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Seismicity and Ground Response Analysis for MP Tourism Office in Indore, India

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Abstract : In the last few years, it has been observed that earthquake is proving a threat to the scientist across the world. With a large number of earthquakes occurring in day to day life, the threat to life and property has increased manifolds which call for an urgent attention of all the researchers globally to carry out the research in the field of Earthquake Engineering. Any hazard related to the earthquake and seismicity is considered to be seismic hazards. The common forms of seismic hazards are Ground Shaking, Structure Damage, Structural Hazards, Liquefaction, Landslides, Tsunami to name a few. Among all the natural hazards, the most devastating and damaging is the earthquake as all other hazards are triggered only after the occurrence of an earthquake. In order to quantify and estimate the seismicity and seismic hazards, many methods and approaches have been proposed in the past few years. Such approaches are Mathematical, Conventional and Computational. Convex Set Theory, Empirical Green's Function are some of the Mathematical Approaches whereas the Deterministic and Probabilistic Approaches are the Conventional Approach for the estimation of the seismic Hazards. Ground response and Ground Shaking of a particular area or region plays an important role in the damage caused due to the earthquake. In this paper, seismic study using Deterministic Approach and 1 D Ground Response Analysis has been carried out for Madhya Pradesh Tourism Office in Indore Region in Madhya Pradesh in Central India. Indore lies in the seismic zone III (IS: 1893, 2002) in the Seismic Zoning map of India. There are various faults and lineament in this area and Narmada Some Fault and Gavilgadh fault are the active sources of earthquake in the study area. Deepsoil v6.1.7 has been used to perform the 1 D Linear Ground Response Analysis for the study area. The Peak Ground Acceleration (PGA) of the city ranges from 0.1g to 0.56g.

Keywords : seismicity, seismic hazards, deterministic, probabilistic methods, ground response analysis
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