

Penentuan Jalur Evakuasi Tsunami Menggunakan Pendekatan Sistem Informasi Geografis (SIG) dan *Protection Motivation Theory* (PMT)

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INTISARI

Evakuasi tsunami adalah tahapan singkat untuk meninggalkan zona bahaya tsunami menuju lokasi yang aman sehingga penentuan jalur dan lokasi evakuasi harus tepat dan cepat. Penentuan jalur dan lokasi evakuasi telah banyak dilakukan menggunakan pemodelan sistem SIG tanpa mempertimbangkan karakteristik sosial masyarakat. Penelitian ini bertujuan untuk menentukan jalur dan lokasi evakuasi vertikal dengan mempertimbangkan karakteristik genangan & *run up* tsunami, medan, dan aspek sosial masyarakat khususnya pedagang dan wisatawan di wilayah kepeesisiran Kecamatan Tanjungsari.

Penelitian ini menggunakan pendekatan pemodelan SIG dan PMT. Pemodelan SIG digunakan untuk mengolah data genangan & *run up* tsunami serta penentuan jalur evakuasi. Pendekatan PMT digunakan untuk mengetahui karakteristik sosial masyarakat terkait pilihan evakuasi yang dianalisis menggunakan regresi logistik biner.

Hasil penelitian menunjukkan luasan genangan dengan run up 12 m adalah ± 220 ha. Lokasi aman tsunami berada di bukit karst ketinggian $> 45,3332$ m. Sementara itu, mayoritas masyarakat cenderung memilih evakuasi horizontal. Faktor yang mempengaruhi evakuasi horizontal pedagang adalah pengetahuan probabilitas tsunami ketika laut tidak surut, kendaraan, dan jenis kelamin. Faktor yang mempengaruhi evakuasi horizontal wisatawan adalah kekhawatiran tsunami, usia, dan pengetahuan probabilitas tsunami ketika laut tidak surut. Berdasarkan genangan & *run up* tsunami serta preferensi jalur evakuasi masyarakat, terdapat 15 rekomendasi lokasi evakuasi vertikal.

Kata kunci: Evakuasi, Tsunami, Jalur, Masyarakat

Determination of Tsunami Evacuation Routes Using Geographic Information System (GIS) and Protection Motivation Theory (PMT) Approach

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ABSTRACT

Tsunami evacuation is a crucial step to leave tsunami hazard zones to safe locations, so the determination of evacuation locations and routes must be fast and appropriate. The determination of evacuation locations and routes has been widely carried out using GIS modelling without considering society's social characteristics. This study aims were to determine the vertical evacuation locations and routes by considering the tsunami inundation & run-up, terrain, and social characteristics, mainly traders and tourists in the coastal area of Tanjungsari Sub-District.

This research used GIS modelling and PMT approaches. GIS modelling was conducted to process tsunami inundation & run-up data and determine the evacuation routes. The PMT approach was used to investigate the community's social characteristics related to evacuation options that were analyzed using binary logistic regression.

The results revealed that the inundation area with 12 meters run-up was ± 220 hectares. The safe tsunami locations were located on karst hills with >45.3332 meters in height. Meanwhile, the majority of people tended to choose horizontal evacuation. Factors that affected traders' horizontal evacuation were knowledge of the probability of a tsunami when the sea is not receding, vehicle, and gender. Factors that influenced tourists' horizontal evacuation were perceived as tsunami likelihood, age, and knowledge of tsunami probability when the sea level is not decreasing. Based on the tsunami inundation & run-up and community evacuation route preferences, there were 15 recommended vertical evacuation sites and routes.

Keywords: Evacuation, Tsunami, Route, Community