**Ministry of Foreign Affairs, Regional Integration and International Trade (Human Rights Division)**

**Materials for the questionnaire on the impact of new technologies for climate protection on the enjoyment of human rights**

**Core questions (for all stakeholders)**

1. **Which new technologies for climate protection (NTCP) are of particular importance when it comes to impact on human rights? List three most relevant and explain your choice.**

NTCP that have an impact on human rights include:

1. Big Data

There is a now a vast amount of data available on environmental conditions, migration and conflict situations thanks to social media, crowd-sourced data and tracking devices on vehicles, mobile phones and other sensors. Big data programs for weather monitoring are also linked to mobile telephony and internet access. Cloud computing and big data analysis can use this data to analyse key trends and provide early warnings for critical issues before they occur, aiding the prevention and rapid response to humanitarian disasters. Sensor and data technology are also used to keep track of rainfall in water-stressed areas in order to deliver on its obligation to fulfill the right to water and to water-purification technologies. This would in turn allow access to improved weather forecasting technologies for better preparedness of climate-change induced events such as flash floods. The accessibility and sustainability of these technologies as well as the implementation of a national-level infrastructure with a prioritization of technologies that address harms to the most vulnerable populations are vital.

 For e.g; Microsoft is collaborating with the United Nations to develop Rights View, a “dashboard” that will allow UN human rights staff to aggregate large quantities of internal and external data on specific countries and types of rights violations in real time. The United Nations Office for the Coordination of Humanitarian Affairs has opened a Centre for Humanitarian Data in the Netherlands that is focused on increasing the use of data in humanitarian work.

Additionally, the use of biotechnology for creating more climate resilient food crops and conservation of threatened species should be promoted.

1. Green data center

With the increase demand for Information and Communications technologies, and the development of cloud storage, the policies for green ICT especially in huge data centers are recommended. A green data center is a repository for the storage, management and dissemination of data in which the mechanical, lighting, electrical and computer systems are designed to maximize energy efficiency and minimize environmental impact. The construction and operation of a green data center includes advanced technologies and strategies. For e.g.; Google is investing in a new data center in Hamina, Finland. Google said the existing Hamina facility was one of its most advanced and efficient data centers. Its cooling system uses seawater from the Gulf of Finland to reduce energy use.

1. Renewable energy

Alternative renewable forms of generation of electricity from Solar Photovoltaic cells, gas generators, micro-hydroelectric turbines, wind energy and wave energy which will thereby reduce emission of GHG to the atmosphere. Production of renewable energy will allow a state to become energy sovereign and reduce reliance on costly imported externally sourced fossil fuels. However, the shift to renewable energy sources does not automatically result in self-sufficiency. There may still be a need for externally sourced technology and expertise to operate and maintain renewable energy infrastructure such as energy storage.

Use of alternative ways of powering vehicles, such as electricity, should be promoted given that transport represents 23% of global energy-related carbon dioxide emissions. Moreover, the greenhouse gas emissions of buildings are significant with the combined emissions from sources such as lighting, power, heating and cooling whether at home, in the office, at school or in hospitals contributing to [almost 20% of global emissions](http://www.b-t.energy/landscape/buildings/). As such, maximum use of renewable energies, such as solar energy, is proposed when building smarter cities. Sustainable and low cost building materials should also be promoted to ensure affordable shelter.

1. **What kind of NTCP may contribute to human rights promotion and protection? Please, explain how.**

NTCP consisting of reduction in greenhouse gas emissions contribute to the promotion and protection of human rights by decreasing the exposure to such gases and mitigating climate change related disasters/effects such as floods, exposure to UV light, water stress/scarcity, lack of sanitation related to water scarcity and decrease in yield of food.

Therefore, renewable energy technologies ought to be promoted. Solar panel is the most cost effective renewable energy. Access to clean energy will alleviate poverty and the human right to clean energy may facilitate the ability of developing states to ‘leap-frog’ to more advanced energy forms.

Moreover, those NTCP which promotes production of electricity from renewable sources ensures reduction in dependency on fossil fuels. This in turn ensures availability of funds for investment in other sectors such as food security and education.

Plug-in Energy conservation devises which allow households manage their energy consumption and in turn will help in reducing energy demand (thus lowering demand for renewable energy) and hence, reduced energy costs to households. Although, many household equipment now come with energy efficiency labels, choosing the most energy-efficient appliance often requires a higher initial investment, which may not be feasible for all. Hence, having low-cost plug-in energy conservation devices can help even the poorest contribute to reducing the national energy use intensity.

Moreover, sudden climate-change induced events such as flash floods are becoming more and more recurrent. Although weather forecasting is now more accurate and precise, dissemination of these forecasts and assessing the risks associated with such events to the common man is still a challenge. In a world which is highly connected through the high prevalence of smart phones, developing apps which online/live notify people of potential risks which could arise for a particular region can help in better preparing for disasters and reduce loss of life and livelihoods.

Greening of ICT should also be promoted as green facilities offer employees a healthy, comfortable work environment. Green facilities also enhance relations with local communities and lead to the reduction of CO2 emission and hence, the climate protection.

1. **What are the key human rights challenges and risks arising from NTCP and from which in particular? Do NTCP create unique and unprecedented challenges or risks, or are there earlier precedents that help us understand the issue area?**

Human rights challenges and risks arising from NTCP include:

1. risks associated to Zero Emission Vehicle (ZEV). Electric cars use cobalt batteries. However, mining of cobalt causes a serious risk to human rights in terms of health hazard and this leads to child labour. The problem of e-waste, especially in highly populated and poor countries, is a precedent;
2. exposure to the continuous low-level hum of wind turbines has been reported to produce health problems including sleep disturbance, headaches, tinnitus, ear pressure, dizziness, vertigo, nausea, visual blurring, tachycardia, depression, irritability, problems with concentration and memory, and panic episodes. These are grouped under a term “Wind-Turbine Syndrome”. The strobe-like “Flicker effect,” or the shadows and reflections cast by the whirling blades of wind turbines may trigger seizures in some individuals. The flicker effect predominantly affects people who suffer from photosensitive epilepsy and experience seizures in response to certain environmental triggers. Animal health effects are also a concern. Wind turbine blades can be hazardous to birds and bats, with the most significant number of encounters involving predatory birds like hawks and eagles;
3. if the alert app developed for notifying the population of climate-risks uses delocalization technology, there could be issues related to privacy and data protection;
4. fragmented regulatory framework world-wide regarding the use of genetic modification and biotechnology may rise concerns that the use of this technology can be expanded for selecting desirable traits for humans and the ethics and morality of such technological advances;
5. there is a need for substantial capital investment to deploy relative new/innovative technologies;
6. cost of Electric Vehicles to consumers relatively;
7. lack of capacity/specialised competencies;
8. issues of acceptability and implementation; and
9. change in mindset.
10. **What specific human rights may be affected by the use of NTCP? Please, explain how. Who are the rights-holders that potentially would be the most affected by the use of NTCP? Are they also the most affected by climate change? How could they and the society at large be engaged in the decision-making process?**

Human rights that may be affected by the use of NTCP are:

1. right to live;
2. right to food;
3. right to a safe environment;
4. right to health;
5. right to education leading to poverty and child labour; and
6. respect for one’s private and family life, home and correspondence.

Society at large and particularly, the poor and vulnerable people/citizen would be the most affected by the use of NTCP. They are also the most affected by climate change. They should group themselves into communities/associations so that they can participate in decision-making process. Moreover, stakeholder consultations should also be considered when engaging in the decision-making process.

1. **Is the existing international and your national human rights framework adequate to safeguarding human rights of those affected by the use of NTCP? Why or why not? If not, what principles may be identified in order to address the gaps? List them according to priority.**

Yes, existing international and national human rights frameworks should normally be adequate enough so as to cater for human rights affectation from climate change impacts and other natural phenomena. However, it does not void the future need to have an impact analysis conducted on national human rights from the use and application of NTCPs.

In Mauritius, as per the Protection of Human Rights Act 1998, a Human Rights Commission was setup. The functions of the Commission are, *inter alia*, to enquire into written complaints made:

1. ​​by any person who feels that any of the human rights enshrined in Chapter II of the Constitution has been violated or is likely to be violated by the act or omission of a public officer or employee of a public body, and
2. ​by any person against an act or omission of a member of the police.
3. **Given that NTCP may present potential risks for the enjoyment of human rights, to what extent do human rights legal obligations require the States to pursue other climate protection policies presenting less risks of harm, including mitigation and adaptation measures?**

The State, irrespective of the use of NTCP or not, has the duty of care and the legal responsibility towards the citizens of a country to ascertain their safety, security, health and socio-economic well-being. Therefore, the State undoubtedly has the responsibility to investigate other climate protection policies presenting less risk of harm to its people should NTCP-presented potential risks be beyond the level of tolerance. Again, the need to have an in-depth technical study of the potential impacts of use of NTCP on basic human rights is evident, especially on vulnerable groups, indigenous populations, already heavily climate-change impacted communities (coastal communities for e.g.) etc.

It is important to point that a “one size fits all approach” will not work for all countries. Mauritius has its own specificities, environment, needs and aspirations. However, it is necessary to recognize the external threats outside our control which could affect the country as Mauritius imports most of its basic commodities and raw materials. Self-sufficiency, by adopting new technologies while preserving human rights would be a good guiding principle.

An array of legislations has been enacted in Mauritius with regards to environment and climate change and include amongst others:

1. Environment Protection Act 2002 (as amended in 2008);
2. Climate Change Act 2020;
3. [Environment Protection (Standards for hazardous wastes) Regulations 2001;​​](https://environment.govmu.org/Documents/SWMD/standards%20for%20Hazardous%20Waste%20Regulations%202001.pdf)
4. [Local Government (Dumping and Waste Carriers) Regulations 2​021](https://environment.govmu.org/Documents/SWMD/Dumping%20and%20Waste%20Carriers%20Regulations%202021.pdf);
5. [Local Government Act (Registration of Scavenging Contractors) Regulations 2004](https://environment.govmu.org/Documents/SWMD/reg%20of%20scavenging.pdf)​;
6. [Environment Protection (Collection, Storage, Treatment, Use and Waste Oil) Regulations 2006](https://environment.govmu.org/Documents/SWMD/Environment%20Protection%20%28Waste%20Oil%29%20Regulations%202006%20%28208%20of%20.pdf); and
7. [Local Government Act (Registration of Recycler and Exporter) Regulations 2013](https://environment.govmu.org/Documents/SWMD/Registration%20of%20Recycler%20and%20Exporter%20Regulations%202013.pdf).

Moreover, the Guidelines​​ set for Mauritius include:

1. [Guidelines for inland surface water quality 1998](https://environment.govmu.org/Documents/Legislations/D.%20Other%20Guidelines/Inland%20Surface%20Water/1.%20Guidelines%20for%20inland%20surface%20water%20quality.pdf);
2. [Guidelines for Irrigation Water Quality 1999](https://environment.govmu.org/Documents/Legislations/D.%20Other%20Guidelines/Irrigation%20Water/2.%20Guidelines%20for%20irrigation%20water%20quality%20%28GN%20No.%20617%20of%201999%29.pdf); and
3. [Guidelines for Coastal Water Quality 1999](https://environment.govmu.org/Documents/Legislations/D.%20Other%20Guidelines/Coastal%20Water/3.%20Guidelines%20for%20Coatal%20Water%20Quality%28GN%20No.%20620%20of%201999%29.pdf).

The State of Mauritius is also in the process of introducing the National Environment Cleaning Authority Bill into the National Assembly. The main object of the Bill is to provide for the establishment of the National Environment Cleaning Authority which shall be responsible for –

1. the development of a National Cleaning and Embellishment Strategy with an Action Plan to embellish Mauritius and keep Mauritius clean, in consultation with relevant Ministries and other stakeholders;
2. identifying and prioritising, in collaboration with relevant Ministries and other stakeholders, the sites to be kept clean and embellished; and
3. coordinating, monitoring and supervising the implementation of cleaning and embellishment programmes.

The Bill further provides for the National Environment Cleaning Authority, in the discharge of its functions and exercise of its powers to, *inter alia*, –

1. undertake, as and when required, cleaning and embellishment works, and cause cleaning and embellishment works to be undertaken by a local authority, the Road Development Authority, the Tourism Authority, the Beach Authority and other relevant stakeholders, including entities financed by the National Environment and Climate Change Fund;
2. assist, and be assisted by, a local authority, the Road Development Authority, the Tourism Authority, the Beach Authority and other relevant stakeholders, including entities financed by the National Environment and Climate Change Fund; and
3. advise the Minister on cleaning and embellishment policies and strategies, including recycling of waste, and on any other matter related thereto.
4. **As opposed to focusing on selected few technologies, do you think a holistic and inclusive approach will help reduce any gaps in the existing system for addressing human rights challenges from NTCP?**

A holistic approach to environmental issues involves acknowledging the inter-connectedness of issues as they affect the environment in any development process. Tackling or addressing such issues will demand integrated approaches in offering the solutions to the issues/problems being addressed. To mitigate each threat, different technologies are available but the most cost-effective one should be implemented. Moreover, depending on the vulnerability, the best solutions would be adopted. The solution should be holistic as the non-mitigation in one area would eventually spread and affect the whole population. This approach leads to sustainable development as natural, socio-economic and cultural dimensions are borne in mind for whatever intervention opted for. This kind of approach considers many issues, including the precautionary principle before any intervention is agreed on. Such approach also raises several questions and prompts for answers to be sought before proceeding with the right solution.

A holistic approach would operate at all scales (international, national, regional, city, and local), and it would draw on positive experiences from around the world. It would explore different analytical approaches, different types of data, and different model specifications, accepting the limitations of the methods being used and promoting methodological innovation. It would engage with a range of stakeholders, including politicians, the industries, businesses, academia, experts, and consumers, so that they are all made aware of the continued carbon reduction technologies. The debate would explore the full range of options available, look at the means by which they can be combined into effective policy packages, and examine the sequencing of interventions, so that real progress can be monitored. Such an approach provides the means by which effective implementation can take place, with all stakeholders understanding the issues involved, and so that they can “‘buy into” the proposed policy packages.

A holistic and inclusive approach also integrates learning and adopting traditional practices of indigenous populations can help reduce the gaps.

Currently, there are proposals to amend the Constitution to ensure the protection of the environment as a fundamental right. It is generally accepted that nature based solutions would be preferred for climate change mitigation and adaptation measures.

1. **What should be the responsibilities of key stakeholders (UN agencies, states, NHRIs, civil society, technical community and academia, private sector) in mitigating the risks of NTCP to human rights and/or fostering its protection?**

International organizations should come up with standard, directives, good practices and guidelines on the use of the NTCP. UN Agencies could be more like watchdogs advocate and assist in ensuring adoption of international best practices at state level.

The UNDP typically accompanies the Government of Mauritius in development projects as well as climate change adaptation and mitigation projects. NTCP, being a relatively new endeavour, the UNDP can assist in the following ways:

1. by providing technical assistance to the Government of Mauritius for conducting studies on NTCP, namely feasibility studies on the best-fit NTCP to use for the local context, its potential challenges and risk namely on human rights of local communities and the mitigation measures that could be applied;
2. the UNDP Country Office in Mauritius and Seychelles can also support the Government of Mauritius in seeking climate financing for implementing such studies as well as the chosen NTCP themselves; and
3. the UNDP Country Office in Mauritius and Seychelles can also provide assistance for performing long-term monitoring of the NTCP in use and make recommendations on improvements and other NTCP to consider.

Developed countries, private sector, technical community and academia can as far as possible fund or provide technical assistance in terms of experts on the NTCP. On the other hand, states and civil society should monitor and mitigate the risks of NTCP at community level.

States should also enact legislations to support, implement and promote investment and private sector participation and in turn, the private sector should collaborate with the state to promote job creation. It is also important for academia to bring forward NTCP in our education system and make innovative technologies more affordable.

**Specific questions for UN Agencies**

1. **Please describe the relevant work that your organization/agency/body has done on the issue of NTCP and human rights. What have been the key challenges and accomplishments? What lessons were learned in the process? How and to what extent is the human rights approach included in the design and implementation of the policies undertaken by your organization in this area? How is human-rights impact analyzed and assessed?**

In Mauritius, the UNDP has been assisting in increasing the capacity of the country to store intermittent energy sources, which is helping to increase the production capacity of renewable energy. In the past decade, the UNDP has also assisted the country in developing energy labels for household appliances such as washing machines, ovens and refrigerators which help consumers be better informed on the choices they make.

Moreover, the UNDP is currently providing assistance for identifying heat resistant corals which will then be propagated through land-based and sea-based nurseries to help restore coral reefs which have been bleached or damaged. Through this initiative, communities are also being empowered to learn about coral-planting which could become a source of alternative livelihood.

The UNDP provided assistance to the Government of Mauritius to revise its NDC. Extensive consultations were held with stakeholders relevant to both mitigation and adaptation sectors. The target for renewable energy has been increased to 60% by 2030 in the revised NDC, which also caters for greater consideration for the vulnerable population.

**Specific questions for States**

1. **In your country, what are the main human rights challenges arising from the implementation of climate change national plans and policies? List and describe them briefly.**

Key policies which are meant to address challenges with regards to human rights include: -

1. the Climate Change Act 2020 which came into force in April 2021 and makes provision for the commissioning of studies on climate change taking into consideration human right issues;
2. the Nationally Determined Contribution (NDC) action plan which is being finalized and has human rights as one of its cross-cutting issues. The objective is to provide measures to enhance the resilience of vulnerability community;
3. a National Adaptation Plan (NAP) which is being formulated to analyse climate change impact, assess risks and hazards among the vulnerable communities namely farmers, fishers, local communities through measures in four sectors namely the Coastal Zone, Infrastructure, Disaster Risk Reduction and Fisheries. The project has a duration of four years to the tune of USD 2.5 M and completion is expected in 2025; and
4. a study on coastal erosion and marine submersion due to the likely effects of Climate Change (e.g. sea level rise) which has been approved in February 2022 with assistance from French Government to the tune of Euro 1 M. The objectives are to assess and map coastal risks and hazards as well as analyse and map exposed assets. The project has a duration of 2 years and is expected to be completed by 2024.

Additionally, the Ministry of Environment, Solid Waste Management and Climate Change is currently finalising its Master Plan on the Environment for Mauritius (2020 – 2030) whose primary purpose is to establish the foundations to support the “*transition écologique*” for Mauritius and Rodrigues by 2030 while allowing Mauritius to become “*an inclusive, high income and green society forging ahead together*”.

The Master Plan aims to adapt lifestyle, economic development, institutions and legislations to the fast-changing global realities and to the specific socio-economic and environmental conditions of Mauritius. While focused primarily on the 2020 to 2030 period, the policy and strategy will include renewing legislations and institutions that will guide Mauritius’ development over the next decades.

It comprises a total of 113 policy recommendations emanating from the *Assises de l’environnement* for the 2020 to 2030 period.

The Action Plan also consists of some 734 actions for both Mauritius and Rodrigues, drawn from the working group consultations, the gaps and challenges analysis and recommendations. The Action Plan will be delivered mainly through the following 8 Thematic Areas:

1. *La culture environnementale;*
2. *Urbanisme et politique environnementale;*
3. *Le changement climatique;*
4. *Zones côtieres et environnement marin;*
5. *Biodiversité et ressources naturelles;*
6. *Lutte contre la pollution;*
7. *La gestion des déchets; and*
8. *Contrôle des déchets plastiques.*

Each theme aims to build on existing activities and introduce new approaches to further improve the benefits to the Mauritius Environment. The projects under each theme are priority actions for the next five years.

As the above mentioned policies/plan are under development, no challenges could be reported at this stage.

The Government of Mauritius has also announced a 60% renewable energy target in the energy mix by 2030, and a total phase out of coal utilization by the same timeframe. These policies are well in line to provide energy security to the country, and to ensure that the community can enjoy a good quality of life, by being less dependent on imported fossil fuels.

1. **Is your country involved in or supports in any way the development, implementation or use of NTCP?**

The term New Technologies for Climate Protection (NTCP)refers to techniques of deliberate intervention in the Earth’s natural system in order to prevent further climate change or reverse it. The two main types are:

1. Solar Radiation Management (SRM), that is, stratospheric aerosols; and
2. Carbon Dioxide Removal (CDR), where CDR solutions can be nature-based (forestation, soil carbon sequestration, biochar, etc.) or technological (enhanced weathering, bioenergy with carbon capture and storage, direct air capture and storage, etc.).

As Mauritius is promoting nature-based projects which include mainly forestation and soil carbon sequestration (e.g. through mangroves), these may be categorized as our involvement in the CDR solutions.

The Ministry of Blue Economy, Marine Resources, Fisheries and Shipping started a Mangrove Propagation Programme in 1995 so as to protect and restore the denuded areas. Mangrove forests are good carbon sinks and their propagation help combat climate change by fostering a relatively low net carbon dioxide concentration in the atmosphere. Much of the swamps have thus been saved and today mangrove propagation is encouraged throughout the island. The Division of Albion Fisheries Research Centre is the executing body in mangrove propagation in the coastal zones.

Moreover, the Forestry Service under the aegis of Ministry of Agro Industry and Food security is involved in the management and monitoring of the development of the forest sector in a sustainable way, in harmony with our National Development Plan. One of the main roles of forests includes enhancing carbon sequestration.

Additionally, a Renewable Energy Roadmap 2030 for the Electricity Sector was launched by the Government in 2019. The objectives of the Roadmap are essentially geared towards enabling the optimum production of energy from renewable resources and ensuring a transition towards greener and cleaner energy. The launching of the renewable energy programme demonstrates Government’s firm determination to encourage the development of green energy. It also charts the way for the development of Renewable Energies technologies, diversifying the electricity mix of Mauritius and adopting cleaner sources of energy. It provides significant information on short and long-term investment opportunities in renewable energy namely solar, biomass, waste-to-energy, onshore wind, hydro, offshore wind and wave.

The Roadmap has been prepared after consultations with a large number of stakeholders from public institutions, the private sector and NGOs, along with the assistance of the International Renewable Energy Agency, the United Nations Development Programme (UNDP), and *l’Agence Francaise de Developpement (AFD)*, amongst others. The Renewable Energy Roadmap for the Electricity Sector 2030, however, is currently under review.

Several environment-related projects are financed by the National Environment Fund. The Fund covers projects, programmes and schemes relating amongst others, to:

1. cleaning and embellishment works;
2. rehabilitation, protection and management of beaches, lagoons and coral reefs;
3. flood management and cleaning, rehabilitation and upgrading of drains, rivers;
4. solid waste management; and
5. green economy.

For the Financial Year 2020-2021, funds to the tune of MUR 20 million were earmarked under the National Environment Fund for implementation of the Solar Water Heater Scheme. The objectives of the Scheme are to:

1. encourage the use of renewable energy instead of fossil fuels;
2. reduce greenhouse gas emissions;
3. reduce home energy bills; and
4. provide to selected target groups access to hot water.

Under the Climate Change Act, the National Environment Fund has been renamed as the National Environment and Climate Change Fund to ensure that funding of projects take into consideration the climate change needs as a criterion.

Section 59 of the Environment Protection Act establishes the National Environment and Climate Change Fund. The objects of the Fund shall be, *inter alia*, to promote, support and encourage activities relating to environment protection and management and to finance projects, programmes and schemes relating to –

1. rehabilitation, protection and management of beaches, lagoons and coral reefs;
2. flood management and cleaning, rehabilitation and upgrading of drains, bridges and rivers;
3. solid waste management;
4. landslide management;
5. disaster risk reduction; and
6. cleaning and embellishment works. (Section 60)

It is also important to note that 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.

The AFD has been supporting Mauritius in its economic and ecological transition. It is involved primarily in the areas of infrastructures, the energy transition, climate, and regional cooperation through, *inter alia*:

1. projects to support the Government of Mauritius in defining its energy policy and programming its investment. To this end, alongside the Green Climate Fund, the AFD is working to improve electricity transmission and the injection of renewable energy into the Central Electricity Board grid and support the private sector by contributing to the financing for investments designed to reduce the impact of climate change via the Sustainable Use of Natural Resources and Energy Finance (SUNREF) III line of credit;
2. support which focuses on governance to improve inter-ministerial operations, on sector-specific public policies, and on preparation for foundational projects via the facility Adapt’Action;
3. mobilization of its expertise and its [SUNREF](https://www.sunref.org/en/) lines of credit to fund projects promoting adaptation to climate change to support Mauritius’ agricultural and energy transition;
4. [preservation of coastal areas](https://www.ffem.fr/en/sustainable-management-and-conservation-marine-environment-south-west-area-indian-ocean-support) by developing more sustainable economic activities in those areas and protecting marine and land-based resources through a project by the French Global Environment Facility (*Fonds français pour l'environnement mondial*, [FFEM](https://www.ffem.fr/en));
5. waste treatment and management; and
6. the development of a regional eco-tourism offering and establishing a training plan (safety and security – IPSP standard) for Indian Ocean ports.
7. **What measures, if any, (legislative, administrative, institutional, or other) have been put in place to regulate the use of NTCP? Have the human rights challenges arising from such activity been taken into account in their adoption?**

Measures undertaken by Mauritius include:

1. the Forests and Reserves Act No. 41 of 1983 (amended 1986 & 2003) which caters for the administration and management of forests and forest resources;
2. the Fisheries and Marine Resources Act 2007, the legislation which caters for the protection of mangroves and stipulates that “no person shall cut, remove, damage or exploit a mangrove plant or part of a mangrove plant except with the written approval of the Permanent Secretary”.
3. the National Forest Policy 2006, under which the Forest Sector is managed, and aims at:
4. increasing tree planting in the catchment areas of rivers, lakes and reservoirs in the interest of soil and water conservation, for mitigating floods and droughts and for the retardation of siltation of reservoirs;
5. conserving the natural heritage of the country by preserving the remaining forests with their unique fauna and flora, which represents the remarkable biological diversity and genetic resources of the country;
6. increasing forest/tree cover to enhance the environment and the carbon sink capacity of the forests through afforestation, reforestation and the National Tree Planting Campaign;
7. promoting the development of inland recreation and ecotourism activities for tourists and the local population;
8. ensuring the sustainable management of forest lands leased for Shooting & Fishing (Deer Ranching); and
9. improving the Forestry Service.
10. **In your country, which government agency has the initiative in the decision-making related to NTCP policies? If so, to what extent does the agency take the human rights issues into account in its agenda and decisions?**

A Climate Change Division has been set up under the aegis of the Ministry of Environment, Solid Waste Management and Climate Change in March 2010 to lead efforts in response to the ​​challenges of climate change faced by the country. Through its work, the Division aspires to enhance the country’s resilience to climate change. ​

The Division is also responsible for the development, coordination and implementation of climate change adaptation and mitigation policies, programmes and initiatives. In addition to the above, the Division also follows regional ​and international climate negotiations and ensures compliance with international commitments taken by Mauritius under the United Nations Framework Convention on Climate Change and the Kyoto Protocol.

Some of the notable works undertaken by the Division include:

1. development of a National Climate Change Adaptation Policy Framework for the Republic of Mauritius;
2. formulation of Technology Needs Assessment identifying and prioritizing relevant technologies for adaptation to and mitigation of climate change impacts;
3. reporting on Greenhouse gas emission;
4. preparation and submission of the Intended Nationally Determined Contributions to the United Nations Framework Convention on Climate Change (UNFCCC);
5. preparation and submission of Third National Communication on climate change to UNFCCC;
6. development of a Mauritius 2050 Pathways Calculator;
7. development of user-friendly sector-wise excel based mitigation toolkits and accompanying manuals for the sectors such as energy, transport, solid and liquid wastes, agriculture including livestock and crop, and forestry.
8. operationalization of a Climate Change Information Centre; and
9. promotion of research, capacity building and awareness raising.

The Climate Change Division is also formulating a Low Carbon Development Strategy and Nationally Appropriate Mitigation Actions (NAMAs) for Mauritius; and preparing an Initial Biennial Update Report (BUR) for the Republic of Mauritius.

An Inter-Ministerial Council on Climate Change has also been established under the Climate Change Act and whose object shall be to set national objectives, goals and targets with a view to making Mauritius a climate change-resilient and low emission country. The Inter-Ministerial Council on Climate Change is chaired by the Prime Minister. The first IMCCC was held on 28th September 2021 as main purpose to approve the Nationally Determined Contributions document. Under the said Act, the National Environment Fund has been renamed as the National Environment and Climate Change Fund to ensure that funding of projects take into consideration the climate change needs as a criterion.

**Specific questions for the technical community and academic institutions**

1. **How would you differentiate between “new” and “old” technologies for climate protection?**

New technologies are those that have emerged through innovation or still on the research phase or in its early stage of development and implementation while old technologies are those that have matured and been implemented for at least five years back.

Moreover, new technologies or innovative technologies would include carbon capture, energy storage, renewable energy-powered seawater desalination, electric and autonomous vehicles, nanofabrication and advanced manufacturing, gene editing and biofuels, robotics and sophisticated software systems; 3D printing, nanotechnology, data analytics, blockchain, Artificial Inteligence, etc. and are converging to improve efficiencies, optimise electricity consumption, and produce smart systems that will reduce our carbon footprint. All these technologies could fast track the global transition to a low carbon and sustainable world.

1. **Which NTCP do you find most important for the global efforts to combat climate change and why?**

Energy storage is the most important for global efforts to combat climate change as it would have a major impact on the viability of renewable energy. The purpose of energy storage is to capture energy and effectively deliver it for future use. [Energy storage technologies](https://www.sciencedirect.com/topics/engineering/energy-storage-technology) offer several significant benefits such as improved stability of power quality, reliability of power supply, etc. Energy storage can be in forms of battery storage, pumped [hydro energy](https://www.sciencedirect.com/topics/engineering/hydro-energy) storage, Compressed Air Energy Storage, Hydrogen, Flywheels and [thermal storage](https://www.sciencedirect.com/topics/engineering/thermal-energy-storage), with a focus on [latent heat storage](https://www.sciencedirect.com/topics/engineering/latent-heat-storage) technologies.

1. **What will be the impact of NTCP on the enjoyment of human rights in the short-term and the long-term?**

The increasing frequency of extreme weather events and natural disasters, rising sea levels, floods, heat waves, droughts, desertification, water shortages, and the spread of tropical and vector-borne diseases have been identified as some of the adverse impacts of climate change. These phenomena directly and indirectly threaten the full and effective enjoyment of a range of human rights by people throughout the world, including the rights to life, standard of living, safe drinking water and sanitation, food, health, housing, self-determination, culture, work and development.

1. **How should the impact of the use of NTCP be assessed and attributed given scientific uncertainty? What is the role for the precautionary approach?**

Survey will need to be carried out and statistics on the cases should be kept and analyzed. Geographical information system should be utilized to map the extent of the spread of any health issues and the surface area that are under risk.

1. **Will the current international human rights framework and standards as well as national policies be effective in addressing human rights challenges from NTCP? If not, how can they be improved?**

As new technologies are implemented and risks are assessed, the framework, standards and national policies must be revisited to take into consideration the new challenges and risks.

1. **Do you think that policy efforts to address human rights challenges in NTCP will promote their use or deter it? How to strike a balance between the need to employ technology with the goal of reaching net zero CO2 emissions and the need to protect human rights?**

Policy regarding the NTCP should be drafted in such a way that human rights are promoted.

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