

Assessment of building vulnerability by integrating rapid visual screening and geographic information system: A case study of Ranau township

ABSTRACT

The earthquake may cause many deaths and injuries and extensive property damage and dramatically change the geographic structure of the impacted area. Vulnerability in the context of building structure can be defined as inability to resist the earthquake loadings and unfortunately the majority of existing buildings in Ranau Township were built consequently without seismic consideration. The rapid development had increased the probability of building damages due to the earthquake activities that appeared around the area since. This study aims to identify, evaluate buildings and calculated vulnerability using the Rapid Visual Screening (RVS) method through the framework of Geographic Information System (GIS). The results of this study revealed that from 245 buildings, the damage level for 21 buildings were in grade 3, 11 buildings under grade 2 and other buildings in grade 1 i.e. heavy, moderate and little damages, respectively. After knowing the vulnerability level of buildings, the developer may do an early prevention to avoid further damages due to earthquakes in the future. This method can be used in moderate seismicity region such as Sabah as an early detection for building vulnerabilities.