

Mapping of Landslide-Prone Areas as A Form of Disaster Mitigation Efforts in North Bessesangtempe District, Luwu Regency

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Abstract. Indonesia has a high potential for natural disasters, influenced by its geology, topography, and tropical climate, with annual rainfall of around 2,000–3,000 mm. Data from the National Disaster Management Agency (BNPB) for the 2015–2024 period shows that landslides are the most frequent natural disaster. Therefore, identifying vulnerable areas and mapping potential landslide zones is necessary as a strategic step in disaster mitigation. North Bessesangtempe District, Luwu Regency, has hilly to mountainous topography with unstable geology and high rainfall that increases soil erodibility, making the area highly susceptible to landslides. Human activities such as land clearing, forest conversion, and development on slopes also increase the risk of disasters. Landslides are a type of disaster that cannot be completely prevented, but their impact can be reduced through mitigation measures. One approach is to utilize Geographic Information Systems (GIS) technology, using data on rainfall, soil type, slope gradient, land use, and geological conditions. The data is processed and analyzed in ArcGIS with weighted scoring and overlay techniques. Data analysis reveals that this area is mainly categorized as high (49.6%, 9,862.5 Ha) and medium (49.1%, 9,763.9 Ha) landslide risk, with a small portion low risk (0.9%, 178 Ha) or without potential (0.4%, 77.7 Ha). These results serve as important spatial information for the people of North Bessesangtempe District, supporting increased awareness, disaster risk mitigation, and safer development policy directions.

Keywords: Landslide, SIG, Geology