Actions taken by Climate Change Secretariat for Climate Change Adaptation

1. National Adaptation Strategy

National Climate Change Adaptation Strategy (NCCAS) lays out a prioritized framework for action and investment for the 2011- 2016 period aimed at systematically moving Sri Lanka and its people towards a climate change resilient future.

key findings of sector-based analysis were synthesized into an integrated framework, and structured into the following 5 Strategic Thrusts:

1. Mainstream Climate Change Adaptation into National Planning and Development
2. Enable Climate Resilient and Healthy Human Settlements
3. Minimize Climate Change Impacts on Food Security
4. Improve Climate Resilience of Key Economic Drivers
5. Safeguard Natural Resources and Biodiversity from Climate Change Impacts

Under each of the Strategic Thrusts, key Thematic Areas for action, along with priority Adaptation Measures, have been identified. This will being updated now through Vulnerable Assessment Project.

2. National Adaptation Plan

Adapting to Climate Change is becoming a routine and necessary component of planning at all levels. The United Nations Framework Convention on Climate Change (UNFCCC) established the national adaptation plan (NAP) process as a way to facilitate adaptation planning in developing countries. Accordingly, National Adaptation Plan for Climate Change Impacts in Sri Lanka was prepared for the period of 2016-2025. In the NAP nine sectors have been identified as the most vulnerable sectors to adverse effects of Climate Change and 10 cross cutting issues in Sri Lanka. The NAP has been identified priority adaptation needs, adaptation options, and relevant actions with the responsible agencies to implement.

3. Technology Need Assessment

A global TNA project has been designed by the United Nations Environment Programme (UNEP) with the support of the Global Environment Facility to facilitate 35 to 40 countries to carry out improved Technology needs assessments within the framework of UNFCCC. Sri Lanka was also identified as one of the countries to carry out TNA.

The Technology Needs Assessment was carried out to identify measures and practices that might be implemented in different sectors of a country to reduce GHG emissions and vulnerability to adverse effect of Climate Change and to contribute to overall development goals. It provides multiple benefits at the country level, including the identification of barriers for deployment and diffusion of technologies and facilitate in removing of policy and legal gaps leading to improvement of enabling environments, increasing the capacity of local institutions and experts, and raising public awareness of climate change issues.

4. NDCs on Adaptation

The Ministry of Mahaweli Development and Environment in Sri Lanka as the National Focal Point to the United Nations Framework Convention on Climate Change (UNFCCC), submitted its Nationally Determined Contributions (NDCs) in accordance with Decision 1/CP.21 of the 21st session of the Conference of the Parties to the UNFCCC.

The NDCs have been formulated based on previously submitted INDCs following the principle of common but differentiated responsibilities and respective capabilities. The information presented in this submission is based on the data available at the time of preparation of country's NDCs.

NDCs of Sri Lanka will be implemented under the guidance of the Climate Change Commission of Sri Lanka, in coordination with the relevant ministries. A coordinating body consisting of relevant ministries will provide input to the implementation of NDCs, while the monitoring, reporting and verification component of the NDCs implementation is entrusted to the Climate Change Commission of Sri Lanka of the Ministry of Mahaweli Development and Environment of Sri Lanka.

Adaptation Sectors under NDCs

- Human Health
- Food Security (Agriculture, Livestock and Fisheries)
- Water and Irrigation
- Coastal and marine
- Biodiversity
- Urban infrastructure and Human settlement
- Tourism and Recreation

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Adaptation to Climate Change

In general, adaptation means the action or process of adapting or being adapted for facing the impacts of climate change. Climate adaptation is widely defined as actions taken to moderate, cope or taken advantage of experienced or anticipated changes in climate (IPCC, 2007)

What is Climate Change?

"Climate Change" defines as a change of climate, which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods (UNFCCC, 1992).

Elements of adaptation

Adaptation activities span in five general components:

- Observation of climatic and non-climatic variables
- Assessment of climate impacts and vulnerability
- Adaptation Planning
- Implementation of adaptation activities
- Monitoring and evaluation of adaptation actions

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Adverse effects of Climate Change

"Adverse effects of climate change" describe as changes in the physical environment or biota resulting from climate change which have significant deleterious effects on the composition, resilience or productivity of natural and managed ecosystems or on the operation of socio-economic systems or on human health and welfare (UNFCCC, 1992). Some examples for adverse effects of climate change are as follows,

- Prolong droughts
- Flash floods
- Rising sea levels
- Desertification
- Changing Oceanic temperature
- Melting polar ice

The Salient Milestones undertaken on Climate Change Adaptation by UNFCCC

1. Establishment of Least Develop Country Expert Group (LEG)

The LEG was established by the COP 7 (Marrakech, 2001). The LEG is requested by the COP to provide technical support and advice to the least developed countries (LDCs) on the national adaptation programmes of action (NAPAs) and the LDC work programme, and to provide technical guidance and support to the national adaptation plan (NAP) process. The LEG meets twice a year and supports LDCs through a variety of modalities that include training workshops, development of guides, tools, technical papers, publications and databases, and by reviewing draft NAPAs upon request or providing direct advice.

2. Establishment of the Nairobi Work Programme

The Nairobi work programme (NWP) on impacts, vulnerability and adaptation to climate change was established at COP 12 (Nairobi, 2006), through decision 2/CP.12, as a mechanism under the Convention to facilitate and catalyze the development and dissemination of information and knowledge that would inform and support adaptation policies and practices. Its implementation has been coordinated by the Subsidiary Body for Science and Technological Advice (SBSTA), under the guidance of the Chair of the SBSTA, with assistance from the Secretariat, and with contributions from Parties and other adaptation stakeholders.

Through its four main functions and diverse range of modalities, the Nairobi work programme provides unique opportunities for linking relevant institutions, processes, resources and expertise outside the Convention to respond to adaptation knowledge needs identified by Parties, and arising from the implementation of the various work streams under the Convention.

3. Adaption of the Cancun Adaptation Framework

Parties adopted the Cancun Adaptation Framework (CAF), as part of the Cancun Agreements at the COP 16 (Cancun, Mexico,2010). In the Agreements, Parties affirmed that adaptation must be addressed with the same level of priority as mitigation. The CAF is the result of three years of negotiations on adaptation under the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA) that had followed the adoption of the Bali Action Plan at the 13th conference of parties (COP13,2017) in Bali, Indonesia.

4. Establishment of Adaptation Committee (AC)

As part of the Cancun Adaptation Framework, Parties established the Adaptation Committee (AC) to promote the implementation of enhanced action on adaptation in a coherent manner under the Convention, inter alia, through the following functions,

- Providing technical support and guidance to the Parties
- Sharing of relevant information, knowledge, experience and good practices
- Promoting synergy and strengthening engagement with national, regional and international organizations, centres and networks
- Providing information and recommendations, drawing on adaptation good practices, for consideration by the COP when providing guidance on means to incentivize the implementation of adaptation actions, including finance, technology and capacity-building
- Considering information communicated by Parties on their monitoring and review of adaptation actions, support provided and received

The Adaptation Committee comprises 16 members including representatives from the five UN regional groups, the Small Island Developing States (SIDS), Least Develop Countries (LDC), Non-Annex I and Annex I Parties, who shall serve in their personal capacity.

5. Establishment of National Adaptation Plans (NAPs) process

The National Adaptation Plan (NAP) process was established under the Cancun Adaptation Framework (CAF) at COP 16 (2010). It enables Parties to formulate and implement National Adaptation Plans (NAPs) as a means of identifying medium and long-term adaptation needs and developing and implementing strategies and programmes to address those needs. It is a continuous, progressive and iterative process which follows a country-driven, gender-sensitive, participatory and fully transparent approach.

6. Establishment of Warsaw International Mechanism for Loss and Damage

As part of the Cancun Adaptation Framework, the COP 16 initiated, in 2010, consideration on approaches to address loss and damage associated with climate change impacts in developing countries that are particularly vulnerable to the adverse effects of climate change. Following two years of deliberations on this issue at COP19 in Warsaw, Portland in 2013 established the Warsaw International Mechanism for Loss and Damage associated with Climate Change Impacts, as the main vehicle under the Convention to promote the implementation of approaches to address loss and damage in a comprehensive, integrated and coherent manner.

7. Establishment of Technical Examination Process on Adaptation

The Technical Examination Process on Adaptation (TEP-A) was established for the period of 2016-2020 at COP 21 as part of the enhanced action prior to 2020 in the decision adopting the Paris Agreement. The objective of TEP-A is to identify concrete opportunities for strengthening resilience, reducing vulnerabilities, and increasing the understanding and implementation of adaptation actions, including through the following four functions of the TEP-A:

1. Facilitating the sharing of good practices, experiences and lessons learned
2. Promoting cooperative action on adaptation
3. Identifying actions, including actions that could enhance economic diversification and have mitigation co-benefits
4. Identifying opportunities to strengthen enabling environments and enhance the provision of support for adaptation in the context of specific policies, practices and actions.

8. Adaptation Support for Developing Countries

8.1 Finance

The contribution of countries to Climate Change, and their capacity to prevent and cope with its consequences, varies enormously. The Convention and the Kyoto Protocol therefore foresee financial assistance from Parties with more resources to those less endowed and more vulnerable. Developed country Parties (Annex II Parties) shall provide financial resources to assist developing country Parties in implementing the Convention. To facilitate this, the Convention established a Financial Mechanism to provide funds to developing country Parties.

The Convention, under its Article 11, states that the operation of the Financial Mechanism is entrusted to one or more existing international entities. The operation of the Financial Mechanism is partly entrusted to the Global Environment Facility (GEF). At COP 17 Parties decided to designate the Green Climate Fund (GCF) as an operating entity of the Financial Mechanism of the Convention, in accordance with Article 11 of the Convention. The Financial Mechanism is accountable to the COP, which decides on its Climate Change policies, programme priorities and eligibility criteria for funding.

The Kyoto Protocol also recognizes, under its Article 11, the need for the Financial Mechanism to fund activities by developing country Parties. In addition to providing guidance to the GEF, Parties have established four special funds: the Special Climate Change Fund (SCCF), the Least Developed Countries Fund (LDCF), both managed by the GEF, and the GCF under the Convention; and the Adaptation Fund (AF) under the Kyoto Protocol.

At COP 16, Parties decided to establish the Standing Committee on Finance to assist the COP in exercising its functions in relation to the Financial Mechanism of the Convention. Funding for Climate Change activities is also available through bilateral, regional and multilateral channels.

8.2 Capacity building

Article 11 of the Paris Agreement states that all Parties should cooperate to enhance the capacity of developing country Parties to implement the Paris Agreement. Developed country Parties should enhance support for capacity building actions in developing country Parties.

In accordance with decision 16/CP.22 capacity-building is an integral component of the means of implementation to enable developing country Parties to implement the Convention and the Paris Agreement and is the active engagement of a wide spectrum of stakeholders, including State and non-State actors, in planning, implementing and monitoring activities with capacity-building components. The COP 22 noted that many of the areas contained in the framework for capacity-building in developing country Parties are also relevant to Parties with economies in transition. Additionally, the Paris Agreement also recognizes that, while the objective and scope of capacity-building in developing countries as contained in decision 2/CP.7 are still relevant, current and emerging areas in the context of the Convention and the Paris Agreement should also be taken into account in the further implementation of the framework for capacity-building in developing countries.

8.3 Development and transfer of technologies

8.3.1 Technology Executive Committee (TEC)

Created in 2010, the Technology Executive Committee (TEC) is the policy arm of the Technology Mechanism. It focuses on identifying policies that can accelerate the development and transfer of low-emission and climate resilient technologies.

The TEC consists of 20 technology experts representing developed and developing countries. It meets at least twice a year and holds climate technology events to support efforts to address technology-related policy issues. Each year the TEC reports to the Conference of the Parties (COP) on its performance and activities. Specifically, the TEC analyses climate technology issues and develops balanced policy recommendations, supporting countries to accelerate action on Climate Change.

8.3.2 Technology Need Assessment

Understanding developing countries' climate technology needs is the starting point for effective action on Climate Change. By understanding these needs we can determine how to reduce greenhouse gas emissions and adapt to the adverse impacts of Climate Change. To determine their climate technology priorities, countries undertake Technology Needs Assessments (TNAs). TNA supports national sustainable development, builds national capacity and facilitates the implementation of prioritized Climate technologies. Since 2001, more than 80 developing countries have conducted TNAs to address Climate Change. More recently, many countries have identified climate technology needs in their Nationally Determined Contributions (NDCs).

8.3.3 Climate Technology Centre and Network (CTCN)

The CTCN is the operational arm of the UNFCCC Technology Mechanism, hosted by the UN Environment Programme (UNEP) and the UN Industrial Development Organization (UNIDO). The Centre promotes the accelerated transfer of environmentally sound technologies for low carbon and climate resilient development at the request of developing countries. This provide technology solutions, capacity building and advice on policy, legal and regulatory frameworks tailored to the needs of individual countries.

9. Research and Systematic Observation on Adaptation

9.1 Research

The Convention calls on Parties to promote and cooperate in research, systematic observation and the development of data archives, including through exchange of information; to support programmes, networks and organizations; and improve the capacities of developing countries (Article 4.1, g, and Article 5). Parties report on their national and cooperative research activities and their contributions to climate science, as well as emerging research needs and priorities, in their national communications.

Implementation of research under the Convention and Paris Agreement is supported through cooperation with the World Climate Research Programme (WCRP), which coordinates the Coupled Model Intercomparison Project (CMIP), the Intergovernmental Panel on Climate Change (IPCC) and other programmes, networks and organizations. The Secretariat facilitates dialogue and communication on the research needs and priorities expressed by Parties to the scientific community and on the most recent and relevant information from the scientific community to Parties, including through the research dialogue.

9.2 Systematic observation

Systematic observation of the climate system - atmosphere, land and ocean - is a key prerequisite for advancing scientific knowledge on Climate Change and informing decision making on mitigation and adaptation.

Parties provide detailed technical reports on the status of their national systematic observation via their National Communications, in line with the guidelines in decision 11/CP.13. The Paris Agreement identifies the need for an effective and progressive response to the urgent threat of Climate Change on the basis of the best available scientific knowledge. This requires strengthening of knowledge on climate, including systematic observation of the climate system and early warning systems, in a manner that informs climate services and supports decision-making.

Implementation of systematic observation is supported through the Global Climate Observing System (GCOS), Committee on Earth Observation Satellites (CEOS), World Meteorological Organization (WMO) and other agencies.

Climate Change Vulnerability in Sri Lanka

Sri Lanka is an island nation in the Indian Ocean, located about 80km to the southeast of the Indian sub-continent. It comprises a mainland of area 65,610km^2 and a large number of small islands. The south-central part of the country is mountainous, while the rest of the country is mostly flat undulating land. The country has a coast line of about 1,585 km, comprising sandy beaches and sand dunes, and dotted with many lagoons, estuaries, marshes, mangroves and deltas. There are altogether 103 rivers spread around the country, with a total annual run- off of about 43Gm^3. The climate of the country depends largely on the monsoon wind pattern. The annual mean surface temperature has an average of about 27 ^{0}C in the low land and an annual mean temperature of about 15 ^{0}C in the highlands. Based on the annual rainfall received, the country is divided in to three-climate zones wet, intermediate and dry zone.

An analysis of the past climate in Sri Lanka was analyzed using temperature and rainfall data collected by the Meteorological Department. It was revealed that during the 40 year period both the maximum and minimum temperature at most stations have shown upward trends with rates ranging up to a maximum of 0.46 ^{0}C per decade in the case of maximum temperature and 0.27 ^{0}C per decade in the case of minimum temperature. On the other hand the rainfall in all stations has shown decreasing trends with rates ranging from 1.5mm/year to 19 mm/year, the high rates being shown in areas already receiving high rainfall. (Sri Lankas' second national communication on climate change,2011)

Droughts, floods, landslides, cyclones and coastal erosion are the most frequent extreme events /natural hazards affect Sri Lanka. Increased rainfall intensity and forest cover reduction led to increases in landslides, which result in greater displacement, loss of life, and heavy economic loss. Frequent extreme natural hazards threat to Sri Lanka's economy and human health and damage to infrastructure, crops, and livelihoods. Vector-borne diseases are spreading, as a result of a changing climate conditions also vulnerable communities living along canals in specific districts are suffering from deteriorating conditions, especially when there is lack of risk preparedness, canal management and waste disposal programs, and early warning systems for flooding. Sea level rise leads to inundation of low-lying coastal areas, shoreline retreat, intrusion of salinity, and negative impacts on coastal habitats. In addition, an increase in wave height will mean disturbing equilibrium beaches and making them more prone to erosion, while interfering with existing long shore sediment transport rates.

The most vulnerable sectors to adverse effects of climate change in Sri Lanka

Followings are the key vulnerable sectors identified under the NAP process

1. Health
2. Food security (Agriculture, Livestock and Fisheries)
3. Water resource
4. Export agriculture
5. Coastal and marine
6. Ecosystem and biodiversity
7. Tourism and recreation
8. Human settlement and infrastructure
9. Industry, energy and transportation