



## The 1.5°C Warming Target and Climate Projections

**For Prelims:** [1.5 degrees Celsius Warming Target](#), [El Nino](#), [Paris Agreement](#), [Intergovernmental Panel on Climate Change](#), [Coastal erosion](#), [National Action Plan on Climate Change](#), [National Adaptation Fund on Climate Change \(NAFCC\)](#), [India Cooling Action Plan](#), [LiFE Initiative](#)

**For Mains:** Background of 1.5 Degrees Celsius Warming Target, Impact of Warming on India.

**Source:** TH

### Why in News?

The [1.5 degrees Celsius warming target](#), along with this year's [El Nino](#), has garnered attention. Reports suggest the planet may cross this **temperature threshold due to the rising climate phenomenon**.

### What is the Background of 1.5 Degrees Celsius Warming Target?

- **Paris Agreement** aims to **limit the temperature increase to 2 degrees Celsius** by the end of this century. This target is considered significant, but there are a couple of important things to remember.
  - Even though countries have been talking about this issue for over 20 years, the **amount of carbon emissions released into the atmosphere has not decreased** as much as needed.
  - The **2 degrees Celsius target was not determined based on strict scientific evidence**. Instead, it was initially proposed by an economist named **William Nordhaus in the 1970s**.
  - Later on, some politicians and climate scientists adopted this target.
- The **Alliance of Small Island States** pushed for the target to be lowered to **1.5 degrees Celsius**, leading to further retrofitting of future scenarios to **meet this goal**.
  - **According to the Intergovernmental Panel on Climate Change (IPCC)**, the leading scientific body on climate change, if current trends continue, the **world is likely to reach 1.5°C of warming by 2030-2052**.
  - **Also, IPCC Special Report on the difference in impacts between 1.5°C versus 2°C** warming suggests that **tropical countries such as India** are projected to experience the largest impacts on economic growth because of climate change.

### How will Climate Change-induced Warming Impact India?

- **About:**
  - According to a recent study by the **Indian Institute of Tropical Meteorology (IITM)**, India's average temperature has increased by **about 0.7°C during 1901-2018**, with more rapid warming in recent decades.
- **Impacts:**
  - **Agriculture:** India's agriculture is heavily dependent on monsoon rains, and **any**

**alterations in rainfall patterns due to warming** can significantly affect crop yields.

- It would lead to [erratic monsoons](#), **increased frequency of droughts**, and **extreme weather events** like heatwaves that will reduce agricultural productivity, posing a threat to food security and livelihoods of millions of farmers.
- **Public Health:** Warmer temperatures may lead to the spread of diseases like [malaria](#), [dengue](#), and other [vector-borne illnesses](#) as the range of disease-carrying organisms expands.
  - Heatwaves can increase heat-related illnesses and mortality rates, especially among vulnerable populations, putting pressure on the healthcare system.
- **Ecosystems and Biodiversity:** Warming can disrupt ecosystems and trigger **shifts in vegetation patterns**, altering habitats for various plant and animal species.
  - **Many endemic species in India may face extinction** or be forced to migrate to more suitable areas, leading to disruptions in the ecological balance and biodiversity loss.
- **Coastal Vulnerability:** India has an extensive coastline, and rising sea levels due to warming can **result in coastal erosion, inundation of low-lying areas**, and increased frequency of extreme weather events like cyclones.
  - This poses a threat to coastal communities, infrastructure, and economic activities.
- **Migration and Social Disruptions:** As climate-induced challenges intensify, there could be a rise in [climate-induced migration](#), with people moving from severely impacted regions to more habitable areas.
  - This could lead to **social tensions, resource competition, and strain on urban centers**, leading to challenges for policymakers.
- **Government Initiatives:**
  - [National Action Plan on Climate Change \(NAPCC\)](#)
    - There are 8 national missions forming the core of the NAPCC including **National Solar Mission, National Mission on Sustainable Habitat etc.**
  - [National Adaptation Fund on Climate Change \(NAFCC\)](#)
  - [India Cooling Action Plan](#)
  - [LiFE Initiative](#)

## Way Forward

- **National Assessment and Data:** India must undertake a **comprehensive and continuous national assessment of climate impacts and vulnerability**, taking into account regional variations.
  - Accurate data will aid in evidence-based decision-making and targeted policy interventions.
- **Green Infrastructure and Urban Planning:** Implement [Blue- green infrastructure](#) and **sustainable urban planning** practices in cities.
  - This includes creating green spaces, promoting public transportation, and incentivizing eco-friendly building designs to reduce the urban heat island effect.
- **Carbon Pricing:** Introduce a [carbon pricing](#) mechanism to **internalize the environmental costs** of greenhouse gas emissions.
  - This could be achieved through carbon taxes or cap-and-trade systems to encourage industries to adopt cleaner technologies.
- **Promoting Circular Economy:** There is a need to promote the **adoption of a circular economy model**, where **waste is minimized, and resources are reused, repaired, or recycled**, reducing the carbon footprint of products and processes.
- **International Cooperation:** India can **collaborate with other countries and forums on joint climate initiatives**, sharing best practices, and leveraging resources to address climate change on a global scale through [Common but Differentiated Responsibilities and Respective Capabilities \(CBDR-RC\)](#)

## UPSC Civil Services Examination, Previous Year Question (PYQ)

### Prelims

**Q.1 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 (CAAFS), 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.2 Which of the following best describes/describe the aim of 'Green India Mission' of the Government of India? (2016)**

1. Incorporating environmental benefits and costs into the Union and State Budgets thereby implementing the 'green accounting'.
2. Launching the second green revolution to enhance agricultural output so as to ensure food security to one and all in the future.
3. Restoring and enhancing forest cover and responding to climate change by a combination of adaptation and mitigation measures.

**Select the correct answer using the code given below.**

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

**Ans: (c)**

**Q.3 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)**

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## **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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