

**GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
LOK SABHA
UNSTARRED QUESTION NO. 1573
TO BE ANSWERED ON WEDNESDAY, 4TH DECEMBER, 2024**

STUDY REGARDING EARTHQUAKE PRONE AREAS IN UTTARAKHAND

†1573. SHRI AJAY BHATT:

Will the Minister of Earth Sciences be pleased to state:

- (a) whether the Government has conducted any study regarding earthquake in earthquake prone areas particularly in Uttarakhand;
- (b) if so, the details and the results thereof;
- (c) if not, the reasons therefor;
- (d) the details of the steps taken or to be taken by the Government in this regard;
- (e) whether many areas have become earthquake prone due to depleting ground water level;
- (f) if so, the details of such areas identified so far; and
- (g) the steps taken by the Government to make the people aware in this regard?

ANSWER

THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR
MINISTRY OF SCIENCE AND TECHNOLOGY
AND EARTH SCIENCES
(DR. JITENDRA SINGH)

- (a) and (b) Yes. National Centre for Seismology (NCS) under the Ministry of Earth Sciences (MoES) monitors and reports seismic activity nationwide through the National Seismic Network by installing 166 permanent Seismic Observatories. A total of 08 permanent seismic observatories have been installed in the state of Uttarakhand. Details of these observatories and earthquakes occurring in this region and countrywide are available on the website of NCS (seismo.gov.in). Besides, continuous data collection, analysis of earthquakes using recorded data is done by NCS-MoES for better understanding of seismic stress accumulation/release patterns and source processes of the seismically active zones. Additionally, based on historical seismicity, Bureau of Indian Standards (BIS) has developed a seismic zoning map of India, which classifies regions based on their earthquake risk, in which Uttarakhand state lies in a seismically active zone (Zone IV and V). The state is vulnerable to seismic activity due to its proximity to the tectonic boundary between the Indian Plate and the Eurasian Plate.
- (c) Does not arise.
- (d) The Government has taken several steps to mitigate earthquake risks in Uttarakhand:
 - Implementation of the National Disaster Management Plan (NDMP) for earthquake preparedness.
 - Retrofitting of existing infrastructure and buildings to make them earthquake-resistant.
 - Seismic Microzonation of cities for the new infrastructure establishment.

- Setting up of temporary seismic network in the area of Joshimath, Uttarakhand.
 - Mapping of high-risk zones and early warning systems.
 - Conducting earthquake drills and awareness programs for communities in seismic zones.
 - Encouraging the use of seismic-resistant construction technologies.
- (e) Some of the recent studies advocated the role of fluid injection and withdrawal on seismogenesis but there is no linear correlation between the occurrences of earthquakes and ground water depletion because the occurrence of earthquakes is dominantly dictated by the structural heterogeneities and the behaviour of seismogenic faults at the source zones. However, micro to moderate earthquakes get triggered because of inducement of fluid and water.
- (f) Does not arise.
- (g) Several measures are taken to mitigate the risks associated with earthquakes which include, expansion of Seismic Monitoring Networks to ensure timely detection on earthquakes and dissemination of alerts, assigning the building codes by BIS for earthquake-resistant design and construction, particularly in high-risk zones, conducting awareness and Training Programs to educate the public about earthquake preparedness, including drills and awareness campaigns by National Disaster Management Authority (NDMA) and National Institute of Disaster Management (NIDM) under Ministry of Home Affairs (MHA), and developing emergency response and disasters management Plans at state and district-level. Additionally, NCS-MoES explains generation of earthquake process to public through print and electronic media for public awareness to reduce public panic during perceptible shaking due to earthquakes.
