

**ANALISIS SPASIAL KERAWANAN LONGSOR
BERBASIS SISTEM INFORMASI GEOGRAFIS (SIG)
DI KECAMATAN SAWAN KABUPATEN BULELENG**

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ABSTRAK

Tanah longsor merupakan salah satu bencana alam yang sering terjadi di Kecamatan Sawan, Kabupaten Buleleng akibat kondisi topografi yang didominasi wilayah perbukitan, curah hujan yang relatif tinggi, serta perubahan penggunaan lahan. Penelitian ini bertujuan untuk: (1) menganalisis kondisi parameter kerawanan longsor di Kecamatan Sawan, Kabupaten Buleleng; dan (2) menganalisis tingkat kerawanan longsor berdasarkan analisis spasial berbasis Sistem Informasi Geografis (SIG). Penelitian ini menggunakan pendekatan kuantitatif dengan analisis spasial berbasis Sistem Informasi Geografis (SIG) menggunakan metode *weighted overlay*. Parameter yang digunakan meliputi curah hujan, kemiringan lereng, penggunaan lahan, jenis tanah, dan elevasi. Hasil analisis kemudian divalidasi menggunakan metode *Proportionate Stratified Random Sampling* dengan 30 titik sampel lapangan. Hasil penelitian menunjukkan bahwa kondisi wilayah Kecamatan Sawan didominasi oleh lereng curam, curah hujan tinggi, penggunaan lahan berupa perkebunan dan tegalan, serta jenis tanah yang relatif mudah jenuh air sehingga meningkatkan potensi longsor. Analisis spasial menghasilkan empat kelas kerawanan, yaitu rendah seluas 14,40 ha (0,156%), sedang 4.055,12 ha (43,83%), tinggi 5.012,57 ha (54,17%), dan sangat tinggi 11,12 ha (0,12%). Hasil validasi menunjukkan tingkat akurasi model sebesar 90%, sehingga peta kerawanan longsor yang dihasilkan dapat dimanfaatkan sebagai dasar dalam mitigasi bencana dan perencanaan tata ruang di Kecamatan Sawan.

Kata kunci: Kerawanan Longsor, Sistem Informasi Geografis (SIG), *Weighted Overlay*, Analisis Spasial, Kecamatan Sawan.

SPATIAL ANALYSIS OF LANDSLIDE SUSCEPTIBILITY BASED ON GEOGRAPHIC INFORMATION SYSTEM (GIS) IN SAWAN DISTRICT, BULELENG REGENCY

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ABSTRACT

Landslides are among the most common natural disasters occurring in Sawan District, Buleleng Regency, due to its predominantly hilly topography, relatively high rainfall, and changes in land use. This study aims to: (1) analyze the characteristics of landslide susceptibility parameters in Sawan District, Buleleng Regency; and (2) analyze the level of landslide susceptibility based on Geographic Information System (GIS)-based spatial analysis. This study employed a quantitative approach using Geographic Information System (GIS)-based spatial analysis with the *weighted overlay* method. The parameters used included rainfall, slope gradient, land use, soil type, and elevation. The analysis results were validated using the *Proportionate Stratified Random Sampling* method with 30 field sample points. The results indicate that the study area is predominantly characterized by steep slopes, high rainfall, plantations and dryland agricultural land, as well as soil types that are relatively prone to water saturation, thereby increasing the potential for landslides. The spatial analysis classified the study area into four susceptibility classes: low covering 14.40 ha (0.156%), moderate covering 4,055.12 ha (43.83%), high covering 5,012.57 ha (54.17%), and very high covering 11.12 ha (0.12%). The validation results showed an overall model accuracy of 90%, indicating that the resulting landslide susceptibility map is reliable and can be used as a basis for disaster mitigation and spatial planning in Sawan District.

Kata – kata kunci : Landslide Susceptibility, Geographic Information System (GIS),
Weighted Overlay, Spatial Analysis, Sawan District.