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Tsunami Mitigation Map and Evacuation Route Modeling on the Jetis Beach, Cilacap Regency, Indonesia using Scoring Method and Dijkstra's Algorithm

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The tsunami that occurred on the Southern Coast of West Java and Central Java resulted in 802 people killed, 498 people injured, and 1623 houses heavily damaged. The total economic loss and damage to infrastructure due to this disaster reached US\$55 million. The impact of this disaster in Jetis Village, Cilacap, Central Java was 12 people died, Jetis Beach tourist facilities were damaged, transportation infrastructure was destroyed, and hundreds of houses collapsed. The Jetis area and its surroundings are very close to vital national infrastructures such as the Cilacap steam power plant that supplies electricity to southern Java and the Cilacap container port. In addition, this area is a tourist attraction visited by thousands of people per year. Therefore, the purpose of this research is to create a tsunami disaster mitigation map and evacuation route in Jetis Village to anticipate future casualties and economic losses. The method used in this study is scoring to create a tsunami mitigation map and Dijkstra's algorithm to determine the fastest evacuation route. The results depict that there are five zones of tsunami vulnerability, namely high impact potential, moderately high, moderate, moderately low, and low impact potential. The most vulnerable tsunami is the South Jetis area that has low elevation, is near the coast, fairly gentle slope, and is close to the river. Meanwhile, the northern part of Jetis is the safest zone of tsunami hazard. It has a high elevation, far from the coastline and river, and a steep slope. The distance of the evacuation route from the high-impact zone to the safe evacuation zone is 683 m. This study concludes that the high-impact to moderate-impact zone needs to be avoided in the event of a tsunami. If the community is within that range zone, then an evacuation route should be followed.