



## INTISARI

Provinsi Sumatera Barat merupakan wilayah rawan gempa dan berpotensi tsunami. Gempa yang terjadi tanggal 30 September 2009 merupakan yang terparah dalam sejarah gempa di Sumatera Barat. Berdasarkan laporan penilaian kerugian dan kerusakan oleh BNPB tahun 2009, kerusakan bangunan adalah penyebab utama banyaknya korban manusia saat itu. Pemerintah Daerah melalui BPBD Sumatera Barat telah melakukan usaha mitigasi gempa dan tsunami, salah satunya mempersiapkan Tempat Evakuasi Sementara (TES) seperti gedung untuk evakuasi secara vertikal atau *escape building* dari bahaya tsunami.

Penelitian ini bertujuan mengevaluasi dan memetakan potensi kerentanan *escape building* terhadap gempa dan tsunami. Metode yang dilakukan adalah dengan penilaian cepat (*Rapid Visual Screening*) menggunakan FEMA P-154 untuk menilai kerentanan terhadap gempa, dan menggunakan FEMA P-646 untuk menilai kerentanan terhadap tsunami.

Hasil penelitian menunjukkan bahwa desain beserta atribut struktural dan nonstruktural sangat mempengaruhi kerentanan terhadap gempa. Elevasi gedung terhadap inundasi tsunami merupakan faktor penentu utama kerentanan terhadap tsunami. *Escape building* yang berpotensi aman berjumlah 15 gedung, rentan bahaya struktural berjumlah 3 gedung, rentan bahaya nonstruktural berjumlah 10 gedung dan rentan tsunami berjumlah 2 gedung.

**Kata kunci** : mitigasi gempa dan tsunami, *escape building*, *FEMA P-154*, *FEMA P-646*



## ABSTRACT

West Sumatera Province is an area prone to earthquake and tsunami. The earthquake that occurred on September 30, 2009 was the worst in the history of the earthquake in West Sumatra. The destruction of buildings was the main cause of human casualties at that time. The Local Government through BPBD has conducted mitigation efforts against the earthquake and tsunami disaster by preparing Temporary Evacuation Site (TES), one of which is escape building for vertical evacuation from tsunami hazard.

The purpose of this research is to evaluate and categorize the potential vulnerability of escape building from earthquake and tsunami hazard. The evaluation methods used were FEMA P-154 rapid visual screening (RVS) to assess potential earthquakes hazards, and the FEMA P-646 design criteria were used to assess tsunami hazards. The results of the research have shown that the structural and non-structural hazards that exist due to the design or natural factors can cause the vulnerability of escape building to earthquake hazard. Elevation is a key determinant of vulnerability to tsunami hazards.

Based on the escape building vulnerability categories found: potentially safe are 15 buildings, potentially structural hazard are 3 buildings, potentially nonstructural hazard are 10 buildings and potentially tsunami hazard are 2 buildings.

Keywords: earthquake and tsunami mitigation, escape building, FEMA P-154, FEMA P-646.