

**GEOLOGI DAN ZONASI RAWAN BENCANA LONGSOR  
PADA DESA KALINUSU DAN SEKITARNYA,  
KECAMATAN BUMIAYU, KABUPATEN BREBES,  
PROVINSI JAWA TENGAH**

**SARI**

Daerah penelitian terletak di desa Kalinusu dan sekitarnya, Kecamatan Bumiayu, Kabupaten Brebes, Provinsi Jawa Tengah. Secara geografis daerah penelitian berada pada koordinat  $108^{\circ} 56' 46.9172''$  BT –  $109^{\circ} 00' 11.1824''$  BT,  $7^{\circ} 12' 54.0256''$  LS -  $7^{\circ} 15' 03.2986''$  dan masuk kedalam zona 49 S UTM dengan koordinat 273250 mE – 279500 mE, 9198000 mS – 9202000 mS. Kegiatan penelitian dilakukan untuk mengetahui kondisi geologi yang meliputi aspek geomorfologi, stratigrafi dan struktur geologi yang berkembang di daerah penelitian, Selain itu, dilakukan penentuan zonasi daerah rawan longsor dengan menggunakan parameter – parameter pembobotan serta hasil dari pemetaan seperti peta geologi dan nilai faktor keamanan lereng sebagai data pendukung dalam pembuatan peta zonasi daerah rawan longsor. Metodologi penelitian yang dilakukan meliputi pengambilan data langsung di lapangan, baik berupa data geologi maupun geologi teknik. Selanjutnya dilakukan analisis laboratorium berupa uji paleontologi, petrografi dan uji sifat fisik serta mekanik tanah, dimana hasil pengujian akan digunakan dalam penentuan kondisi geologi, analisis kestabilan lereng dan penentuan zonasi daerah rawan longsor. Berdasarkan analisis pola pengaliran daerah penelitian pola pengaliran subparalel dan paralel. Secara geomorfologi, daerah penelitian terbagi menjadi satuan bentuklahan tubuh sungai, dataran aluvial, perbukitan struktural, dan perbukitan vulkanik. Secara stratigrafi, daerah penelitian dari tua ke muda tersusun oleh satuan batulempung Kalibiuk, Satuan batupasir Kaliglagah, satuan batupasir-tufan Mengger, satuan konglomerat Gintung, satuan tuff- lapili Slamet dan endapan aluvial. Dari hasil penelitian dapat dilihat bahwa hasil kestabilan lereng sesuai dengan zonasi rawan longsornya yaitu zona rawan tinggi pada Lokasi Pengamatan 1 dan 4 yang memiliki nilai faktor keamanan yang labil-kritis. Zona rawan sedang pada Lokasi Pengamatan 3 dengan nilai faktor keamanan kritis dan zona rawan rendah pada Lokasi Pengamatan 2 dengan nilai faktor keamanan stabil.

Kata Kunci: geologi, parameter, lereng, zonasi, longsor

**GEOLOGY AND ZONATION OF LANDSLIDE IN KALINUSU  
AREA, SUBDISTRICT OF BUMIAYU, DISTRICT OF BREBES,  
PROVINCE OF CENTRAL JAVA**

**ABSTRACT**

*The study area is located in Village of Kalinusu and its surroundings, Subdistrict of Bumiayu, District of Brebes, Province of Central Java. Geographically, the study area is situated at coordinates 108° 56' 46.9172" E – 109° 00' 11.1824" E, 7° 12' 54.0256" S - 7° 15' 03.2986" S, and falls within the UTM Zone 49S with coordinates 273250 mE – 279500 mE, 9198000 mS – 9202000 mS. The research was conducted to determine the geological conditions, including aspects of geomorphology, stratigraphy, and the geological structures present in the study area. Additionally, a zonation of landslide was carried out using weighted parameters and mapping results such as geological maps and slope safety factor values as supporting data in the creation of the landslide zone map. The research methodology involves direct data collection in the field, including both geological and engineering geological data. This is followed by laboratory analysis, including paleontological and petrographic tests, as well as tests on the physical and mechanical properties of the soil. The results of these tests will be used to determine the geological conditions, analyze slope stability, and establish landslide hazard zoning. Based on the analysis of the drainage pattern, the study area exhibits subparallel and parallel drainage patterns. Geomorphologically, the study area is divided into landform units such as river body formations, alluvial plains, structural hills, and volcanic hills. Stratigraphically, the study area is composed of the following units, from oldest to youngest: the Kalibiuk shale unit, the Kaliglagah sandstone unit, the Mengger sandstone-tuff unit, the Gintung conglomerate unit, the Slamet tuff-lapilli unit, and alluvial deposits. The results of the study indicate that the slope stability is consistent with the landslide hazard zoning, where the high hazard zone is found at Observation Points 1 and 4, which have unstable-to-critical safety factor values. The moderate hazard zone is found at Observation Point 3, with a critical safety factor value, while the low hazard zone is at Observation Point 2, which has a stable safety factor value.*

*Keywords: geology, parameters, slope, zoning, landslide*