

Daily Mains Practice Answer 03-08-2026

Q. Evaluate India's preparedness for managing cloudburst-induced disasters. What institutional and technological reforms are required to minimise loss of life and property? (250 words, 15 Marks)

Directions: Intro----- India's preparedness (strength & challenges) + Institutional and Technological reforms-----Conclusion.

Introduction:

Describe about cloudburst.

Main Body

India's preparedness for managing cloudburst-induced disasters

Strengths

- Institutional Mechanism - National Disaster Management Authority, National Disaster Response Force, and State Disaster Management Authorities.
- Forecasting infrastructure - Like Doppler Weather Radars, satellite monitoring, and nowcasting services.
- Early warning dissemination - Via mobile alerts, disaster management apps, etc.
- Response mechanisms - SDRF/NDRF deployments, Incident Response System (IRS), and National Disaster Response Fund.
- Post-disaster support - ISRO provides satellite-based damage assessment and mapping.

Challenges

- Prediction Difficulty - Cloudbursts are highly localised and develop rapidly.
- Many heavy rainfall events are incorrectly labelled as cloudbursts, diverting attention from governance failures.
- Inadequate observation network in mountainous terrain regions.
- Weak last-mile communication delays evacuation in remote Himalayan villages.
- Unregulated construction, encroachment on floodplains, poor drainage, and hill-slope destabilisation increase vulnerability.
- Climate change has increased the frequency of extreme rainfall events.

Institutional Reforms

- Strengthen coordination among IMD, NDMA, ISRO, Central Water Commission, and State agencies.
- Prepare district-level cloudburst risk maps, micro-level hazard zonation maps for Himalayan districts and incorporate them into development planning.
- Strict enforcement of hill-area building codes, regulate tourism and eco-sensitive zoning.
- Enhance the capacity of Panchayats, Urban Local Bodies, and community-based disaster management committees.
- Conduct regular mock drills and improve disaster education in vulnerable regions.

Technological Reforms

- Expand Doppler Weather Radar, Automatic Weather Station, and dense rain-gauge networks in vulnerable regions.
- Use AI & technology-enabled forecasting for localised weather forecasting.
- Integrate satellite imagery, drones, IoT sensors, and early-warning systems into a unified decision-support platform.
- Strengthen multilingual, GPS-enabled, location-specific mobile alert systems for rapid evacuation.

Conclusion:

Conclude in a neutral way (or) by giving some measures - India must shift from a response-centric approach to a risk-informed and technology-driven disaster management framework.