Disaster Management · GS - III

Examine the growing threat of Glacial Lake Outburst Floods (GLOFs) in the Himalayan region. Discuss the challenges involved in managing transboundary flood risks and suggest suitable mitigation measures.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 30/10/2026	GS - III	Disaster Management

MARKS	WORD LIMIT
10	~150 words

Answer Hint

Himalayan glacial retreat; Glacial Lake Outburst Floods; climate change; moraine-dam instability; transboundary rivers; early warning systems; disaster preparedness; regional cooperation; resilient infrastructure

Model Answer

Introduction

Glacial Lake Outburst Floods (GLOFs) occur when water stored in glacial lakes is suddenly released due to natural dam failure or overtopping. The Himalayan region is particularly vulnerable because of glacier retreat, unstable terrain and changing climatic conditions.

Major Challenges

- **Climate change:** Rising temperatures accelerate glacier melting and glacial lake expansion.
- **Sudden flooding:** Rapid water discharge can destroy settlements, bridges, roads and hydropower infrastructure.
- **Transboundary risks:** Rivers originating in neighbouring countries can carry floodwaters across international boundaries.

- **Limited monitoring:** Remote terrain and inadequate real-time hydrological data complicate early warning and evacuation.

Mitigation Measures

1. Identify and regularly monitor potentially dangerous glacial lakes through satellite and ground-based observations.
2. Develop community-based early warning systems and evacuation plans.
3. Strengthen embankments and drainage infrastructure wherever technically feasible.
4. Improve real-time information sharing and disaster cooperation among Himalayan countries.
5. Integrate GLOF risks into land-use planning and infrastructure development.

Conclusion

GLOF management requires scientific monitoring, anticipatory planning and transboundary cooperation. A coordinated approach can reduce disaster risks and strengthen Himalayan resilience.

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