TEKNIK MITIGASI BENCANA BERDASARKAN KARAKTERISTIK GERAKAN MASSA TANAH DI KAPANEWON DLINGO, KABUPATEN BANTUL, DAERAH ISTIMEWA YOGYAKARTA

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INTISARI

Kapanewon Dlingo terletak di timur Kabupaten Bantul, memiliki bentang alam perbukitan sehingga gerakan massa tanah/longsor menjadi salah satu bencana alam yang mengancam. Berdasarkan data statistik laman sedata Bantul pada tahun 2022, 2023, 2024 secara berurutan terdapat sebanyak 17, 12, dan 3 kejadian longsor di Kapanewon Dlingo. Pada tahun 2025 hingga bulan Mei setidaknya terdapat 27 kejadian longsor. Kejadian longsor terjadi pada pertengahan Bulan Maret 2023 dan awal bulan Desember 2024 di Padukuhan Sukorame, Kalurahan Mangunan. Longsor tersebut mengakibatkan kerugian materi berupa rusaknya rumah warga dan akses jalan desa. Untuk itu, analisa lebih lanjut diperlukan untuk mengetahui persebaran area rawan gerakan massa tanah sebagai upaya mitigasi sehingga dapat menciptakan lingkungan aman bagi masyarakat Kapanewon Dlingo.

Metode penelitian berupa kualitatif dan kuantitatif. Pengambilan data dari survei, studi literatur dan institusi terkait. Sampling dilakukan dengan *purposive sampling*. Analisis dilakukan berdasarkan formula kerawanan gerakan massa tanah dengan metode Sidik Cepat dari KLHK 2006 yang dijelaskan pada Paimin, dkk (2009). Analisis tingkat kerawanan gerakan massa tanah dilakukan dengan skoring dan pembobotan, overlay, dan penyusunan peta kerawanan gerakan massa tanah. Pengolahan data dilakukan secara digital dengan perangkat lunak ArcMap 10.8.

Hasil penelitian menunjukkan gerakan massa tanah yang ditemui berupa longsoran rotasi dan runtuhan; terjadi pada lereng kemiringan >50º saat/setelah hujan dengan intensitas >100 mm/hari dan waktu >2 hari, serta material longsoran berupa massa tanah dan bongkahan batuan. Daerah penelitian didominasi oleh kategori agak rawan dengan rentang skor tertimbang sebesar 2,6 – 3,4 sebesar 71,98% total wilayah, mencakup 42,8559 km2, dominan berada di bagian tengah hingga timur dari Kapanewon Dlingo. Daerah dengan kategori rawan sebesar 2,82% total wilayah seluas 1,6791 km2, tersebar mengikuti pola pemukiman dan keberadaan jalan memotong lereng. Pengendalian gerakan massa tanah yang direkomendasikan berupa penguatan lereng dengan dinding penahan tanah gaya gravitasi dan kantilever pada area pemukiman, serta metode vegetative dengan penanaman rumput vertiver pada lereng yang jauh dari lokasi aktivitas masyarakat.

Kata kunci: Gerakan Massa Tanah, Longsor, Kerawanan Gerakan Massa Tanah

MITIGATION TECHNIQUES BASED OF THE SOIL MASS MOVEMENT CHARACTERISTICSIN KAPANEWON DLINGO, KABUPATEN BANTUL, DAERAH ISTIMEWA YOGYAKARTA

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ABSTRACT

Kapanewon Dlingo, located in the eastern part of Bantul Regency, is characterized by hilly terrain, making it vulnerable to mass movement or landslides. Based on statistical data from the Sedata Bantul website, the number of landslide incidents in Kapanewon Dlingo were recorded as 17 in 2022, 12 in 2023, and 3 in 2024. As of May 2025, at least 27 landslides have occurred. Notable landslides took place in mid-March 2023 and early December 2024 in Padukuhan Sukorame, Kalurahan Mangunan, causing material losses including damage to residential buildings and disruption of village road access. Therefore, further analysis is essential to identify the spatial distribution of landslide-prone areas as part of a mitigation strategy to establish a safer environment for the local.

This study employed both qualitative and quantitative methods. Data collection was conducted through surveys and literature reviews. Sampling was carried out using a purposive sampling technique. The analysis was based on the landslide susceptibility formula using the Rapid Assessment Method (Sidik Cepat) developed by the Ministry of Environment and Forestry (KLHK, 2006), as described by Paimin et al. (2009). The assessment of landslide susceptibility levels involved scoring and weighting, overlay analysis, and the development of a landslide susceptibility map. Data processing was performed digitally using ArcMap 10.8 software.

The results indicate the presence of rotational slides and rock falls, predominantly occurring on slopes with >50° angles during or after rainfall exceeding 100 mm/day over more than two consecutive days. The landslide materials consisted of soil masses and rock fragments. The study area is predominantly categorized as moderately vulnerable, with a weighted score range of 2.6–3.4, encompassing 71.98% of the total area (42.8559 km²), mainly in the central to eastern parts of Kapanewon Dlingo. Areas categorized as highly vulnerable cover 2.82% of the total area (1.6791 km²), generally aligned with settlement patterns and roads that traverse steep slopes. Recommended mitigation measures include slope stabilization using gravity and cantilever retaining walls in residential areas, as well as vegetative methods such as planting vetiver grass on slopes distant from human activities.

Keywords: Soil Mass Movement, Landslides, Vulnerabillity