



Earthquake Observatories

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Why in News

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

- **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.

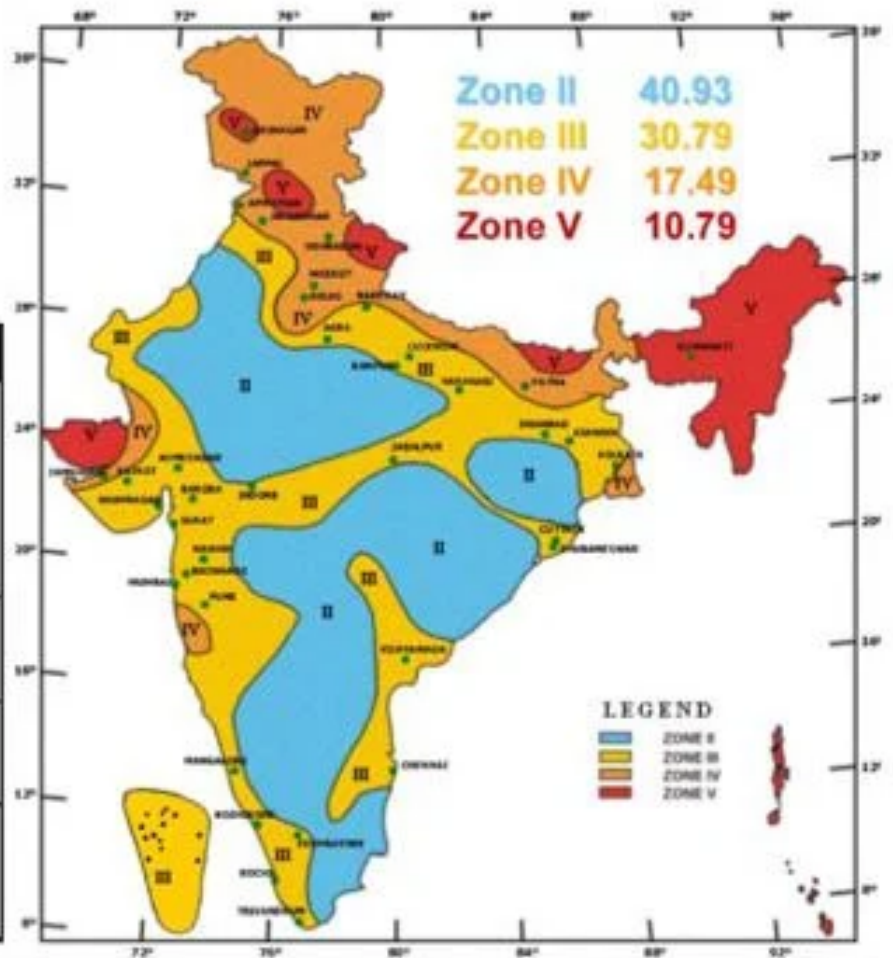
- **Earthquakes in India:**

- 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	Very High Risk Zone Area liable to shaking Intensity IX (and above)
Zone IV	High Risk Zone Intensity VIII
Zone III	Moderate Risk Zone Intensity VII
Zone II	Low Risk Zone VI (and lower)



Source: PIB