

Assessment of Landslide Susceptibility in the Pagentan Area, Banjarnegara Regency: A Spatial Multi-Criteria Evaluation Approach

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Abstract	Landslides are widespread natural disasters that occur across various areas in Indonesia. Among these areas, Pagentan and its surroundings in Banjarnegara Regency are identified as having significant potential for large-scale landslides. Therefore, this research was conducted to determine the susceptibility of ground movements. The method used to examine the surface geological mapping and analyze the soil movement susceptibility was the Spatial Multi-Criteria Evaluation (SMCE). This method is an applied science approach that employs spatial analysis and multi-criteria evaluation to support decision-making processes. Geological mapping was used to describe rocks, make geomorphological observations, measure geological structures, take stratigraphic sections, and collect rock samples. Multiple parameters were used to determine soil susceptibilities in the research area, such as slope, lithology, rock mass, elevation, land cover, road buffer, river buffer, and aspects, which were transformed into raster data for analysis. The susceptibility analysis classified the research area into four categories: low, medium, high, and very high. The low susceptibility zone includes Pandansari and Karangtengah. The moderate susceptibility zone includes Wonosroyo, Aribaya, Karangtengah, Pandansari, and Bantar. Most of the high susceptibility zones are in Bantar and Karangtengah. Meanwhile, the very high susceptibility zones include Gumingsir, Plumbungan, Kalitlaga, Kayuares, Nagasari, Karangnangka and Mentawana.
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