



REPUBLIC OF MAURITIUS

UPDATE OF THE NATIONALLY DETERMINED CONTRIBUTION OF THE REPUBLIC OF MAURITIUS

*Port Louis
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Glossary

AFD	<i>Agence Française de Développement</i>
AFOLU	Agriculture, Forestry and Other Land Use
AR	Assessment Report
BAU	Business As Usual
BUR	Biennial Update Report
CBIT	Capacity Building Initiative for Transparency
CDM	Clean Development Mechanism
CH ₄	Methane
CMA	Conference of the Parties serving as the meeting of the Parties to the Paris Agreement
CO ₂	Carbon Dioxide
CO ₂ eq	Carbon Dioxide Equivalent
COP	Conference of the Parties
COVID-19	Coronavirus disease 2019
DCC	Department of Climate Change
ETF	Enhanced Transparency Framework
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GWP	Global Warming Potential
HFC	Hydrofluorocarbon
IA	Institutional Arrangement
ICTU	Information necessary to facilitate Clarity, Transparency and Understanding
INDC	Intended Nationally Determined Contribution
IPCC	Intergovernmental Panel on Climate Change
IPPU	Industrial Processes and Product Use
LULUCF	Land Use, Land-Use Change and Forestry
MEAs	Multilateral Environmental Agreements
MoESWMCC	Ministry of Environment, Solid Waste Management and Climate Change
MRV	Measurement, Reporting and Verification
NAMA	Nationally Appropriate Mitigation Actions
NAP	National Adaptation Plan
NCCAPF	National Climate Change Adaptation Policy Framework
NDC	Nationally Determined Contribution
NGO	Non-governmental Organizations
RoM	Republic of Mauritius
SDG	Sustainable Development Goals
SIDS	Small Island Developing States
TNC	Third National Communication
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollar

Executive Summary

- 1) Mauritius' net greenhouse gas (GHG) emissions in 2016 were 4,881 kilo tons carbon dioxide equivalent (ktCO₂eq), including removals from Land Use, Land-Use Change and Forestry (LULUCF), representing less than 0.01 percent of global GHG emissions. However, the Republic of Mauritius is highly vulnerable to the adverse impacts of climate change.
- 2) Mauritius submitted its Intended Nationally Determined Contributions (INDC) to the United Nations Framework Convention on Climate Change (UNFCCC) Secretariat on 28 September 2015 ahead of the 21st Conference of the Parties (COP-21) to the UNFCCC. The INDC was complemented by the NDC Action Plan prepared in February 2016.
- 3) Mauritius' commitments to combat climate change are ambitious given its national circumstances. This ambition is reflected in the mitigation and adaptation strategies and measures in which the Government of Mauritius has committed since the ratification of the Paris Agreement, and will continue to be engaged in.
- 4) **The Climate Change Act was gazetted on 28 November 2020 and it entered into force on 22 April 2021.** Under the Act, the Department of Climate Change 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.
- 5) In light of the principle of common but differentiated responsibilities and respective capabilities and in view of different national circumstances, and the principles of flexibility as inscribed in the Paris Agreement and decision 18/CMA.1, Mauritius reporting and transparency will improve over time. In this context, Mauritius NDC may be subject to future improvements, corrections, recalculations and/or modifications. Following the submission of this NDC, Mauritius will develop an Action Plan including details about policies and measures on mitigation and adaptation.

MITIGATION

- 6) Based on current projections, **Mauritius aims to reduce overall GHG emissions by 40% in 2030 compared to the Business as Usual (BAU) scenario of around 6,900 ktCO₂eq (including LULUCF) in 2030.** Compared to the 2015 INDC target of 30% GHG emissions reduction by 2030, the mitigation ambition of Mauritius in this updated NDC is significantly enhanced.
- 7) This economy-wide emissions reduction target comprises sector specific mitigation targets for energy, transport, waste and Industrial Processes and Product Use (IPPU). The energy sector represents the largest share of GHG emissions reduction by 2,311 ktCO₂eq.
- 8) Mauritius confirms its commitment to implement policies and measures on LULUCF and Agriculture sectors in line with its national policy and strategy documents on climate change and sustainable development.
- 9) Several key decisions have already been taken by the Government of Mauritius to implement this NDC within the 2030 timeframe for the energy sector, including, as a matter of example the following:

- the production of 60 percent of energy needs from green sources by 2030;
- the total phasing out of use of coal before 2030 and the development of the biomass framework;
- an increase in energy efficiency by 10 %, based on the 2019 figures.

ADAPTATION

10) Mauritius actions on adaptation are centred around the 2021 Updated National Climate Change Adaptation Policy Framework that focuses on the potential of nature-based solutions for adaptation and provides a new policy orientation in key adaptation sectors to build resilience as it follows:

- The enhancement of 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; and
- 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.

11) Building on current adaptation actions and policies, a more detailed list of actions is provided in the part on Adaptation Communication.

MEANS OF IMPLEMENTATION

12) The implementation of mitigation and adaptation actions as identified in this NDC is unconditional as well as conditional on external financial support received.

13) 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 this NDC are estimated respectively at **USD 2 billion** and **USD 4.5 billion**.

14) The share for the unconditional¹ and conditional contributions for the USD 6.5 billion is as follows:

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

¹ 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.

Information to facilitate clarity, transparency and understanding (ICTU) of the updated NDC of the Republic of Mauritius for the timeframe 2021-2030 - (Decision 4/CMA.1)

1. Quantifiable information on the reference point (including, as appropriate, a base year)

<p>(a) Reference year(s), base year(s), reference period(s) or other starting point(s)</p>	<p>Business as Usual (BAU) scenario of projected GHG emissions to 2030, with 2016 as most recent comprehensive GHG inventory.</p>
<p>(b) Quantifiable information on the reference indicators, their values in the reference year(s), base year(s), reference period(s) or other starting point(s), and, as applicable, in the target year;</p>	<p>Based on the national GHG emissions inventory 2000-2016 to be included in the first Biennial Update Report (BUR under finalisation) to the UNFCCC, Business As Usual (BAU) greenhouse gas emissions are estimated at around 6,900 ktCO₂eq in 2030 including LULUCF. This value is the result of recalculations from the INDC baseline scenario (7,000 ktCO₂eq). BAU GHG emissions levels per sector in 2030 are provided here below:</p> <ul style="list-style-type: none"> - Energy excluding Transport: 4,316 ktCO₂eq - Transport: 1,514 ktCO₂eq - Waste: 635 ktCO₂eq - IPPU: 534 ktCO₂eq - Agriculture: 188 ktCO₂eq - LULUCF: -293 ktCO₂eq <p>The baseline scenario is also providing data for the years 2040 and 2050, with respectively the following estimates: 8,384 ktCO₂eq and 9,976 ktCO₂eq.</p>
<p>(c) For strategies, plans and actions referred to in Article 4, paragraph 6, of the Paris Agreement, or policies and measures as components of nationally determined contribution where paragraph 1(b) above is not applicable, Parties to provide other relevant information</p>	<p>Relevant strategies, plans, and actions include:</p> <ul style="list-style-type: none"> - INDC 2015 - NDC Action Plan 2016 - Mauritius Resilience Strategy 2019 - Updated National Climate Change Adaptation Policy Framework 2021 - Climate Change Act 2020, in force as from April 2021 - Renewable Energy Roadmap 2030 for the Electricity Sector (currently being revised) - 10 Year Electric Vehicle Integration Roadmap for Mauritius 2020 - Budget Speech 2021-2022 announcing coal phase out before 2030 among other mitigation and adaptation measures by the Minister of Finance, Economic Planning and Development - Nationally Appropriate Mitigation Actions (NAMA) on the Development of a National Mitigation Strategy and Action Plan (under finalisation) - National Adaptation Plan (NAP) for health and other sectors namely infrastructure, bridges and culverts, DRR-flood prone areas and coastal zones (under preparation through Green Climate Fund assistance) - National Disaster Risk Reduction and Management Policy, Strategic Framework and Action Plan 2020-2030 - Mauritius Vision 2030 - Strategic Plan for the Food Crop, Livestock and Forestry sectors 2016-2020 (under revision)

<p>(d) Target relative to the reference indicator, expressed numerically, for example in percentage or amount of reduction;</p>	<p>The quantified mitigation target is equivalent to 40% reduction of GHG emissions by 2030 compared to the BAU scenario.</p> <p>The contribution by each sector to the 40% mitigation target in terms of avoided emissions (ktCO₂eq) is as it follows:</p> <ul style="list-style-type: none"> - Energy excluding transport: 2311 (Renewable Energy Roadmap for the Electricity Sector 2019, Government Programme 2020 -2024, Government Budget 2021 - 2022, Mauritius Renewable Energy Compact 2021) - Transport: 129 (combination of on-going government policies and Research Paper²) - Waste: 313 (Waste Management Sector Review and GHG Emission Reduction Potential, 2021) - IPPU: 55 (Mauritius' commitment under the Kigali Amendment to the Montreal Protocol) <p>Amongst others, the following key decisions have been taken by Government of Mauritius to mitigate GHG emissions across the above sectors:</p> <ul style="list-style-type: none"> ▪ Energy: The production of 60% of energy needs from green sources by 2030, the total phasing out of the use of coal before 2030, increasing energy efficiency by 10 % based on the 2019 figures. ▪ Transport: Extension of the light rail network 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 and increase of subsidy for the purchase of electric vehicles, Electric Vehicle Integration Road map 2020. ▪ Waste: The diversion of 70% of waste from the landfill by 2030 including through composting plants, sorting units, biogas plants and waste-to-energy plants. Employing anaerobic digestion (AD). ▪ IPPU: Banning of non-inverter air-conditioner in 2024 in a phased manner as from 2022. Based on the average imports of HFCs in 2020, 2021 and 2022, the adoption of a freeze to imports of refrigerants in 2024. 10 % emissions reduction of HFCs by 2030 compared to BAU. ▪ Agriculture: Setting up of biogas pilot units. Adopting Smart Agricultural Practices, including natural farming systems and agro-forestry, promotion of efficient irrigation techniques. (Strategic Plan for the Food Crop, Livestock and Forestry Sectors, 2016- 2020 is under review). ▪ LULUCF: Massive planting of trees.in Mauritius and Rodrigues. Restoration and plantation of native forests, (National Biodiversity Strategies and Action Plans 2017-2025). Plantation of mangroves. <p>Compared to the 2015 INDC target of 30% GHG emissions reduction, the mitigation ambition is significantly enhanced.</p>
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² Prakash N.K. Deenapanray, Nassir A. Khadun. Land Transport greenhouse gas mitigation scenarios for Mauritius based on modelling transport demand. Transportation Research Interdisciplinary Perspectives 9 (2021) 100299

(e) Information on sources of data used in quantifying the reference point	Data source for the quantified information is the National GHG Inventory, covering the period 2000-2016. The methodology is based on the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. GHG emissions and removals were computed by applying the IPCC inventory software. A combination of Tier 1 and Tier 2 approaches was used.
(f) Information on the circumstances under which the Party may update the values of the reference indicators:	Values of the reference indicators (base year, reference period, and reference level) may be subject to recalculations and technical corrections, as prescribed in decision 18/CMA.1. Information on updates will be provided in future reporting documents to the UNFCCC and the Paris Agreement.
Impacts of the COVID-19 pandemic on the GDP and energy consumption/CO ₂ emissions	<p>The COVID-19 pandemic is causing disruption of unprecedented dimension in economic activities in Mauritius like in many other countries in the world. The impact of COVID-19 is being felt in a number of sectors and the hardest hit are tourism and exports industries. The Government of Mauritius has already implemented a number of policies by increasing resources for the vulnerable groups and supporting businesses' access to finance. It is expected that the economy will contract by 5.4% in fiscal year 2020-2021 but will return to the positive territory with an expected growth rate of 4.5% in 2021-2022 and 5% in 2022-2023.</p> <p>For the fiscal years 2020/21 - 2022/23, 6% of the total public investments will be dedicated to environmental protection.</p>

2. Time frames and/or periods for implementation	
(a) Time frame and period of implementation:	01 January 2021 – 31 December 2030
(b) Whether it is a single-year or multi-year target, as applicable:	Single-year target, 2030
3. Scope and Coverage	
(a) General description of the target:	Absolute economy-wide emissions reduction target compared with a BAU scenario by 2030.
(b) Sectors, gases, categories and pools covered by the nationally determined contribution, including, as applicable, consistent with Intergovernmental Panel on Climate Change (IPCC) guidelines;	<p>Sectors covered:</p> <ul style="list-style-type: none"> - Energy excluding Transport - Transport - Waste - Industrial Processes and Product Use (IPPU) - Agriculture - Land Use, Land Use Change and Forestry (LULUCF) <p>All categories and pools in Mauritius' GHG inventory are consistent with the 2019 Refinement to the 2006 IPCC Guidelines.</p> <p>Gases covered:</p> <ul style="list-style-type: none"> - Carbon dioxide (CO₂) - Methane (CH₄) - Nitrous oxide (N₂O) - Hydrofluorocarbons (HFCs)
(c) How the Party has taken into consideration paragraphs 31 (c) and (d) of decision 1/CP.21;	All categories of anthropogenic emissions or removals are included in Mauritius' NDC.
(d) Mitigation co-benefits resulting from Parties' adaptation actions and/or economic diversification plans, including description of specific projects, measures and initiatives of Parties' adaptation actions and/or economic diversification plans.	<p>Agriculture and livestock: i) reduction of the use of fossil energy-based inputs (less gasoil, pesticides, fertilizers) by a shift to agroecological and resilient practices, ii) improvement of the efficiency in the use of inputs (water, chemicals), iii) enhancement of the potential of carbon sequestration and improvement of soil fertility, and iv) reduction of the post-harvest losses. Regarding livestock, applying agroecology principles will produce lower GHG emission (through sylvo-pastoral production systems and extensive systems on abandoned lands from the sugar industry, improving feed conversion efficiency and better manure management).</p> <p>Fishery / Blue economy: i) increased information on GHG emissions from the fishery sector and aquatic food production leading to mitigation actions (regarding fuel and energy use, market forces and the management of fishing capacity, feed and fertilizers for aquaculture , ii) development of climate smart fishery and aquaculture based on sustainable and integrated management plans to contribute to the mitigation of GHG emissions during the fishing and production stages and throughout the entire value chain (processing, transport and marketing activities), and iii) research regarding the potential of aquaculture for carbon sequestration and renewable aquatic energy (algal biofuels, hydropower and other aquatic-based energy systems that exploit the energy potential of tides, currents, waves and wind).</p> <p>Biodiversity: i) assessment and monitoring of blue carbon in coastal and marine ecosystems (mangroves, tidal marshes and seagrasses), ii) a</p>

	<p>comprehensive ecosystem-management, iii) joint efforts (with local communities, NGOs) to restore ecosystems and, thus, the carbon storage capacity (mangrove, forest, coral reef rehabilitation), iv) tree planting programme within the context of the Greening Mauritius Programme such as greening of motorway and major roads in towns and villages, undertaken to increase carbon sink, and (v) creation of new endemic forests.</p> <p>Water: i) increased energy efficiency through the sustainable use of water resources, in particular by improving energy efficiency in the treatment of water resources, and the use of water in energy production.</p> <p>Buildings and infrastructures: i) integrating energy efficiency and energy conservation criteria into building codes targeting a lower consumption of energy (better ventilation for less/no RAC and thermal comfort), the design of green buildings (training of the architect and stakeholders), ii) integrating soft engineering and green material (including Life Cycle Assessments of the materials and buildings, the reuse and recycling of materials, principles, requirements and guidance regarding the design for disassembly and adaptability given by ISO 20887:2020, the development of Building Information Modelling, Building Log books and material passports), and iii) global land use planning and management (in line with Mauritius Resilience Strategy for a Ridge to Reef vision to protect environmental sensitive areas) with the implementation of setback, buffer zones, and a better management of Disaster Risks. The progress made in terms of information and communication technologies is also taken into account, given the fact that Mauritius is moving towards a more digital economy.</p> <p>Tourism: i) promotion of a “green tourism industry” meaning more energy efficiency, renewable energy, water efficiency, waste management, wastewater treatment, local – short value-chains for both the touristic / leisure infrastructures and the activities.</p>
<p>4. Planning Processes</p>	
<p>(a) Information on the planning processes that the Party undertook to prepare its NDC and implementation plans, including:</p>	
<p>(i) Domestic institutional arrangements, public participation and engagement with local communities and indigenous peoples, in a gender-responsive manner;</p>	<p>The NDC was elaborated under the coordination of the Department of Climate Change in the Ministry of Environment, Solid Waste Management and Climate Change taking into account the country’s national circumstances, challenges and opportunities for mitigation and adaptation. Information obtained in collaboration and consultation with a wide range of stakeholders, academic experts and technical consultants, served as additional inputs on the potential of future technologies for long-term mitigation in Mauritius. Based on the policy documents available, stakeholder consultations have also been carried out, including with members of the public, in order to obtain feedback on possible measures to reduce greenhouse gas emissions.</p> <p>The elaboration of the NDC included consultations with local communities (notably Rodrigues). The collaboration and consultation of representatives from the ministry responsible for gender equality were also essential for considering gender-responsive measures. A particular attention was also given to vulnerable groups, especially in the Outer Islands. Specific mitigation and adaptation actions are dedicated to Rodrigues in order to adopt coherent and locally adapted actions.</p>

<p>(ii) Contextual matters, including, inter alia, as appropriate: National circumstances, such as geography, climate, economy, sustainable development and poverty eradication;</p>	<p>a. National circumstances, such as geography, climate, economy, sustainable development and poverty eradication;</p>	<p>The Republic of Mauritius consists of the islands of Mauritius, Rodrigues, Agalega, Tromelin, Cargados Carajos, and the Chagos Archipelago, including Diego Garcia and any other islands comprised in the State of Mauritius. The Republic of Mauritius has an Exclusive Economic Zone (EEZ) of approximately 2.3 million km². It also shares joint jurisdiction with the Republic of Seychelles over an extended continental shelf area of about 400,000 km² in the Mascarene Plateau region. The island of Mauritius has an area of 1,868.4 km² and is made up of a central plateau gradually rising towards the southwest. Mauritius' landscape includes ranges of mountains with peaks, isolated mountains, hills, river valleys, waterfalls, plateaus and plains form the relief of Mauritius. The country's natural resources include arable land and access to fishing areas.</p> <p>Mauritius is home to 690 native species of plants of which 281 have been identified as being endemic. Plants are critically endangered (45%), 73 are endangered (26%), 35 are vulnerable (12,5%), 235 are threatened (84%), 3 are near threatened, 4 are least concerned, 7 are extinct, 10 are possibly extinct. In addition, between 2006 and 2016, 59% of plants have seen their status get worse, while only 15% have improved their status.</p> <p>The climate in Mauritius can be described as tropical, modified by southeast trade winds. Mauritius is characteristic by warm, dry winters (May to November) and hot, wet, humid summer (November to May). The country is highly vulnerable to climate change effects such as intense cyclones, abnormal tidal surges, prolonged droughts, flash floods, increase of sea surface temperature, and sea level rise.</p> <p>The country's economy is based on agriculture, exports (seafood, textiles and apparel, and sugar), financial services, and tourism.</p> <p><u>Sustainable development</u></p> <p>Mauritius is fully committed to the implementation of Agenda 2030 and the Sustainable Development Goals (SDG). The country was actively involved in the negotiations leading to the adoption of the post-2015 framework. Following the adoption of the 2030 Agenda, Mauritius has turned its attention towards its implementation. Mauritius is currently developing its policy framework for pursuing the SDGs known as Vision 2030. Within the 2030 Agenda, Mauritius has submitted its first Voluntary National Review (VNR) Report to the High Level Political Forum of United Nations Economic and Social Council in 2019. The VNR takes stock of the unique journey Mauritius has travelled in nation building and development process aimed at transforming and modernising the country.</p> <p>Concerning the vulnerable groups (20% of the population) living in environmentally fragile areas in</p>
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		<p>low coastal zones, actions like construction of refuge centre at Quatre Sœurs and sea wall against storm surge at Rivière des Galets, desilting and cleaning of rivers are being carried out in adjoining residential areas prone to flooding to reduce flood impacts by the government. The National Disaster Scheme 2015 is being implemented at all levels.</p> <p>Poverty eradication</p> <p>Approximately 10 % of the population in Mauritius live in relative poverty. According to the Poverty Analysis Report of Mauritius in 2017, poverty is more prevalent among specific groups such as people with low education, the elderly, single parent households, families with three or more children and women. Several actions have been taken by the national government to eradicate poverty: the Marshall Plan Against Poverty, the Social Integration (2016) and Empowerment Act of 2016, public-private partnership initiatives.</p> <p>In this context, special efforts are being made by the National Women’s Entrepreneur Council through several entrepreneurial projects to empower women to address gender-related poverty (70,942 out 131,300 Mauritians who were poverty-stricken, were women according to 2017 statistics).</p>
	<p>b. Best practices and experience related to the preparation of the nationally determined contribution;</p>	<p>A comprehensive participatory process was followed to allow stakeholders participation in the preparation of this NDC.</p> <p>The Department of Climate Change (DCC) took a holistic perspective, facilitating opportunities for optimising Mauritius’ climate efforts, including consideration of possible trade-offs or synergies across the various climate sensitive sectors.</p> <p>The final version of this NDC was approved by the Inter-Ministerial Council on Climate Change, provided under the Climate Change Act, which was held on 28 September 2021.</p> <p>An awareness raising strategy and communication plan has been prepared to sensitize various stakeholders (women association, youth leaders, senior citizens, fishers, planters, academia, professionals, students, private sector, civil society and NGOs) on the NDC. The final version of this NDC will be communicated through videos, a dedicated website and translated in local language (Creole).</p>
	<p>c. Other contextual aspirations and priorities acknowledged when joining the Paris Agreement;</p>	<p>Mauritius will continue to engage with stakeholders (including businesses, civil society, youths, students, women, senior citizen and the research community) to co-create and co-deliver solutions, amplify awareness, and encourage a whole-of-nation effort to address climate change.</p> <p>Mauritius believes that setting out the climate policy aspirations and strategies well in advance will help provide a clear sense of direction, minimise any</p>

		<p>negative disruptions to the economy and workforce and keep Mauritius competitive in a carbon-constrained world.</p> <p>In this regard, Climate Change is reflected, inter alia, in the following national policies and strategy documents</p> <ul style="list-style-type: none"> • Guideline for Climate Change Adaptation Strategy Coastal Setback (2016); • Grid Code for Medium Scale Distributed Generation (MSDG) (2016); • Net-Metering (Medium Scale Distributed Generation MSDG) (2016); • Green Energy SSDG Scheme for Cooperatives (2017); and • Vision 2030 <p>Various sectoral roadmaps include</p> <ul style="list-style-type: none"> • Renewable Energy Road map 2019 -2030 (being revised), • Electric Vehicle Integration Road map 2020-2030, <p>Masterplans include</p> <ul style="list-style-type: none"> • Draft Master Plan on Environment (2021-2030) (under finalisation) • Marine Spatial Planning • Wastewater Master Plan • the Master Plan for Energy Efficiency/Demand Side Management and Action Plan for the period 2016 to 2030; • Renewable Energy Strategic Plan 2018-2023), all published by the respective government agencies. • Land Drainage Master plan (under finalisation) <p>Further, besides the Climate Change Act, 2020, the existing regulatory framework to fight against climate change has been strengthened with the following climate change – related legislations:</p> <ul style="list-style-type: none"> • Mauritius Renewable Energy Agency Act of 2015, • the National Disaster Risk Reduction and Management Act of 2016 • Land Drainage Authority Act of 2017, • Local Government (Amendment) Act, 2018,and • Mauritius Meteorological Act, 2019. <p>In March 2021, the RoM prepared the National Disaster Risk Reduction and Management Policy, Strategic Framework and Action Plan reports, which are closely aligned with the Sendai Framework for Disaster Risk Reduction 2015-2030 and provide a pathway for achieving the internationally agreed priorities for action and targets in the Sendai Framework.</p> <p>Other initiatives and programmes to improve climate resilience are as follows:</p>
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		<ul style="list-style-type: none"> • The Adapt' Action Programme financed by AFD to the tune of EURO 2 million for the implementation of first Mauritius Nationally Determined Contribution (NDC). • Two NAPs are being formulated to enhance resilience to climate change: (a) one on Infrastructure, bridges and culverts, DRR-flood prone areas and coastal zones, for a total of USD 2.5 million from the Green Climate Fund (GCF) and (b) another on health for a total of USD 425,000 from the GCF. • Technical assistance on Institutional Gaps and Needs Assessment to operationalize the Department of Climate Change (Euro 100,000) • Operational study of the coastal risks in Mauritius and Rodrigues (coastal erosion and coastal inundation) (Euro 1 million) • Vulnerability Assessment and Analysis in the Agriculture sector (USD 105,000) under the SADC regional climate change programme • Development of long term strategies (2050) for the following sectors: energy, transport, agriculture and tourism (Euro 1.1 million) under AFD Facilité 2050
<p>(b) Specific information applicable to Parties, including regional economic integration organizations and their member States, that have reached an agreement to act jointly under Article 4, paragraph 2, of the Paris Agreement including the Parties that agreed to act jointly and the terms of the agreement, in accordance with Article 4, paragraphs 16–18, of the Paris Agreement;</p>		
<p>N/A</p>		
<p>(c) How the Party's preparation of its nationally determined contribution has been informed by the outcomes of the global stocktake, in accordance with Article 4, paragraph 9, of the Paris Agreement;</p>		
<p>The first global stocktake will take place in 2023. Mauritius participated in the Talanoa Dialogue in 2018, which generated political momentum for enhanced climate action, including calling for Parties to update their NDCs. The preparation of Mauritius' enhanced NDC was informed by the recommendations of the Talanoa Call for Action, taking into account the country's national circumstances.</p>		
<p>(d) Each Party with a nationally determined contribution under Article 4 of the Paris Agreement that consists of adaptation action and/or economic diversification plans resulting in mitigation co-benefits consistent with Article 4, paragraph 7, of the Paris Agreement to submit information on:</p>		
	<p>(i) How the economic and social consequences of response measures have been considered in developing the nationally determined contribution;</p>	<p>Mauritius promotes a supportive and open international economic system leading to sustainable economic growth, thus enabling it to better address the problems of climate change domestically. Measures taken by Mauritius to combat climate change, including unilateral ones, are especially designed to avoid constituting a means of arbitrary or discrimination or a restriction on international trade. Consideration was given in developing the NDC to what actions are necessary under the Paris Agreement, including actions related to funding, insurance and the transfer of technology, to meet the specific needs and concerns of Mauritius arising from the impact of the implementation of response measures.</p>

		In developing its NDC, Mauritius recognizes the impacts of the measures taken in response to climate change mitigation and adaptation, and takes into account a just transition of the workforce and the creation of quality jobs in accordance with nationally defined development priorities, with a focus on green recovery and growth.
	(ii) Specific projects, measures and activities to be implemented to contribute to mitigation co-benefits, including information on adaptation plans that also yield mitigation co-benefits.	<p>Several projects and activities will be implemented to contribute both to mitigation and adaptation actions as identified in this NDC. This is the case of, for example, the promotion of a circular economy, the adoption of a climate-smart agriculture, sustainable value chain tourism project and the development of green buildings and green urban planning.</p> <p>See information at 3 (d)</p>
5. Assumptions and methodological approaches, including those for estimating and accounting for anthropogenic greenhouse gas emissions and, as appropriate, removals:		
(a) Assumptions and methodological approaches used for accounting for anthropogenic greenhouse gas emissions and removals corresponding to the Party's nationally determined contribution, consistent with decision 1/CP.21, paragraph 31, and accounting guidance adopted by the CMA.		<p>For accounting its anthropogenic GHG emissions and removals in the national GHG inventory, Mauritius uses the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories and 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands (collectively, the "2006 IPCC Guidelines").</p> <p>Assumptions and methodological approaches underlying Mauritius' NDC are outlined in end notes and are consistent with decision 1/CP.21, paragraph 31, and decision 4/CMA.1.</p>
(b) Assumptions and methodological approaches used for accounting for the implementation of policies and measures or strategies in the nationally determined contribution		See 5(a) above. Mauritius will also apply specific assumptions and methodologies, where relevant, when accounting for progress of various policies and measures in its BUR.
(c) If applicable, information on how the Party will take into account existing methods and guidance under the Convention to account for anthropogenic emissions and removals, in accordance with Article 4, paragraph 14, of the Paris Agreement, as appropriate		See 5(a) above.
(d) IPCC methodologies and metrics used for estimating anthropogenic greenhouse gas emissions and removals		<p>Mauritius' emissions for carbon dioxide, methane, nitrous oxide and hydrochlorofluorocarbons, were derived using the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Tier 1 methodologies were used for most emission estimates.</p> <p>Higher tier methodology will be used, where relevant and depending on availability of data.</p> <p>Global Warming Potential data (GWP) from the IPCC Second Assessment Report (SAR) have been used.</p>

(e) Sector-, category- or activity-specific assumptions, methodologies and approaches consistent with IPCC guidance, as appropriate, including, as applicable:	(i) Approach to addressing emissions and subsequent removals from natural disturbances on managed lands;	Mauritius intends to report GHG emissions and removals from the LULUCF sector in accordance with the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, from Tier 1 to Tier 2 level where available and covering all prescribed land-use categories and all carbon pools. The 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands will also be incorporated. GHG emissions and removals from natural disturbances, if any, will be accounted for in accordance with the prescribed 2006 IPCC Guidelines, coupled with field inventory measurements where applicable.
	(ii) Approach used to account for emissions and removals from harvested wood products;	N/A – no timber industry
	(iii) Approach used to address the effects of age-class structure in forests;	Mauritius estimates GHG emissions and removals in the LULUCF sector with up to Tier 1, and above where feasible, and apply high-resolution satellite images, coupled with collection of country-specific data resulting from field inventory measurements undertaken at regular intervals and estimated by modelling approaches. The field measurements will take into consideration tree growth information across the range of tree species and diameter classes for all forest types.
(f) Other assumptions and methodological approaches used for understanding the nationally determined contribution and, if applicable, estimating corresponding emissions and removals, including:	(i) How the reference indicators, baseline(s) and/or reference level(s), including, where applicable, sector-, category- or activity-specific reference levels, are constructed, including, for example, key parameters, assumptions, definitions, methodologies, data sources and models used;	Sectoral studies were taken from various sources, including an assessment of Mauritius' economy-wide energy efficiency potential. An Exponential Smoothing (ETS) model was used for the BAU scenario, taking into accounts the country's national circumstances and challenges (as outlined in Section 6 below). Additional studies and technology roadmaps developed in collaboration with industry stakeholders, academic experts and technical consultants, served as additional inputs on the potential of future technologies for long-term mitigation in Mauritius. Studies under the UNDP Climate Promise Initiative by Heat GmbH 2021, have also provided inputs for calculation of avoided GHG in the waste sector. Stakeholder consultations were also carried out to obtain feedback on possible measures to reduce greenhouse gas emissions.
	(ii) For Parties with nationally determined contributions that contain non-greenhouse-gas components, information on assumptions and methodological	The scope and coverage of Mauritius' NDC contains non-GHG components, such as the adaptation communication section.

	approaches used in relation to those components, as applicable;	
	(iii) For climate forcers included in nationally determined contributions not covered by IPCC guidelines, information on how the climate forcers are estimated;	The scope and coverage of Mauritius' NDC, as indicated in Section 3 above, do not include climate forcers not covered by IPCC guidelines.
	(iv) Further technical information, as necessary;	N/A
	(g) The intention to use voluntary cooperation under Article 6 of the Paris Agreement, if applicable	Mauritius intends to continue using voluntary cooperation to achieve its mitigation objectives. Clean Development Mechanism (CDM) projects are already implemented and on-going.
6. How the Party considers that its nationally determined contribution is fair and ambitious in the light of its national circumstances		
(a) How the Party considers that its nationally determined contribution is fair and ambitious in the light of its national circumstances;		<p>The updated NDC identifies ambitious mitigation measures to combat climate change in priority sectors (Energy, Transport, Waste, IPPU, Agriculture and LULUCF). In particular, Article 4, paragraph 3, of the Paris Agreement is addressed:</p> <ul style="list-style-type: none"> a) <u>An economy-wide absolute GHG emissions limitation target</u>: This will provide greater clarity and transparency of Mauritius' emissions level in 2030 and facilitate the tracking of progress; b) <u>Methodological updates to Mauritius' NDC</u>: These updates include, for example, the use of the 2006 IPCC Guidelines and the 100-year time-horizon GWP values from the IPCC Second AR. This demonstrates enhanced transparency in the reporting of Mauritius' national inventory and climate actions; c) <u>Updated information on implementation efforts</u>: Article 17 of the Climate Change Act 2020 details the process on updating information on implementation efforts, and the MRV system. d) <u>Application of ICTU guidance</u>: This facilitates greater clarity, transparency and understanding of Mauritius' NDC and implementation efforts. <p>Consideration of the fairness and ambition of Mauritius' NDC must take into account the following:</p> <ul style="list-style-type: none"> a) <u>Mauritius has taken ambitious early actions</u>:
(b) Fairness considerations, including reflecting on equity;		
(c) How the Party has addressed Article 4, paragraph 3, of the Paris Agreement;		

	<p>Mauritius made early policy choices that reduced its GHG emissions in the Long-Term Energy Strategy 2009-2025 (for example by switching from fossil fuels to renewable energies for power generation). In 2017, about 14 % of its electricity was generated from renewable energy, compared to 2000. In 2019, around 36.3% of electricity was generated from coal, 41.7% from diesel and fuel oil, and 21.7% from renewable sources.</p> <p>Due to an ambitious strategic plan by the Mauritius Renewable Energy Agency (MARENA), the renewable energy share rose to 23,9% in 2020. Mauritius is one of countries with numerous CDM projects. As a result, these and other earlier initiatives positioned Mauritius to achieve steep emissions reductions over the years;</p> <p>b) <u>Fairness</u>: Given the size of Mauritius' economy and its population, on a global scale the GHG emissions are insignificant (0.01 % of the global average). Nonetheless, Mauritius is, and always has been, well below world average in terms of carbon intensity (CO₂/capita). As a Small Island Developing State (SIDS), and a country particularly vulnerable to climate change effects, Mauritius has to continue to develop its economy, all while increasing the intensity and scale of climate change adaptation actions. Mauritius' long-standing commitment to renewable energies will continue to contribute to a decrease in emissions compared to a BAU scenario.</p> <p>c) Based on current projections, Mauritius aims to reduce overall GHG emissions by 40% in 2030 compared to the Business as Usual (BAU) scenario of 6895 thousand tons (including LULUCF) in 2030. Compared to the 2015 INDC target of 30% GHG emissions reduction by 2030, the mitigation ambition of Mauritius in this updated NDC is significantly enhanced.</p>
(d) How the Party has addressed Article 4, paragraph 4, of the Paris Agreement;	Mauritius' updated NDC is moving towards an economy-wide absolute GHG emissions reduction target, which reflects its effort as a developing country Party to address Article 4, paragraph 4, of the Paris Agreement.
(e) How the Party has addressed Article 4, paragraph 6, of the Paris Agreement.	Mauritius' updated NDC is an economy-wide absolute GHG emissions limitation target which complies with the Article 4, paragraph 6 of the Paris Agreement. The adaptation actions and policy plans reflect Mauritius' special circumstances as a SIDS.
7. How the nationally determined contribution contributes towards achieving the objective of the Convention as set out in its Article 2	
(a) How the nationally determined contribution contributes towards achieving the objective of the Convention as set out in its Article 2;	Mauritius' Climate Change Act 2020 and NDC target to reduce GHG emissions by 40% by 2030 are important milestones, in line with the objectives of the Paris

<p>(b) How the nationally determined contribution contributes towards Article 2, paragraph 2(a), and Article 4, paragraph 1, of the Paris Agreement.</p>	<p>Agreement, and is aimed at achieving the long-term temperature goal set out in Article 2 of the Convention.</p> <p>Given its unique national circumstances and particular set of challenges, Mauritius' NDC is challenging and ambitious, and aims to support the collective effort to reach global peaking of GHG emissions as soon as possible, as set out in Article 4.1 of the Paris Agreement.</p>
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Adaptation communication as part of the updated NDC of the Republic of Mauritius for the timeframe 2021-2030 - (Guidance provided by 9/CMA.1)

<p>(a) National circumstances, institutional arrangements and legal frameworks</p>	<p>Mauritius is particularly vulnerable to severe weather events and natural disasters such as cyclones, storms and tidal surges, torrential rains, floods and flash floods, landslides, tsunamis. Exposure to natural hazards remains very high and continues to increase and having integrated measures of the extent and costs of vulnerability are essential to identify priority areas for adaptation, mitigating the impacts of climate change.</p> <p>In terms of institutional arrangements, the distribution of responsibilities among key institutions on areas pertaining to climate change adaptation are presented hereafter:</p>					
	<table border="1"> <thead> <tr> <th data-bbox="662 712 1002 757">Institution</th> <th data-bbox="1002 712 1445 757">Responsibility</th> </tr> </thead> <tbody> <tr> <td data-bbox="662 757 1002 1384"> Ministry of Environment, Solid Waste Management and Climate Change </td> <td data-bbox="1002 757 1445 1384"> <ul style="list-style-type: none"> • Implementation of the provisions of the Climate Change Act which include coordination of climate change adaptation and mitigation, research, reporting as well as education, training and public awareness • Environmental Impact Assessment (EIA) and monitoring • Pollution prevention and control • Integrated coastal zone management • Sustainable Development • Education, Training and Public Awareness on environment • Solid waste management • Beaches and shoreline development • coordination of activities for promoting of clean technology in the Refrigeration and Air Conditioning sector for the protection of the Ozone layer </td> </tr> </tbody> </table>	Institution	Responsibility	Ministry of Environment, Solid Waste Management and Climate Change	<ul style="list-style-type: none"> • Implementation of the provisions of the Climate Change Act which include coordination of climate change adaptation and mitigation, research, reporting as well as education, training and public awareness • Environmental Impact Assessment (EIA) and monitoring • Pollution prevention and control • Integrated coastal zone management • Sustainable Development • Education, Training and Public Awareness on environment • Solid waste management • Beaches and shoreline development • coordination of activities for promoting of clean technology in the Refrigeration and Air Conditioning sector for the protection of the Ozone layer 	
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Ministry of National Infrastructure and Community Development <ul style="list-style-type: none"> • National Development Unit • Land Drainage Authority • Architect Department • Road development Authority 	<ul style="list-style-type: none"> • Green buildings • Roads network • Drainage programme • Landslide management 					
Ministry of Agro Industry and Food Security <ul style="list-style-type: none"> • Forestry Service • National Parks and Conservation Service • FAREI • MCIA • Irrigation Authority • Small farmers Welfare Fund 	<ul style="list-style-type: none"> • Forests • National Parks • Reserves • Agriculture both crop production and livestock 					

	Ministry of Housing and Land Use Planning	<ul style="list-style-type: none"> • Land Use Planning, including along the coastline • Development Planning policy
	Ministry of Blue Economy, Marine Resources, Fisheries and Shipping	<ul style="list-style-type: none"> • Marine pollution from vessels • Ports • Restoration of coral reefs • Fisheries and marine ecosystem management and protection • Marine Parks
	Ministry of Tourism	<ul style="list-style-type: none"> • Coastal hotels • Recreation
	Ministry of Energy and Public Utilities <ul style="list-style-type: none"> • Water Resources Unit • Central Water Authority (CWA) • Wastewater Management Authority (WMA) • Utility Regulatory Authority 	<ul style="list-style-type: none"> • Mobilization and Development of Water Resources • Treatment and Distribution of Potable Water • Collection, Treatment and Disposal of Wastewater • Regulate the utility services, namely electricity, water and wastewater
	Ministry of Local Government and Disaster Risk Management <ul style="list-style-type: none"> • National Disaster Risk Reduction and Management Centre • Mauritius Meteorological Services (MMS) 	Disaster Risk Reduction & Management <ul style="list-style-type: none"> • Coordinating body of the Ministry for the planning, organizing, coordinating and monitoring of disaster risk reduction and management activities at all levels. • Provision of timely and accurate weather reports, climate services and warnings for hydro-meteorological hazards and tsunamis.
	Ministry of Health	<ul style="list-style-type: none"> • Human diseases • Climate-related health
	Ministry of Social Security and National Solidarity	<ul style="list-style-type: none"> • Promotion and enhancement of social protection and national solidarity • Empowerment of persons with disabilities, elderly persons and local communities to enhance their quality of life.

Gender, , , education and social security are also addressed as cross-cutting issues.

In addition to the institutions included in the table, the following departments, divisions and committees also exist and collaborate with each other as well as with external organizations and initiatives to foster and ensure coordination on environmental and climate change matters:

- The Department of Climate Change under the aegis of the Ministry of Environment, Solid Waste Management and Climate Change (MoESWMCC)
- The Climate Change Information Centre (CCIC) under

	<p>the aegis of the Ministry of Environment, Solid Waste Management and Climate Change (MoESWMCC)</p> <ul style="list-style-type: none"> - The Department for Continental Shelf, Maritime Zones Administration and Exploration of the Prime Minister's Office. <p>Finally, it is also important to mention the local authorities (for instance under the Climate Change Charter for Local Authorities), the civil society and the private sector (for instance Business Mauritius) as key stakeholders in enabling the implementation of adaptation measures in the country.</p>
(b) Impacts, risks and vulnerabilities, as appropriate	<p>A vulnerability assessment of the relevant sectors for both Mauritius and Rodrigues reveals that Mauritius is particularly susceptible to changes in precipitation and climate change induced weather events (UNDP study by Heat GmbH, 2021). However, natural hazards are not the only driver of risk in Mauritius: rapid and unplanned urbanization and infrastructure development have increased the frequency of flash flooding, causing destruction of housing, infrastructure, and crops, and putting the population at risk of vector-borne diseases, water-borne diseases. Vulnerable groups will be more affected by the impacts of disasters, and climate change.</p> <p>Temperature</p> <p>The mean annual temperature over the island has warmed by 1.39°C in the last 70 years between 1951-2020, compared to the 1961-1990 climatological normal. Projected temperature rise up to 2°C by 2061 - 2070. Projections of Mauritius Meteorological Service following BRIO Project the change is 3.14-3.64°C for SSP5-8.5³ by 2100 (Updated National Climate Change Adaptation Policy Framework, 2021)</p> <p>Algal blooms due to high Sea Surface Temperature and nutrient rich seepage into lagoons are known to be the cause of mass mortality of corals and fish. More intense rainfall over the ocean is expected to cause increased sedimentation of the lagoons thus smothering the corals.</p> <p>Sea level rise</p> <p>Monitoring in the decade 1998-2007 has showed that sea level rise by 18 to 59 cm by the end of the century, with an estimated rate of increase of 5.6mm per year for Mauritius, whereas the increase yearly increase in Port Louis amounted to 2.1 mm per year.</p> <p>At Port Louis, during the last decade (period 2011 to 2020), analysis of sea level has increased by 8 mm per year as compared to the long-term mean rise of 4.7 mm per year (between 1987 and 2020). Sea level rise is projected to be of the order of 49 cm by 2100 (Updated National Climate Change Adaptation Policy Framework, 2021)</p> <p>As a SIDS, it is essential for Mauritius to take this into consideration and undertake significant adaptation measures to reduce its vulnerability.</p> <p>Cyclones</p> <p>Due to its location in the southwestern Indian Ocean, Mauritius</p>

³ SSP5-8.5 represents the high end of the range of future pathways, corresponding to RCP8.5. Source: MMS

is also exposed to cyclones. Situated at the tail of the Indian Ocean cyclone belt, the country's exposure to cyclones has been relatively limited so far. However, according to a US study in 2020, the intensity of cyclones in the south east region has increased and the chances of a major tropical cyclone occurring increased by 18% per decade. The hurricane season usually starts in November and ends in mid-May the following year. Data from Mauritius' Meteorological Services shows that in each decade between 1960 and 2009, more and more cyclones have been occurring, with the average annual number of cyclones doubling in this timeframe. Although most cyclones miss the islands, every year the archipelago is hit by the remnants of big storms, causing flooding of low-lying areas, resulting in significant physical damage to buildings, crops, and livestock. Other preliminary projections point to the intensification of cyclones in shorter periods of time. Cyclones and associated hazards such as torrential rains and flash floods regularly affect the country and account for 32.7% of nationally reported losses in terms of mortality between 1990 and 2014. In 2002, Cyclone Dina caused 50 million EUR losses in the sugar cane production. In 2016, Cyclone Fantala resulted in a call for the evacuation of the South Island of Agalega. In January 2019, Cyclone Berguitta caused significant damages and power outages to the main island, and in February 2019, Cyclone Gelena led to flash floods and population displacement, especially in Rodrigues Island. The mean number of cyclone with intensity higher than tropical cyclone (gusts > 165 km/h) has increased from 3.9 in the period 1981-2020 to 4.7 in the period 1991-2020.

Mauritius is expected to experience around USD 91 million in direct losses annually from winds, flooding, and storm surge associated with tropical cyclones⁴. The estimates suggest that 50% of the loss from tropical cyclones originate from the residential sector and nearly 30% from the commercial sector. Annual emergency costs for tropical cyclones are on average estimated at nearly USD 21 million. A projection for 100-year timeframe provides an estimate of USD 1.9 billion loss to Mauritius due to tropical cyclones. Rodrigues Island tends to be more affected by the strongest winds and deepest storm surge. A 100-year event would generate winds exceeding 200 km/h (from the current registered 165 km/h). In Mauritius, flooding from tropical cyclones will be greater from the same projection.

Floods and flash floods

According to the country's disaster risk profile (DRP Mauritius, 2016), flooding is the second-largest risk after cyclones, causing 20 per cent of direct economic losses associated with disasters and will experience on average around 22 million USD yearly direct losses from flooding. It is also estimated that nearly 60% of the direct losses from flooding are from the residential sector and 20% from the commercial sector. (DRM: A Capacity Diagnosis, 2020)- Cadri Partnership.

Annual emergency costs for tropical cyclones are on average estimated at nearly 21 million USD. A projection for 100-year

⁴ <https://www.gfdr.org/sites/default/files/mauritius.pdf>

timeframe provides an estimate of 1.9 billion USD loss to Mauritius due to tropical cyclones. The study also shows that Rodrigues Island tends to be more affected by the strongest winds and deepest storm surge. On the island, a 100-year event would generate winds exceeding 200 km/h. And in Mauritius, flooding from tropical cyclones will be greater from the same projection.

Because of cyclones and torrential rains, floods and flash floods are climatic hazards to which the country is exposed. Floods that are caused by heavy rains account for over 70% of disasters each year⁵.

Over the last decade, it has been observed that the frequency of flash floods has been on the rise even resulting in fatalities and damage, in particular, the events of 26th March 2008, 30th March 2013 and 10th February 2016 which are still vivid in the memories of affected citizens. The Mauritius Meteorological Services (MMS) has observed an increased in short duration – high intensity rainfall that has led to flash floods on several occasions and in various areas over the past few years. The risk of flash floods has increased significantly with urbanization and development causing the disruption of the natural drainage system. Flash floods account for 26.2 percent of nationally reported losses in terms of mortality between 1990 and 2014. In 2002, 200 flood prone areas were identified compared to 450 in 2019 (DRM: A Capacity Diagnosis, 2020).

Moreover, the 2021 UNDP GIS study by HEAT GmbH, has identified and mapped 79 flood prone areas due to agricultural runoff over a spatial coverage of approximately 373 Hectares of land. It is found through spatial analysis that mechanized sugarcane cultivation where intense de-rocking has taken place, occupied 24.6% of land use of contributory catchments of flood prone areas. The study also revealed that the percentage extent of land under mechanized sugarcane cultivation of the contributory catchments of localities which are regularly affected by flooding are due to surface runoff from agricultural land. It is imperative that necessary actions are taken to mitigate the impacts of flooding due to runoff from agricultural land and to put the safety and well-being of the citizen of Mauritius first.

Flash floods and unpredictable weather conditions have today become a recurrence. During the last summer (November 2020 to April 2021), four occasions of heavy rainfall/torrential rain warning were issued as well as three events of flash flood.

In order to build resilience, the construction and upgrading of some 1,500 drain projects across the island over the next three years, starting with high-risk flood-prone areas, have been planned in the Government budget 2021-2022.

Landslides

Mauritius has several areas identified as high-risk for landslides, with incidences over the past years having led to the destruction of housing and infrastructure. These disasters are typically the result of increased precipitation patterns in shorter periods of time, coupled with other factors such as the reduction or the lack of vegetation cover and risky constructions on sloppy areas. The risk areas are Chitrakoot, Quatre Soeurs, Vallée Pitot, La Butte,

⁵ Statistics Mauritius (2021). Digest of Environmental Statistics – 2019.

	<p>Chamarel, Corps de Garde’s ridge. The country is experiencing an increasing number of cases of landslide occurrences, which are worsened by deforestation, and bad land use planning e.g. construction on slope, close to rivers, etc. While in the late nineties there was only one dangerous site in Mauritius requiring strict precautionary measures, this number rose to 22 in 2005. Under the “Cyclone and other natural Disasters scheme 2011/2012”, 37 sites have been identified, out of which six sites (laval tunnels in Palma, and Curepipe, Riviere des Creaoles, Batellage, Olivia and Kewal Nagar, and Montagne Signaux) are classified as risk areas for which a landslide management plan is being envisaged.</p> <p><i>Rainfall and Drought</i></p> <p>With climate change, there is an increase in frequency of periods of dry spells and droughts. According to the MMS, the mean annual rainfall over the island has decreased by 104 mm over the last 70 years between 1951-2020, compared to the 1961-1990 climatological normal. Decadal analysis shows a decrease of 7.7% in rainfall during last decade, of 2011-2020 compared to the decade 1951-1960. The variability of rainfall trends caused an increase in the frequency of dry years after the 1990s with severe spell affecting the country in 1999, 2009, and 2011. For instance, the 1999 drought caused a loss of 160 million USD to the sugar cane sector, as compared to the 1998 revenue. Water crisis and resulting restrictions on water supply for irrigation caused shortages of vegetables for local consumption in 2011. Overall, droughts accounted for 96.8% of combined economic losses of nationally reported losses between 1990 and 2014. As compared to the island of Mauritius, Rodrigues is more exposed to longer periods of water scarcity.</p> <p>These climate change effects may lead to water scarcity, negatively impact agricultural productivity, reduce terrestrial and marine biodiversity. Extreme weather events and rising sea levels are also likely to affect infrastructure and tourism. Apart from vast socioeconomic impacts, the health of the population might be put at risk by climate change effects due to an increase in frequency of vector-borne diseases, thereby adversely affecting people’s lives and livelihoods, ecosystem services and the economy.</p> <p>Research shows that Mauritius may become a water-scarce region by 2030⁶. Projections indicate that the utilizable water resources may decrease by up to 13 % by 2050 if no action is taken to restore catchment areas⁷.</p>
(c) National adaptation priorities, strategies, policies, plans, goals and actions	<p>The National Climate Change Adaptation Policy Framework (NCCAPF) of the Republic of Mauritius, was elaborated based on the analysis of the current and projected climate change impacts. It recommends adaptation policy options and measures around the water demand and supply, agriculture and terrestrial ecosystems, fisheries and marine ecosystems, tourism and coastal areas, human health, and infrastructure sectors.</p>

⁶ Boojhawon, A., Surroop, D. (2021). Impact of climate change on vulnerability of freshwater resources: a case study of Mauritius. *Environ Dev Sustain* 23, 195–223. <https://doi.org/10.1007/s10668-019-00574-3>

⁷ Republic of Mauritius (2016). Third National Communication: Report to the United Nations Framework Convention on Climate Change. Republic of Mauritius, Port Louis.

<i>Priority adaptation actions for each main sector/activity (NCCPAF 2021)</i>	
Sector	Climate Change adaptation measures
Infrastructure & Disaster Risk Reduction	<ul style="list-style-type: none"> -Enhance knowledge base related to climate change risks to coastal ecosystems and communities; -Mainstream climate change in the sectoral policies/strategies/plans; -Enhance disaster preparedness and response mechanisms and implementing risk reduction measures; -Improve the governance to build resilience in an uncertain future; -Reduce vulnerability to natural disaster risks; and -Increase resilience of human-led activities whilst preserving ecosystem functions
Water	<p><u>Water Resources Management</u> 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</p> <p><u>Rainwater Harvesting</u> Procurement and installation of rainwater harvesting systems and improvement in policy, legal and regulatory water framework in mainland Mauritius, Rodrigues and other outer islands</p> <p><u>Desalination</u> Desalination plants</p> <p><u>Rodrigues</u> Strengthening the development of rainwater harvesting with each household having 10 or 15m³ installations Small desalination plants</p>
Agriculture	<p><u>Integrated Pest and Disease Management</u> 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</p> <p>Enhance Knowledge <u>Enhance the knowledge base</u></p>

		<p><u>regarding the risks of climate change for the agricultural sector and the impacts on communities;</u></p> <p><u>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;</u></p> <p><u>Efficient Irrigation Techniques Development</u> 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.</p> <p><u>Develop and promote climate smart agriculture practices</u></p>
	Tourism and Coastal Zone Management	<p>Develop and implement an integrated approach aligned with coastal zone and biodiversity/forestry sectors</p> <p>Implement the component on Integrated Coastal Zone Management (ICZM) part of the Draft Master Plan on Environment – Adopt Ecosystem-based approach</p> <p>Enhance the knowledge regarding the risks of climate change for coastal ecosystems and communities – develop storm surge models to assess vulnerability in terms coastal inundation and prepare hazard maps</p> <p>Awareness raising, enhanced rehabilitation and strengthened regulatory framework for the protection of beaches, dunes, and vegetation</p>
	Climate Smart Fisheries and Blue Economy	<p>Development and implementation of sustainable fishing management plans, strengthening of institutional capacity and adaptation of infrastructure (quay) to climate change (sea level rise)</p> <p>Enhance the knowledge base regarding the risks of climate change for the fisheries sector and the impacts on communities</p> <p>Establish an integrated framework for</p>

		<p>the management of fisheries founded on the Blue Economy concept, which includes coastal zone management and marine biodiversity conservation</p> <p>Foster an integrated approach combining the goals and targets for the fisheries sector with the coastal zone management sector, and additionally also with the marine biodiversity sector.</p> <p>Rodrigues Resilient artisanal fishery with policy on marine co-management of resources and measures for off-lagoon fishing</p>
	Marine and Terrestrial Biodiversity Resilience	<p>Improve management of marine and terrestrial protected areas and expansion of protected area network including rehabilitation of wetlands, seagrass, mangrove plantation, increase in tree coverage areas and coral reef rehabilitation/farming</p> <p><u>Rodrigues</u> Development of sustainable landscape management and Ecosystem-based adaptation/nature based solutions</p>
	Health Sector	<p>Mainstreaming of climate change adaptation in the health sector to respond to population increase and its additional climate-related health burden.</p> <p>Development and implementation of a communication, education and awareness strategy with respect to climate change risks and impacts on human health.</p> <p>Improve surveillance of diseases associated with climate change and develop and implement a decentralized alert and rapid response mechanism</p>
	Cross-cutting	<p>Gender Education Social security</p>
	New key policy orientations in the updated National Climate Change Adaptation Policy Framework 2021:	<p>Fostering an integrated planning and implementation approach between the water and agricultural sectors.</p> <p>Establishing an integrated framework for the management of fisheries founded on the Blue Economy concept, which includes coastal zone management and marine biodiversity conservation</p>

		<p>Fostering an integrated approach combining the goals and targets for the fisheries and tourism sectors with the coastal zone management sector, and additionally with the marine biodiversity sector.</p> <p>Developing and implementing an integrated approach which combines tourism, biodiversity, forestry and agricultural sectors with the coastal zone management.</p> <p>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.</p> <p>Increasing resilience of human-led activities whilst preserving ecosystem functions, through improving governance, enhancing disaster preparedness and response mechanisms, are recommended for Infrastructure and disaster risk reduction sector.</p>
	<p>In alignment with the previous NCCAPF (2012) and other national priorities, the current updated NCCAPF (2021) focuses on the potential of nature-based solutions (NbS) for adaptation, as well as green job creation, managing thus the impacts of the COVID-19 pandemic, while addressing some of the most pressing issues regarding biodiversity and sustainable resource management. In alignment with the National Biodiversity Strategy and Action Plan 2017-2025, the updated NCCAPF promotes Ecosystem-based Adaptation (EbA) which harnesses biodiversity and ecosystem services to reduce vulnerability and build resilience to climate change.</p> <p>Several acts are already implemented and are relevant for climate change adaptation. The legislation listed below has been identified:</p> <ul style="list-style-type: none"> - Climate Change Act (2020) - Ports Act (1998) - Environment Protection Act (2002) - Land Drainage Authority Act (2017) - Local Government Act (2011) - National Disaster Risk Reduction and Management Act (2016) <p>In addition, several strategies and action plan are in place, with the aim of setting the ground for action in vulnerable sectors in relation to climate change:</p> <ul style="list-style-type: none"> - Protected Area Network Expansion Strategy (PANES) (2017-2026) - National Biodiversity Strategy and Action Plan (2017-2025) - Master Plan for the Development of Water Resources 	

	<p>in the Republic of Mauritius (2012)</p> <ul style="list-style-type: none"> – Integrated Coastal Zone Management Framework (2010) – Marshall Plan Against Poverty Vol 1 and 2 (2016) – Guideline for Climate Change Adaptation Strategy Coastal Setback (2016) – Mauritius Resilience Strategy (2019) – National Disaster Risk Reduction and Management Policy, Strategic Framework and Action Plan 2020-2030 – Mauritius Vision 2030 – Master Plan on Environment (2020-2030) - under finalisation – Land Drainage Master Plan (2021-2030) –under finalisation <p>Moreover, building on current adaptation actions and policies, the following list of actions is identified:</p> <ul style="list-style-type: none"> – Rehabilitation of degraded coastline – Development of a coral restoration strategy – Increase of conservation area for terrestrial biodiversity – Develop climate smart agriculture and sensitize farmers of vulnerable areas – Develop novel systems of irrigation and sensitize planters in vulnerable areas on water saving systems – Construction and upgrading of drain projects across the island – Construction of housing units equipped with solar energy for water heaters – New development to comply with an increase in building setback – Increase water production capacity of existing desalination plants in Rodrigues – Restoration of lagoon in Rodrigues through the planting of corals – Construction of break water e.g. in the Port Area.
<p>(d) Implementation and support needs of, and provision of support to, developing country Parties</p>	<p>Mauritius will need international support to implement the adaptation measures and the priority adaptation actions for the main sectors (see section c above). The indicated financial need of meeting this requirement is estimated at USD 4.5 billion (Mauritius island and Rodrigues Island) by 2030.</p>
<p>(e) Implementation of adaptation actions and plans, including:</p> <ul style="list-style-type: none"> (i) Progress and results achieved; (ii) Adaptation efforts of developing countries for recognition; (iii) Cooperation on enhancing adaptation at the national, regional and international level, as appropriate; (iv) Barriers, challenges and gaps related to the implementation of adaptation; (v) Good practices, lessons learned and information-sharing; (vi) Monitoring and evaluation 	<p>Adaptation and resilience-building efforts will focus on tangible and intangible investments, infrastructure, capacity building, and project-based initiatives and interventions. The priority is placed on defending the existing physical and cultural assets and resources, and developing good practices.</p> <p>Several challenges are identified as barriers to the implementation of adaptation, such as conflicting timescales, conflicting interests, limited financial resources, insufficient human resources, inadequate technical expertise and technology, uncertain societal costs and future benefits, and fragmentation within and between scales of governance.</p> <p>The adaptation ambition has been enhanced compared to the 2015 INDC target, with more specific and targeted actions: responsible institutions, risks and vulnerabilities, relevant legislations, policies and programs are added.</p>

<p>(f) Adaptation actions and/or economic diversification plans, including those that result in mitigation co-benefits</p>	<p>See 3.d) in Information to facilitate clarity, transparency and understanding (ICTU) of the updated NDC of the Republic of Mauritius for the timeframe 2021-2030</p>
<p>(g) How adaptation actions contribute to other international frameworks and/or conventions</p>	<p>Several adaptation actions contribute to the implementation of other international frameworks through building inter-linkages and synergies as follows:</p> <ul style="list-style-type: none"> ▪ the Sendai Framework for Disaster Risk Reduction 2015-2030 ▪ UN Convention to combat drought and desertification (UNCCD) ▪ Convention Biological Diversity (CBD) ▪ Sustainable Development Goals, 2030 <p>The “SDG alignment analysis” developed by Heat GmbH in 2021 shows that overall the adaptation actions of the NCCAPF 2021 contribute to the achievement of specific SDG targets namely SDG 1 on Poverty, SDG 6 on clean water and sanitation, SDG 9 on industry, innovation and infrastructure, SDG 13 on Climate Action, SDG 14 on life below water and SDG 15 on life on land.</p>
<p>(h) Gender-responsive adaptation and traditional/indigenous/local knowledge</p>	<p>Mauritius increasingly focuses on social inclusion including through stronger engagement with local communities for gender-responsive adaptation measures. For example, the Marshall Plan Against Poverty adopts a community-based approach: the vulnerable segments of the population are envisioned to better integrate into the social, political and economic life of the country, with attention to gender equality and young people.</p> <p>Gender mainstreaming the Government of Mauritius. All climate change adaptation projects are designed to integrate gender. The Climate Change Act 2020 also makes provisions to commission studies on climate change, taking into consideration, inter alia gender issues. The Awareness Strategy and Communication Plan, 2021 by Digital Kites under UNDP 2021, have also catered for gender in the proposed campaigns.</p>