energy sector so as to properly tackle the economic, social and environmental concerns linked to the use of coal for electricity production, the working group has also observed that there is a lack of capacity locally to properly assess, evaluate and monitor the effectiveness of the boiler technology, processes and practices in view of limiting GHG emissions.

In line with the identified limitations and needs of the country to analyse and make appropriate recommendations on how to reduce the GHG emitting potential of the existing coal fired power plants in Mauritius, this request for technical assistance to CTCN was discussed and drafted under the supervision of the Director of the Department of Environment. The request was further reviewed and endorsed by higher management.

Expected timeframe:

{Please propose here a duration period for the assistance requested.}

Components/ months	**1**	**2**	**3**	**4**	**5**	**6**
A. Stage 1: Assessment of technology, processes and practices to reduce GHG emissions						
Stage 2: Assistance and Capacity Building in the evaluation and monitoring of GHG mitigating measures						

Background documents:

{Please list here relevant documents that will help the CTCN understand the context of the request and national priorities. For each document, provide weblinks if available, to attach to the submission form while submitting the request. Please note that all documents listed/provided should be mentioned in this request in the relevant question(s), and that their linkages with the request should be clearly indicated.}

1. Environmental Statistics 2013 – July 2014
2. Technology Needs Assessment and Action Plan - August 2013
3. Maurice Ile Durable: Policy, Strategy and Action Plan - May 2013
4. Mauritius Long Term Energy Strategy (2009-2025) – October 2009

Monitoring and impact of the assistance:

{Read carefully and tick the boxes below.}

☒ By signing this request, I affirm that processes are in place in the country to monitor and evaluate the assistance provided by the CTCN. I understand that these processes will be explicitly identified in the Response Plan in collaboration with the CTC, and that they will be used in the country to monitor the implementation of the CTCN assistance.

☒ I understand that, after the completion of the requested assistance, I shall support CTCN efforts to measure the success and effects of the support provided, including its short, medium and long-term impacts in the country.

Signature:

NDE name:	*Mrs Sin Lan NG YUN WING*
Date:	31 October 2014
Signature:	

THE COMPLETED FORM SHALL BE SENT TO THE CTCN@UNEP.ORG

Need help? The CTCN team is available to answer questions and guide you through the process of submitting a request. The CTCN team welcomes suggestions to improve this form.

>>> Contact the CTCN team at ctcn@unep.org