



## Earthquake Observatories

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### Why in News

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Recently, the government has announced that **India is going to have 35 more earthquake observatories by the end of the 2021** and aims to add **100 more earthquake observatories by 2026**.

The announcement came at the inaugural function of the Joint Scientific Assembly of the **International Association of Geomagnetism and Aeronomy (IAGA) – International Association of Seismology and Physics of the Earth Interior (IASPEI)**.

### Key Points

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- **About Earthquake Observatories:**
  - **National Center for Seismology** (under the **Ministry of Earth Sciences**) is the **nodal agency** of the Government of India for monitoring of earthquake activity in the country.
  - Currently, India has **only 115 earthquake observatories**.

The most important aspect of the Earthquake Observatory is to be able to accurately predict the time of the earthquake.
- **Need for Earthquake Observatories:**
  - The occurrence of an earthquake is a natural process, beyond human power. Hence, **prevention** is the only way.
  - Further, the Indian subcontinent is considered as one of the **world's most disaster-prone areas** in terms of **earthquakes, landslides, floods, cyclones, and tsunamis**.

- **About IAGA and IASPEI:**

- **International Association of Geomagnetism and Aeronomy (IAGA)** welcomes scientists to join in research of **magnetism and aeronomy of the Earth**, of other bodies of the solar system, and of the interplanetary medium and its interaction with these bodies.
- **International Association of Seismology and Physics of the Earth Interior (IASPEI)** promotes the **study of earthquakes and other seismic sources**, the propagation of seismic waves, and the Earth's internal structure, properties, and processes.
- These are **semi-autonomous associations under the International Union of Geodesy and Geophysics (IUGG)**.
  - IUGG is a non-governmental, scientific organization, **established in 1919**.
  - It's Secretariat is in **Potsdam, Germany**.
  - IUGG is dedicated to the international promotion and coordination of scientific studies of **Earth (physical, chemical, and mathematical) and its environment in space**. These studies include:
    - The shape of the Earth,
    - Gravitational and magnetic fields,
    - Earth's internal structure, composition and tectonics,
    - Earthquakes and elastic wave propagation,
    - Generation of magmas, volcanism and rock formation,
    - Hydrological cycle including snow and ice,
    - All aspects of the oceans, the atmosphere, ionosphere, magnetosphere and solar-terrestrial relations,
    - Analogous problems associated with the Moon and other planets.
- The **Joint Scientific Assembly of IAGA and IASPEI** will act as a catalyst in bringing on board a greater number of researchers and practitioners from the global community to work on issues related to rendering science to society.

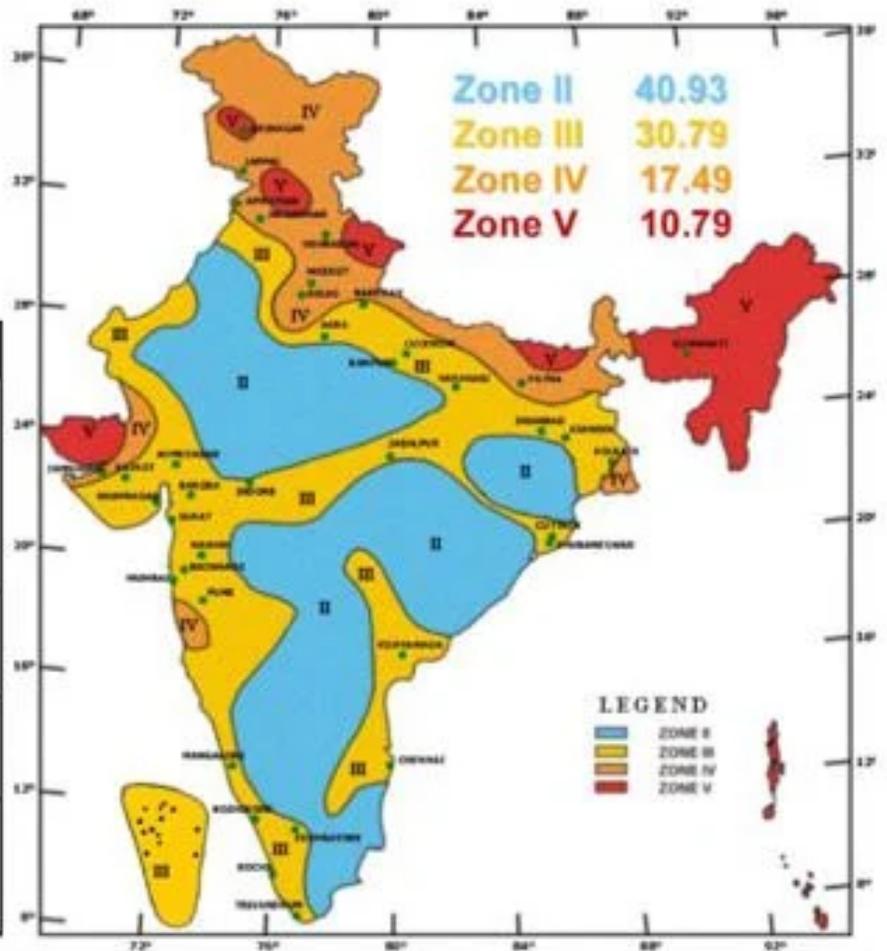
- **Earthquakes in India:**

- The earthquake is characterized by **severe shaking of the ground** and severe shaking of structures above the ground.
- According to the **National Disaster Management Authority**, this happens due to the release of the transmitted pressure of moving lithospheric or crustal plates.
- The Earth's crust is divided into **7 large plates, which are 50 miles thick**.
- They move slowly and steadily over the **Earth's interior and many smaller plates**. Earthquakes are basically tectonic, that is, moving plates are mainly responsible for the shaking in the ground.
- Major earthquakes occur around the Himalayas.
  - However, urbanization, widespread unscientific construction, and exploitation of natural resources have led to an increase in the number of earthquakes in the Indian subcontinent.
- According to seismic zoning mapping, earthquake zones are divided on the basis of the **estimation of the intensity of the earthquake**.
  - India is divided into **4 zones: Zone 2, Zone 3, Zone 4, and Zone 5**.
  - While Zone 2 is the least dangerous, Zone 5 is the most dangerous.
  - Nearly, **59% of India's land area is under a moderate to severe seismic hazard warning**, which means that India is prone to earthquakes of magnitude 7 and above.
- Some of the major earthquakes that occurred in the Indian Subcontinent are: Shillong (1897), Bihar-Nepal (1934), Assam (1950), Bhuj (2001), Kashmir (2005), Sikkim (2011) and Manipur (2016).

## Seismic Zone Map of India: -2002

About 59 percent of the land area of India is liable to seismic hazard damage

Zone	Intensity
Zone V	<b>Very High Risk Zone</b> Area liable to shaking Intensity IX (and above)
Zone IV	<b>High Risk Zone</b> Intensity VIII
Zone III	<b>Moderate Risk Zone</b> Intensity VII
Zone II	<b>Low Risk Zone</b> VI (and lower)



Source: PIB