Disaster Management · GS - III

Analyse the factors responsible for the high seismic vulnerability of the Himalayan region and suggest measures to reduce earthquake-related risks.

EXAM YEAR	PAPER	SUBJECT
DAILY PRACTICE 24/11/2026	GS - III	Disaster Management

MARKS	WORD LIMIT
15	~250 words

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Answer Hint

Indian-Eurasian plate convergence, active faults, fragile geology, seismic zones, urban vulnerability, resilient infrastructure, preparedness

Model Answer

Introduction

The Himalayan region is among the world's most seismically active regions due to the ongoing collision of the Indian and Eurasian tectonic plates. Earthquakes in Nepal and adjoining parts of India highlight the need for effective disaster-risk reduction.

Factors Behind Seismic Vulnerability

1. **Active Plate Convergence:** Northward movement of the Indian Plate beneath the Eurasian Plate generates immense tectonic stress, periodically released through earthquakes.

2. **Major Fault Systems:** Active structures such as the Main Himalayan Thrust and associated faults increase the possibility of significant seismic events.

3. **Fragile Geology:** Young mountain formations, steep slopes and unstable terrain increase the risks of landslides, rockfalls and secondary disasters.

4. **Infrastructure Vulnerability:** Unreinforced buildings, poorly planned settlements and inadequate compliance with seismic building standards can magnify casualties.

5. **Transboundary Exposure:** Earthquakes can affect several countries and states simultaneously, requiring cross-border information-sharing and coordinated disaster response.

Risk Reduction Measures

1. **Seismic Building Standards:** Enforce earthquake-resistant construction and retrofit vulnerable public infrastructure.

2. **Risk Mapping:** Improve microzonation, fault mapping and seismic monitoring to identify high-risk settlements.

3. **Early Warning and Preparedness:** Strengthen earthquake monitoring, public alert systems, evacuation planning and community-level mock drills.

4. **Disaster Response Capacity:** Equip local authorities and emergency services with trained personnel, rescue equipment and communication systems.

5. **Regional Cooperation:** Promote data-sharing and coordinated humanitarian assistance among Himalayan countries.

Conclusion

Earthquakes cannot be prevented, but their human and economic consequences can be reduced. Scientific planning, resilient infrastructure and community preparedness are essential for building disaster-resilient Himalayan settlements.

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