Environment & Ecology · GS - III

‘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?

EXAM YEAR	PAPER	SUBJECT
2017	GS - III	Environment & Ecology

MARKS	WORD LIMIT
15	~250 words

Answer Hint

Rising temperatures; monsoon variability; Himalayan glaciers; coastal inundation; extreme weather; agricultural vulnerability; climate adaptation

Model Answer

Introduction

Climate change results from rising greenhouse gas concentrations and alters temperature, precipitation, sea levels and extreme weather. India is particularly vulnerable because of its dependence on the monsoon, long coastline and climate-sensitive livelihoods.

Impacts on India

- **Agriculture:** Heat stress, irregular rainfall and changing growing seasons can reduce crop yields and threaten farmer incomes.
- **Water security:** Changing rainfall and snowmelt patterns affect river flows and groundwater recharge.
- **Health:** Heatwaves, vector-borne diseases and extreme weather increase public-health risks.
- **Extreme events:** Floods, droughts, cyclones and heatwaves can damage infrastructure and livelihoods.
- **Economic inequality:** Poor households and outdoor workers often have limited resources to adapt.

Impacts on Himalayan States

- **Glacier retreat:** Rising temperatures affect glaciers and long-term water storage.
- **Glacial lake outburst floods:** Expanding glacial lakes can increase the risk of sudden downstream flooding.
- **Landslides:** Intense rainfall and changing freeze-thaw conditions can destabilise slopes.
- **Ecosystems and livelihoods:** Changes in biodiversity, agriculture and tourism affect mountain communities.

Impacts on Coastal States

- **Sea-level rise:** Increases coastal erosion, inundation and saltwater intrusion.
- **Cyclones and storm surges:** Coastal settlements and infrastructure face heightened risks.
- **Fisheries:** Warming and ocean changes affect marine ecosystems and fishing livelihoods.
- **Displacement:** Low-lying communities may face relocation pressures.

Way Forward

Strengthen early-warning systems, climate-resilient agriculture, heat action plans, coastal buffers, sustainable mountain infrastructure and disaster preparedness. India must also expand clean energy and climate-resilient development.

Conclusion

Climate change poses interconnected risks to India's economy, ecosystems and public health. Region-specific adaptation, mitigation and disaster-risk reduction are essential to protect vulnerable populations.