

## ABSTRAK

**AMRU AKBAR HARAHAHAP, NIM 3213131050, Analisis Tingkat Kerawanan Longsor Berbasis Sistem Informasi Geografi (SIG) Di Kecamatan Sei Bingai Kabupaten Langkat.** Skripsi, Jurusan Pendidikan Geografi Fakultas Ilmu Sosial Universitas Negeri Medan 2026.

Penelitian ini bertujuan untuk: 1) menganalisis tingkat kerawanan longsor di Kecamatan Sei Bingai Kabupaten Langkat berdasarkan analisis data geospasial menggunakan Sistem Informasi Geografis (SIG); 2) mengetahui sebaran titik longsor yang terjadi di Kecamatan Sei Bingai Kabupaten Langkat

Penelitian dilaksanakan di Kecamatan Sei Bingai Kabupaten Langkat pada bulan Juli 2025. Populasi mencakup seluruh desa dan kelurahan dengan penentuan sampel menggunakan *purposive sampling*. Data dikumpulkan melalui interpretasi citra peta, data sekunder, dan observasi lapangan. Analisis data dilakukan secara spasial berbasis SIG menggunakan teknik skoring, pembobotan, dan *overlay* peta tematik serta analisis deskriptif.

Hasil penelitian menunjukkan bahwa 1) tingkat kerawanan longsor di Kecamatan Sei Bingai terbagi ke dalam empat kelas, yaitu kerawanan rendah seluas 47,32 km<sup>2</sup> (14,20%), kerawanan sedang 192,47 km<sup>2</sup> (57,74%), kerawanan tinggi 93,21 km<sup>2</sup> (27,98%), dan kerawanan sangat tinggi 0,17 km<sup>2</sup> (0,05%) dari total luas wilayah 333,17 km<sup>2</sup>. Analisis spasial berbasis Sistem Informasi Geografis (SIG) mampu memetakan distribusi kerawanan longsor dengan tingkat akurasi 87,5%. Zona kerawanan tinggi hingga sangat tinggi terkonsentrasi di Desa Telagah, Rumah Galuh, dan Belinteng, yang dipengaruhi oleh kemiringan lereng curam, jenis tanah labil, dan curah hujan tinggi. 2) Sebaran titik longsor hasil survei lapangan menunjukkan terdapat empat titik longsor di Desa Telagah, dengan tiga titik termasuk kategori kerawanan tinggi (skor kumulatif 325–350) dan satu titik kategori sangat tinggi (skor kumulatif 400), yang menunjukkan bahwa wilayah tersebut memiliki potensi longsor yang signifikan.

***AMRU AKBAR HARAHAHAP, NIM. 3213131050. Analysis of Landslide Susceptibility Based on Geographic Information Systems (GIS) in Sei Bingai District, Langkat Regency. Undergraduate Thesis, Department of Geography Education, Faculty of Social Sciences, Medan State University 2026.***

*This study aims to: 1) analyze the level of landslide susceptibility in Sei Bingai District, Langkat Regency, based on geospatial data analysis using Geographic Information Systems (GIS); 2) identify the spatial distribution of landslide occurrence points in Sei Bingai District, Langkat Regency.*

*The research was conducted in Sei Bingai District, Langkat Regency, in July 2025. The population covered all villages and the sub-district in the study area,*

*with samples determined using purposive sampling. Data were collected through map image interpretation, secondary data collection, and field observations. Data analysis was carried out using GIS-based spatial analysis through scoring, weighting, and thematic map overlay techniques, supported by descriptive analysis.*

*The results show that 1) landslide susceptibility in Sei Bingai District is classified into four categories: low susceptibility covering 47.32 km<sup>2</sup> (14.20%), moderate susceptibility 192.47 km<sup>2</sup> (57.74%), high susceptibility 93.21 km<sup>2</sup> (27.98%), and very high susceptibility 0.17 km<sup>2</sup> (0.05%) of the total area of 333.17 km<sup>2</sup>. GIS-based spatial analysis successfully mapped landslide susceptibility distribution with an accuracy level of 87.5%. High to very high susceptibility zones are concentrated in Telagah, Rumah Galuh, and Belinteng Villages, influenced by steep slopes, unstable soil types, and high rainfall. 2) Field survey results identified four landslide occurrence points in Telagah Village, consisting of three points classified as high susceptibility (cumulative score 325–350) and one point classified as very high susceptibility (cumulative score 400), indicating that the area has significant landslide potential.*