



## Seismic hazard microzonation of Guwahati city

T.Rahman<sup>1</sup>

<sup>1</sup>First Affiliation, Silchar, India

### Abstract

Seismic hazard at a site is calculated from the existing seismotectonic set up in a region. It is well known from the damage patterns of the past earthquakes that structures on hard rock behave differently from structures on soft soil. Generally tall buildings with low frequencies have suffered greater damage when founded on soft soil deposits. The soft soil deposit may undergo liquefaction or ground failure during earthquakes. So, considering seismic hazard alone from different seismic sources will not assure safety in engineering structures unless the site effects due to soil is accounted. In the same city at the different location, soil properties can be widely different. The soil amplification factors at different location of a city have to be determined and these can be applied to bedrock level hazard to obtain the surface level PGA (Peak Ground Acceleration) and response spectrum. The surface level hazard is different from the bedrock level hazard. Guwahati city is a highly vulnerable city in North East region of India and it is the main gateway to the seven North Eastern states of India. Guwahati city is reported in seismic zone V in IS: 1893:2002 which is considered to be the most severe seismic zone in India. The present population of Guwahati city is approximately 13.0 lakhs. It is located in Shillong plateau region which has already experienced 8.5 magnitude earthquakes in 1897. In the present paper, seismic hazard study at the different location of Guwahati city has been thoroughly investigated.

**Key words:** Seismic Hazard, Microzonation, Response Spectrum, Peak Ground Acceleration