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Flood Hazard Impact Based on Simulation Model of Potential Flood Inundation in Lamong River, Gresik Regency

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Abstract : Gresik is one of the districts in East Java Province, Indonesia. Gresik Regency has three major rivers, namely Bengawan Solo River, Brantas River, and Lamong River. Lamong River is a tributary of Bengawan Solo River. Flood disasters that occur in Gresik Regency are often caused by the overflow of the Lamong River. The losses caused by the flood were very large and certainly detrimental to the affected people. Therefore, to be able to minimize the impact caused by the flood, it is necessary to take preventive action. However, before taking preventive action, it is necessary to have information regarding potential inundation areas and water levels at various points. For this reason, a flood simulation model is needed. In this study, the simulation was carried out using the Geographic Information System (GIS) method with the help of Global Mapper software. The approach used in this simulation is to use a topographical approach with Digital Elevation Models (DEMs) data. DEMs data have been widely used for various researches to analyze hydrology. The results obtained from this flood simulation are the distribution of flood inundation and water level. The location of the inundation serves to determine the extent of the flooding that occurs by referring to the 50-100 year flood plan, while the water level serves to provide early warning information. Both will be very useful to find out how much loss will be caused in the future due to flooding in Gresik Regency so that the Gresik Regency Regional Disaster Management Agency can take precautions before the flood disaster strikes.

Keywords : flood hazard, simulation model, potential inundation, global mapper, Gresik Regency
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