Ministry of Environment, Solid Waste Management and Climate Change

Nationally Determined Contribution Action Plan for the Republic of Mauritius 2021 – 2030

October 2022

Nationally Determined Contribution (NDC) Action plan: A living document

Recalling the principle of flexibility inscribed in the Paris Agreement and granted to Mauritius as member of the group of Small Island and Developing States (SIDS), all actions and interventions included in this action plan are indicative and may be subject to further review in the period 2022 – 2030 at the discretion of national authorities. This NDC Action Plan is therefore to be considered a dynamic and living document that may be adjusted and adapted in light of any further development of climate related policies and measures at the national level.

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List of Abbreviations

AEs	Accredited Entities
AF	Adaptation Fund
AFD	Agence Française de Développement
AfDB	African Development Bank
AFOLU	Agriculture, Forestry and Other Land Use
ASAP	Adaptation SME Accelerator Program
BAU	Business as Usual
BESS	Battery Energy Storage Systems
BEV	Battery Electric Vehicles
BMS	Bus Modernisation Scheme
BUR	Biennial Update Report
CCD	Climate Change Division
CDM	Clean Development Mechanism
CEB	Central Electricity Board
CIF	Climate Investment Funds
COP	Conference of the Parties
CPEIR	Climate Public Expenditure and Institutional Review
CSEF	Country Specific Emission Factors
CTF	Clean Technology Fund
DCC	Department of Climate Change
DCF	Domestic Climate Fund
DEVCO	Directorate-General Development and Cooperation (EU)
DRR	Disaster Risks Reduction
EEMO	Energy Efficiency Management Office
EIB	European Investment Bank
EIF	European Investment Fund
ETF	Enhanced Transparency Framework
EU	European Union
EUR	Euro
EV	Electric Vehicles
EWS	Early Warning System
FAO	Food and Agriculture Organization
FIP	Forest Investment Programme
FRTU	Fisheries Research and Training Unit
FS	Forestry Service
GCCA	Global Climate Change Alliance
GCF	Green Climate Fund
GEF	Global Environment Facility
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GHG	Greenhouse Gas
GoM	Government of Mauritius
IKI	International Climate Initiative
IOC	Indian Ocean Commission
IPDM	Integrated Pest and Disease Management
IPPU	Industrial Processes and Product Use

IRENA	International Renewable Energy Agency
ITMO	Internationally Transferred Mitigation Outcome
JICA	Japan International Cooperation Agency
KfW	Kreditanstalt für Wiederaufbau
ktCO2eq	kiloton of carbon dioxide equivalent
LDA	Land Drainage Authority
LDCF	Least Developed Countries Fund
LNG	Liquefied Natural Gas
LULUCF	Land use, Land Use Change and Forestry
MARENA	Mauritius Renewable Energy Agency
MCIA	Mauritius Cane Industry Authority
MDB	Multilateral Development Bank
MEPU	Ministry of Energy and Public Utilities
MID	Maurice Ile Durable
MIDF	Maurice Ile Durable Fund
MLTLR	Ministry of Land Transport and Light Rail
MMS	Mauritius Meteorological Services
MNICD	Ministry of National Infrastructure and Community Development
MoESWMCC	Ministry of Environment, Solid Waste Management and Climate Change
MOFEPD	Ministry of Finance, Economic Planning and Development
MRF	Material Recovery Facilities
MRIC	Mauritius Research and Innovation Council
MRV	Measuring, Reporting and Verification
MSIRI	Mauritius Sugarcane Industry Research Institute
MUR	Mauritius Rupee
NAMA	Nationally Appropriate Mitigation Actions
NAP	National Adaptation Plan
NBSAP	National Biodiversity Strategy and Action Plan
NCCAPF	National Climate Change Adaptation Policy Framework
NC3	Third National Communication
NDC	Nationally Determined Contribution
NDRRMAP	National Disaster Risk Reduction and Management Action Plan
NDRRMC	National Disaster Risk Reduction and Management Centre
NEF	National Environment Fund
NGOs	Non-Governmental Organizations
NLTA	National Land Transport Authority
NSEIRET	National Scheme for Emerging/Innovative Renewable Energy Technologies
NTC	National Transport Corporation
ODA	Official Development Assistance
OE	Ocean Economy
OECD	Organisation for Economic Co-operation and Development
PPCR	Pilot Program for Climate Resilience
PMO	Prime Minister's Office
PPA	Power purchase agreement
PPCR	Pilot Program for Climate Resilience

PPP	Public-Private Partnership
PSF	Private Sector Facility
PV	Photovoltaic
RAC	Refrigeration and air conditioning
RE	Renewable Energy
REDD+	Reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks
RRA	Rodrigues regional assembly
Rs	Mauritian rupee
RS	Resilience strategy
SCCF	Special Climate Change Fund
SCF	Standing Committee on Finance
SDG	Sustainable Development Goals
SIDAR	Small Island Developing States Capacity and Resilience Programme
SIDS	Small Island Developing States
SMEs	Small and Medium Enterprises
SREP	Scaling Up Renewable Energy in Low Income Countries Program
SWMD	Solid Waste Management Division
TNA	Technology Needs Assessment
UNDP	United Nation Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollar
WMA	Wastewater Management Authority
WWMP	Wastewater Master Plan

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Executive Summary

The NDC Action Plan (2021 - 2030) has been developed to support the Republic of Mauritius in the implementation of the updated Nationally Determined Contribution (NDC) submitted to the Secretariat of United Nations Framework Convention (UNFCCC) on 05 0ctober 2021. The NDC 2021 represents the new framework for national policy orientation on climate change to reduce greenhouse gas (GHG) emissions by 40 % and to enhance resilience by 2030.

This Action Plan is designed to provide overall clarity and guidance on the set of mitigation and adaptation objectives and measures that have been indicated in the NDC 2021. Further to an intensive consultation with key stakeholders since 2021, it was gathered that sectoral strategies and action plans were under review or being developed. The plan was thus drafted based on these sets of document:

(i). National Climate Change Adaptation Policy Framework (2021);
(ii). Roadmap on Renewable Energy in the electricity mix (2022 Review);
(iii). Roadmap on Integration of Electric vehicles;
(iv). Nationally Appropriate Mitigation Actions (NAMA) project for a low carbon development (under implementation);
(v). Solid Waste Management Strategy and action Plan (first phase completed in 2020); and
(vi). Mitigation and adaptation policy measures announced in the budget 2021/2022.

The actions and interventions included in this NDC Action Plan seek to address the key sectors on mitigation and adaptation identified in the updated NDC. On mitigation, they are energy, transport, waste, industrial processes and product use (IPPU), agriculture and land use, land use change and forestry (LULUCF). The adaptation sectors include agriculture, coastal zone, fisheries and blue economy, health, infrastructure, tourism, water. The plan has also catered for cross-cutting sectors namely disaster risk reduction, gender, social security and education.

Although the time frame of the Action Plan covers for actions for period up to 2030, there are, however, few strategies namely in the Roadmap on Renewable Energy in the electricity sector, Review 2022 which give broad indication of specific actions to be implemented. Therefore, only those actions that could be identified by stakeholder ministries have been listed with indicative implementation: three years (2022-2024); up to 2025 and up to 2030.

The Plan is therefore to be considered a dynamic and living document that will be adjusted and adapted in light of any new climate related policy and/or strategy adopted at the national level. As the NDC needs to be updated every five years per the provisions of the Paris Agreement, the 2021 NDC and the NDC Action Plan will consequently be updated in line with new or reviewed sectoral strategies and action plans.

The plan will therefore be complemented by sectoral action plans as they are approved in the near future.

Funding

The total financial needs to implement the NDC targets are estimated at USD 6.5 billion. The total needs for implementing the mitigation and adaptation actions identified in the NDC are estimated respectively at USD 2 billion and USD 4.5 billion.

The share for the unconditional and conditional contributions for the USD 6.5 billion is as follows:

- Unconditional amount of USD 2.3 billion (from government and private sector) representing 35%; and

- Conditional amount of USD 4.2 billion (from international sources and donor agencies) representing 65%

The 35% unconditional support is partly based on relevant Ministries' expenditure towards climate change adaptation and mitigation during the past years including recurrent expenditures. Concerning adaptation, in order to enhance our resilience to the adverse impacts of climate change, coastal protection works, construction and upgrading of drain networks and projects for disaster risk reduction are currently planned in the national budget. Additionally, heavy investment from private sector is expected in key economic sectors such as electricity production, transport and waste management.

As indicated in the first Biennial Update Report, only around USD 90 Million has been mobilized during the past five years (2016 – 2021), it is therefore absolutely clear that a funding gap exists and must be addressed at the soonest.

The first resource mobilisation committee under the Ministry of Finance, Economic Planning and Development was held on 08 October 2021 and follow up are undertaken with stakeholder ministries on proposals for discussion/tapping funds from donors agencies and through bilateral cooperation. Amongst others, the following ongoing initiatives will help in accessing climate finance from international sources:

- Initiative under the GCF Readiness Support project: Ministry of Finance;
- Small Island Developing States Capacity and Resilience Programme (SIDAR) and other similar opportunities;
- Commonwealth Climate Change Finance Access Hub

In addition to mitigation and adaptation actions, the NDC Action Plan also addresses two key elements that are necessary to ensure the full implementation of the 2021 NDC; the Measuring, Reporting and Verification (MRV) framework and the strategy to mobilize financial resources.

Monitoring and Evaluation

The Climate Change Act will support the effective coordination of the climate change issues at the highest level through the Inter-Ministerial Council on Climate Change. The Climate Change Committee which is held at least once monthly will provide the platform for monitoring the implementation status of actions in the NDC Action Plan.

Moreover, under the NAMA project, an on-line NDC MauRegistry is under finalization. It will provide the Measuring, Reporting and Verification (MRV) tool for tracking progress of the NDC with regard to mitigation and adaptation actions as well as support needed and received. Several stakeholders (in terms of thematic owners and contributors, coordinators and quality control as well as quality assurance experts) will be involved for reporting on specific sectoral mitigation progress indicators. The action plan provides matrices as guiding document for both mitigation and adaptation progress indicators.

Strategy to mobilize financial resources

Since Mauritius is faced with many challenges, including limitations on resources, the implementation of the NDC Action Plan will require enhancing institutional capacity building development across the sectors. A financial strategy including innovative funding mechanism will need to be developed.

Chapter 1 - Plan for Implementing the NDC

1.1 National context and NDC

The Republic of Mauritius is a Small Island Developing State (SIDS) comprising the mainland Mauritius, Rodrigues, Agalega, Tromelin, Cargados, Carajos and the Chagos Archipelago covering an area of 2,040 km². It is amongst the most vulnerable countries that suffer from the adverse impacts of climate change. Despite the country's GHG emissions are limited, with a total of 4,881 ktCO2eq, including removals from LULUCF, in 2016[1], equivalent to less than 0.01 percent of global GHG emissions, the Republic of Mauritius is fully committed to combat climate change under the Paris Agreement and has in place a full set of policies and measures on both adaptation and mitigation. While in recent years the country has advanced on adaptation to climate change, exposure to climate-related risks remains very high and continues to increase, as shown in the 2021 Climate Change Vulnerability Assessment of Mauritius and Rodrigues[2].

The NDC 2021 is a landmark national policy document produced under the Paris Agreement and representing the new framework for national policy orientation on climate change.

The main elements of the 2021 Nationally Determined Contribution (NDC) of the Republic of Mauritius are summarized below:

- **Reduction of GHG emissions by 40% in 2030** against a Business as Usual baseline scenario of 6,900 $ktCO_2eq$
- Priority actions on **adaptation** based on the updated National Climate Change Adaptation Policy Framework (NCCAPF) for all main sectors such as Infrastructure, Disaster Risk Reduction (DRR), Coastal Zones, Water, Biodiversity, Agriculture, Fisheries and Health
- Plan to achieve the NDC mitigation and adaptation contributions through a **35% national effort (unconditional) and a 65% international support (conditional)**
- Seeking international finance through the implementation of **cooperation mechanisms** such as Clean Development Mechanism (CDM), Nationally Appropriate Mitigation Actions (NAMA), Article 6 as well as access to **multilateral finance** such as the Green Climate Fund (GCF)[3] and other programs

1.2 Goals and objectives of the NDC Action Plan

[2] UNDP, 2021. Climate Change Vulnerability Assessment of Mauritius and Rodrigues, Technical Support, UNDP Climate Promise in the Republic of Mauritius, June 2021.

[3] As of June 30, 2021, 5 projects are funded by the GCF, for a total of USD 81,6 million.

The objective of the NDC Action Plan is to support Mauritius in the implementation of the 2021 NDC. The NDC Action Plan includes a list of priority adaptation and mitigation measures in the short, medium and long term. The NDC Action Plan will have to be complemented by further planning in the long term to better align the country with any future development which is climate resilient and in line with a low emission and sustainable pathway.

The NDC Action Plan is essential to accelerate the implementation of the actions and ensuring a planned, coordinated and coherent approach to identify potential sources and steps in which the financing is secured. It is also useful to better align the NDC targets with other national policies and initiatives by identifying synergies and win-win strategies, and complementarities, sector by sector.

The NDC Action Plan is the result of analysis and consultations with key national stakeholders and experts of ongoing projects namely NAMA, under the coordination of the Department of Climate Change (DCC) as well as at the level of the Climate Change Committee, between October 2020 and May 2022. The Action Plan is also paving the way for appropriate domestic, international and private resources mobilization, for the financing of the adaptation and mitigation measures. In addition, the Climate Change Act (CCA) of 2021, Biennial Update Report (BUR) to the UNFCCC, the Budget Speech 2021/2022 of June 2021 of the Government of Mauritius including those on energy, Renewable Energy Roadmap in the electricity sector and the draft Climate Change Mitigation Strategy and Action Plan (CCMSAP) 2021-2030 have been fully considered and integrated in this Action Plan.

The NDC Action Plan was developed in accordance with the following principles:

- country led and nationally owned;
- building on existing strategies and processes;
- based on a comprehensive and reliable analysis.

The NDC Action Plan is consistent with the Paris Agreement and subsequent implementing decisions, including decisions 4/CMA.1, 18/CMA.1 and 2, 3 and 5/CMA.3[4] and it provides an operational tool to the Department of Climate Change (DCC) for planning, coordination, mobilization of resources and transparency in NDC implementation to advance realization of the Mauritius' development and climate objectives.

The implementation plans for mitigation and adaptation actions are designed to clearly outline the activities and their respective operation elements. When available, for each outcome, the NDC Action Plan sets out the following information:

- **Activity/action/intervention** that will be introduced, or enhanced in response to a relative target

[4] Decision 4/CMA.1, Further guidance in relation to the mitigation section of decision 1/CP.21; Decision 18/CMA.1 Modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement; Decision 2/CMA.3 Guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement; Decision 3/CMA.3 Rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement; Decision 5/CMA.3 Guidance for operationalizing the modalities, procedures and guidelines for the enhanced transparency framework referred to in Article 13 of the Paris Agreement.

- **Indicators/targets** and respective timeframe (2025, 2030, ..) to be used to track progress during implementation, and for monitoring and evaluation
- **Entities/**Leading and supporting government agencies involved in implementation or follow-up
- **Budget** estimated for each activity, and sources of funding/ financial means and human resources needed for its implementation
- **Progress and timeframe**, including start/end dates for each activity

1.3 Alignment of the NDC Action Plan to national policies and strategies

Mitigation

The NDC Action Plan is constructed based on key national policy and strategic documents as identified in the NDC and in Table 1 below.

Additional initiatives under implementation that will contribute to the achievement of the 2021 NDC GHG emission reduction target and its further development are listed here below:

- Capacity Building Initiative for Transparency: improving the quality of the national GHG inventory and the data collection, storage and dissemination to enhance reporting and transparency;
- Nationally Appropriate Mitigation Actions for Low Carbon Island Development Strategy for Mauritius (NAMA) and its Climate Change Mitigation Strategy and Action Plan (CCMSAP) 2021-2030 (under finalisation) : ensuring a low carbon path in line with the *Government Programme 2020-2024*;
- Development of Country Specific Emission Factors (CSEFs): developing Country Specific Emission Factors for the crop and solid waste sectors to improve the accuracy of the GHG Inventory.

Table 1 below provides some information about the relevance of key national policy documents and the mitigation sectors included in the 2021 NDC.

Table 1.1: Relevance different national strategic and policy documents with NDC 2021

National policies and strategies	Energy	Transport	IPPU	Waste	Agriculture	LULUCF
INDC, 2015	√	√	√	√	√	√
NDC Action Plan, 2016	√	√		√	√	√
First Biennial Update Report (BUR1) to the UNFCCC, 2021	√	√	√	√	√	√
Government Programme 2020-2024	√	√		√	√	
Mauritius Vision 2030	√					
Mauritius Climate Promise - Base paper for the Climate Change Committee meeting, PwC and UNDP, 2021	√	√	√	√	√	√
Budget Speech 2021-2022	√	√		√	√	
Renewable Energy Roadmap 2030 for the Electricity Sector	√					
Strategic Plan for the Food Crop, Livestock and Forestry sectors 2016-2020 (under revision)					√	√

At the moment of writing this document, the following national policy documents are in the process of being developed and/or updated. Any future iteration of this NDC Action Plan including its reporting cycle shall consider any new development below or any new relevant documentation adopted at the national level.

- National Biomass framework
- Energy Efficiency / Demand Side Management Master Plan and Action Plan 2016 to be updated
- Plan to phase down HFCs

The economy-wide emissions reduction contribution comprises sector specific mitigation actions for energy, transport, waste and IPPU. The contribution on the 2021 NDC target from agriculture and LULUCF sectors is not quantified.

Starting with the BAU scenario, the Republic of Mauritius plans to mitigate its projected GHG emissions by 40% of total emissions expected in 2030. The information presented in the next chapter includes the main mitigation actions to be taken in order to meet the objectives of the NDC 2021 of Mauritius. These measures have been identified in the different sectoral policy documents.

Adaptation

The NDC 2021 actions on adaptation are centred around the 2021 updated National Climate Change Adaptation Policy Framework (NCCAPF) that focuses on the potential of nature-based solutions for adaptation. The NCCAPF introduces a new policy orientation in key adaptation sectors to build resilience as follows:

- Enhancing the knowledge base regarding the risks of climate change and the impacts on communities;
- Developing and implementing an integrated approach which combines the following sectors namely; Fisheries (Blue Economy), Tourism, Biodiversity (Terrestrial and Marine), Forestry, Agriculture and Coastal Zone;
- Enhancing strategic frameworks to address policy gaps and improve expertise in the Health sector, including, through integrating climate risks into planning and developing policies in the National Adaptation Plan;
- Increasing resilience of human-led activities whilst preserving ecosystem functions, through improving governance, enhancing disaster preparedness and response mechanisms, for infrastructure and disaster risk reduction sectors.

1.4 Empowering stakeholders: Raising awareness

The UNDP launched its “Climate Promise” initiative at the UN Climate Action Summit in September 2019, to support countries towards enhancing their Nationally Determined Contributions (NDCs) under the Paris Agreement. On 16 December 2020 the Climate Promise Initiative was launched in Mauritius to develop a strategy to effectively communicate and

raise awareness on the NDC and its implementation at national level. The goal is to engage key stakeholders and citizens in Mauritius, aiming at increasing participation in local climate action through adaptation and mitigation measures. Under this initiative, a communication strategy comprising several communication tools and activities are suggested, including graphic design, audio-visual production, multimedia and digital, media advertising campaign, for a total cost of approximately 1.4 million USD, has been developed in 2021 for implementation. A first series of workshops (hybrid/virtual/physical) on the content of the NDC was held in October 2021, in collaboration of UNDP.

Chapter 2 – Sectoral Mitigation strategies and Actions

The sources of the data used for the BAU scenario upon which the calculation of the NDC targets is calculated is the national GHG inventory, as processed in the BUR (2000-2016 times series). Targets on GHG emissions reductions included in the 2021 NDC are based on: i) existing strategic and policy documents from key stakeholders (e.g. MEPU, CEB, EEMO) with GHG emissions reductions data; ii) calculations done from non GHG targets; and iii) proxies when no data are available. The expected emissions under the BAU scenario for 2040 and 2050 are reflecting the increasing demand in energy and transport and the raising share of waste related emissions. The BAU scenarios do take into account the 2020/2021 slowdown of the economy, assuming a rebound in the following years, having hence a limited impact in the very long-term (e.g. by 2050).

In addition to the calculations considered in the development of the NDC (2021), the information and actions included in this Action Plan are complemented by the draft CCMSAP (2022), in particular the result of the baseline analysis of mitigation actions,[5] and the modeling of mitigation scenarios to 2030 conducted to prepare that document.[6]

2.1 Strategies/Actions in the Energy sector

As indicated in the BUR1, the biggest emitter of the Energy sector corresponds to the Energy Industries category (57.9% of the total emissions in the sector in 2016), Transport sector (28%), Manufacturing Industries and Construction (8.2%) and the Energy Other Sectors (5.9%).

Mitigation actions in the energy sector, excluding transport, are based on the following key documents:

- Government Budget Speech 2021 – 2022 Better Together and Annex to Budget
- Renewable Energy Roadmap 2030 for the Electricity Sector (Review 2022)
- Government Programme 2020 - 2024
- Energy Compact 2021
- Draft Climate Change Mitigation Strategy and Action Plan 2021-2030

The main outcome of the country's mitigation action in the sector Energy Industries (E) is the decarbonisation of the electricity system using renewable energies and demand side energy efficiency. In particular, in the Budget Speech 2021/22, the Government of Mauritius announced Green Energy as a new economic pillar of Mauritius. In the same breath, the RE target in the energy mix was increased from 40% to 60% by 2030 together with the announcement of the phasing out of coal in the generation of electricity by the same timeframe.

[5] P Deenapanray (2021) *Baseline Analysis of Mitigation Actions – A sectoral perspective*. Ministry of Environment, Solid Waste Management and Climate Change, Port Louis; P Deenapanray (2021) *MRV Baseline Analysis*. Ministry of Environment, Solid Waste Management and Climate Change, Port Louis.

[6] P Deenapanray and AM Bassi (2022) *Mitigation Scenarios Modeling*. Ministry of Environment, Solid Waste Management and Climate Change, Port Louis.

2.1.1 Increasing energy efficiency of 10% compared to 2019 figures

In the area of **energy efficiency**, the Republic of Mauritius commits to an increase of 10% of energy saving in electricity consumption by 2030 compared to 2019 figures. Several initiatives are planned to meet this goal, including:

- Implementation of energy efficiency actions in energy-intensive end use sectors such as manufacturing and construction
- Introduction of the mandatory energy labelling (this measure would reduce energy consumption in households through a shift to more energy efficient appliances by 2030).

2.1.2 Enhancing renewable energy sources in the electricity mix

Vision 2030 enunciates that "Government will aim at ensuring energy security by promoting cleaner and sustainable energy through the development of renewable energy and energy efficient technologies." The BUR1 indicates amongst the key actions in the energy sector accelerating the transformational shift to a low-carbon economy in the Republic of Mauritius.

The decision to increase from 40% to 60% the share of renewable sources in the electricity mix by 2030 is extracted from the Budget Speech 2021-2022 Better Together[7] and reiterated in the Energy Compact 2021. The achievement of the target will allow the reduction of country's dependency on the import of fossil fuels and contribute to the reduction of GHG emissions.

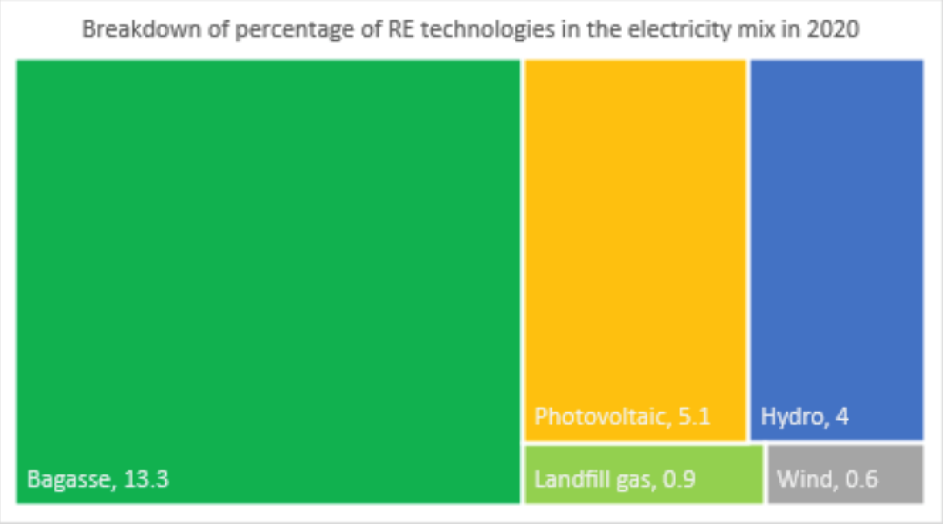
In May 2022, the Ministry of Energy and Public Utilities released the Renewable Energy Roadmap 2030 (Review 2022) for the Electricity Sector, Review 2022. The Roadmap provides the energy portfolio to enable Mauritius to reach its target of 60% RE in the energy mix by 2030. All measures proposed in the review of the Roadmap have been put forward after consultation with relevant stakeholders from the public as well as from the private sector, while aligning with the different frameworks, policies and strategies of other economic sectors. The focus remains on the increased deployment of well-tested Renewable Energy technologies in the short term, while actively investigating and de-risking relatively novel technologies towards a further timeline. The gradual shift to the use of cleaner energy technologies such as Liquefied Natural Gas will also be explored in parallel.

The RE Roadmap 2030 (Review 2022) indicates an estimated investment of USD 1345M that would be required to meet the RE target of 60% by 2030. The RE Roadmap 2030 also revealed that due to the repercussion of the pandemic the integration of RE in the electricity mix (source: Statistics Mauritius) as compared to the forecasted RE target of 25.2% by 2020 is equivalent to 23.9%.

[7] We must produce 60 percent of our country's energy needs from green sources by 2030, Budget Speech 2021-2022 Better Together, paragraph 96.

The RE Roadmap 2030 (Review 2022) enlisted a set of schemes and initiatives aimed at the promotion of various technologies, notably Renewable Energy Hybrid Facilities comprising solar PV + Battery Storage, Solar PV + Wind + Battery Storage and Biomass.

Table 2.1: below provides for the breakdown of the contribution of renewable energy comprising different RE technologies in the electricity mix in 2020[8].



In terms of renewable energy sources, the NDC 2021 indicates among its priorities solar PV development (300 MW) and wind energy both onshore and off-shore (40 MW). Other renewable energy sources that will contribute to achieve the transition towards greener energy are biomass generation, waste-to-energy and wave energy power.

To foster research and development (R&D) and stimulating industrial innovation in the field of Renewable Energy (RE), the Mauritius Renewable Energy Agency (MARENA), operating under the aegis of the Ministry of Energy and Public Utilities (MEPU), in collaboration with Mauritius Research and Innovation Council (MRIC) and the Central Electricity Board (CEB), has set up the National Scheme for Emerging/Innovative Renewable Energy Technologies (NSEIRET). The NSEIRET aims to explore emerging/innovative RE Technologies under a pilot phase basis for small unit sizes not exceeding 200 kW in capacity, and which may be replicable and scalable.

2.1.3 Coal phase-out

The impact of the government decision to phase out the use of coal by 2030 as announced by the Minister of Finance, Economic Planning and Development on 11 June 2021 will lead to an estimated reduction of circa 1 200 ktCO2e emissions by 2030[9]. However, this number may be modified since further analysis on the shift towards the phasing out of coal will need to be undertaken by national authorities, notably the MEPU and CEB.

[8] Renewable Energy Roadmap 2030 for the Electricity Sector, Review 2022, Ministry of Energy and Public Utilities, 2022.

[9] 'The use of coal will be totally phased out before 2030', Budget Speech 2021-2022 Better Together, paragraph 97.

To ensure stability the landmark decision to phase out coal will have to be recognized in a national strategy or policy document in the coming months so that proper planning and implementation can be arranged.

In the meantime, the Government of Mauritius has indicated in its 2021 budget speech that a National Biomass Framework will be established and that bagasse is to be remunerated at Rs 3.50 per kWh for all planters and producers. The biomass framework is under finalisation at the Ministry of Agro Industry and Food Security.

As indicated in the Energy Compact 2021 the phasing out of coal for power generation by 2030 will be achieved through a mix of specific measures. In particular, the Existing Power Purchase Agreement (PPA) when expired will only be renewed up to a maximum period leading to 2030. No PPA for coal will be effective after 2030. The PPA for a new coal power was cancelled in 2015 and another not renewed upon expiry in December 2018.

2.1.4 Strategies/Actions in Rodrigues

A strong contribution on the mitigation of climate change in the energy sector in Mauritius comes also from Rodrigues, where the RRA's vision indicates a target of 100% renewable energy sources in electricity generation to be achieved by 2030. Amongst others, the following measures are foreseen:

a) Installation of 1MWp PV farm at Grenade. The implementation of this project will enable the further promotion and implementation of renewable energy in Rodrigues Island and reduce dependency on fossil fuels and mitigation of greenhouse gas emissions
b) Installation of a 1.5MW/1.5MWh Battery Energy Storage System. Rodrigues has a low inertia distribution network that is highly sensitive to rapid changes in loads and generating outputs. This low inertia is a main barrier to further increase the share of renewable energy in its generation mix, while maintaining the stability of the network. The installation of a Battery Energy Storage System of Li-Ion technology will help to overcome this barrier and for peak shaving

2.2 Strategies/Actions in the Transport sector

As indicated in the BUR1, GHG emissions from the transport sector represents 28% of the emissions in the energy sector in the Republic of Mauritius.

The main outcome of the country's mitigation action in the sector Land Transport (LT) is the shift towards a sustainable low-carbon land transport system in Mauritius.

In line with the NDC 2021 the main mitigation actions that will be undertaken by the Republic of Mauritius in the transport sector are as it follows:

- Extension of the **light rail network (**Metro Express **Light Rail** Transit System) as part of the national strategy to modernise and upscale the public transport system by 2022
- **Phasing out of subsidies** and incentives for the importation of diesel buses

- Enhancing the quantity **of electric vehicles** in the country by increasing the subsidies for the purchase of electric vehicles[10]

In accordance with the BUR1, one of the end goals of the mitigation measures introduced in the transport sector in the Republic of Mauritius will be a modal shift to a mass transport system (Light Rail Transit - LRT). It is expected that 20% of bus commuters and 10% of personal vehicle users will switch to using the LRT Metro Express system thereby reducing traffic congestion and carbon emissions.

2.2.1 Improved fuel economy of vehicles and traffic fluidity

The recent acquisition of 15 portable smoke meters which have been allocated to enforcing agencies such as Police and National Land Transport Authority (NLTA) would allow effective enforcement and would enable enforcing agencies to better track vehicles emitting black smoke. These would prompt vehicle owners to regularly service their vehicles so that same is maintained in a good condition including the exhaust system thereof. Difficulties to be overcome to implement this action include transportation of equipment, hours of enforcement and challenges to enforcement on congested roads during peak hours.

2.2.2 Electric vehicles

In accordance with the 10 Year Electric Vehicle Integration Roadmap for Mauritius six main strategies for Electric Vehicles integration in the Republic of Mauritius are proposed. Using these main strategies as a structure, a 5-year policy plan is introduced, including concrete policy measures, timing, responsible organisation and impact on government budget. Based on this plan, the following 6 main strategies are recommended:

- Facilitate a nationwide open fast charging network to allow freedom to drive anywhere on the island
- Focus on Battery Electric Vehicles (BEV) and implement a National Battery plan to ensure long term sustainability through second life applications and battery recycling
- Start small in a phased approach while monitoring growth to be able to adopt policies in a quickly evolving market
- Build the EV Community for raising awareness & sharing of expertise among stakeholders within triple helix
- Phased implementation of smart charging & vehicle-to-grid strategy taking best practices from international leaders in private and public domain to ensure reliable and affordable grid
- Clean power for EVs stimulation program to support energy self-sufficiency, reduction of emissions and economic opportunities

The total package of above mentioned EV incentives for the six strategies adds to a total of 408 million MUR over 5 years (equivalent to 9 million USD).

[10] On the latter 2 points, the Ministry of Land, Transport and Light Rail to coordinate with the Ministry of Finance, Economic Planning and Development.

In addition, the Government of Mauritius indicated in its 2021 budget speech that 5 percent excise duty on Electric Vans of up to 180 kW used for the transport of goods will be removed.

Regarding the promotion of electric buses in Mauritius, since the costs of procuring such buses are significant, the Ministry of Land Transport and Light Rail is liaising with foreign partnering countries such as India and China so as to explore cooperation in the field of electric bus technology and deployment of such buses in Mauritius including charging stations.

2.2.3 Light rail transit system and buses

Rail transport is relatively new in the country with the current **Metro Express Light Rail Transit system**. The Metro Express Project is the first Light Rail Transit (LRT) system in Mauritius, an alignment of 26-km in length from Curepipe to Port Louis, to serve as a new, environmentally-friendly, alternative and sustainable mode of transport by significantly reducing carbon emission for each kilometer travelled. The extension of the light rail network from Rose Hill to Ebene is yet another ambitious initiative by Government to further incentivize the shift from private car use to the public transport. The Government is also envisaging the possibility to extend it further to the other parts of the island of Mauritius.

The Ministry of Land Transport and Light Rail is in the process of implementing shuttle bus services to provide the first and last mile connectivity to and from the light rail stations implying that accessibility to the stations will become easier and hence attract more passengers to the light rail. Similarly, the Ministry is promoting the Adaptive Traffic Control System as Intelligent Transport System (ITS) strategy and a Request for Proposal (RFP) is to be launched to review the existing traffic signal equipment system. In addition, a Traffic Demand Management Strategy is developed to reduce traffic and environmental impact in congested areas. These measures affect travel behaviour of individual and as such contribute to the promotion of sustainable mobility.

In addition, a cycle network will be integrated in the Transport Integration Strategy in phases and bids will soon be evaluated to select a contractor to start the construction of a cycle network in Rose Hill.

With a view to incentivizing the fleet replacement, a **Bus Modernisation Scheme (BMS)** has been put in place by Government through the National Land Transport Authority (NLTA) to financially assist bus operators to replace their ageing fleet with modern buses. The Government has indicated in its 2021 budget speech that subsidies and incentives for the importation of diesel buses are being phased out and that the subsidy for the purchase of electric buses is being increased (from Rs 1 million to Rs 1.2 million for 9-meter buses; and from Rs 1.3 million to Rs 1.5 million for buses above 9 meters). In addition, operators acquiring electric buses will be eligible to a lease under the Transformation Fund.

Two electric buses have in that context been procured by Rose Hill Transport Bus Services Ltd. In addition, the National Transport Corporation (NTC) has recently acquired one electric bus which would be used as a test case to assess the operational and maintenance requirements

thereof, route suitability and driving techniques. The NTC intends to proceed with the renewal of its fleet with more electric buses in the near future.

2.3 Mitigation Actions within the IPPU sector

As indicated in the BUR1, the most significant category in terms of GHG emissions under the IPPU sector is the Product Use as Substitutes of Ozone Depleting Substances (ODS), represented by HFCs use in the refrigeration and air-conditioning (RAC) (both stationary and mobile).

With the ratification of the Kigali Amendment in 2019, Mauritius will soon embark on the formulation of a HFCs Phase-down Management Plan.

As inscribed in the NDC 2021 in line with the commitments under the Kigali Amendment to the Montreal Protocol and the draft CCMSAP, the main mitigation actions that will be undertaken in the IPPU sector are:

- 10% reduction of HFCs emissions by 2029 compared to baseline value (2024)
- Based on average HFCs imports (2020 to 2022) freeze imports as from January 2024,
- ban import of non-inverter Air-conditioners using HFCs in a phased manner as from January 2022 with a total ban in 2024 (budget speech 2021);
- Recovery and safe disposal of HFCs in retired stock of RAC equipment

2.4 Mitigation Actions in the Waste sector

As indicated in the BUR1, GHG emissions in the waste sector come mainly from the solid waste disposal and wastewater treatment and discharge covering respectively 66.11% and 32.67% of the total sectoral emissions in 2016. Remaining sources of GHG emissions are the biological treatment of solid waste (1.09%) and incineration and open burning of waste (0.13%).

The legal framework for wastewater management in Mauritius is the Wastewater Management Authority (WMA) Act 2000. The Wastewater Master Plan (WWMP) study carried out from 2010 to 2012 was designed to update the 1994 master plan and respond to the objectives and targets of the National Sewerage Programme (NSP) for the 20-year period 2014-2033. The implementation of the ''Wastewater Master Plan'' is expected to increase household connectivity to the sewerage system by up to 80% by 2033.

The 2015 Mauritius NDC allocated a budget USD 100 million to meet the goals set for the five-year solid waste sector plans. However, many of the initiatives set to achieve a recycling rate of 40% by 2020, including the Regional Material Recovery Facilities (MRFs) and Composting Plants are yet to be executed. Presently, very low levels of recycling take place in Mauritius, and this consists of a small amount of PET bottles, while plastics, paper, and cardboard are exported to Asia for recycling[11].

[11] Waste Management Sector Review, p. 9.

As indicated in the NDC 2021 and in the draft CCMSAP the main mitigation actions that will be undertaken by the Republic of Mauritius in the waste sector cover both solid waste and wastewater management. Those include avoiding emissions through:

- Diversion of 70% of waste from the landfill by 2030 including through composting plants, employing anaerobic digestion (AD), sorting units and waste-to-energy plants
- Wastewater management from adoption of low-carbon technologies

Those mitigation actions are mainly based on the Waste Management Sector Review and GHG Emission Reduction Potential (2021). In accordance with the Waste Management Sector Review, recommended mitigation strategy to minimize greenhouse gas emissions from the solid waste sector in Mauritius, in order of preference are:

- Municipal solid waste segregation at source.
- Composting of biodegradable fraction given that around 60 % of the waste being landfilled is organic in nature.
- Anaerobic digestion (AD) of low lignin content food waste for the generation energy, this strategy is complementary with composting.
- Resource recovery and recycling including industrial symbiosis for sustainable production and circular economy.
- Waste incineration of inorganic content unable to be used for composting and AD, however, inorganic content segregation at source is a prerequisite for a successful waste incineration scheme.

On solid waste management, at the moment of preparing this action plan, the Solid Waste Management Division is coordinating the design and implementation of the new Strategy and Action Plan for a new Solid Waste Management and Resource Recovery System for Mauritius.

2.5 Mitigation Actions in the Agriculture sector

As indicated in the BUR1, GHG emissions from the Agriculture, Forestry and Other Land Use (AFOLU) sector calculated for the period 2000 – 2016 are negative (removals) from the whole period except for the year 2004 where the sector shows positive emissions. The positive emission is attributed to a great area of deforestation, mostly on privately owned forest land in 2004. In the area of removals data in the period 2000-2016 shows an increase of emissions (decrease of removals) of 44.9%. Sources of emissions are direct and indirect emissions from land (76%) and livestock category (24%).

For consistency with existing national documents, mitigation actions in the AFOLU sector are grouped into Agriculture and Livestock and Forestry (next section).

Mitigation actions in the agriculture and livestock sector included in the 2021 NDC are based on the Strategic Plan for the Food Crop, Livestock and Forestry Sectors (2016- 2020) developed by the Ministry of Agro-Industry and Food Security. The strategy focuses on the need for sustainable agricultural development in a climate-friendly mode as well as safeguarding farmer's livelihoods. At the moment of preparing this NDC Action Plan that document is under review.

The combination of mitigation measures in the agriculture and livestock sector of the Republic of Mauritius resulting from the 2021 NDC, the BUR1 and the draft CCMSAP is summarized here below:

- Agriculture
    - Reducing emissions from smart agricultural practices, including natural farming systems and agro-forestry, promotion of efficient irrigation techniques
- Livestock
    - Standards for treated manure from animal waste
    - Promotion of small livestock projects at back yard level

For the Agriculture and Forestry sector the cumulative cost estimates for the following measures planned is about 315 million USD[12]:

- Increase removals of carbon emissions through forests for 370,000 tonnes of CO2
- 400,000 tonnes CO2 per year of forest carbon sequestration
- Development of innovative technologies and mitigation-oriented SMEs in the food value chain
- Smart agriculture leading to CO2 emissions reductions

In addition, a comprehensive and accurate digital data base pertaining to land occupation and use in Mauritius, including an updated State Land Register will be created and a new legal framework for land use and planning introduced.

2.6 Mitigation Actions in the forestry sector

In the FOLU or Forestry sector, according to the BAU scenario, carbon sequestration is increasing at a slow path. Regarding blue carbon, there are very limited studies and the potential of blue carbon sequestration in Mauritius is still rather vague.

Mitigation actions in the forestry sector as included in the NDC 2021 are based on the National Biodiversity Strategy and Action Plan (NBSAP 2017-2025) and the Strategic Plan for The Food Crop, Livestock and Forestry Sectors (2016 - 2020). Traditionally, the non-sugar sector has contributed particularly to food production and has ensured some measure of food security. Its forestry and biodiversity components are now playing vital roles in the management of natural resources, and are recognised as significant contributors to sustainable development and to the mitigation of climate change impacts.

Forest management practices in Mauritius are thus aimed at increasing our tree cover, and favor non-consumptive uses so that those activities result sustainable, less destructive and more rewarding in the long term.

[12] See n. 12 above.

As indicated in BUR1 various legislation has been enacted to protect forests; including the Forests and Reserves Act (1983, amended 1986 & 2003), the Shooting and Fishing Leases Act (1966) and the Native Terrestrial Biodiversity and National Parks (2015). In addition to these Acts, several actions to halt and reverse the trend of forest loss and degradation in the country are in the pipeline. In particular, a Forests and Reserves Bill is under preparation to provide for the protection, conservation and sustainable management of forests, reserves and related areas in the Republic of Mauritius for present and future generations. In addition, a tree planting programme is scheduled to increase tree cover throughout the island; special care will be taken of environmentally-sensitive areas such as watershed and steep slopes; biodiversity and ecosystem services will be enhanced; and the general public will be educated on the importance and value of the trees and forests.

A combination of mitigation measures in the forestry and fisheries sectors resulting from the 2021 NDC, the BUR1 and the draft CCMSAP is summarized here below:

- Tree planting (including Rodrigues)
- Afforestation/reforestation of abandoned agricultural land
- Forest restoration
- Plantation of mangroves and blue carbon
- Forest protection

Information on investment needs for the policies and measures are only partly available; Renewable Energy Roadmap 2030 in the electricity sector (USD 1345 M); 5-year Electric Vehicle Policy plan (USD 9 M).

A new strategy and action plan for solid waste management and Resource Recovery system is being designed and implemented. A HFC phase down management plan will shortly be developed. The Agriculture Strategic Plan for the Food crop, livestock and forestry sectors (2016-2020) is under review. For these strategic documents, no costing and source of funding are available.

The list of projects in these mitigation sectors that will be implemented by the Republic of Mauritius to implement its NDC in the short to medium term, following consultations with the concerned stakeholders, is provided in section 2.6.

Based on the information collected during the preparation of the NDC 2021 an initial list of projects on adaptation and mitigation to be financed in the short term is provided here below. The projects have been aggregated based on sectors and the following timeframe:

2.7 List of projects in the mitigation sectors

Table 2.2: Projects in mitigation sectors to be implemented Pre-2025

Strategy	Action	Indicator/target	Entities	Budget (million USD)	Status compared to 2015 INDC	Timeframe

60% increase in the production of renewable energy (E.2)	Solar energy for residential consumers having average monthly consumption of 200 units	5MW Roof-top Solar Capacity	CEB	8.05	Updated	2021 - 2023
	Solar energy for commercial consumers under tariff 215	2MW Roof-top Solar Capacity	CEB	6.44	Updated	2021 - 2022
	Solar energy for religious bodies and NGO/Charitable institutions	6MW Roof-top Solar Capacity	CEB	9.66	Updated	2021 - 2024
	Solar energy for Public Institutions	10 MW Roof-top Solar Capacity	Private	16	Updated	2021 - 2022
	Solar energy for farm projects	30 MW ground mounted solar PV farm	Private	48	Updated	2021 - 2023
	Improvement in the grid to support renewable energy	40 MW of increased battery energy storage system (BESS) and 10 Gas Insulated Switchgear (GIS) substations to improve reliability and increase the share of renewable energy[13]	CEB	120	New	2021 - 2024
	Implementation of the various renewable energy schemes of the CEB for households, businesses, SMEs, religious bodies and NGOs		CEB	NA	New	2021 - 2024
	Construction of solar farm	10 MW	CEB	NA	New	2021 - 2024
	RfP for a wind farm	40 MW	CEB+private	54	New	2021 - 2024
	Concessionary loan of 2% up to an amount of Rs 100,000 for renewable energy investments	NA	DBM	NA	New	2021 - 2024
	'Centre de Formation et de Perfectionnement Professionel' to provide trainings on renewable energy and energy efficiency	NA	CEB	NA	New	2021 - 2024
	Wind energy for farm projects	30-40 MW	Private	64	Updated	2021 - 2024
	Setting up National Biomass Framework	NA	MEPU	NA	New	2021 - 2024

[13] To achieve this objective, the following actions are identified by the Energy Compact 2021:

- Deployment of Smart Meters, Advanced Distribution Management System (ADMS), Wide Area Management System (WAMS) and Automatic Generation Control (AGC)
- Modernisation of Major Substations (Outdoor AIS to Indoor GIS)
- Installation of 18 MW BESS of Lithium Ion technology for frequency regulation to support integration of Variable Renewable Energy Sources (VRES)
- Installation of 20 MW BESS of Lithium Ion technology for peak shaving

	with bagasse remunerated at Rs 3.50 per kWh for all planters and producers					
Electrification of mass passenger transport (LT.4)	Extension of Metro Express Light Rail Transit system	Extension of the metro line to other parts of the island of Mauritius	Ministry of Land Transport and Light Rail and municipalities	1035	New	2022 onwards
Wastewater management (WWM1)	Design, Supply and Installation of Biogas Generator	11KV, 800KVA Biogas Generator and associated equipment at the St Martin Wastewater Treatment Plant	Wastewater Management Authority (WMA)	1.4	New	2023-2025
	Sewerage and treatment of wastewater	Extension of sewer network and upgrading of wastewater facilities around Mauritius	WMA	118.5	Ongoing and Planned	2024
	Maximise Energy Efficiency at wastewater treatment plants and pumping stations	Supply & Installation of 2 Nos micro turbines of 100 kW capacity each at St Martin Wastewater Treatment Plant at the effluent discharge pipe	WMA	2	New	2022-2024
	Promotion of renewable energy sources at Wastewater Treatment Plants	Supply & Installation of Photovoltaic cells of 1MW capacity at three (3) Wastewater Treatment Plant, namely St Martin, Grand Baie and Montagne Jacquot	WMA	0.5	New	2022-2024
Manure management (L.1)	Introduction of standards for treated manure from animal waste	20% GHG emissions reduction compared to total accounted - Reduction of CH4 and N2O to be assessed during implementation	Food and Agricultural Research and Extension Institute (FAREI) Mauritius Standard Bureau University of Mauritius		Under implementation	2018-2021
Tree plantation (F.1)	Tree planting and creation and maintenance of mini-forest, Nature Walk, urban forests, Parks and Garden, etc	Planting of at least 100,000 trees annually	Forestry Service NPCS Ministry of Environment District Council Municipalities NGOs	0.7	Under implementation	2021-2024

Table 2.3: Projects in mitigation sectors to be implemented by 2025

Nature	Activity/action	Indicator/target	Entities	Budget (million USD)	Status compared to 2015 INDC	Timeframe
60% increase in the production of renewable energy (E.2)	Solar energy for low-income household - Home solar project	10MW Roof-top solar capacity	CEB (Abu Dhabi Loan)	16.1	Updated	2021 - 2025

	Solar energy for high usage commercial consumers (MSDG)	40 MW Roof-top Solar Capacity	Private	64	Updated	2021 - 2025
	Solar energy for smart cities	15 MW Roof-top Solar Capacity	Private	24	Updated	2021 - 2025
	Construction new biomass plant project	35 MW	Private	56	Updated	2021 - 2025
Smart agriculture (A)	Increase carbon sequestration by developing climate smart agriculture	Silvopastoral system provided to 100 farmers, 115 hectares of permanent pasture of land, 150 hectares of fodder perennial production (Rodrigues)	Commission of Agriculture and Farming community	1,18	Planned	2021 - 2025
Forest restoration and plantation of native forests (F)	Increasing forest cover	Area of native woodland cover progressively increased to 10% of total country area	Forestry Services		Under implementation	2017-2025

Table 2.4: Projects in mitigation sectors to be implemented by 2030

Nature	Activity/action	Indicator/target	Entities	Budget (million USD)	Status compared to 2015 INDC	Timeframe
10% increase on energy efficiency (E.1)	Increase mandatory Energy Labelling from three appliances (refrigerators, dishwashers and electric oven) to seven (additional: TVs, tumble driers, air conditioners and washing machines)	Reduced energy consumption in households due to shifting to more energy efficient appliances	EEMO	1	New	2017 – 2030
	Levy on energy inefficient appliances (refrigerators, dish washers, electric ovens, air conditioners, tumble dryer; and lamps)	Improved energy efficiency in households	EEMO	2	New	2030
	Mandatory energy audits for large energy consumers (to reduce their energy use intensity)	240 notifications issued for mandatory energy audits by 2030	EEMO	1	New	2030
	Framework for the promotion and adoption of the heat pump technologies	Reduced fossil fuel consumption in industry, hotels and in public sector sports facilities	EEMO	0.56	New	2022 – 2030
	Setting up of Energy Performance Contracting	Incentives to third party investment in EE projects	Public and private entities	0.11	New	2024 - 2030
	Establishment of an Energy Efficiency Financing Scheme	Increase of EE projects in SMEs and private sector	MEPU/EEMO	420	New	2024 - 2030

60% increase in the production of renewable energy (E.2)	Generate electricity from waste – Waste to Energy Facility	10 MW	Private	16	Revised	2021 - 2029
	Offshore Wind Farm	40 MW	Private	16	Updated	2021 - 2029
	Innovative RE technologies	Up to 200kW per project – aggregate 2 MW	MARENA/ CEB/MRIC	3	Updated	2021 - 2030
Coal phasing out (E.3)	Phasing out of the use of coal by 2030	Converting coal to biomass permanently before 2030			New	2021 - 2030
Rodrigues (E)	Installation 1MW PV farm in Grenade - RODRIGUES	1 MW	CEB	77	Updated	2021 - 2030
	Installation 1.5MW Battery Energy Storage System - RODRIGUES		CEB	69	New	2021 - 2030
	Model Eco Village project - Implementing a biomass to electricity chain in Rodrigues Island				New	2021 - 2030
Increase lower carbon vehicles (LT.3)	Promotion of electric vehicles	Facilitate a nationwide open fast charging network and grid reinforcement	MEPU	8	Planned	2030
	Removal 5% excise duty on electric vans of up to 180kW used for the transport of goods		Ministry of Land Transport and Light Rail and municipalities			
	Promote demand for electric vehicles					
	Phase out incentives for importation of diesel buses			0,03	New	2021-2030
Electrification of mass passenger transport (LT.4)	Increase subsidies for e-buses and purchase of 25 e-buses for NTC		Ministry of Land Transport and Light Rail and municipalities			
Phase down HFCs (IP.1)	Based on average HFCs imports (2020 to 2022) freeze imports of refrigerants (HFCs) from 2024				New	2021 - 2030
Phase out equipment HFCs (IP.2)	HFC phase-down management plan				To be developed	2023 - 2030
	Create fiscal incentives to promote R290 air-conditioners					2021 - 2030
Composting (SWM.1)	Waste for composting platforms and anaerobic digestion through public-private partnerships model	31% waste for composting platforms and anaerobic digestion	Solid Waste Management Division	38.1	Planned	2021-2030
Recycling (SWM.2)	Reduction of plastic waste	50% reduction of non-biodegradable plastic-packaging of imported products and 100% reduction of packaging for local products	Environment division	5	New	2021 - 2030

		100% reduction of vest type plastic bags, polyethylene containers				
	Reduce amount of waste disposed at the actual dumping site and increase amount waste recycled or materials recovered	Recover: -80% metals -90% PET -50% paper waste -90% glass bottles	Environment division	30	Planned	2021 - 2030
	Waste for recycling sorting units through collaboration with private partners	22% waste for recycling sorting units	Solid Waste Management Division	14.5	Planned	2021-2030
Energy recovery (SWM.3)	Waste to energy treatment based on public acceptance	20% waste to energy treatment	Solid Waste Management Division	150	Planned	>2030
Wastewater Management (WWM.1)	Assess biogas production Maximise Energy Efficiency at wastewater treatment plants and pumping stations	One or two experimental sites by 2030 Carry out an energy audit at wastewater treatment plants and pumping stations and replacing existing combustion gas engine by Micro Turbines	Ministry of Energy and Public Utilities, Wastewater Management Authority	1	New	2030
Rodrigues (SWM)	Reduce non-biodegradable plastic packaging of imported products	50%				2030
	Reduce packaging for local products	100%				2030
	Reduce vest type plastic bags, polyethylene containers	100%				2030
	Recover of metals	80%				2030
	Recover of PET	90%				2030
	Recover of paper waste	50%				2030
	Recover of glass bottles waste	90%				2030
Livestock (L.1)	Decrease GHG emissions from livestock sector	Reduction of overgrazing in 30% watershed of Rodrigues, 125 household biogas production units	Commission of Agriculture and Farming community	2,66	Updated	2021 - 2027
	Promotion of small species livestock projects at back yard level	GHG emission reduction by around 1-5% of the total	FAREI			Since 2018
	Bioconversion of organic waste into biogas at small and medium scale	Reduce CO_2 emissions through biogas generation by 12.4 ktCO2e				2021-2030
Smart agriculture (A)	Decrease carbon footprint of crop production sector for better adaptation	60% producers in Rodrigues sensitized during implementation, 15% and 25% production is organic and agroecological	Commission of Agriculture and Farming community	3,54	Planned	2021 - 2030

	Decreasing field burning, reducing chemical fertilizer use and agroecology/bio-farming practices	GHG emissions reductions of circa 7 $ktCO_2e$				2021 - 2030
Forest restoration and plantation of native forests (F)	Enhance Nature Reserves, Mountain, River Reserves, forest plantation	75 ha of mountain reserves restored by 2030 500 ha of degraded riverine reserves restored and benefiting from enrichment planting of native trees Restoration of Terrestrial and Islet Nature Reserves 1,000 ha of plantation forest and native forest restored	Forestry Service, NPCS, private land owners, NGOs	0.84	Planned	2020-2030
	Increasing forest cover		NPCS, NGOs and Private forest land owners	1	Under implementation	2017-2030
Forest protection (F)	Creation and maintenance of firebreaks in forest	At least 30km of firebreaks created[14] and maintained annually		2	Under implementation	2015-2030

[14] Signal Mountain, Port Louis Mountain Range & other fire prone areas.

Chapter 3 - Adaptation Actions

Taking and implementing urgent adaptation measures in Mauritius is crucial with regard the tremendous impact and cost of environmental degradation in the country, such as water and air pollution related diseases, crop losses caused by neglected and pressured agricultural lands, insufficiently protected natural resources such as coastal resources, etc. Furthermore, Mauritius environment and ecosystems rely extensively on the sustainable management of the coastal zones. With sea level rise and coral bleaching caused by climate change and increased temperatures and evaporation rates, adaptation actions appear even more crucial. The 2015 NDC indicated a first set of adaptation measures to be implemented. Those actions have been revised in the 2021 NDC in line with the 2021 Update of National Climate Change Adaptation Policy Framework.

The 2021 NDC dictates the following priority sectors in the area of adaptation:

- Infrastructure and Disaster Risk Reduction (DRR)
- Water
- Agriculture
- Tourism and Coastal Zone Management
- Fisheries and blue economy
- Biodiversity (marine and terrestrial)
- Health

Both documents do not include any quantifiable target and clearly any future revision of the NDC will consider the possibility to introduce target for each priority sector also on adaptation.

This NDC Action Plan is based on the measures identified in the 2021 NDC and in the following documents:

- The Updated National Climate Change Adaptation Policy Framework (NCCAPF) (2021)
- Resilience Strategy (RS), Recommended Adaptation measures and Action plan for the 6 priority sites (August 2019)
- National Disaster Risk Reduction and Management Action Plan (NDRRMAP) (2020 – 2030)

The Updated NCCAPF has at its core the promotion of nature based solutions and indicated the following objectives of the climate change adaptation policy:

- Foster the development of strategies, plans and processes to:
- Avoid, minimise or adapt to the negative impacts of climate change on key assets of Mauritius, namely agriculture, water, fisheries and ecosystems
- Avoid or reduce damage to human settlements and infrastructure caused by climate change
- To build capacity to understand, analyse and react in a timely manner in the wake of future climate change impacts within the Republic of Mauritius

- Integrate and mainstream climate change adaptation into core development policies, strategies and plans of the Republic of Mauritius

A key role in preventing flood disasters and improving flood risk management, and developing an integrated approach to water management in Mauritius is played by the Land Drainage Authority (LDC). The LDA has developed the Integrated Land Drainage Master Plan to be fully consistent with the national adaptation strategy. In this light, the following institutional strengthening and capacity building activities are needed to achieve the goals set out in the Paris Agreement. Tables 6 provides for the list of policies and measures to be implemented by the Republic of Mauritius to fulfil the adaptation objectives included in the updated NDC.

Table 3.1: Adaptation policies and measures to be implement in the updated NDC

Sector	Policies and measures	Document	Investment Need (USD)[15]
1. Infrastructure and Disaster Risk Reduction	1.1 Enhance knowledge base related to climate change risks to coastal ecosystems and communities	NDC/ NCCAPF/UNDP	545
	1.2 Mainstream climate change in the sectoral policies/strategies/plans	NDC/ NCCAPF/UNDP	
	1.3 Enhance disaster preparedness and response mechanisms and implementing risk reduction measures	NDC/UNDP/NDRR	
	1.4 Improve the governance to build resilience in an uncertain future	NDC/NCCAPF/UNDP/NDRR	
	1.5 Reduce vulnerability to natural disaster risks and increase resilience of human-led activities whilst preserving ecosystem functions	NDC/UNDP	
2. Water	2.1 Water Resources Management Improved forecasting, management protection and quality of water resources, including upgrading and building of new treatment plants and reservoirs and reducing water losses in the distribution system	NDC/ NCCAPF/UNDP	724
	2.2 Rainwater Harvesting Procurement and installation of rainwater harvesting systems and improvement in policy, legal and regulatory water framework in mainland Mauritius, Rodrigues and other outer islands	NDC/ NCCAPF/UNDP	
	2.3 Desalination Desalination plants	NDC/ NCCAPF/UNDP	
	2.4 Rodrigues Strengthening the development of rainwater harvesting with each household having 10 or 15m^3 installations Small desalination plants	NDC/ NCCAPF/UNDP	
3. Agriculture	3.1 Integrated Pest and Disease Management Development of an integrated strategy and policy to foster adoption of integrated Pest and Disease Management (IPDM) practices	NDC/UNDP	650

[15] Targets are provided in the Mauritius Climate Promise, UNDP.

	including the review of policy and regulatory framework to facilitate the upscaling of IPDM technology and regulate the use and disposal of pesticides		
	3.2 Enhance Knowledge Enhance the knowledge base regarding the risks of climate change for the agricultural sector and the impacts on communities	NDC/UNDP	
	3.3 Mainstream Climate Change Mainstream climate change adaptation in the different sectoral policies, strategies and plans, for example in the Strategic Plan (2016 - 2020) for the Food Crop, Livestock and Forestry Sectors, through the advancement of technical studies	NDC/UNDP	
	3.4 Efficient Irrigation Techniques Development Investment in water infrastructure to support irrigation projects and development of a policy framework to enhance access to, and productive use of water in the agricultural sector	NDC/ NCCAPF/UNDP	
	3.5 Develop and promote climate smart agriculture practices	NDC/UNDP	
4. Tourism and Coastal Zone Management	4.1 Develop and implement an integrated approach aligned with coastal zone and biodiversity/forestry sectors	NDC/UNDP	775
	4.2 Enhance the knowledge regarding the risks of climate change for coastal ecosystems and communities	NDC/ NCCAPF/UNDP	
	4.3 Protection of beaches, dunes, and vegetation	NDC/NCCAPF/UNDP	
5. Fisheries and blue economy	5.1 Enhance sustainable fishing management (climate-smart)	NDC/UNDP	260
	5.2 Enhance the knowledge base regarding the risks of climate change for the fisheries sector and the impacts on communities	NDC/UNDP	
	5.3 Establish an integrated framework for the management of fisheries founded on the Blue Economy concept, which includes coastal zone management and marine biodiversity conservation	NDC/UNDP	
	5.4 Rodrigues Resilient artisanal fishery with policy on marine co-management of resources and measures for off-lagoon fishing	NDC/UNDP	
6. Biodiversity (marine and terrestrial)	6.1 Improve management of marine and terrestrial protected areas	NDC/ NCCAPF/UNDP	295
	6.2 Expansion of protected area network including rehabilitation of wetlands, seagrass, mangrove plantation, increase in tree coverage areas and coral reef rehabilitation/farming	NDC/ NCCAPF/UNDP	
	6.3 Rodrigues Development of sustainable landscape management and Ecosystem-based adaptation/nature based solutions	NDC/UNDP	

7. Health	7.1 Mainstreaming of climate change adaptation in the health sector to respond to population increase and its additional climate-related health burden	NDC/ NCCAPF/UNDP	595
	7.2 Development and implementation of a communication, education and awareness strategy with respect to climate change risks and impacts on human health	NDC/ NCCAPF/UNDP	
	7.3 Improve surveillance of diseases associated with climate change and develop and implement a decentralized alert and rapid response mechanism	NDC/ NCCAPF/UNDP	
	7.4 Integrated Pest and Disease Management Develop an integrated strategy and policy to foster adoption of integrated Pest and Disease Management (IPDM) practices including the review of policy and regulatory framework to facilitate the upscaling of IPDM technology and regulate the use and disposal of pesticides	NCCAPF/UNDP	

The list of projects in these adaptation sectors that will be implemented by the Republic of Mauritius to implement its NDC in the short to medium term, following consultations with the concerned stakeholders, is provided in section 3.1.

Based on the information collected during the preparation of the NDC 2021 an initial list of projects on adaptation and mitigation to be financed in the short term is provided here below. The projects have been aggregated based on sectors and the following timeframe:

3.1 List of projects in the adaptation sectors

Table 3.2: Projects in adaptation sectors to be implemented pre-2025

Sector	Action	Indicator/ Target	Entities	Budget (million USD)	Status compared to 2015 INDC	Timeframe
2. Water	2.1 Increase water collection and improve water management by improving water efficiency (Rodrigues)	Increase water storage for irrigation by 30%, desilting main points along rivers in Rodrigues adding a potential of 30.000 m3 water for livestock and crop production	RRA	0.42	Equivalent	2021-2024
	2.3 Increase desalination plants efficiency	Double water production capacity of existing desalination plants by 2024 Operate desalination plants with the use of renewable energy by 2024	AFD / RRA	23 0.046	Equivalent	2021-2024
	2.2 Improving water management project	Increase water availability capacities Foster water efficiency Develop and implement an Integrated Water	AFD / RRA	0.40	Equivalent	2021-2024

		Management action plan				
	2.3 Rehabilitation of La Ferme Dam	To increase the capacity of the dam from 11.52 Mm^3 to 14,2 Mm^3	WRU	14	New	2023-2024
4. Tourism and Coastal Zone Management	4.1 Rehabilitation and protection of Mauritius' coastlines against the consequences of climate change	9,000 mangroves will be planted in the west coast; A walkway, jetty, slipway, boat passage and coastal restoration at Vieux Grand-Port and Rivière des Creoles ; Major landslide stabilization works		27.6	new	2021-2024
	4.1 Construction and upgrading of some 1,500 drain projects across the island over the next three years, starting with high-risk flood-prone areas	1,500 drain projects constructed and upgraded		50	new	2021-2024
5. Fisheries and Blue Economy	5.1 Promote climate smart fisheries practices (Rodrigues)	Implementation of regulation for shrimp, crab and lobster by 2022; training of fishermen by June 2021	FRTU	1	Equivalent	2021-2024

Table 3.3: Projects in adaptation sectors to be implemented by-2025

Sector	Action	Indicator/ Target	Entities	Budget (million USD)	Status compared to 2015 INDC	Timeframe
1. Infrastructure and Disaster Risk Reduction	1.4 Strenghten the capacity for monitoring, control and surveillance (MCS) – Revision of the SEMPA regulation 2011 (Rodrigues)	A better monitoring control and surveillance by 2022 and better protection of marine resources	SEMPA/Commission for Fisheries and Marine Parks	2	New	2021-2025
	1500 drain projects	National Flood Management Programme: 1500 projects across the island to tackle the unprecedented flood issues	LDA	266	New	2021-2024
	1.3 and 1.5 Increase resilience of Port Louis by affording protection against climate change effects such as high swells, cyclones and	Construction of a break water about 1.2 km long	Mauritius Ports Authority	325	New	2025

	overtopping by 2025[16]					
2. Water	2.1 Develop novel systems of irrigation and sensitise all farmers in vulnerable areas and adopt water saving systems		Food and agricultural Research and Extension Institute / Irrigation Authority	50	Equivalent	2021-2025
	2.2 Upgrading of La Nicoliere Reservoir	To increase the capacity of the reservoir to 33 Mm^3	WRU	0.31	Equivalent	2017-2022
	2.3 Construction of Rivière des Anguilles Dam	New dam of 12.5 Mm^3 capacity	WRU	180 000		
3. Agriculture	3.1 Develop climate smart agriculture and sensitise all farmers in vulnerable areas by 2023, and adopt climate smart systems of production	50% of farmers adopt water saving systems, climate smart systems of production	Ministry of Agro-Industry and Food Security / Food and Agricultural Research and Extension Institute	50	Equivalent	2021-2025
6. Biodiversity	6.1 Restore the marine flora through the planting of corals in Rodrigues lagoon (Rodrigues)	Restoration of the lagoon ecosystem through the planting of corals. Restore an area of 0.5 hectare by 2025	SEMPA/Commission for Fisheries and Marine Parks	10	New	2021-2025

Table 3.4: Projects in adaptation sectors to be implemented by-2030

Sector	Action	Indicator/ target	Entities	Budget (million USD)	Status compared to 2015 INDC	Timeframe
1. Infrastructure and Disaster Risk Reduction	1.3 Improving the capacity of disaster risk management		NDRRMC and MMS	10	Equivalent	2021-2030
	1.3 and 1.5 Decreasing flooding during heavy rains			25	Equivalent	2021-2030
	1.5 Implementing the right framework to accurately assist in infrastructural development	Develop resilience of the tourism sector to climate change for its sustainable development	Ministry of Tourism/ Ministry of Finance/ Economic Planning and Development / Ministry of Environment/SWM and CC / AFD	500	Equivalent	2021-2030
	1.4 Strenghten the capacity for monitoring, control and surveillance (MCS) – Revision of the SEMPA	A better monitoring control and surveillance by 2022 and better protection of marine resources	SEMPA/Commission for Fisheries and Marine Parks	2	New	2021-2025

[16] Requires collaboration with MMS for climate change modelling.

	regulation 2011 (Rodrigues)					
	1.3 and 1.5 Increase resilience of Port Louis by affording protection against climate change effects such as high swells, cyclones and overtopping by 2025	Construction of a break water about 1.2 km long by 2025	Mauritius Ports Authority	325	New	2021-2030
	1.3 Enhancing warning and alert	Have in operation a multi-hazard, impact-based warning system and effective means of alert	MMS and NDRRMC		New	2021-2030
3. Agriculture	3.1 Increase ecosystem services and biotic soil activities by reducing ex-farm inputs (Rodrigues)	50% and 70% decrease in importation of chemical pesticides and chemical fertilizers by 2030, about 1700 hectares of arable land rehabilitated and used for crop production	Partly funded by FAO	55,6	Equivalent	2021-2030
4. Tourism and Coastal Zone Management	4.3 Rehabilitation of Eroded Beaches and vegetation within the dynamic beach zone -Assess feasibility and implement arificial reefs/breakwater within the lagoon	13 km of degraded coastline planned for rehabilitation 5 km of artificial reefs and reinforcement of existing reefs at eroded sites.	ICZM Division, Ministry of Environment, Solid Waste Management and Climate Change	116.5	Planned	2030
6. Biodiversity	6.1 Priority conservation areas restored and maintained	1500 hectares of priority conservation areas restored and maintained	Forestry Service and National Parks and Conservation Service	5,91	New measure	2021-2030
	6.1 New National Invasive Alien Species Strategy developed and implemented	Prevention, control and management of invasive alien species	National Parks and Conservation Service/UNDP	10	Equivalent	2021-2030
	6.1 Increasing of the percentage of protected area of Mauritius (including Forestry service and Private Forests)	Increase from 4% to 10% the percentage of protected area of Mauritius by 2030	Forestry Service and National Parks and Conservation Service	0,97	Equivalent	2021-2030
	6.1 Vulnerability assessment developed for priority species and habitats with adaptation	Vulnerability assessment to CC conducted	N/A	1	Equivalent	2021-2030
	6.1 Creation of new endemic forest and planted trees	100 ha of new endemic forest created by 2030 and 400000 native/endemic trees planted	Private and international funding / Government Budget Support	3,93	Equivalent	2021-2030
	6.2 Enhance the management of the four	Implementation of the MR Management Plan. Demarcation of the	FRTU/SEMPA/ Commission for Fisheries and Marine Parks	5	New	2021-2030

	Northern Marine Reserves. Reduce the loss of biodiversity through the proper management of the northern Marine Reserves (Rodrigues)	marine reserves. Marine Resource Monitoring				
	6.3 Enhance the management of SEMPA (Rodrigues)	Implementation of at least 70% of the recommendations of the Management Plan	SEMPA/Commission for Fisheries and Marine Parks	1	New	2021-2030
7. Health	7.1 Strengthen the resilience of the health system to climate change in Mauritius	Adaptation planning governance and institutional coordination strengthened and evidence basis produced to design adaptation solutions for maximum impact	Ministry of Health and Wellness	0.5	New	2030

Chapter 4 – MRV Framework

Under the Paris Agreement, Parties are required to establish a national Monitoring, Reporting and verification (MRV) framework to collect the necessary information to fulfil its transparency requirements and to review and update the NDCs. In particular, the national MRV framework should address the following key questions:

- Where is the country in the implementation of its NDC?
- Is there a logic framework with key indicators to facilitate the tracking of progress on NDC implementation?
- What are the main changes and enhancements suggested for the revision of the NDC in the next cycle?
- What is the cost estimate to analyze the policies and measures identified in the NDC?

The development of a domestic MRV framework in the Republic of Mauritius should be guided by the findings and recommendations included in the following documents and initiatives:

- First Biennial Update Report (BUR1), 2021
- Nationally Appropriate Mitigation Actions (NAMAs) for Low Carbon Island Development Strategy for the Republic of Mauritius[17]
- NDC Registry Platform[18]

Some background information on the MRV are provided in Annex I.

4.1 The Enhanced Transparency Framework

The Paris Agreement established the Enhanced Transparency Framework (ETF) to strengthen mutual trust, increase transparency and promote effective implementation.

Under the Paris Agreement, all Parties are required to fulfil the requirements established under the Enhanced Transparency Framework (ETF). In particular, building on the experience and guidance from the UNFCCC, Parties are required to establish a national MRV framework to cover:

- A national inventory report of anthropogenic emissions by sources and removals by sinks of greenhouse gases;
- Information necessary to track progress made in implementing and achieving the NDC;

[17] MRV Baseline analysis, Prakash (Sanju) Deenapanray ELIA – Ecological Living In Action Ltd & Federico A Canu UNEP DTU Partnership, 13 May 2021.
[18] UNEP DTU, Ministry of Environment, Solid Waste Management and Climate Change (MoESWMCC).

- Information related to climate change impacts and adaptation;
- Information on financial, technology transfer and capacity-building support needed and received (developing countries only).

As required under Article 4.9 of the Paris Agreement new or updated NDCs are to be submitted by all Parties every 5 years. In the process of updating its NDC and establish the national MRV framework, Mauritius should build on the following main principles:

- Follow and respect all **UNFCCC decisions** and the **Paris Agreement Enhanced Transparency Framework (ETF)** rules as agreed by the Conference of Parties serving as Meeting of Parties under the Paris Agreement (CMA)[19]

- Benchmarking with other countries and be informed by **best practices and examples** from countries with similar national circumstances to Mauritius

- Consider the **principle of flexibility** as granted to Small Island Developing States (SIDS) under the Paris Agreement and the ETF rules

- Engage in a **participatory, inclusive and transparent** process where all national institutions and stakeholders are directly involved

4.2 Roadmap to develop the national MRV framework

Monitoring and tracking progress on NDC implementation through a quantitative assessment of the degree of achievement of the objectives established by the 2021 NDC is necessary to inform the regular NDC revision process and the establishment of the national MRV framework on mitigation, adaptation and finance.

To complement and integrate the work of the NDC registry and to monitor and tracking progress on NDC implementation to establish a domestic MRV framework, the following activities are suggested:

[19] The key decisions of the Paris Agreement on the transparency requirements and NDC are as follows:
In accordance with Article 13, paragraph 7 (a), of Paris Agreement, each Party will regularly provide:
(a) A national inventory report of anthropogenic emissions by sources and removals by sinks of greenhouse gases, prepared using good practice methodologies accepted by the Intergovernmental Panel on Climate Change and agreed upon by the Conference of the Parties serving as the meeting of the Parties to this Agreement; and
(b) Information necessary to track progress made in implementing and achieving its nationally determined contribution under Article 4.
Those information will be prepared in accordance with IPCC guidance and the rules adopted by the Conference of the Parties serving as the meeting of the Parties to the Agreement (CMA), notably:
Decision 4/CMA.1, Further guidance in relation to the mitigation section of decision 1/CP.21; Information to facilitate clarity, transparency and understanding of nationally determined contributions, referred to in decision 1/CP.21, paragraph 28 (Annex I); Accounting for Parties' nationally determined contributions, referred to in decision 1/CP.21, paragraph 31 (Annex II)
Decision 18/CMA.1, Modalities, procedures and guidelines (MPG) for the transparency framework for action and support referred to in Article 13 of the Paris Agreement
Decision 5/CMA.3, Guidance operationalizing MPG for the enhanced transparency framework referred to in Article 13 of the Paris Agreement.

- Activity 1 Addressing governance and coordination
- Activity 2 Monitoring and evaluation
- Activity 3 Evaluation of the degree of implementation of national and sectoral policies
- Activity 4 Evaluation of the degree of NDC financing
- Activity 5 Establish a NDC registry

4.2.1 Activity 1 - Addressing governance and coordination

Overall implementation of the Action Plan rests with the Department of Climate Change (DCC) of the Ministry of Environment. Regular reports will be presented to the Climate Change Committee as indicated in figure 1.

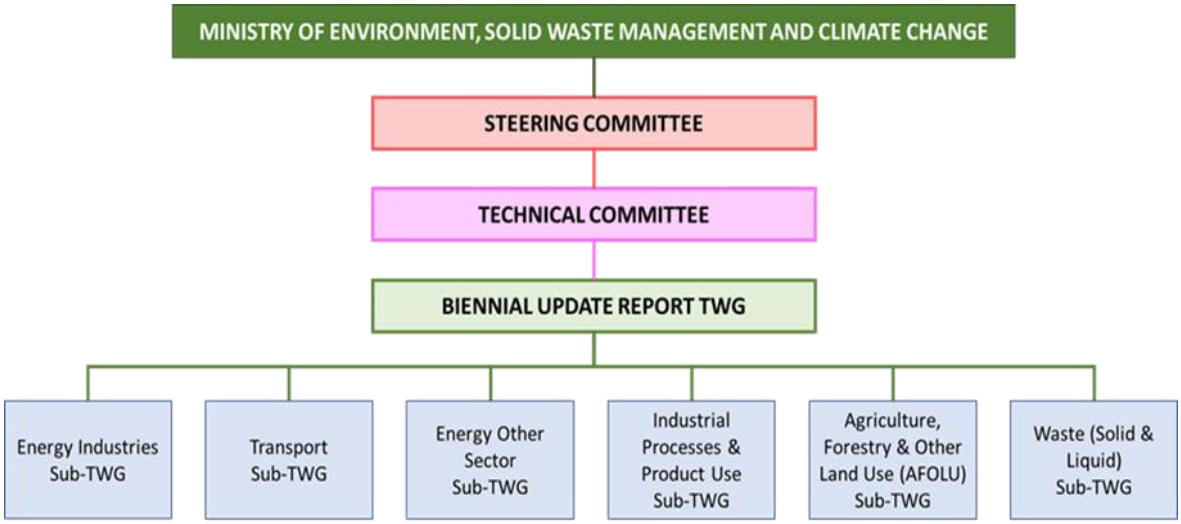
For each sector identified, a lead authority is directly responsible for implementing each action supported by all involved stakeholders.

The 2021 Action Plan is a dynamic document that will be regularly updated in view of changing circumstances to accommodate any future change of policy at the national level.

To integrate the MRV system in the organizational structure of Republic of Mauritius, specific institutional arrangements have been established to ensure assigned responsibilities, enough capacity and manpower, as well as a smooth connection and regular exchange of information between the institutions involved in MRV activities.

In this context, the institutional arrangement that was set up under the Third National Communication consisting of six Technical Working Groups has been used for the preparation of the First Biennial Update Report. **It is suggested the same institutional arrangements are used for the MRV framework.** The rationale for the division of the Technical Working Groups comes from IPCC guidance and guidelines: Energy Industries, Transport, Energy Other Sector, Industrial Processes and Product Use, Agriculture, Forestry and Other Land Use (AFOLU) and Waste (Solid and Liquid).

Figure 1: Institutional arrangements for the BUR1.



As indicated in the BUR, the Republic of Mauritius has relied upon a system of temporary, ad hoc institutional arrangements to undertake National Communications and their associated inventories, whereby ministries and other institutions have supplied staff members to technical working groups for limited periods of time. Therefore, the domestic MRV framework should address the following priorities:

- coordination challenges among institutions;
- limited institutional memory;
- lack of systematic data archiving;
- heavy reliance upon short-term consultants
- sustainable solution for archiving the data collected to address fragmentation across multiple sources
- institutional continuity and systematic procedures, including deeper engagement with civil society and the private sector
- need to build internal capacities for data collection and GHG estimation to improve data supply and quality in the national GHG Inventory
- development of a data archiving system to help make the national inventory transparent and reproducible and facilitates development of subsequent inventories by future inventory staff and category leads
- formal recording system for tracking mitigation actions
- appropriate measuring and reporting of climate finance

On mitigation, the Republic of Mauritius is working towards the development of a framework which ensures MRV approaches for individual mitigation actions and their effects while also tracking support received in implementing these actions.

On governance, the design of the national MRV framework should build on the Climate Change Act entered into force on 22 April 2021. Under the Act, the Department of Climate Change (DCC) is responsible to coordinate the implementation of relevant commitments to ensure compliance with the international climate change agreements. An Inter-Ministerial Council on Climate Change is provided to set national objectives, goals and targets with a view to make Mauritius a climate resilient and low emission country. A Climate Change Committee has also been set-up to enable a multi-stakeholder participation for the preparation of the national climate change strategies and action plans for mitigation and adaptation

The design of the national MRV framework in the Republic of Mauritius should build on the baseline study completed under the NAMA project to assess the institutional capacities for implementing an ETF under Article 13 of the Paris Agreement[20].

4.2.2 Activity 2 - Monitoring and evaluation

Monitoring and evaluation of the progress on the implementation of the NDC and achievement of the objectives by the Republic of Mauritius will be coordinated through the

[20] MRV Baseline Analysis, Prakash (Sanju) Deenapanray, ELIA – Ecological Living In Action Ltd & Federico Canu, UNEP DTU Partnership, 2021.

governance structure indicated in section 4.2.1 above. The monitoring process will include both quantitative information about greenhouse gas emissions in full respect of the guidance and rules under the Enhanced Transparency Framework of the Paris Agreement and information on non-GHG emission-based actions.

Information on performance towards action-based targets will be collected through all the major stakeholders involved in implementation, including national authorities and implementing partners and provided regularly through the Climate Change Committee meetings. Information on actions undertaken will be provided in connection with the information about GHG emissions collected to fulfil the reporting requirements under the Paris Agreement.

Amongst others, the Climate Change Committee shall 'coordinate the preparation of the National Inventory Report, the report on national communications and such other reports as may be required under UNFCCC' and 'recommend methods to monitor and control the emission of greenhouse gas in sectors such as agriculture, aviation, energy, industry, land use, forestry, transport and waste and such other relevant sectors as may be necessary to ensure the stabilisation of greenhouse gas and the reduction of emission' . As indicated in the BUR, the Climate Change Committee will be coordinating the preparation of greenhouse gas inventories to monitor and control emissions in various key sectors. Therefore, it is proposed that the Climate Change Committee coordinates the implementation of all different activities to establish, develop and maintain the national MRV system.

To evaluate the NDC ambition, its framework, objectives and political dimension, it is suggested to establish the NDC logic framework.

To establish the NDC logic framework, it is necessary to:

- Harmonize data and information on mitigation and adaptation activities
- Clarify between strategic and operational objectives
- Identify result indicators for the strategic and operational objectives

This can be achieved by filling the tables provided in Annex II and III.

4.2.3 Activity 3 – Evaluation of the degree of implementation of national and sectoral policies

To evaluate the degree of implementation of national and sectoral policies, it is suggested to undertake the following two steps on a sectoral basis:

- 1: Identify a set of performance indicators (through at first screening of existing performance indicators available in the country)

- 2: Take stock of existing and potential climate change interventions/projects and evaluate their degree of contribution to the NDC objectives

Identifying performance indicators will require to evaluate the approaches developed to assess the different objectives in the various sector. This evaluation will provide ad-hoc information on the approach utilized by each indicator.

To take stock of existing climate change projects and interventions and evaluate their degree of contribution to the NDC objectives, a screening of past and future interventions should be undertaken.

To qualify and quantify projects and programs the following criteria are suggested:

- **Scale** (national, regional, local, ..)
- **Sector** covered
- **Alignment (or not) with NDC**
- **Period** of implementation
- **Date expected impacts**
- **Cost** of the measure
- **Contribution to the reduction of GHG emissions or to adaptation**
- In case of estimation of emission reduction associated with the project implementation, **reliability of methodology** used for that estimation

To screen projects implemented, planned or potential, the fulfilment of tables provided in Annex IV and V are suggested.

4.2.4 Activity 4 – Evaluation degree NDC financing

In establishing an MRV for climate finance tracking, the first step should be to determine the objective of the system to ensure it will be suitable for the national context. Climate finance should be tracked at a disaggregated or aggregated level (at a disaggregated level, finance for project components that are not climate-relevant is not counted).

The general objective is to increase the effectiveness of climate finance through information management processes that support the understanding of financing flows aimed at mitigating and adapting to climate change, helping to mobilize greater resources and identify investment gaps to face climate change.

In reporting information on support needed and received, the Mauritius MRV of climate finance should, as per the MPGs of the ETF under the Paris Agreement, describe the underlying assumptions, definitions and methodologies used to provide information on support needed and received. Table at Annex VI indicates the status of implementation of recommendations to establish a domestic climate finance tracking system in Mauritius.

The domestic MRV of climate finance should provide information on financial support needed and received as indicated *under Article 9 of the Paris Agreement and Decision 5/CMA.3, Guidance operationalizing the modalities, procedures and guidelines for the enhanced transparency framework referred to in Article 13 of the Paris Agreement.* In particular, on climate finance, all Parties to the Paris Agreement are required to follow the guidelines indicated in Annex III, Common tabular formats for the electronic reporting of the information

on financial, technology development and transfer and capacity-building support provided and mobilized, as well as support needed and received, under Articles 9–11 of the Paris Agreement.

The information that will have to be collected, in textual format, including, to the extent possible and as available and as applicable are indicated here below:

- Sectors for which Mauritius wishes to attract international finance, including existing barriers to attracting international finance
- Description of how the support will contribute to its NDC and to the long-term goals of the Paris Agreement.

The domestic MRV should also provide, in a common tabular format, information on financial support needed, including the following:

- Title (of activity, program or project)
- Programme/project description
- Estimated amount (in domestic currency and in United States dollars)
- Expected time frame
- Expected financial instrument (grant, concessional loan, non-concessional loan, equity, guarantee or other)
- Type of support (mitigation, adaptation or cross-cutting)
- Sector and subsector
- Whether the activity will contribute to technology development and transfer and/or capacity-building, if relevant
- Whether the activity is anchored in a national strategy and/or an NDC
- Expected use, impact and estimated results

As for support received, it is recommended that the domestic MRV of climate finance includes:

- Title (of activity, program or project);
- Programme/project description;
- Channel;
- Recipient entity;
- Implementing entity;
- Amount received (in domestic currency and in United States dollars);
- Time frame;
- Financial instrument (grant, concessional loan, non-concessional loan, equity, guarantee or other);
- Status (committed or received);
- Sector and subsector;
- Type of support (mitigation, adaptation or cross-cutting);
- Whether the activity has contributed to technology development and transfer and/or capacity-building;
- Status of activity (planned, ongoing or completed);

- Use, impact and estimated results

Regarding climate finance, the Republic of Mauritius has some experience in measuring and reporting it. In 2015, the Ministry of Finance implemented the Public Environment Expenditure Review (PEER) project to conduct a preliminary estimate of environment and climate change related expenditures from 2011 to 2014. Building on this report, in 2018 the Ministry of Finance commissioned the report on 'Tracking Public Sector Environment Expenditure' focusing on the tracking of public sector expenditure relating to environment, climate change, mitigation and adaptation for financial year 2017/18. The templates produced in the above-mentioned study may be used to further track climate finance. It is important to consider not only public but also private finance, at both domestic and international levels. The reporting should also include contributions to technology development and transfer and capacity building.

4.2.5 Activity 5 – NDC registry

Under the Paris Agreement, Mauritius is required to monitor and report on the NDC implementation progress and achievement based on established targets and objectives for national climate change mitigation and adaptation. As such, the Ministry of Environment, Solid Waste Management and Climate Change (MoESWMCC) is developing the Mauritius' NDC Registry Platform, entitled 'MauNDC Registry'.

The MauNDC Registry would enable MoESWMCC to monitor and report on the implementation and achievement of the NDCs, including both mitigation and adaptation policies and measures, actions plans and indicators. It also includes cross-cutting policies and measures from economic diversification plans with co-benefits for other areas of society such as resilience or health sector.

The key objectives of MauNDC Registry are:

- Improve engagement of stakeholders by providing a one stop platform for data input, view past submissions, assigned tasks and update implementation status;
- Provide evidence based and support transparent data management across the registry;
- Facilitate the setting up of an MRV framework by allowing stakeholders to report progress on Indicators and ultimately on NDCs targets and pave the way for verification of the information reported;
- Provide a flexible common focal point for collating and analysing data by relevant organisational collaborations;
- Track and report on cross cutting mitigation and adaptation policies and actions;
- Report on overall NDC progress versus the targets;
- Proactive decision making based on the output; and
- Consolidate institutional memory and transparency around domestic legal and institutional organisational structures, systems and capacities.

The outcomes of the MauNDC Registry are as follows:

- The registry will provide a central repository to track and monitor NDC progress and achievements by:
- Providing an accessible, centralised, and transparent NDC tracking tool.
- Engaging stakeholders for rapid implementation of climate action through real time notifications; and
- Laying the building blocks for a comprehensive MRV system.

The MauNDC Registry is expected to facilitate the different Nominated Representatives of the Climate Change Committee in the discharge of their duties as per Sections 11 (3) and 11 (4) of the Climate Change Act 2020, such as, coordination and monitoring of measures related to mitigation and adaptation. The platform would also allow the mentioned Representatives to track the funding secured and received from funding agencies.

Nominations from the required institutions were received to populate relevant data and operate the MauNDC Registry in line with the proposed Institutional Arrangements (Structure).

An Awareness Raising Exercise was conducted with concerned stakeholders on 20 April 2022, a Beta Version Testing was held on 21 April 2022 and a User Acceptance Testing was held on 27 and 28 April 2022. Furhter consolidation of the MauNDC Registry including activities such as the Training of Trainers will continue in the near future.
The NDC registry will function as central repository to track and monitor NDC progress and achievements by:

(i). Providing an accessible, centralised, and transparent NDC tracking tool.
(ii). Engaging stakeholders for rapid implementation of climate action through real time notifications and workflows; and
(iii). Laying the building blocks for a comprehensive MRV system

The MauNDC Registry builds on the NDC Action Plan and the MRV framework and will ensure consistency in compliance with the ETF requirements. In particular, the NDC Action Plan and any further development of national policy documents on climate change (e.g. NDC, BTR, NCCAPF) will be adjusted to ensure consistency with the NDC registry by adopting the terminology below:

- **Outcomes**: targets, objectives and goals (e.g. NDC targets)
- **High level national indicators:** tracking progress against those targets
- **Interventions**: tangible policies, measures, actions and projects with an impact on national climate change outcomes reflecting actions and measures
- **Indicators**: providing the quantitative and qualitative tracking and ambition information (monitoring progress of interventions)
- **Action support**: e.g. levels of support to who from where and its impact

Chapter 5 – Strategy to mobilize resources

5.1 Indicative financial needs to implement the NDC Action Plan

Mauritius 2021 NDC includes a section dedicated to the means of Implementation. The biggest part of mitigation and adaptation actions to be implemented by 2030 as identified in the 2021 NDC is conditional to external financial support received.

The total financial needs to implement the NDC targets are estimated at **USD 6.5 billion**.

The share for the unconditional[21] and conditional contributions for the USD 6.5 billion is as follows:

- **Unconditional** amount of **USD 2.3 billion** (from government and private sector) representing 35%; and
- **Conditional** amount of **USD 4.2 billion** (from international sources and donor agencies) representing 65%

As indicated in the BUR1, on domestic public funding, according to the Tracking Public Sector Environmental Expenditure, 2018 Report, an amount of Rs 10.28 billion was spent from the national budget on climate-related measures (77% on adaptation measures and 23% on mitigation measures), representing 2.15% of Gross Domestic Product (GDP) or 7.02 % of total Government expenditure. In the 2021/2022 budget, Government has allocated Rs 2.2 billion for adaptation and mitigation projects under the National Environment and Climate Change Fund (NECCF). That makes a total of Rs 12.48 billion (equivalent to 0.27 billion USD) committed by the Republic of Mauritius in its national budget to climate action. The private sector has also invested in climate change mitigation namely on renewable energy.

The 35% unconditional support is based on relevant Ministries' expenditure towards climate change adaptation and mitigation during the past years including recurrent expenditures. Concerning adaptation, in order to enhance our resilience to the adverse impacts of climate change, coastal protection works, construction and upgrading of drain networks and projects for disaster risk reduction are currently planned in the national budget.

On support received from international donors, Mauritius has secured grants of the order of around USD 90 million over the period 2016-2021 from international funding agencies for the environmental sector. However, over time, Mauritius will need to mobilise several additional funds to supplement public funding to address climate change.

On 28 September 2021 the Inter-Ministerial Council on Climate Change held has agreed to the setting up of a Resource Mobilisation Committee to mobilise funding to implement the NDC action plan.

[21] Unconditional refers to *"national effort"*, that is, what a country can implement without any conditions and based on its own resources and capabilities, both public and private sector contributions.

5.2 Climate finance under the UNFCCC Regime

The international climate regime built on the UNFCCC, the Kyoto Protocol and the Paris Agreement calls for financial assistance from developed countries to countries that are more vulnerable.

At the international level, the Climate Finance Data Portal[22] under the UNFCCC aims to assist Parties in tracking its Financial Mechanism and to inform on the mobilization of resources to support developing countries in the implementation of adaptation and mitigation projects. In particular, the Climate Finance Data Portal presents information on financial resources that have been made available to developing countries namely from GEF, Adaptation Fund, Fast-start Finance among others.

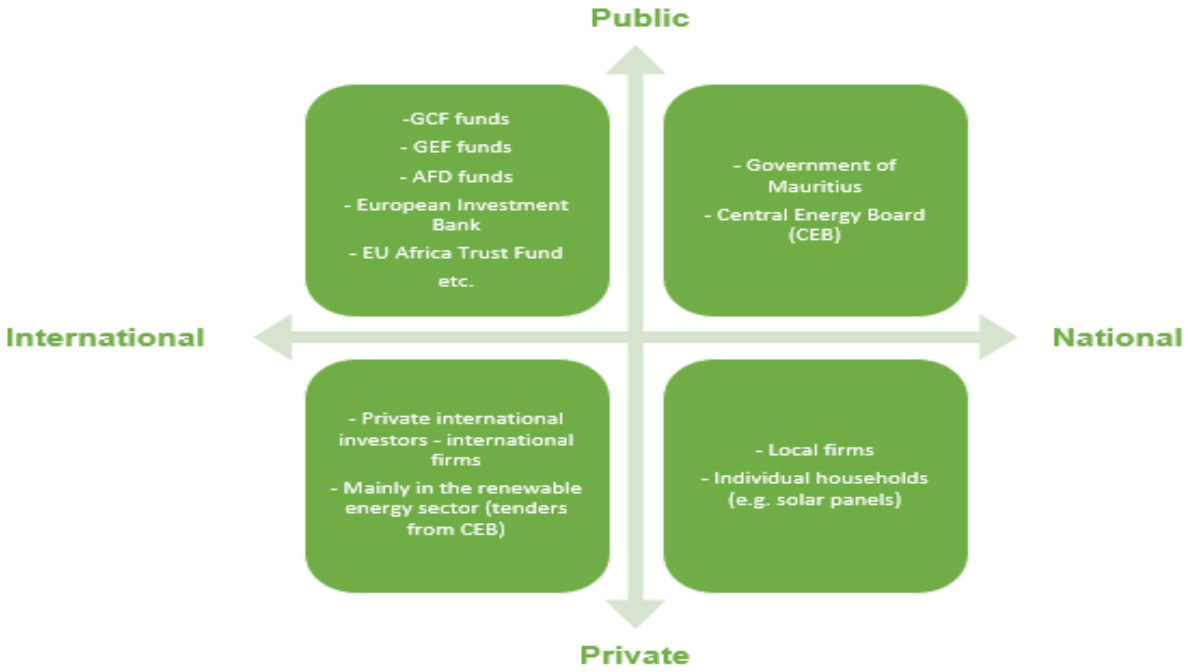
In addition, in 2020 the SCF (Standing Committee on Finance) of the UNFCCC provided a biennial assessment and overview of climate finance flows[23], drawing on the available sources of information, and including information on the geographical and thematic balance of flows. As such, multilateral climate funds are Adaptation for Smallholder Agriculture Programme, Adaptation Fund, Bio Carbon Fund, Clean Technology Fund, Forest Carbon Partnership Facility, Forest Investment Program, Global Climate Change Alliance, Global Environment Facility Trust Fund, Green Climate Fund, Least Developed Countries Fund, Partnership for Market Readiness, Pilot Programme for Climate, Resilience, Scaling Up Renewable Energy Program, Special Climate Change Fund and United Nations Collaborative Programme on REDD+ in Developing Countries.

5.3 Climate finance landscape in ROM

Climate Finance in the Republic of Mauritius can be differentiated as indicated in Figure 3 below.

[22] https://unfccc.int/climatefinance?home
[23] https://unfccc.int/sites/default/files/resource/54307_1%20-%20UNFCCC%20BA%202020%20-%20Report%20-%20V4.pdf.

Figure 3: Typology of climate finance sources



The situation in the Republic of Mauritius in terms of access to the different types of climate finance is as it follows:

- **International public climate finance**: the flows are already accessible in various databases, depending on the donor. **A national MRV system would provide an overview of all international public climate finance flows to Mauritius, including information on the interventions already financed and those eligible for funding in the future**.

- **National public finance**: the investments and financial flows are already registered within the institutional budget tracking system; however this information is not specifically linked with climate change actions. **A clear definition of climate finance and climate action is key in order to allow for measuring the budget disbursed towards climate actions, which is essential in mainstreaming climate change adaptation and mitigation policies.** National authorities should provide guidance on the definition of climate finance. For example, some finance may be spent on a project or program that does not have direct climate change objectives but it provides adaptation or mitigation co-benefits. In that case, since climate change is not the primary objective of that initiative, such finance will not be recorded as climate finance even though it contributed to mitigation or adaptation objectives indirectly.

- **International private finance**: **a data collection tool must be designed to measuring international private finance flows.** Policy makers could identify where the funds are coming from, what sectors are receiving the most foreign investment, and whether the policies destined to attract foreign investors are successful. Certain international databases track private spending through bilateral and other regional channels (OECD-

DAC[24]), as well as multilateral channels (GEF co-financed projects, IDFC, MDBs) and have developed methodologies for private climate finance tracking[25]. However, the methodologies are inconsistent between organizations[26] and limited to only finance relevant to each organization. Thus, these databases could be used to complement a national MRV framework but cannot replace it.

- **National private finance**: **the data collection tool should use bottom-up approach with individual actors self-reporting the investments in climate actions**. The proposed policy tools could be analyzed during the national budgetary exercise implying all the Ministries and Departments, and the policy-makers should encourage the self-reporting behavior by standard policy tools (regulatory tools, information campaigns and incentives, such as tax incentives for investing into climate change action).

An appropriate system will need to put in place to compile the different types of finance flows and amount of the funds specific to climate change in ROM for population under the support received module of the NDC registry on-line platform which is under development for tracking purposes. In particular for the private sector, since its contribution towards NDC objectives is currently not tracked, several initiatives and support should be established to facilitate this development.

5.4 Climate finance opportunities for ROM

The majority of finance provided to SIDS is focused on adaptation, although the Republic of Mauritius also presents an interesting potential in terms of carbon offsetting. Here below the different types of climate finance opportunities:

1. Bilateral agreement government to government (Article 6.2 pilot, others)
2. Multilateral and/or regional initiatives/institutions/banks (e.g. GCF, GEF, AF, SADC, EU-ACP , ..)
3. Carbon pricing (Emissions Trading Systems, crediting mechanisms, ..)

Bilateral climate finance also is available for several SIDS. Such climate finance complements the multilateral climate fund flows. Countries that are most active in the region are: France, Germany, Norway and Australia.

5.4.1 Multilateral and Regional climate finance for SIDSs

In order of amount of contributions provided, a list of opportunities to access multilateral and regional climate finance for SIDSs including ROM:

[24] https://stats.oecd.org/
[25] https://www.oecd.org/environment/cc/Joint-MDB_web.pdf
[26] ANNEX D: https://unfccc.int/sites/default/files/resource/2018%20BA%20Technical%20Report%20Final%20Feb%202019.pdf

- **Green Climate Fund (GCF):** the GCF is the world's largest dedicated fund for climate action, serving the Paris Agreement. The GCF in collaboration with its many diverse partners supports developing countries to realize their climate ambitions through a range of projects that include climate-smart farming, renewable energy, energy efficient infrastructure, green transport, ecosystem services, and natural resource conservation, among others. Many initiatives financed by the GCF, can achieve this dual objective – enhancing climate action while delivering strong socioeconomic co-benefits, including job creation, poverty alleviation, increased food security, improved air and water quality, more resilient infrastructure and other positive development impacts.

- **Pilot Program for Climate Resilience (PPCR):** the PPCR supports developing countries in building their adaptation and resilience to the impacts of climate change. The PPCR assists in integrating climate resilience into strategic development planning across sectors and stakeholder groups and it provides concessional and grant funding to put the plans into action and pilot innovative public and private sector solutions.

- **Global Environmental Facility (GEF)**: the GEF serves as a financial mechanism for the UNFCCC and the Paris Agreement and is usually providing support to small island states in the development of the reporting documentation such as NDCs, national communications, BTRs.

- **Adaptation Fund (AF)**: the AF was established in 2001 to finance concrete adaptation projects and programmes in developing country Parties that are particularly vulnerable to the adverse effects of climate change. The AF will serve the Paris Agreement once the share of proceeds becomes available under Article 6, paragraph 4, of the Paris Agreement. The AF shall no longer serve the Kyoto Protocol
- **Global Climate Change Alliance (GCCA+) and NDC Facility**: the GCCA+ and its successor programme called NDC Facility are initiatives of the European Union to support the poor developing countries that are most affected and that have the least capacity to deal with climate change on all matters related with the implementation of the Paris Agreement.

- **Scaling Up Renewable Energy Program (SREP):** the Climate Investment Funds (CIF) is one of the world's largest and most ambitious multilateral climate finance mechanisms for developing countries seeking to shift to low carbon and climate resilient development, and to accelerate climate action. It was established in 2008 to accelerates climate action by empowering transformations through its existing programs clean technology, energy access, climate resilience, and sustainable forests in developing and middle income countries. SREP is a funding window of the CIF empowering transformation in developing countries by demonstrating the economic, social and environmental viability of renewable energy. Channeled through five multilateral development banks (MDBs), SREP financing supports scaled-up deployment of renewable energy solutions to increase energy access and economic opportunities.

- **Clean Technology Fund (CTF)**: the CTF is one of two multi-donor trust funds under the Climate Investment Funds (CIF) framework, promotes scaled-up financing for demonstration, deployment and transfer of low-carbon technologies with significant potential for long-term greenhouse gas emissions savings implementation in renewable energy, energy efficiency, and clean transport in emerging market middle-income and developing economies. Channelled through the African Development Bank, Asian Development Bank, European Bank for Reconstruction and Development, Inter-American Development Bank, and World Bank Group, the CTF finances 19 country programmes and one regional programme with over 90 individual projects.

- **Special Climate Change Fund (SCCF)**: the SCCF was established under the Convention in 2001 to finance projects relating to: adaptation; technology transfer and capacity building; energy, transport, industry, agriculture, forestry and waste management; and economic diversification. This fund should complement other funding mechanisms for the implementation of the Convention.

- **Adaptation SME Accelerator Program (ASAP):** ASAP is a public initiative supported by the GEF, the InterAmerican Development Bank, and Conservation International that seeks to build an ecosystem for early-stage companies in emerging markets that have technologies, products, and services that can be used to build resilience to the physical impacts of climate change. ASAP is aimed at supporting small- and medium-sized enterprises (SMEs) operating in developing countries around that world that have products, technologies, and solutions that can support climate adaptation and resilience.

5.4.2 Carbon Pricing Mechanism

In addition to bilateral agreements on climate finance and multilateral and regional climate finance initiatives, a big portion of support to small island states may come from carbon pricing mechanisms (carbon taxes, Emissions Trading Systems and crediting mechanisms) established and in the pipeline at the national, regional and international level.

On the carbon tax, Mauritius has embraced the objective of a green economy development path and a number of fiscal instruments for environmental protection and incentives for green investment are already in place in the country. The overall fiscal system is functioning well and revenues from environmentally-related taxes have been increasing. The closest comparison to that of a carbon tax is the country's Maurice Ile Durable (MID) levy. The MID is a tax on fossil fuels established in July 2008 to finance clean energy projects such as subsidies for compact fluorescent lamps and solar water heaters. According to the *Green Economy Fiscal Policy Analysis Mauritius* undertaken by UNEP in 2016 a number of fiscal policy reform options in the medium to long term could be introduced in the Republic of Mauritius. For example, starting from the MID afuel specific carbon tax could be introduced at a rate equal to 50 per cent of the level that would fully internalize externalities; and in a second phase (2025 onwards) a fully corrective carbon tax could come into effect. Another option could be the reform the current system of transport fuel taxes to a fuel specific, environmentally efficient excise duty. In all cases, carbon tax revenues should be used to stimulate green investments.

Following the path set by the Kyoto Protocol's Emissions Trading and Clean Development Mechanism, the Paris Agreement has established two additional market-based mechanisms (Article 6.2 and Article 6.4)[27] that should drive the carbon market for the next decades. While the rules for corresponding adjustments and countries reporting under Article 6 are still to be adopted by the CMA, several Article 6 bilateral pilot initiatives have been launched by countries and multilateral banks to start full implementation of Article 6.

However, as discussed, the data has limitations and needs further improvement. Refining the data is important, since the flow of climate finance is fragmented and opaque. Many recipient governments find it difficult to get a comprehensive overview of what resources are being accessed, or for what ends. To complement this quantitative analysis, it is imperative to also examine how effective climate finance has been on the ground and to unpick the political economy and structural biases that influence the way finance is targeted toward some specific risks, sectors or places, but not others.

5.4.3 Innovative Climate Financing

Considering the large amount of financing and resources required for meeting the NDC commitments, public financing alone will not be able to secure the funding. Innovative (emerging) financing instruments are to be tapped extensively alongside creating an environment for private sector investment. Some of those emerging funding mechanisms are: green bonds, blue bonds, impact investment, guarantees, risk financing, blue finance and green financing facilities.

5.5 Current Resource Mobilization Initiatives by Mauritius

5.5.1 Resource Mobilisation Committee

The first Resource Mobilisation Committee was held on 08 October 2021 and follow up are undertaken with stakeholder ministries to come up with proposals for discussion/tapping funds from donor agencies and through bilateral cooperation.

5.5.2 Initiative under the GCF Readiness Support project: Ministry of Finance

Further to a series of capacity building workshops by GCF experts to empower key stakeholders to formulate project ideas, some 31 proposals were submitted. A screening exercise was carried out to shortlist 25 proposals which were in line with the climate change requirements for funding. These proposals are now planned to be repackaged into a

[27] Article 6.2 provides for an accounting framework using cooperative approaches between Parties for the exchange of internationally transferred mitigation outcomes (ITMOs) to achieve the respective NDCs. Article 6.3 stipulates that the use of ITMOs to achieve NDCs under this Agreement shall be voluntary and authorized by participating Parties. Article 6.4 establishes a centralized mechanism to trade credits from emissions reductions generated through project or programme of activities. The 6.4 mechanism is inspired by the CDM under the Kyoto Protocol and it is aimed at the promotion of the mitigation of greenhouse gas (GHG) emissions while fostering sustainable development and to incentivize and facilitate participation in the mitigation of GHG by public and private entities authorized by the Parties.

programme and consultations are on. A Resource Mobilisation platform has been set up for enlisting proposals to ease tapping funding through bilateral cooperation or multilateral agencies

5.5.3 Small Island Developing States Capacity and Resilience Programme (SIDAR)

Mauritius has embarked on the SIDAR which was announced at COP26 in Glasgow. Under this assistance the UK government will provide £40m over five years for capacity support that will enable SIDS to:

(a) draw down climate and wider concessional funding from other sources;

(b) deliver programmes; and

(c) improve international funding and policy frameworks. SIDAR is an enabling programme to increase SIDS access to existing financial allocations and to support them to manage and deliver programmes.

The programme will work through regional or other partner organisations and will use targeted interventions to address specific blockages within SIDS systems (such as low capacity in a Finance Ministry). The programme will support SIDS to secure funds, implement commitments and deliver for local communities. In tandem, it will also work to provide more accessible routes for funding from major providers, including securing better technical support to their SIDS clients.

5.5.4 Commonwealth Climate Change Finance Access Hub

Access to climate finance from the international community has been a huge challenge due to the inherent lack of human resources, inadequate capacity to formulate project ideas for bankable projects, complex templates and criteria from different multilateral funding agencies namely the GCF, Global Environment Facility and lengthy procedures. The decision taken at the Commonwealth Head of Government meeting in 2015 on the climate change finance access hub programme to support adaptation and mitigation efforts in vulnerable states is therefore highly commendable. The new General Manager of the Hub has already expressed his full support and commitment towards improving access to climate finance.

5.5.5 Key Enablers

In line with Article 13 of the Paris Agreement, assistance has been sought for the Capacity Building in Transparency (CBIT) from the Global Environment Facility through the United Nations Development Programme to the tune of some USD 1.26 million. The project will assist Mauritius on improving the quality of the national greenhouse gas inventory, the data collection, storage and dissemination processes associated, thereby improving reporting, transparency and providing a firmer basis for evidence-based-policy-making.

Mauritius is also engaged in supporting the transition to a “circular economy” paradigm. The objective is to prompt industries with operational models, presently focused on the current take, make, dispose linear economic model to move towards more efficient models based on

circularity. Circular thinking has the potential to decouple economic activity from the consumption of materials and energy by creating closed-loop cycles in which waste is minimised or even eliminated and, for resources, including carbon to be reused. Resources can thus be used more efficiently, renewable inputs enhanced and a product's lifetime maximized.

5.6 Recommendations

As the leading ministry on climate finance, the Ministry of Finance will through appropriate mechanisms, create the necessary enabling environment for budget provisions including National Environment and Climate Change Fund to be made at the level of each Ministry. Ministries should dedicate adequate budgetary provisions to address climate change issues National Environment and Climate Change Fund.

The following actions are recommended for the Republic of Mauritius to accelerate access to climate finance to fund the NDC Action Plan:

(i). Better align national climate related policies and plans with national development plans and budgets prepared by national authorities;

(ii). Establish strategic partnerships for both the implementation of project activities and resource mobilization to better attract opportunities;

(iii). Strengthen regional climate and resilient investment plans based on credible data and projections on financial needs;

(iv). Enhance cooperation between the international community and national public and private sectors to harmonize cost-benefit analysis methods and promote investments in the country;

(v). Improve national coordination, including defining clear roles and responsibilities at the institutional level;

(vi). Enhance quality of data about climate finance needs to aim for transparent, reliable, comprehensive and up-to-date information increase knowledge and capacity on write up of bankable projects to access to finance and existing initiatives and opportunities including through the Commonwealth Climate Finance Access Hub; and

(vii). Enhance Capacity building on innovative funding mechanisms: green bonds, blue bonds, impact investment, guarantees, risk financing, blue finance and green financing facilities.

In addition to direct finance, the Republic of Mauritius will need to conduct a new Technology Needs Assessment (TNA) (previous TNAs are dated 2004 and 2012) to set out the specific needs of the identified sectors. The need for innovation is crucial to ensure more efficient and cleaner technologies. The availability and transfer of technology that is environmentally sound and which support low carbon and climate resilient development are paramount. The TNA development will include full participation by all stakeholders and be gender-responsive.

Since the NDC Action Plan is a living document and will be subject to regular review in line with the Paris Agreement, funding requirements for 2025-2027 and 2028-2030 actions in the plan will be updated to reflect progress towards meeting the NDC goals.

Annex I: Background information of MRV

Since the adoption of the Copenhagen Accord by COP15 in 2009, the concept of measuring, reporting and verification (MRV) is fully integrated in the international climate regime under the UNFCCC. The introduction of the concept of MRV in the climate regime is the symbol of the switch between the top-down approach embedded in the Kyoto Protocol and the bottom-up approach introduced by the Copenhagen Accord.

More specifically, the concept of MRV was introduced in the UNFCCC by COP13 in 2007, when for the first time it was established that national reports submitted by developing country Parties should undergo an international review process. In accordance with UNFCCC guidance, MRV is defined as it follows:

- Measurement (M) for non-Annex I Parties applies both to efforts to address climate change and to the impacts of these efforts. It occurs at the national level and refers to GHG emissions, mitigation actions and their effects, and the support needed and received
- Reporting (R) for non-Annex I Parties is implemented through the national communications and BURs, where Parties report on their actions to address climate change in their national communications
- Verification (V) is addressed at the international level, through the ICA of BURs; It can also occur at the national level, but is voluntary

Reference to MRV for developing country Parties can be found in the Copenhagen Accord, paragraph 5, 'Mitigation actions taken by Non-Annex I Parties will be subject to their domestic measurement, reporting and verification the result of which will be reported through their national communications every two years. These supported nationally appropriate mitigation actions will be subject to international measurement, reporting and verification'.

Since the adoption of the Paris Agreement in 2015, the international community is committed to hold the increase in the global average temperature to well below 2^{o} C and pursuing efforts to limit the temperature increase to 1.5^{o}C above pre-industrial levels.

Combating climate change includes, among other things, reducing greenhouse gas emissions by regulating the activity of all economic sectors responsible for production of those gases. The Paris Agreement and its rulebook recall the good practice methodologies accepted by the Intergovernmental Panel on Climate Change (IPCC) for greenhouse gas inventories.

Among the main pillars of the Paris Agreement, the establishment of an enhanced transparency framework aims at improving the amount and quality of information on mitigation actions and on the provision and receipt of support by the Parties.

Annex II: Status monitoring indicators contributing to the NDC tracking progress

Code	**Outcomes** Interventions	**High level indicators**	Existing monitoring indicators	Situation in 2015	Latest information[28]
NDC MITIGATION CONTRIBUTION					
Energy					
E	**Reduce GHG emissions in the energy sector**	**40% of reduction** of GHG emissions by 2030			
E.1	Improve energy efficiency	10% compared to 2019			
E.2	Increase the production of energy from renewable sources	60% by 2030	Installed power/production of electricity		
E.3	Coal phasing out				
Transport					
LT	**Reduction GHG emissions in land transport by 2030**	**10%** compared to BAU			
LT.1	Improved fuel economy of vehicles				
LT.2	Improved traffic fluidity				
LT.3	Increase lower carbon vehicle				
LT.4	Electrification of mass passenger transport				
IPPU					
IP	Reduction of **HFCs emissions** by 2029	**10%** compared to BAU			
IP.1	Phase down HFCs				
IP.2	Phase out equipment with HFCs				
IP.3	Environmentally sound disposal of HFCs refrigerants				
Waste					
WM	**Avoiding emissions from landfill waste and low carbon technologies in wastewater management**				
SWM.1	Composting				
SWM.1	Recycling				
SWM.1	Energy recovery				
WWM.1	Wastewater management				
Agriculture					
A	**Reducing emissions from smart agriculture and**				

[28] Most recent data.

	improved livestock management				
A1	Smart agriculture				
L.1	Manure management				
L.2	Livestock				
Forestry					
F	**Increase sink capacity of Mauritius**				
F.1	Tree planting				
F.2	Afforestation/reforestation of abandoned agricultural land				
F	Forest restoration				
F	Plantation of mangroves				
F	Forest protection				

Annex III: Transposing the NDC objectives into a logic framework

	Outcomes	Results indicators		Interventions	Result indicators
NDC CONTRIBUTION ON MITIGATION					
Energy					
E	Reduce GHG emissions in the energy sector		E.1	Improve energy efficiency	Increase energy efficiency of 10% compared to 2019 levels
			E.2	Increase the production of energy from renewable sources	Increase contribution renewable energy sources of 60%
			E.3	Coal phasing out	
Transport					
LT	Reduction GHG emissions in land transport		LT.1	Vehicle fuel intensity improvements	
			LT.2	Improved vehicle inspection	
			LT.3	Increase lower carbon vehicle	
			LT.4	Electrification of mass passenger transport	
IPPU					
IP	Reduction of HFCs emissions by 2030		IP.1	Phase down HFCs	
			IP.2	Phase out equipment with HFCs	
			IP.3	Environmentally sound disposal of HFCs refrigerants	
Waste					
WM	**Avoiding emissions from landfill waste and low carbon technologies in wastewater management**		SW M.1	Composting	
			SW M.2	Recycling	
			SW M.3	Energy recovery	
			WW M.1	Wastewater management	
Agriculture					
A	**Reducing emissions from smart agriculture and improved livestock management**		A.1	Smart agriculture	
			L.1	Livestock	
			L.2	Manure management	
Forestry and Fisheries					
F	**Increase sink capacity of Mauritius**		F.1	Tree planting	
			F.2	Afforestation/reforestation of abandoned agricultural land	
			F	Forest restoration	
			F	Forest protection	

			F	Mangroves Plantation	
NDC CONTRIBUTION ON ADAPTATION					
Infrastructure and Disaster Risk Reduction					
O1	Enhance knowledge base related to climate change risks to coastal ecosystems and communities				
O2	Mainstream climate change in the sectoral policies/strategies/plans				
O3	Enhance disaster preparedness and response mechanisms and implementing risk reduction measures				
O4	Improve the governance to build resilience in an uncertain future				
O5	Reduce vulnerability to natural disaster risks and increase resilience of human-led activities whilst preserving ecosystem functions				
Water					
O1	Water Resources Management		A1.1	Improved forecasting, management protection and quality of water resources, including upgrading and building of new treatment plants and reservoirs and reducing water losses in the distribution system	
O2	Rainwater Harvesting		A1.1	Procurement and installation of rainwater harvesting systems	
			A1.2	improvement in policy, legal and regulatory water framework in mainland Mauritius, Rodrigues and other outer islands	
O3	Desalination		A1.1	Desalination plants	
O4	Rodrigues		A1.1	Strengthening the development of rainwater harvesting with each household having 10 or 15m^3 installations	
			A1.2	Small desalination plants	
Agriculture					
O1	Integrated Pest and Disease Management		A1.1	Development of an integrated strategy and policy to foster adoption of integrated Pest and Disease Management (IPDM) practices including the review	

				of policy and regulatory framework to facilitate the upscaling of IPDM technology and regulate the use and disposal of pesticides	
O2	Enhance knowledge		A1.1	Enhance the knowledge base regarding the risks of climate change for the agricultural sector and the impacts on communities	
O3	Mainstream climate change		A1.1	Mainstream climate change adaptation in the different sectoral policies, strategies and plans, for example in the Strategic Plan (2016 - 2020) for the Food Crop, Livestock and Forestry Sectors, through the advancement of technical studies	
O4	Efficient Irrigation Techniques		A1.1	Development Investment in water infrastructure to support irrigation projects	
			A1.2	Development of a policy framework to enhance access to, and productive use of water in the agricultural sector	
O5	Develop and promote climate smart agriculture practices				
Tourism and Coastal Zone Management					
O1	Develop and implement an integrated approach aligned with coastal zone and biodiversity/forestry sectors		A1.1	Implement the component on Integrated Coastal Zone Management (ICZM) part of the Draft Master Plan on Environment	
			A1.2	Adopt Ecosystem-based approach	
O2	Enhance the knowledge regarding the risks of climate change for coastal ecosystems and communities		A1.1	Develop storm surge models to assess vulnerability in terms coastal inundation and prepare hazard maps[29]	
O3	Protection of beaches, dunes, and vegetation		A1.1	Awareness raising	
			A1.2	Enhanced rehabilitation	
			A1.3	Strengthening regulatory framework	
Fisheries and blue economy					
O1	Enhance sustainable fishing management (climate-smart)		A1.1	Development and implementation of sustainable fishing management plans	

[29] A storm surge model is operational at the MMS. Any study regarding storm surge model require collaboration with MMS.

			A1.2	Strengthening of institutional capacity	
			A1.3	Adaptation of infrastructure (quay) to climate change (sea level rise)	
O2	Enhance the knowledge base regarding the risks of climate change for the fisheries sector and the impacts on communities				
O3	Establish an integrated framework for the management of fisheries founded on the Blue Economy concept, which includes coastal zone management and marine biodiversity conservation				
O4	Rodrigues		A1.1	Resilient artisanal fishery with policy on marine co-management of resources and measures for off-lagoon fishing	
Biodiversity (marine and terrestrial)					
O1	Improve management of marine and terrestrial protected areas				
O1	Expansion of protected area network including rehabilitation of wetlands, seagrass, mangrove plantation, increase in tree coverage areas and coral reef rehabilitation/farming				
O3	Rodrigues		A1.1	Development of sustainable landscape management	
			A1.2	Ecosystem-based adaptation/nature-based solutions	
Health					
O1	Mainstreaming of climate change adaptation in the health sector to respond to population increase and its additional climate-related health burden				
O2	Development and implementation of a communication, education and awareness strategy with				

	respect to climate change risks and impacts on human health				
O3	Improve surveillance of diseases associated with climate change and develop and implement a decentralized alert and rapid response mechanism				
O4	Integrated Pest and Disease Management		A1.1	Develop an integrated strategy and policy to foster adoption of Integrated Pest and Disease Management (IPDM) practices including the review of policy and regulatory framework to facilitate the upscaling of IPDM technology and regulate the use and disposal of pesticides	

Annex IV: Screening of interventions implemented or planned in the sector

Name intervention / project/ programme	Period of Implementation	Localisation (Region)	Funding	Cost	Date expected impacts	Expected objectives / Main results (if project is concluded) – Mitigation contribution	Methodology/Emission reduction potential estimation (Mt*CO2eq)*	Alignment with NDC
Period 2021 - 2030								
								M1.1 / M1.2

Annex V: Screening potential interventions (pending funding availability) in the sector

Name of intervention / Project / Programme	Status	Localisation	Estimated cost	Expected Objectives	Alignment with NDC

Annex VI: Recommendations for climate finance tracking under the MPGs

Recommendation	Implemented	Status
Convert domestic currency into United States dollars	YES	For all climate change related projects funded internationally, Mauritius uses USD as currency which leads to greater transparency with regards to Mauritius' financial needs and engagements.
Estimate the amount of support needed	YES	Mauritius does estimate the amount of support needed to fulfil the objectives set in the NDC. However, the information should be updated on annual basis, while as of now, it was only updated in the NCs (1999, 2010 and 2016) Additional resources would need to be mobilized to ensure annual updating of the information.
Determine the reporting year or time frame	YES	To increase transparency and provide more accurate overview of its path, Mauritius should aim for yearly reporting, the current time frame being insufficient (three NCs in 21 years)
Identify support as coming from specific sources	NO	There is no reporting platform where such information would be indicated.
Determine support as committed, received or needed	NO	There is no reporting platform where such information would be indicated.
Identify and report the status of the supported activity (planned, ongoing or completed)	NO	There is no reporting platform where such information would be indicated.
Identify and report the channel (bilateral, regional or multilateral)	NO	There is no reporting platform where such information would be indicated. However, the national annual budget provides considerable information on both climate revenue and expenditure.
Identify and report the type of support (mitigation, adaptation or cross-cutting)	NO	There is no reporting platform where such information would be indicated.
Identify and report the financial instrument (grant, concessional loan, non-concessional loan, equity, guarantee or other)	NO	There is no reporting platform where such information would be indicated.
Identify and report sectors and subsectors	NO	
Report on the use, impact and estimated results of the support needed and received	NO	There is no reporting platform where such information would be indicated.
Identify and report support as contributing to technology development and transfer and capacity-building	NO	
Avoid double counting in reporting information on support needed and received for the implementation of Article 13 of the Paris Agreement and transparency related activities, including for transparency-related capacity-building, when reporting such information separately from other information on support needed and received	NO	

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