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Earthquake hazard in Himalayan region: How to mitigate?

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The Himalayan seismic belt, extending from Kashmir to Arunachal Pradesh, has been seismically a very active region. During a short span of 53 years between 1897 and 1950, four great earthquakes (Shillong, 1897; Kangra, 1905; Bihar-Nepal, 1934 and Assam, 1950) of magnitude ~8 occurred in the region with vast devastation. However, no such earthquake has occurred since 1950. Many studies indicate that enough strains have accumulated to generate magnitude 8 or larger earthquakes in the Himalayan region. Where and when such an earthquake would occur is not known.

As short time earthquake forecast is not feasible and at the same time earthquakes shall continue to occur, the best solution is to develop earthquake resilient society. To meet this goal the National Disaster Management Authority, India (NDMA) has undertaken developing of scenarios of what would happen if an earthquake of magnitude ~ 8 occurs at a certain location.

A detailed "Multi-State Earthquake Scenario Project" for a hypothetical M 8 earthquake occurring at Mandi in Himachal Pradesh was undertaken in 2013. This location is close to the 1905 Kangra earthquake of M~8. States of Punjab, Haryana, Himachal Pradesh and the Union Territory (UT) of Chandigarh were involved. It is estimated that if this M~8 earthquake occurs in the middle of the night, up to 990 thousand human lives could be lost in these three states and UT Chandigarh besides enormous amount of financial losses. Involving all the state disaster management authorities, other state machinery and with public participation. The final multi-state mega mock exercise was conducted in the tr-city of Chandigarh, Mohali & Panchkula and in Shimla for the hypothetical earthquake occurring on February 13, 2013 at 11.30 am. The exercise was simultaneously conducted at sixty locations including government buildings, malls, engineering college, hospitals, office complexes, airport, railway station, cinema halls, petrol stations etc. Several shortcomings in preparedness were identified. The best part was the public awareness generation. Similar exercise has been conducted for the repeat of 1897 Shillong earthquake and preparations are on for the repeat of Bihar-Nepal earthquake of 1934.