



Climate Change: A Roadblock to Economic Growth

This editorial is based on [“Inclusion of climate change in policy is crucial for a strong economy”](#) which was published in The Indian Express on 27/08/2022. It talks about the impacts of climate change on the Indian Economy.

For Prelims: Climate Change, World Economic Forum’s Global Risks Report 2020, Nobel Prize for Economics 2018, Heat Stress, The International Energy Agency (IEA), Cyclone Amphan, Glacial lake Outburst, Intergovernmental Panel on Climate Change (IPCC),

For Mains: Impacts of Climate Change on the Indian Economy, Disaster Resilient Infrastructure, Clean Energy, Passive Cooling Technology

There is a mounting global consensus that [climate change](#) is putting a stress on the growth trajectory of nations worldwide, with evident economic, social and environmental implications.

According to the [World Economic Forum’s Global Risks Report 2020](#), the top 5 risks over the coming decade, in terms of likelihood, are all **Climate-related** including **human-made environmental disasters, climate action failure, natural disasters, biodiversity loss and extreme weather.**

The **Nobel Prize for Economics in 2018 (William D. Nordhaus and Paul Romer)** was awarded for **integrating climate change into long-term macroeconomic analysis.**

While the world is grappling with the challenges posed by climate change, **developing economies like India are particularly vulnerable.** Thus, climate risk as a material aspect is going to play a critical role in charting out national-level policies, business strategies and reorientation of finance in an emerging economy like India.

What is Climate Change?

- Climate change refers to **long-term shifts in temperatures and weather patterns.** These shifts may be natural, such as through variations in the [solar cycle.](#)
- But since the **1800s, human activities have been the main driver of climate change,** primarily due to burning fossil fuels like coal, oil and gas.
 - **Burning fossil fuels** generates greenhouse gas emissions that act like a **blanket wrapped around the Earth,** trapping the sun’s heat and raising temperatures.
- Increasing temperatures caused by climate change are **accelerating the [melting of ice,](#)** which raises sea levels and leads to [flooding and erosion.](#)

How Climate Change is Relevant for Indian Economy?

- The **climate of India is quite diversified in nature**, from the **Himalayan crown to the flat beaches**, a significant transition in climate is visible.
 - The climate varies from the **freezing temperatures of the [Himalayan Mountains](#)** to the **tropical climatic conditions of Southern India**.
 - The **North-Eastern states received the maximum rainfall** while the **North-Western states dried of water** make up the arid deserts of **Thar** and **Great Indian Desert**.
- Such a vastness of climatic conditions has always benefited India. **India has one of the highest densities of economic activity in the world**, and a large section of population **rely on the natural resource base for their livelihoods**, with a high dependence on **rainfall**.
- **Climate change can make weather patterns less predictable**. These unforeseen weather patterns can make it difficult to maintain and grow crops In an agricultural economy like India where rainfall is so vital, **climate change has an immediate impact** on the [Indian economy](#).

What are the Impacts of Climate Change on the Indian Economy?

- **Lower Crop Yield: Climate change can make weather patterns less predictable. Uncertainties about monsoonal changes affect farmers' choices about which crops to plant** and the timing of planting, consequently reducing productivity.
 - In addition, **earlier seasonal snowmelt** and depleting glaciers will **reduce river flow needed for [irrigation](#)**.
- **Impact on Livestock: India has the largest livestock population in the world**, with animals used as milk producers, manure and seeding and as **household capital**, particularly in landless households.
 - **[Heat stress](#) reduces feed and fodder** and increases conditions favourable to disease.
- **Reduced Labour Workforce:** Workers' productivity tends to be lower on days with extreme heat which leads to **lower industrial yields, leading to [decreased exports](#), and resulting in lower national income** and indirectly affecting world trade.
 - Climate change **reduces cognitive performance** and decreases work hours in sectors that require heavy outdoor activity like **construction**.
- **Energy Crisis:** According to the [The International Energy Agency \(IEA\)](#), India's primary **energy demand will double by 2030**.
 - Energy and climate share a distinctive relationship such that **[rising temperature demand a surge in energy usage to assist the process of mitigating the heat effects](#)**.
 - Also, the rising energy demands often clash with climate-change policies.
- **Impact on Infrastructure:** A good and sound infrastructure contributes a great deal to the economy of a nation. Increased extremes of **[natural calamity](#)** as an outcome of climate change have deeply affected the infrastructure.
 - For instance, India spent **3 billion dollars of economic damage caused by floods** in the last decade which is **10% of the global economic loss**.
 - In 2020, **[cyclone Amphan](#)** distressed around 13 million people in India.
- **Impact on Drainage System:** India withdraws 34 percent of its available water annually with **[Indo-Gangetic Plain](#) as the "breadbasket"**. Increasing temperatures and increased seasonal variability cause **[Himalayan glaciers to melt more](#)** and more quickly.
 - If the rate increases, **[glacial lakes burst out of their natural bounds and flooding is likely in river valleys fed by these glaciers](#)**, followed by diminished flows, resulting in **[water scarcity](#)**.
- **Exacerbation of Inequality:** Adaptive capacity in India varies by state, geographical region, and socioeconomic status. **Families with low income are more vulnerable to climate change-related economic losses**, as they are directly impacted by **[rising cereal prices](#) and [declining agricultural wages](#)**.
 - Thus, for the welfare of those who have limited means to adapt to climate change can result in a **tightened budget** and low economic growth.

What Should be the Way Forward?

- **Mitigation:**
 - **Towards Nature-Based-Solutions:** The development of [clean and green energy](#) can help **divert the burden of fossil fuels** and lower [air pollution](#).
 - Developing new transit systems and extending the existing ones can also result in a **boom in employment**.
 - The [Nationally Determined Contribution \(NDC\)](#) report of India aims at **40% of energy generation from clean energy by 2030**.
- **Environment-Friendly Policies: Economy and Environment go hand in hand.** A planned approach to development which ensures **uncompromised growth prospects especially for the rural economy in India** is needed to address climate change challenges effectively.
 - Climate Change also **presents an opportunity to adopt a cautious yet sustainable approach to development**.
- **Forests and Wetland Conservation:** Forests are known for regulating rainfall and temperature. [Conservation and enhancement of forests and wetlands](#) will support agricultural productivity, [sequester CO₂ emissions](#), and enhance resilience to environmental shocks as **Frontline Warriors**.
- **Proper Waste Management:** The [mismanagement of waste](#) adds to climate change by adding a variety of pollutants to the atmosphere.
 - The **development of waste-selective management** plants like [waste gasification](#) will tackle this problem.
 - Building the infrastructure of these plants and future maintenance will **open new employment opportunities** for both skilled and unskilled labourers.
- **Adaptation:** Planned adaptation assumes the importance in building adaptive capacity.
 - **Passive Cooling Technology:** For residential and commercial buildings, [passive cooling technology](#) offers a viable alternative to **reduce urban heat islands**.
 - The [Intergovernmental Panel on Climate Change \(IPCC\)](#) report cites **ancient Indian building designs** that utilised this technology, which could be used in modern facilities.
 - **Better Farming Practices:** [Crop diversification](#), [irrigation-based farming](#), which reduces dependence on rainfall, and other practices can be considered to address climate change challenges.
 - **Disaster Resilient Infrastructure:** It includes development of [disaster resilient infrastructure](#) through shelter houses, **coastal embankments**, and the construction of **flood-resistant buildings and roads**.
 - It is also important to develop more accurate and timely [weather forecasts](#) and [early warning systems](#).

Drishti Mains Question

Economy, development and climate change often cross each other's paths resulting in increased risk and vulnerability. Discuss.

UPSC Civil Services Examination, Previous Year Question:

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 (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.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)

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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