

CHAPTER 7:

CLIMATE CHANGE & ENVT : PREPARING TO FACE THE FUTURE

- climate change is primarily attributed to disproportionately high cumulative emission both historical and high per capita annual emission of GHG of the developed countries
- IPCC 6th AR says Asia is most vulnerable to cc
- Nobel Laureate Thomas Schelling (2005) argued that most effective way to combat cc was to let nations grow first.
- India has contributed only 4% (until 2019) to the cumulative global emissions
- UNFCCC call for collective action based on the principle of equity & CBDR-RC

PROGRESS ON INDIA'S CLIMATE ACTION

Figure VII.2: Progress on Eight National Missions of the NAPCC highlighting achievements across various domains

National Solar Mission	•Solar power capacity of 61.62 GW installed by October 2022
National Mission for Enhanced Energy Efficiency	•PAT Cycle-VII notified in October 2021 for energy saving target of 6.63 Million Tonnes of Oil Equivalent (MTOE)
National Mission on Sustainable Habitat	•721 km of metro rail network made operational by August 2022. •62.79 lakh individual household toilets and 6.21 lakh community and public toilets constructed by April 2022
National Mission for a Green India	•₹ 626.96 crore for afforestation targets over an area of 2.1 lakh ha
National Water Mission	•Jal Shakti Abhiyan: Catch The Rain 2022
National Mission on Strategic Knowledge for Climate Change	•Created and strengthened 12 Centres of Excellence for climate change (June 2021)
National Mission for Sustaining Himalayan Ecosystems	•Inter-University Consortium •8 Major R&D Programmes initiated
National Mission for Sustainable Agriculture	•Key targets for FY 2022-2023 covering 0.15 lakh ha under organic farming and 10 lakh ha under micro irrigation

UPDATED NDCs

→ Aug 2022

- 1) 'LIFE' movement
- 2) adopt climate friendly and cleaner path for eco dupl
- 3) reduce emission intensity of its GDP by 45% by 2030 from 2005 level
- 4) 50% cumulative electricity from non-fossil fuels
- 5) additional carbon sink of 2.5 to 3 bn tonnes of CO2 equivalent
- 6) enhance investments in dupl programmes in sectors vulnerable to cc
- 7) mobilise domestic & new & additional funds from developed countries
- 8) build capacities, focus on cutting edge tech, joint collaborative R&D

FOREST & TREE COVER

- gradual & steady increase in last 15 yrs
- India ranked 3rd globally wrt net gain in avg annual forest area
- efforts viz GIM, CAMPA, NAP, National Agro-forestry policy
- ISFR estimates the carbon stock of forest - 7,204 MT in 2019
 - ↳ Arunachal Pradesh max carbon stock, then MP

Figure VII.3: Carbon stock in forests in India has been rising

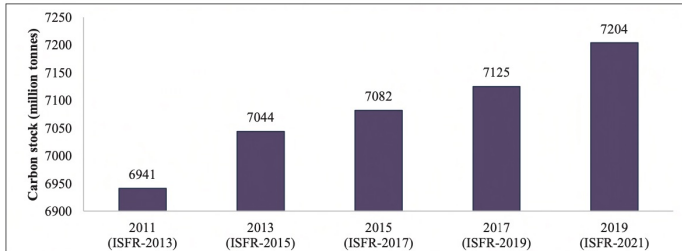
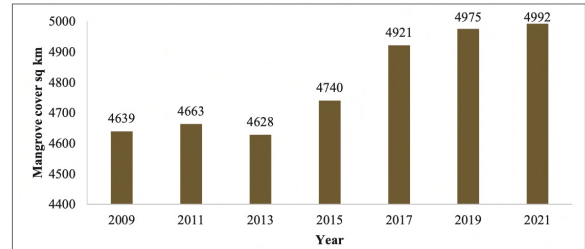


Figure VII.4: Increasing Mangrove cover in India



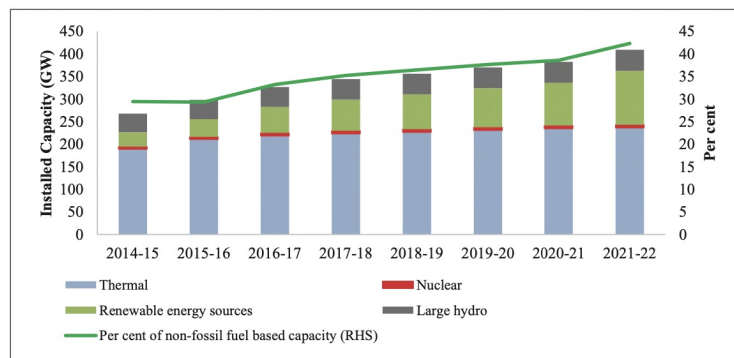
Source: ISFR 2021

PRESERVATION OF ECOSYSTEMS

- mangroves & coastal wetlands form the first line of defence for coastal communities against flooding, storm surges & hurricanes
- River conservation & rejuvenation
 - ↳ SPs - people, policy, plan, programme & project
 - ↳ Namami Gange - NRCP

RENEWABLE ENERGY

Figure VII.5: Increasing installed Electricity Generation Capacity with a rising share of non-fossil fuel-based capacity



Source: Based on data from the Ministry of Power.

GREEN HYDROGEN

Figure VII.9: Salient Features of the National Green Hydrogen Mission

Likely Outcomes by 2030	<ul style="list-style-type: none"> Green hydrogen production capacity of at least 5 MMT (Million Metric Tonne) per annum. Cumulative reduction in fossil fuel imports over ₹1 lakh crore and creation of over 6 lakh jobs. Renewable energy capacity addition of about 125 GW and abatement of nearly 50 MMT of annual GHG emissions.
Interventions	<ul style="list-style-type: none"> Financial incentive targeting domestic manufacturing of electrolyzers and production of Green Hydrogen. Regions capable of supporting large scale production and/or utilisation of Hydrogen to be developed as Green Hydrogen Hubs.
Policy Framework	<ul style="list-style-type: none"> Development of an enabling policy framework to support establishment of Green Hydrogen ecosystem. Robust Standards and Regulations framework. Public-private partnership framework for R&D. Skill development programme

Source: Ministry of New & Renewable Energy

LT- LEDS

- 1) Focus on rational utilisation of national resources & energy security
- 2) National hydrogen Policy ; 3 fold increase in nuclear capacity by 2032
- 3) Biofuels, ethanol blending in petrol
- 4) Smart city initiatives
- 5) industrial growth based on Atma nirbhar Bharat, Make in India

GREEN BONDS

GB are financial instruments that generate proceeds for investment in envt sustainable and climate suitable projects
SEBI to enhance the definition of green debt securities
IRIS to introduce blue bonds & yellow bonds

CDP 27 - MAJOR DECISIONS

- India focused 'LIFE'
- Just Transition & mitigation work Program
- Establish new funding arrangements
- Doubling adaptation finance
- climate financing by multilateral Dvpt Banks

INDIA'S INITIATIVES (INTERNATIONAL)

- **ISA**
 - partnering with MDB & IFCs
- **CDRI**
 - resilience of infrastructure systems
 - 31 countries, intl orgns, pvt sector orgns joined
- **Lead IT**
 - India & Sweden

OTHER INITIATIVES

- cut global food waste
- halve excess nutrients & pesticide/hazardous chemicals risk
- phase out/reform subsidies that harm bio diversity
- mobilise over \$1 200 billion /year by 2030 for bio diversity funding

PROJECT CHEETAH

- 8 from Namibia - in Kuno NP, MP
- cheetah help in restore open forest and grassland ecosystem

TIGER

- 53 TRs in 18 states
- Doubled the tiger numbers by 2018
- 17 TRs have CATS international accreditation

ASIATIC LIONS

- shown steady increase

WILDLIFE (PROTECTION) AMENDMENT ACT 2022

- reduced the no. of schedules for specially protected animals into two
- removed the schedule for vermin species
- inserted a new schedule for specimens listed under CITES

PLASTIC WASTE

- Ban on identified 'SUP' (July 2022)
- Guidelines on EPR
 - mandatory registration of PIBOs, PWBs
 - covers 4 categories of plastic packaging
 - EPR targets
 - centralised online portal for EPR implementation, sale/purchase of EPR certificates
- Plastic waste management (second Amendment) Rules 2022
- national level task force to eliminate SUP

BATTERY WASTE MANAGEMENT

- BWM Rules 2022 → EPR mandate

E-WASTE

- E-waste mgmt Rules 2022
 - applicable to manufacturer, refurbisher, dismantler etc,
 - ↳ register with CPCB
 - expanded schedule 1
 - EPR certificate