

Seismic Zones of India [UPSC Geography Notes]

The 'seismic zones of India' is an important topic in the UPSC exam geography section. It is important for the IAS Prelims exam and also the mains since this topic is relevant from the disaster management perspective as well. In this article, you can read all about the seismic zones of India for the [IAS exam](#).

Seismic Zones of India

Earthquake-prone regions of the country have been identified on the basis of scientific inputs related to seismicity, earthquakes that occurred in the past and the tectonic setup of the region. On the basis of these inputs, the Bureau of Indian Standards (BIS) has grouped the country into four seismic zones viz. zones V, IV, III and II. Zone V expects the highest level of seismicity whereas Zone II is associated with the lowest level of seismicity.

Regions that fall under the Earthquake (seismic) Zones in India



Image source: Maps of India

1. Zone V (very severe intensity zone): Parts of Jammu and Kashmir (Kashmir valley); Western part of Himachal Pradesh; Eastern part of Uttarakhand, Kutch in Gujarat; part of Northern Bihar; all northeastern states of India and the Andaman & Nicobar Islands.
2. Zone IV (severe intensity zone): Ladakh; Remaining parts of Jammu & Kashmir, Himachal Pradesh and Uttarakhand; Some parts of Haryana, Parts of Punjab; Delhi; Sikkim; the northern

part of Uttar Pradesh; small portions of Bihar and West Bengal; parts of Gujarat and small portions of Maharashtra near the west coast and small part of western Rajasthan.

3. Zone III (moderate intensity zone): Kerala; Goa; Lakshadweep islands; parts of Uttar Pradesh and Haryana; remaining parts of Gujarat and Punjab; parts of West Bengal, western Rajasthan, Madhya Pradesh; remaining part of Bihar; northern parts of Jharkhand and Chhattisgarh; parts of Maharashtra, Odisha, Andhra Pradesh, Telangana, Tamil Nadu and Karnataka.
4. Zone II (low intensity zone): Remaining parts of Rajasthan, Uttar Pradesh, Gujarat, Haryana, Madhya Pradesh, Maharashtra, Odisha, Andhra Pradesh, Telangana, Karnataka and Tamil Nadu.

Approximately, 11% of the country falls in zone V, ~18% in zone IV, ~ 30% in zone III and the remaining in zone II. A total of ~59% of the landmass of India (covering all states of India) is prone to earthquakes of different intensities.

Earthquakes

An earthquake, in simple words, is the shaking of the earth. It is a natural event caused due to the release of energy which generates seismic waves that travel in all directions.

- A seismograph or seismometer is an instrument used to detect and record earthquakes.
- The point where the energy is released (below the surface of the earth) is called the focus or the hypocentre of the earthquake.
- The point on the surface of the earth directly above the focus is called the epicentre, the first one to experience earthquake waves.

Know more about [earthquakes](#) in the linked article.

Measuring Earthquakes

- Earthquakes are measured either in terms of the magnitude or intensity of the shock. Earthquake magnitude is measured on the Richter scale (named after the seismologist who devised it). The magnitude implies the energy released during the earthquake and is expressed in numbers 0 to 10.
- Earthquake intensity is measured on the modified Mercalli scale, which ranges from 0 to 12 depending upon the intensity. The intensity scale takes into account the visible damage caused by the earthquake.

National Centre for Seismology (NCS)

The National Centre for Seismology (NCS) is the nodal agency of the Government of India for monitoring earthquake activity in the country.

- NCS maintains the National Seismological Network of more than 150 stations each having state-of-the-art equipment and spread all across the country.
- NCS monitors earthquake activity all across the country through its 24x7 around-the-clock monitoring centre.
- NCS also monitors earthquake swarms and aftershocks by deploying a temporary observatory close to the affected region.

National Disaster Management Authority (NDMA)

NDMA is engaged with conducting regular awareness campaigns every year through print, electronic as well as social media from time to time to sensitise programs on prevention and preparedness for building safety from earthquakes.

Building Materials and Technology Promotion Council (BMTPC)

- BMTPC is mandated to promote resource-efficient, climate-resilient, disaster-resistant construction practices including emerging building materials and construction technologies for field-level applications.
- BMTPC is also one of the resource institutions to provide S & T support in the area of innovative building materials & construction technologies and disaster mitigation & management.

UPSC Questions related to Seismic Zones of India

Q. Which zone experiences the highest level of seismicity?

Ans. Zone V

Q. What is the 'focus' of the earthquake?

Ans. Focus is the point below the surface of the earth where the energy of the earthquake originates. It is also called the hypocentre of the earthquake.

Q. The city Joshimath in Uttarakhand falls in which earthquake/seismic zone?

Ans. Joshimath falls under the high-risk seismic zone V.

Q. How many seismic zones are there in India?

Ans. There are four Seismic zones in India - Zone II, Zone III, Zone IV and Zone V.