



## Sambhav-2024

**Day 60:** Examine the causes and consequences of global warming on India. What measures can be taken to address and mitigate its effects? (250 words)

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### Approach / Explanation / Answer

- Give a brief introduction to global warming.
- Discuss the causes and consequences of global warming on India.
- Discuss the measures that can be taken to address global warming in India.
- Conclude suitably.

### Introduction

Global warming refers to the long-term increase in the earth's average surface temperature due to human activities, particularly the emission of greenhouse gases into the atmosphere. The IPCC report reveals earth has warmed by about 1.1°C since 1850-1900, and anticipates a likelihood of reaching or exceeding 1.5°C of warming in the next 20 years.

### Body

#### Causes of Global Warming in India:

- **Greenhouse Gas Emissions:** The primary cause of global warming is the enhanced greenhouse effect resulting from the increased concentration of greenhouse gases (GHGs) in the atmosphere.
  - India is the third-largest emitter of greenhouse gases globally.
- **Agricultural Practices:** Methane emissions, a potent greenhouse gas, are heightened by agricultural practices, especially in rice cultivation and livestock farming, thereby adding to the global warming issue.
  - The agriculture sector contributes 14 % of the total GHG emissions.
- **Deforestation:** India has witnessed substantial deforestation for agricultural expansion, urbanization, and industrial development. Trees act as carbon sinks, and their removal results in the release of stored carbon dioxide (CO<sub>2</sub>) into the atmosphere, exacerbating the warming effect.
- **Energy Consumption:** The dependence on coal for energy production and the rapid growth of industries contribute significantly to carbon emissions. The power sector is the largest contributor to India's emissions, accounting for about 29% of the country's emissions.

#### Consequences of Global Warming on India:

- **Rising Temperatures:** India has experienced an increase in average temperatures over the years. This rise leads to more frequent and intense heatwaves, affecting human health, agriculture, and water resources.
- **Erratic Rainfall Patterns:** Global warming influences monsoon patterns, leading to erratic rainfall. Changes in precipitation patterns can result in droughts, water scarcity, and disruptions to agriculture.
- **Reduced Crop Yields:** The combination of heat stress, water scarcity, and changing pest dynamics can lead to reduced crop yields. Staple crops like rice, wheat, and maize may be particularly vulnerable.
- **Sea Level Rise:** The warming of the planet contributes to the melting of glaciers and polar ice caps, causing a rise in sea levels. Coastal areas in India are vulnerable to flooding and erosion, impacting communities and ecosystems.
- **Extreme Weather Events:** Global warming increases the frequency and intensity of extreme weather events, including cyclones, floods, and storms. These events have devastating effects on infrastructure, agriculture, and human settlements.

### Mitigation Strategies for Global Warming in India:

- **Transition to Renewable Energy:** Investing in and promoting renewable energy sources such as solar, wind, and hydropower can significantly reduce India's dependence on fossil fuels, mitigating carbon emissions.
  - India is also promising to ensure that at least **50% of installed electricity generation capacity in 2030 will be based on non-fossil fuel-based sources.**
- **Energy Efficiency Measures:** Implementing energy-efficient technologies and practices in industries, transportation, and households can lower overall energy consumption and reduce carbon emissions.
  - India is now committing itself to at least **45% reduction in emissions intensity** of GDP (emissions per unit of GDP) by 2030 from 2005 levels.
- **Afforestation and Reforestation:** Implementing large-scale afforestation and reforestation programs can act as carbon sinks, absorbing CO<sub>2</sub> from the atmosphere. This helps in mitigating the impacts of deforestation.
- **Sustainable Agricultural Practices:** Encouraging sustainable agricultural practices, such as organic farming and efficient water management, can reduce greenhouse gas emissions from the sector.
- **International Collaboration:** Actively participating in global efforts to combat climate change through international agreements and collaborations is crucial for addressing the cross-border nature of the issue.

### Conclusion

By implementing sustainable practices, resilient policies, and global cooperation, India can forge a path towards a climate-resilient India, where ecosystems flourish, communities thrive, and generations to come inherit a planet of abundance and balance.