

TINGKAT KERENTANAN TANAH LONGSOR DAN PERANCANGAN TEKNIK KONSERVASI TANAH DAN AIR DI DAERAH ALIRAN SUNGAI NASIRI, KABUPATEN SERAM BAGIAN BARAT, PROVINSI MALUKU

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INTISARI

Banjir bandang yang melanda Dusun Nasiri pada tahun 2012 dan 2013 diperkirakan terjadi sebagai akibat dari multi-proses tanah longsor. Hal tersebut diidentifikasi dari banyak material yang ikut terangkut oleh banjir, seperti batu berukuran besar dan batang pohon, serta sedimen berupa batu kerikil kasar yang menumpuk di muara sungai. Untuk mengurangi risiko terjadinya banjir bandang, maka diperlukan penanganan terhadap kawasan yang rentan terhadap tanah longsor. Tujuan dari penelitian ini adalah untuk mengetahui tingkat kerentanan tanah terhadap longsor dan tingkat erodibilitas tanah di kawasan DAS Nasiri, serta membuat arahan teknik KTA sebagai upaya untuk menangani kawasan rawan longsor.

Tingkat kerentanan tanah longsor dianalisis dengan menggunakan formula kerentanan tanah longsor menurut Paimin dkk. (2010). Parameter yang digunakan antara lain, curah hujan, lereng lahan, geologi, tanah, penggunaan lahan, infrastruktur dan kepadatan pemukiman. Seluruh parameter dianalisis dengan metode skoring dan *overlay* untuk membuat satuan unit lahan dengan menggunakan aplikasi ArcGIS. Dikarenakan penanganan tanah longsor dan erosi yang bertolak belakang, maka perlu diperhitungkan tingkat erodibilitas tanah yang diprediksi menggunakan rumus K-USLE. Arahan penanganan tanah longsor dirumuskan dengan mencocokkan nilai kerentanan tanah longsor dan erodibilitas tanah pada tiap unit lahan. Masing-masing unit lahan kemudian dikelompokkan berdasarkan analisis klaster yang dianalisis dengan menggunakan aplikasi SPSS.

Hasil analisis menunjukkan 95,8% kawasan DAS Nasiri memiliki tingkat kerentanan longsor sedang, 1,9% kawasan agak rendah, dan 0,8% kawasan agak tinggi. Secara umum, DAS Nasiri memiliki tingkat erodibilitas tanah tinggi. Namun, nilai kerentanan tanah longsor dan erodibilitas tanah di kawasan DAS Nasiri tidak memiliki hubungan yang signifikan, sehingga tidak saling mempengaruhi. Arahan teknik KTA dilakukan terhadap 5 klaster yang terbentuk dari 33 unit lahan. Teknik KTA yang dirumuskan untuk penanganan tanah longsor antara lain metode vegetatif, *bioengineering*, teras gulud, perbaikan saluran drainase, pembuatan dinding penahan, dan pengembalian fungsi kawasan.

Kata kunci: Nasiri, longsor, kerentanan tanah longsor, erodibilitas, konservasi tanah dan air

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LANDSLIDE SUSCEPTIBILITY LEVEL AND THE DESIGN OF SOIL AND WATER CONSERVATION TECHNIQUE IN THE WATERSHED OF NASIRI, WESTERN SERAM REGENCY, PROVINCE OF MALUKU

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ABSTRACT

Flash floods that surged Nasiri in 2012 and 2013 was expected occurred as a result of the multi-process of landslide. It was identified from the materials that transported by flood, such as large stones and tree trunks, as well as sedimentary rock in the form of coarse gravel that accumulates at the estuary. To reduce the risk of flash floods, it is required to treatment the areas that prone to landslides. The aims of research were to determine the level of landslide susceptibility and soil erodibility levels in the Nasiri watershed, also to designing of soil and water concervation techniques as a guidline to treat landslide prone areas.

The level of landslides susceptibility were analyzed by using the landslide susceptibility formula by Paimin et al. (2010). Parameters that were used consist of, rainfall, land slope, geology, soils, land use, infrastructure and residential density. All parameters was analyzed by the scoring method and overlay to create land units using ArcGIS. Because of the contradictory between mitigation plan for landslide and erosion, it was required to calculated the level of soil erodibility using K-USLE formula. The orientation for landslide control management was formulated by matching the level of landslide susceptibility and soil erodibility levels on each land units. Every land units were grouped by cluster analysis using SPSS.

Results of the analysis showed 95,8% of Nasiri watershed area has moderate levels of landslide prone area, 1,9% of the area has rather low level, and 0,8% of the area has rather high level. Generally, Nasiri watershed has high level of erodibility. However, the value of landslide susceptibility and soil erodibility in the Nasiri watershed area does not have a significant relationship, so the both variables does not affect each other. The orientation of soil and water concervation techniques has performed on five clusters that arranged from 33 land units. The orientation of soil and water concervation techniques that formulated for the landslides mitigation for Nasiri watershed consist of: vegetative methods, bioengineering, terrace, improvement of drainage, retaining walls manufacture, and refund function of the area.

Keywords: Nasiri, landslides, landslides susceptibility, erodibility, soil and water conservation

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