Climate Change: Global Crisis and India’s Challenge

The Global Climate Emergency

Since 1880, the global average temperature has risen by 1.2°C, accelerating extreme weather worldwide. The IPCC projects warming could exceed 2°C by 2100, triggering irreversible impacts on ecosystems and human life.

Accelerated Warming

1.2°C rise since 1880, intensifying global climate events.

Irreversible Impacts

Projections show 2°C warming by 2100, threatening ecosystems.

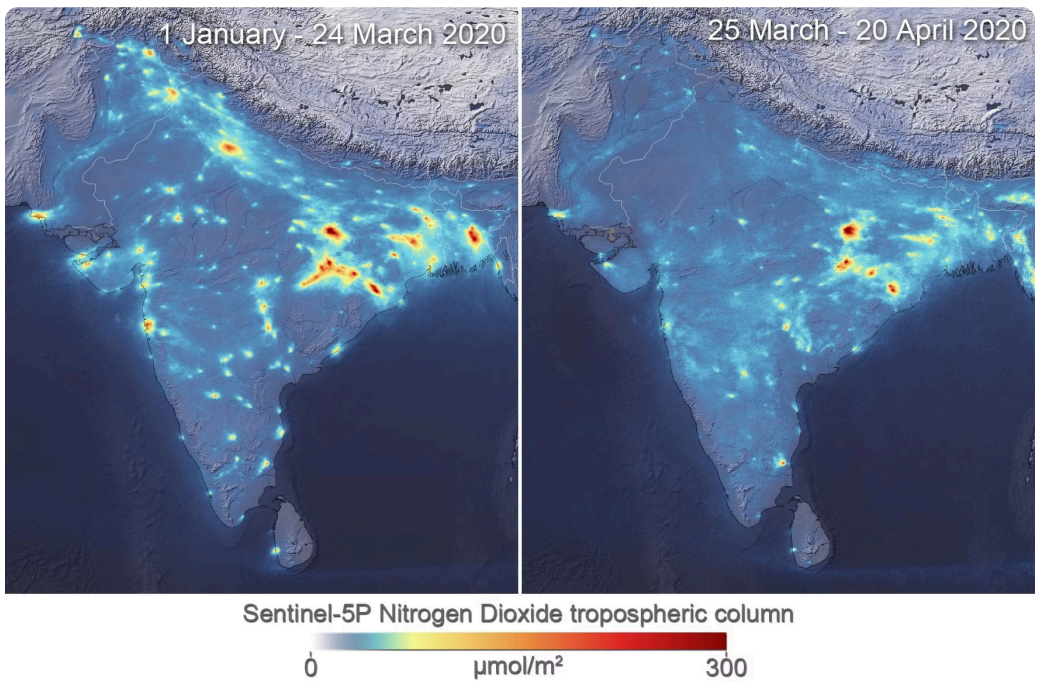
Global Threat

Rising seas, melting ice, heatwaves impact billions globally.

India’s Climate Reality: A Hotspot of Vulnerability

India, ranking 4th among countries most affected by climate change, faces a disproportionate challenge. It is the 3rd largest emitter globally, primarily from coal, yet its per capita emissions are half the global average.

- India ranks 4th among countries most affected by climate change (1996-2015).
- Emits ~3 gigatonnes CO2eq annually, 3rd largest emitter globally.
- Per capita emissions (~2.5 tons) are half the global average.



Melting Himalayan Glaciers: Water Security at Risk

Rising temperatures on the Tibetan Plateau are causing Himalayan glaciers to retreat, threatening the water supply for major rivers like the Ganges, Brahmaputra, and Yamuna. This directly impacts hundreds of millions of people.

The potential drying of the Indus River could devastate agriculture and livelihoods for millions.

Extreme Weather & Changing Rainfall Patterns

India's temperature rose 0.7°C between 1901-2018, with projections of a 1.7-2.0°C rise by the 2030s. This leads to increased drought frequency in some regions and more floods and landslides in others.

Temperature Rise

Significant temperature increase since early 20th century, with further rise projected.

Drought & Floods

Increased droughts in Northwest, floods and landslides in Northeast India.

Unpredictable Monsoon

Heavier but fewer rainy days, disrupting crucial farming cycles.

Sea Level Rise and Coastal Threats

Rising sea levels pose an existential threat to low-lying islands like Lakshadweep and vulnerable coastal areas. Thousands have already been displaced from the Sundarbans, highlighting the escalating risk of climate refugees.

Coastal erosion and saltwater intrusion are severely endangering agriculture and vital freshwater supplies along India's vast coastline.

Agriculture Under Siege

Over 60% of Indian agriculture is rain-fed, making it highly vulnerable to erratic monsoons and droughts. Crop yields are projected to decline significantly by the 2040s, threatening the livelihoods of hundreds of millions.

60%

Rain-Fed Agriculture

Highly dependent on unpredictable monsoons.

400M+

Livelihoods at Risk

Millions of poor farmers face severe income instability.

Food security risks are rapidly escalating for the over 400 million people who depend on farming.

Economic and Social Impacts

India faces the world's highest social cost of carbon. Climate change could reduce GDP by 3-10% annually by 2100, potentially increasing poverty rates by 3.5% by 2040.

3–10%

GDP Reduction

Annual GDP decrease by 2100 due to climate change.

3.5%

Poverty Increase

Projected rise in poverty rates by 2040.

Urban heat islands and escalating health risks demand urgent adaptation strategies in India's rapidly growing cities.

India’s Response: Challenges and Opportunities

Despite progress, coal still dominates India's energy landscape, with fossil fuel subsidies historically outweighing clean energy support. The transition to renewable energy is critical, alongside improved water management and climate-resilient agriculture.

- Coal still a major energy source.
- Fossil fuel subsidies exceed clean energy support (as of 2019).
- India is a leader in solar energy deployment, with ambitious targets.
- Significant investments in renewable energy infrastructure are ongoing.
- Renewable energy capacity has grown substantially in recent years.

Cutting emissions offers significant health benefits, potentially outweighing costs by 4-5 times.

The Path Forward: Urgency and Hope

India must lead with ambitious climate action, balancing economic growth with sustainability. Strengthening forecasting, disaster preparedness, and community resilience are vital.

Ambitious Action

Lead with climate initiatives.

Strengthen Preparedness

Improve forecasting and disaster response.

Foster Innovation

Drive local solutions.

Build Resilience

Empower communities.

Global cooperation and local innovation can secure a livable future for India and the planet.