Geographic Information System (GIS) Application for Vulnerability Mapping and Evacuation Zone of Tsunami Hazard (Case Study : Glagah Beach Area, Kulon Progo, Yogyakarta)

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Abstract

The research aims are to identify the spatial vulnerability of tsunami hazard in Glagah Beach area and mapping the evacuation route based upon its vulnerability. The research area covers Desa Glagah, Sub District Temon, District Kulon Progo, Yogyakarta. The area experienced dynamic geological process such as subduction zone and at the same time exposed earthquake that can cause tsunami hazard. In some part of the research area, there is no mitigation system of tsunami hazard such as evacuation route and assembly point. The research comprehends vulnerability assessment as degree of potential tsunami hazard in three different scenarios of inundations and create the optimum route for evacuation. The research method applies Geographic Information System (GIS) with Digital Elevation Model to build the scenario of inundation and Network Analysis to create the evacuation route. The results of this research are vulnerability map of tsunami within three scenarios of inundations, 0-5 meter, 5-10 meter, 10-20 meter, and the evacuation route map that contain safe places for evacuation such as Anugerah Hotel, SDN Glagah dan Kantor Kepala Desa Glagah.

Keyword : GIS, DEM, tsunami, vulnerability, evacuation