

WRAP Exams · wrapexams.com

Prelims PYQ, Mains model answers, and copy evaluation. Write to the desk for this paper, a doubt, or the AI waitlist.

ask@wrapexams.com · +91 85951 84903 · wrapexams.com

Q17

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

UPSC Civil Services Mains 2017 · GS III · 15 marks · Environment and Conservation

Conservation, environmental pollution and degradation, environmental impact assessment.

Core demand of the question

- Explain climate change as a global problem and the main ways it hits India
- Detail risks for Himalayan states and for coastal states
- Keep food, water, health, and extreme events in the answer

Revision summary

Climate change is global; India is exposed through monsoon swings, heat, food, water, and health.

Himalayan states face glacier melt, glacial-lake floods, landslides, and shifting horticulture.

Coastal states face sea-level rise, saline deltas, stronger cyclones, and urban flooding.

Fisheries, mangroves, and island freshwater lenses are part of the coastal loss.

Adaptation is State-specific; the cause remains global emissions.

Introduction

Climate change is global because greenhouse gases mix in one atmosphere: no State can buy a private climate. India is a tropical, monsoon, glacier-and-delta country with a large poor population on the land. It will be hit through heat, water, food, coasts, and health, even though its per capita emissions are far below the old industrial world. Himalayan and coastal States sit on two different edges of the same warming.

Body

India in a warming world

- **Monsoon:** more erratic onset, longer dry spells, and heavier downpours when rain comes - floods and drought in the same year.
- **Heat:** more extreme heat days; outdoor labour, cities without trees, and the old suffer first.
- **Agriculture:** wheat at grain-fill, rice at flowering, and rainfed millets all face yield risk; pests shift range.
- **Water:** groundwater already overdrawn in the north-west; climate adds uncertainty to recharge and glacier-fed rivers.
- **Health:** malaria and dengue windows, heat stroke, nutrition after crop failure.
- **Energy and cities:** peak cooling load, urban heat islands, and storm damage to networks.

- **Paris Agreement (2015)** and India's nationally determined contribution (energy intensity, non-fossil capacity, carbon sink) are the diplomatic frame; physical risk does not wait for targets.

Himalayan states

- **Glacier melt:** short-run higher runoff, long-run **lean season** water stress for the Ganga-Brahmaputra-Indus headwaters that feed the plains as well as hill States.
- **Glacial lake outburst floods (GLOF)** and landslides as permafrost and slopes weaken; hydropower dams and hill roads sit in the path.
- **Snow-to-rain** shift changes timing of streams that hill agriculture and towns use.
- **Biodiversity and livelihoods:** alpine pastures, apple belts (chill-hour loss), and pastoral routes move upslope until there is no upslope left.
- **Seismic plus climate:** a cloudburst on a deforested slope (Uttarakhand-type tragedy) is the compound disaster.
- **States:** Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, Arunachal Pradesh, and hill districts of West Bengal and the North-East - tourism and hydropower economies are both exposed.

Coastal states

- **Sea-level rise:** saline intrusion into deltas (**Sundarbans**, Godavari-Krishna, Mahanadi, Cauvery) and loss of low islands and beaches.
- **Cyclones:** warmer seas can feed more intense storms on the **Bay of Bengal** and, increasingly, the **Arabian Sea**; Odisha, Andhra Pradesh, Tamil Nadu, West Bengal, Gujarat, and Maharashtra face surge and wind.
- **Fisheries:** catch composition shifts; small fishers lose days at sea.
- **Cities:** Mumbai, Chennai, Kochi, and Kolkata already flood on high tide plus rain; drainage designed for an old climate fails.
- **Livelihoods:** salt on fields, dying mangroves if squeezed between sea and concrete, and migration out of the **Sundarbans** and dry-coast villages.
- **Andaman and Nicobar and Lakshadweep:** coral bleaching and freshwater lens loss on atolls.

Shared policy thread

- **Adaptation is local:** slope rules and lake monitoring in the Himalaya; mangrove, zoning, and cyclone shelters on the coast. Mitigation is **national and global:** coal path, forests, and a Paris coalition. Himalayan and coastal States cannot adapt alone if the monsoon and the ice still follow world emissions.

Flow diagram

Global warming -> India monsoon heat crops
 Global warming -> Himalaya glaciers GLOF slopes
 Global warming -> Sea level cyclone salt cities
 Himalaya glaciers GLOF slopes -> Downstream river lean flow
 Sea level cyclone salt cities -> Displacement fisheries loss

Conclusion

Climate change will hit India through a jerkier monsoon, heat, crop and water stress, and disease. Himalayan States face glacier melt, GLOFs, slope failure, and shifting orchards. Coastal States face sea level, salt, stronger cyclones, and drowning cities. The global problem becomes two Indian maps - ice and tide - that need both local adaptation and a lower-carbon world.

Facts & figures

Paris Agreement 2015

Global climate pact; India filed nationally determined contributions on intensity, non-fossil power, and sinks.

GLOF

Glacial lake outburst flood: a Himalayan risk as lakes grow below retreating ice.

Sundarbans

Shared India-Bangladesh mangrove delta already seeing erosion, salt, and cyclone surge.

Bay of Bengal cyclones

Historically the main storm basin for India's east coast; Arabian Sea storms have also drawn more attention as seas warm.

Monsoon extremes

A warmer atmosphere holds more moisture: dry spells and intense rain days can both rise.

WRAP Exams · Write. Read. Analyse. Practice. · <https://wrapexams.com/upsc/mains-answers/gs-3/2017/climate-change-is-a-global-problem-how-india-will-be-affected-by-climate-change-how-himalayan-and-coastal-states-of-india-will-be-affected-by-climate-change/> · ask@wrapexams.com · wrapexams.com