

India's Efforts to Deal with Climate Change

1. India's Updated Nationally Determined Contribution (NDC)

1.1 What is an NDC?

- An NDC is a set of long-term goals to cut carbon emissions and adapt to climate impacts that every country signatory to the Paris Agreement has to provide, and update every five years.
- **Article 4, paragraph 2** of the Paris Agreement states that 'Each Party shall prepare, communicate and maintain successive nationally determined contributions that it intends to achieve. Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions'.
- Under the Agreement, Parties **have to keep updating their NDCs every five years** and have to submit that to the Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC).

1.2. Background

- India is one of the 195 Parties to the Paris Agreement, a **legally binding** international treaty on climate change.
- Earlier, India submitted its Intended Nationally Determined Contribution (INDC) to UNFCCC on October 2, 2015, with eight main goals.
- Three of these have quantitative targets up to 2030 namely,
 - cumulative electric power installed capacity from non-fossil sources to reach 40%;
 - reduce the emissions intensity of GDP by 33 to 35 percent compared to 2005 levels and
 - creation of an additional carbon sink of 2.5 to 3 billion tonnes of CO₂ equivalent through additional forest and tree cover.

1.3. Introduction to India's updated NDC

- In August 2022, India formally updated its NDC to the UNFCCC, which was approved by the Union Cabinet.

- The updated NDC is a step towards **India's goal to reach net-zero emissions by 2070.**
- It seeks to enhance India's contributions towards the achievement of the strengthening of global response to the threat of climate change, as agreed under the Paris Agreement.

1.4. Main Provision of India's updated NDC

- India now stands committed to **reduce Emissions Intensity of its GDP by 45 percent by 2030** (higher than the 33-35% range mentioned in the first INDC), from 2005 level.
- India will also achieve **50% cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030** (as opposed to a 40% target for this in the first INDC).
- The updated NDC also put forward a healthy and sustainable way of living based on traditions and values of conservation and moderation, including through a mass movement for '**LiFE**'– '**Lifestyle for Environment**' as a key to combating climate change.
- It has been prepared after carefully considering its national circumstances and the principle of **common but differentiated responsibilities and respective capabilities** (CBDR-RC).
- It also reaffirms its commitment to work towards a low carbon emission pathway, while simultaneously endeavoring to achieve sustainable development goals.
- The updated NDC also represents the framework for India's transition to cleaner energy for the period 2021-2030.
- The updated framework, together with many other initiatives of the Government, including tax concessions and incentives such as Production Linked Incentive scheme, will provide an opportunity for enhancing India's manufacturing capabilities and enhancing exports.
- It will lead to an overall increase in green jobs such as in renewable energy, clean energy industries, manufacturing of low emissions products like Electric Vehicles, etc.

2. India's Panchamrit and LiFE Initiative

2.1. Introduction

- India announced its enhanced climate commitments — the “Panchamrit” at UNFCCC COP-26 which was held from 31 October to 13 November 2021 in Glasgow, Scotland, United Kingdom.
- It includes a commitment to reach net-zero carbon emission by 2070.
- India’s announcement of its net-zero goal is a major step considering the fact that it is not the cause of global warming.
- Its historical cumulative emissions are a mere 4.37% of the world’s total.

2.2. Panchamrit Promises

India will:

- get its non-fossil energy capacity to 500 gigawatt by 2030.
- meet 50 per cent of its energy requirements till 2030 with renewable energy.
- reduce its projected carbon emission by one billion tonnes by 2030.
- reduce the carbon intensity of its economy by 45 per cent by 2030.
- reach the set target of net zero emissions by 2070.

2.3. LiFE Initiative

- In 2022, India launched the mission LiFE movement, Lifestyle for the Environment, which is an India-led global mass movement which aims to empower individual and collective action to protect and preserve the environment.
- The LiFE movement aims to leverage the strength of social networks to create a global network of individuals called ‘**Pro-Planet People**’ (P3).
 - The Pro-Planet People adopt environment-friendly lifestyles and have a shared commitment to promote it across the globe.
- Under the initiative, the ‘**Meri LiFE**’ mobile application was launched with the objective to encourage Indians and other global citizens to take collective and individual action against climate change for the protection of the environment.

3. India’s Biennial Update Report (BUR)

3.1. Introduction

- UNFCCC enjoins upon all its Parties to furnish information in the form of a National Communication regarding implementation of the Convention.
- At COP17, it was decided that Biennial Update Reports (BURs) shall be submitted **every two years**.

- Consequent to this, India had submitted its first BUR to the UNFCCC in 2016 and the second one in 2018.
- India submitted its third biennial update report (BUR-III) to the UNFCCC in February 2021.

3.2. What are BURs?

- BURs are reports to be **submitted by non-Annex I Parties**, containing updates of national Greenhouse Gas (GHG) inventories, including a national inventory report and information on mitigation actions, needs and support received.
- Such reports provide updates on actions undertaken by a Party to implement the Convention, including the status of its GHG emissions and removals by sinks, as well as on the actions to reduce emissions or enhance sinks.

3.3. Highlights from BUR-III

- India declared that the country's emission intensity (per unit of GDP) has **reduced by 24% between 2005 and 2016** and therefore it is "on track to meet its voluntary declaration to reduce the emission intensity of GDP by 20-25% from 2005 levels by 2020".
- The BUR-III, carrying details of India's GHG inventory for the year 2016, shows that the country had emitted **2.8 billion tonnes of greenhouse gases (GHG)** with the **energy sector alone accounting for 75%** of the total emissions.
- In the energy sector, electricity production was the single largest source in this category, accounting for about 40% of the national total GHG emissions in 2016 while manufacturing industries and construction together emitted over 18% of total emissions.
- Though the BUR-III gave details on how the share of non-fossil sources (renewable and nuclear) in total installed capacity of electricity generation increased to over 38% by November last year, it emphasized on the need to continue coal consumption in the country.

4. National Action Plan on Climate Change (NAPCC)

4.1. What is the National Action Plan on Climate Change (NAPCC)?

- NAPCC outlines a national strategy that aims to enable the country to adapt to climate change and enhance the ecological sustainability of India's development path.

- It stresses that maintaining a high growth rate is essential for increasing living standards of the vast majority of people of India and reducing their vulnerability to the impacts of climate change.
- It was **released** by India **on 30th June 2008**.

4.2. Principles of NAPCC

- Protecting the poor through an inclusive and sustainable development strategy, sensitive to climate change.
- Achieving national growth and poverty alleviation objectives while ensuring ecological sustainability.
- Efficient and cost-effective strategies for end-use demand-side management.
- Extensive and accelerated deployment of appropriate technologies for adaptation and mitigation.
- New and innovative market, regulatory, and voluntary mechanisms for sustainable development.
- Effective implementation through unique linkages – with civil society, LGUs (local government units), and public-private partnerships.

4.3. Eight National Missions

- There are eight National Missions which form the core of the National Action Plan.
- They focus on promoting understanding of climate change, adaptation and mitigation, energy efficiency and natural resource conservation.
- These eight missions are:
 1. National Solar Mission
 2. National Mission for Enhanced Energy Efficiency
 3. National Mission on Sustainable Habitat
 4. National Water Mission
 5. National Mission for Sustaining the Himalayan Ecosystem
 6. National Mission for a Green India
 7. National Mission for Sustainable Agriculture
 8. National Mission on Strategic Knowledge for Climate Change

4.3.1. National Solar Mission (NSM)

- It was launched in **January 2010**.
- The initial target of NSM was to install 20 GW solar power by 2022. This was **upscaled to 100 GW** in early 2015.

Objective of NSM

- The objective of the National Solar Mission is to establish India as a global leader in solar energy.
- The Mission adopts a three-phase approach, Phase 1 (up to 2012 -13), Phase 2 (2013 - 17) and Phase 3 (2017 - 22).
- The immediate aim of the Mission is to focus on setting up an enabling environment for solar technology penetration in the country both at a centralized and decentralized level.

4.3.2. National Mission for Enhanced Energy Efficiency (NMEEE)

- This Mission has been **implemented since 2011**.
- It aims to strengthen the market for energy efficiency by creating conducive regulatory and policy regime and has envisaged fostering innovative and sustainable business models to the energy efficiency sector.
- It consists of **four initiatives to enhance energy efficiency** in energy intensive industries:
 - Perform, Achieve and Trade (PAT)
 - Market Transformation for Energy Efficiency (MTEE)
 - Energy Efficiency Financing Platform (EEFP)
 - Framework for Energy Efficient Economic Development (FEEED)

4.3.3. National Mission on Sustainable Habitat

It was approved in June 2010 and include:

- Development of sustainable habitat standards that lead to robust development strategies while simultaneously addressing climate change related concerns.
- Preparation of city development plans that comprehensively address adaptation and mitigation concerns.
- Preparation of comprehensive mobility plans that enable cities to undertake long-term, energy efficient and cost effective transport planning.
- Capacity building for undertaking activities relevant to the Mission.

4.3.4. National Water Mission

- The Mission takes into account the provisions of the National Water Policy and develops a framework to optimize water use by **increasing water use efficiency by 20 percent** through regulatory mechanisms with differential entitlements and pricing.
- It seeks to ensure that a considerable share of the water needs of urban areas are met through recycling of waste water.
- It ensures that the water requirements of coastal cities with inadequate alternative sources of water are met through adoption of new and appropriate technologies.

Five goals of National Water Mission

- Comprehensive water data base in the public domain and assessment of the impact of climate change on water resources.
- Promotion of citizen and state actions for water conservation, augmentation and preservation.
- Focused attention to vulnerable areas including over-exploited areas.
- Increasing water use efficiency by 20 per cent.
- Promotion of basin level integrated water resources management.

4.3.5. National Mission for sustaining the Himalayan Ecosystem

- It was **launched in 2010** but was formally **approved** by the government in **2014**.
- This particular mission sets the goal to prevent melting of the Himalayan glaciers and to protect biodiversity in the Himalayan region.
- The mission attempts to address some important issues concerning
 - Himalayan Glaciers and the associated hydrological consequences
 - Biodiversity conservation and protection
 - Wildlife conservation and protection
 - Traditional knowledge societies and their livelihood, and
 - Planning for sustaining the Himalayan Ecosystem

4.3.6. National Mission for a Green India

- The National Mission for a Green India or the commonly called **Green India Mission (GIM)** was launched in **February, 2014**.
- It aims at protecting, restoring and enhancing India's diminishing forest cover and responding to climate change through adaptation and mitigation measures.
- It focusses on multiple ecosystem services such as biodiversity, water, biomass, preserving mangroves, wetlands, critical habitats etc. along with carbon sequestration.

Objectives of the Mission

- Increased forest/tree cover on 5 m ha of forest/non-forest lands and improved quality of forest cover on another 5 m ha (a total of 10 m ha).
- Improved ecosystem services including biodiversity, hydrological services and carbon sequestration as a result of treatment of 10 m ha.
- Increased forest-based livelihood income of about 3 million households living in and around the forests.
- Enhanced annual CO₂ sequestration by 50 to 60 million tonnes in the year 2020.

4.3.7. National Mission for Sustainable Agriculture

- National Mission for Sustainable Agriculture (NMSA) has been made operational from the year 2014-15.
- It aims at making agriculture more productive, sustainable, remunerative and climate resilient by
 - promoting location specific integrated /composite farming systems;
 - soil and moisture conservation measures;
 - comprehensive soil health management;
 - efficient water management practices and
 - mainstreaming rain-fed technologies.

Farm Water Management (FWM)

- It was implemented as one of the components of NMSA **during 2014-15** with the objective of **enhancing water use efficiency** by promoting technological interventions like drip & sprinkler technologies, efficient water application & distribution system, secondary storage etc.
- Thereafter, these activities have been subsumed under the **Per Drop More Crop** (PDMC) component of Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) during 2015-16.

Soil Health Management (SHM)

- SHM is one of the components under the National Mission for Sustainable Agriculture (NMSA).
- It aims at **promoting Integrated Nutrient Management (INM)** through judicious use of chemical fertilizers including secondary and micro nutrients in conjunction with organic manures and biofertilizers for
 - improving soil health and its productivity,
 - strengthening of soil and fertilizer testing facilities to improve soil test based recommendations to farmers for improving soil fertility.

Soil Health Card Scheme

- It has been under implementation in the country since February, 2015 to provide Soil Health Cards to all farmers in the country.
- Soil Health Card will provide **information to farmers on soil nutrients status** of their soil and recommendation on appropriate dosage of nutrients to be applied for improving soil health and its fertility.

4.3.8. National Mission on Strategic Knowledge for Climate Change (NMSKCC)

- The mission is **governed by the Department of Science and Technology**.
- It identifies challenges and requisite responses to climate change.
- It seeks to build a vibrant and dynamic knowledge system that would inform and support national action for responding effectively to the objective of ecologically sustainable development.
- It focus on following themes:
 - Research in key areas of climate science like monsoon dynamics, aerosol science etc,
 - Global and regional climate modeling,
 - Observational networks,
 - Creation of research infrastructure.

Objectives of NMSKCC

- Formation of knowledge networks among the existing knowledge institutions engaged in research and development relating to climate science.
- Facilitate **data sharing and exchange** through a suitable policy framework and institutional support.
- **Development of national capacity** for modeling the regional impact of climate change on different ecological zones within the country for different seasons and living standards.
- **Establishing research networks** and encouraging research in the areas of climate change impacts on important socio-economic sectors.
- Building alliances and partnerships through global collaboration in research & technology development on climate change under International and bilateral Science & Technology cooperation arrangements.



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