



Progress on India's Climate Targets

For Prelims: [Paris Agreement 2015](#), [Carbon Sink](#), [Monoculture](#), [Climate Finance](#), [Lithium-ion](#), [Sodium-ion](#), [Green Hydrogen](#), [Agroforestry](#), [Miyawaki Forests](#).

For Mains: India's progress on its climate targets and challenges associated with it. Steps needed to further its climate targets.

Source: [IE](#)

Why in News?

India has made remarkable progress on its climate commitments under the [Paris Agreement 2015](#), achieving one of its major targets **five years ahead of schedule** and nearing completion on the other two.



Achieving Climate Goals



Non-Fossil Energy Capacity

Achieving 500 GW of non-fossil energy capacity by 2030.



Renewable Energy Source

Sourcing 50% of energy requirements from renewable sources by 2030.



Carbon Emission Reduction

Reducing projected carbon emissions by 1 billion tonnes by 2030.



Economic Carbon Intensity

Lowering carbon intensity of the economy by 45% by 2030.



Net-Zero Goal

Reaching net-zero emissions by 2070.

Note: The **Paris Agreement (2015)**, adopted at **COP21**, set the goal of limiting global warming to **well below 2°C**, preferably **1.5°C**. **COP26 (Glasgow, 2021)** served as a key milestone to **review and enhance Nationally Determined Contributions (NDCs)**, reinforcing the Paris Agreement's implementation.

What is the Status of India's Climate Commitments?

- **Non-Fossil Fuel Capacity:** India achieved its **non-fossil fuel capacity target** in **2024—five years ahead of schedule (2030)**—with **242.78 GW** (around **50%**) of its **484.82 GW** total installed capacity from **non-fossil sources** (solar, wind, hydro, nuclear).
- **Carbon Sink:** India had pledged to create an additional **2.5-3 billion tonnes of carbon sink** through **forests and tree cover**.
 - By **2021**, it had already achieved **2.29 billion tonnes**, and with a yearly increase of **around 150 million tonnes** (2017-2021), the total likely **crossed 2.5 billion tonnes** by **2023**.
- **Emissions Intensity:** India pledged to reduce the **emissions intensity of its GDP** by **45%** from **2005 levels by 2030**, and had already achieved a **36% reduction by 2020**.
 - Despite limited recent data, **current trends suggest** India is on track to **comfortably meet or exceed this target**.

India's Initiatives to Achieve Climate Targets

- [National Adaptation Plan \(NAP\)](#)
- [National Action Plan on Climate Change \(NAPCC\)](#)
- [Sovereign Green Bonds](#)
- [Mangrove Initiative for Shoreline Habitats & Tangible Incomes \(MISHTI\)](#)
- [Mission LiFE \(Lifestyle for Environment\)](#)

What Concerns are Associated with India's Climate Targets?

- **Capacity vs Generation Gap:** India achieved **50% non-fossil installed capacity** in **2024**, but only **28% of electricity generated** comes from non-fossil sources.
 - Moreover, just **approx 6% of total energy consumption** is clean, as **fossil fuels still dominate** sectors like **industry, transport, and households**.
- **Heavy Reliance on Solar Energy:** In **2024**, India set a record by installing **30 GW of renewable energy**, with **solar alone contributing nearly 24 GW**.
 - However, **wind, hydro, and nuclear sectors** continue to grow at a **sluggish pace** due to **land acquisition issues, policy delays, and financial hurdles**, while **China is scaling up renewables ten times faster** (in the past 2 years).
 - **India's nuclear capacity is expected to reach just 17 GW by 2030** against **100 GW target by 2047**(the [Union Budget 2025-26](#)).
- **Sustainability Concerns on Carbon Sink:** Concerns persist about the **share of natural forests vs monoculture plantations**, their **ecological impact**, and whether gains can be **maintained amid urbanisation and land use pressures**.
- **Emissions Intensity Reduction:** The **lack of reliable emissions data after 2020** hampers efforts to **monitor progress** and **adjust policies** in real time.
 - Despite being on track to meet **intensity targets**, continued **fossil fuel dependence** in key sectors could lead to **rising absolute emissions** without a clear roadmap for [hard-to-abate industries](#) (e.g., steel, cement).
- **Climate Finance Shortfalls:** India has repeatedly flagged the **shortfall in climate finance** and **technology transfer** from developed nations, despite their **Paris Agreement commitments**.
 - Many wealthy countries have **missed emission reduction targets** and **under-delivered on the USD 100 billion annual climate finance pledge**.

What Steps can be Taken to Further India's Climate Target Goals?

- **Bridging Capacity-Generation Gap:** India must **scale up battery storage** technologies like [lithium-ion](#), and [sodium-ion](#) batteries to handle **solar and wind intermittency**.
 - Additionally, **modernizing transmission networks** and deploying **smart grids with demand-response systems** is crucial for **efficient renewable integration and supply-demand balancing**.
- **Diversifying Beyond Solar:** India should **fast-track wind and hydro projects** by easing **land and clearance hurdles** and reviving stalled hydropower through **better financing and community support**.
 - It must **boost nuclear energy** and promote [offshore wind](#) and [green hydrogen](#) via **targeted subsidies**.
- **Sustainable Carbon Sink Growth:** Use **satellite technologies** like [Geographical Information System \(GIS\)](#) and **remote sensing** to monitor [deforestation and afforestation](#), while promoting **mixed native species** over monoculture for **better carbon sequestration**.
 - Expand [agroforestry](#) and urban green cover (e.g., [Miyawaki forests](#)) and **strictly penalize illegal mining and forest encroachments**.
- **Securing Climate Finance:** India should advocate for developed countries to fulfill their commitment to providing **USD 300 billion annually by 2035** in climate finance for developing nations, as agreed at [UNFCCC COP29 in Baku](#), and stress the importance of prioritizing grants over loans for **clean energy projects**.

- Simultaneously, it must **attract private and foreign investment** through **incentives**, while boosting **indigenous R&D** and **international tech collaborations** in clean technologies.

Conclusion

India has made **significant progress** on its **climate targets**, achieving key **milestones ahead of schedule**. However, **structural challenges** in **generation, sectoral emissions, finance, and forest sustainability** persist. Addressing these will require **robust policy action, financial support, and technological innovation** to ensure **long-term climate resilience** and **equitable energy transition**.

Drishti Mains Question:

India has achieved its non-fossil fuel capacity target ahead of schedule. Critically examine the challenges that still hinder a full energy transition.

UPSC Civil Services Examination, Previous Year Question:

Prelims

Q. In the context of India's preparation for Climate-Smart Agriculture, consider the following statements: (2021)

1. The 'Climate-Smart Village' approach in India is a part of a project led by the Climate Change, Agriculture and Food Security (CCAFS), an international research programme.
2. The project of CCAFS is carried out under Consultative Group on International Agricultural Research (CGIAR) headquartered in France.
3. The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) in India is one of the CGIAR's research centres.

Which of the statements given above are correct?

- (a) 1 and 2 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

Ans: (d)

Q. With reference to 'Global Climate Change Alliance', which of the following statements is/are correct? (2017)

1. It is an initiative of the European Union.
2. It provides technical and financial support to targeted developing countries to integrate climate change into their development policies and budgets.
3. It is coordinated by World Resources Institute (WRI) and World Business Council for Sustainable Development (WBCSD).

Select the correct answer using the code given below:

- (a) 1 and 2 only

(b) 3 only

(c) 2 and 3 only

(d) 1, 2 and 3

Ans: (a)

Mains

Q.1 Describe the major outcomes of the 26th session of the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC). What are the commitments made by India in this conference? (2021)

Q.2 'Climate Change' is a global problem. How will India be affected by climate change? How Himalayan and coastal states of India will be affected by climate change? (2017)

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