

Title	Assessment of Impacts of Damaging Earthquake Risks: Application of Rapid Earthquake Damage Assessment System in Region 01, Philippines
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ABSTRACT

The World Index 2016 listed the Philippines as 3rd most disaster-prone country. Recent damaging earthquakes across the country had caused significant loss of lives, damages to infrastructure, and upheaval in the economy. This study aimed to identify possible seismic hazards and to assess the severity of their impacts on the population, buildings, and economy of Ilocos Region, Philippines. Building structure surveys were conducted for three to five barangays in each province. These data were used to calibrate the nationally available data from the Philippine Statistics Authority to come up with a risk estimate for the whole region. Seven damaging earthquakes from the history of the region were simulated using REDAS. Results of the simulation showed that the most damaging among the seven earthquake events was in 1931 with a magnitude of 6.9 and a depth of 5 km. The epicenter was located in the southern part of Ilocos Norte. It might have caused the highest complete damage and the highest economic loss, with fatalities estimated at 817. Moreover, the 1990 7.8 magnitude earthquake with a depth of 25 km might have caused a death toll of 1,390 in the region. The epicenter was located in Baguio City, with Pangasinan as the most vulnerable particularly the populated cities of Dagupan and Urdaneta, causing 185 fatalities from these two cities. REDAS's ability to generate maps of earthquake damages across the region is valuable in retrofitting Zoning and Comprehensive Land Use Plans. Likewise, it can be a guide in rescue and retrieval operations in the occurrence of earthquakes.

Keywords: REDAS, earthquake, earthquake impact assessment