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Q16

The frequency of earthquakes appears to have increased in the Indian subcontinent. However, India's preparedness for mitigating their impact has significant gaps. Discuss various aspects.

UPSC Civil Services Mains 2015 · GS III · 12 marks · Indian Economy

Indian Economy and issues relating to planning, mobilization of resources, growth, development and employment.

Core demand of the question

- Examine the claim that earthquakes have become more frequent in the Indian subcontinent
- Discuss gaps in India's preparedness to cut their impact, covering science, buildings, and response

Revision summary

The subcontinent's seismic hazard is old; better instruments and media make shocks more visible.

Risk has risen because more people live in unsafe concrete in the Himalaya, Northeast, and crowded plains.

Codes and **NDMA** exist; municipal enforcement, hospital retrofit, and lifeline redundancy do not match the maps.

Earthquakes cannot be dated in advance; seconds of P-wave warning and drop-cover-hold still save lives.

The work is inspection, retrofit, and drills, not a new prediction office.

Flow diagram

Plate boundary hazard -> Felt events
Better instruments media -> Felt events
Unsafe dense buildings -> Higher loss
Felt events -> Higher loss
BIS codes NDMA -> Preparedness
Weak enforcement no retrofit -> Higher loss

Conclusion

- Make **occupancy certificates** depend on real seismic inspection, not a file.
- Retrofit hospitals and schools in Zones IV and V on a published timetable.

- Update maps, ban unsafe hill construction, and practise mass casualty with the army and NDRF before the next night-time quake.
- Teach every engineer and mason in the Himalaya the same detailing rules the code already wrote.

Earthquakes have not magically become a new geology; recording, aftershocks, and unsafe growth make them feel more frequent and more deadly. India's gap is enforcement of building codes, retrofit of lifeline buildings, public drills, and seconds-scale warning - not a missing prediction of the next date. Preparedness is masonry and governance, not a press release after each tremor.

Facts & figures

Himalayan collision

The Indian plate continues to push under Eurasia, storing energy that great earthquakes will release.

Seismic zones

BIS zoning places large parts of the Himalaya, Northeast, and some plains in higher-hazard Zones IV and V.

IS 1893

The main Indian standard for earthquake-resistant design of structures; detailing codes must be used with it.

National Disaster Management Authority (NDMA)

National Disaster Management Authority, which issues earthquake guidelines; States and local bodies must still enforce them.

Tsunami warning

After the 2004 Indian Ocean tsunami, India built a coastal warning system; crustal earthquakes on land still need building safety, not a sea siren.

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