

## **PENGARUH PERUBAHAN TUTUPAN LAHAN TERHADAP KEJADIAN TANAH LONGSOR DI DAS GRINDULU, KABUPATEN PACITAN, JAWA TIMUR**

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### **INTISARI**

Perubahan ekosistem DAS oleh perubahan tutupan lahan akan menyebabkan kerusakan lingkungan, antara lain meningkatnya erosi dan sedimentasi, meningkatnya limpasan permukaan, berkurangnya daerah resapan, terjadinya banjir dan tanah longsor, dan penurunan keanekaragaman hayati. Penelitian ini bertujuan untuk mengetahui karakteristik sebaran tanah longsor pada DAS Grindulu, keterkaitan antara perubahan tutupan lahan dengan kejadian tanah longsor, serta strategi pengelolaannya. Metode analisis yang digunakan yaitu menggunakan platform GEE untuk memetakan perubahan tutupan lahan di DAS Grindulu Kabupaten Pacitan. Menggunakan metode spasial mengkaji keterkaitan perubahan tutupan lahan antara tahun 2017 dan tahun 2022 pada kejadian longsor tahun 2022. Metode deskriptif dalam menyusun strategi pengelolaan lingkungan DAS Grindulu Kabupaten Pacitan. Hasil penelitian menunjukkan sebagian besar titik longsor terkonsentrasi di wilayah utara dan tengah, pola titik longsor juga terletak di dekat jalur sungai, terutama di bagian tengah DAS Grindulu, menunjukkan bahwa sungai dapat berperan dalam mempercepat erosi dan memperbesar risiko longsor di sekitarnya. Perubahan tutupan lahan terluas yang terjadi pada tahun 2017-2022 adalah tutupan lahan hutan yang berubah menjadi sawah dengan luas mencapai 8.403 hektar, dan 6.898 hektar untuk hutan menjadi kebun. Analisis spasial menunjukkan bahwa sebagian besar titik longsor terjadi pada area dengan perubahan tutupan lahan, yang menandakan adanya dampak signifikan dari aktivitas manusia terhadap kestabilan lahan di daerah tersebut. Urutan prioritas pengelolaan lingkungan dimulai dari perubahan Hutan menjadi Sawah, kedua perubahan Hutan menjadi Kebun, dan ketiga Hutan menjadi Lahan Terbangun.

**Kata Kunci:** tanah longsor, tutupan lahan, daerah aliran sungai

## ABSTRACT

*Landslides are natural events that commonly occur during the rainy season on mountain/hill slopes as a manifestation of nature seeking equilibrium. A landslide is the movement of masses of soil, rock, or a combination of both, often occurring on natural and/or artificial slopes resulting from human activities. A Watershed Area is a land region topographically bounded by mountain ridges that collect and store rainwater, subsequently channeling it to the sea through rivers. Changes in the watershed ecosystem due to land cover changes lead to environmental degradation, such as increased erosion and sedimentation, increased surface runoff, reduced infiltration areas, flooding, landslides, and loss of biodiversity. Communities along the Grindulu Watershed utilize river water for various activities, such as bathing, washing, and agricultural irrigation. This research aims to identify the characteristics of landslide distribution in the Grindulu Watershed, the relationship between land cover changes and landslide occurrences, and management strategies. The analysis method used includes using the GEE platform to map land cover changes in the Grindulu Watershed, Pacitan Regency. Spatial methods were used to examine the correlation between land cover changes from 2017 to 2022 and landslide occurrences in 2022. Descriptive methods were used to develop environmental management strategies for the Grindulu Watershed, Pacitan Regency. The research results indicate that most landslide points are concentrated in the northern and central regions. The landslide points also tend to be located near river paths, particularly in the central part of the Grindulu Watershed, suggesting that rivers may play a role in accelerating erosion and increasing the landslide risk in surrounding areas. The largest land cover change from 2017 to 2022 was forest land converted to paddy fields, covering an area of 8,403 hectares, and 6,898 hectares of forest converted to plantations. Spatial analysis shows that most landslide points occur in areas with land cover changes, indicating a significant impact of human activities on land stability in the region. The priority order for environmental management starts with the change from forest to paddy fields, followed by the change from forest to plantations, and finally from forest to built-up land.*

**Keywords:** *landslide, land cover, watershed*