

KAPASITAS INFILTRASI PADA PENAMBANGAN PASIR DAN BERBAGAI PENGGUNAAN LAHAN DI DESA GLAGAHARJO, KECAMATAN CANGKRINGAN

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INTISARI

Desa Glagaharjo merupakan salah satu desa yang terletak di Kecamatan Cangkringan, Kabupaten Sleman, Daerah Istimewa Yogyakarta. Terdapat berbagai penggunaan lahan di Desa Glagaharjo, diantaranya hutan tanaman, belukar, pertanian lahan kering, pertanian lahan kering campur, tanah kosong, pemukiman, dan penambangan pasir. Salah satu yang menjadi perhatian adalah penggunaan lahan penambangan pasir. Penambangan yang terdapat di Desa Glagaharjo tertuang dalam Surat Keputusan Bupati Sleman No 284 tahun 2011 tentang Normalisasi Aliran Sungai Pasca Erupsi Gunungapi Merapi, penambangan itu diharapkan mempercepat normalisasi Kali Gendol setelah erupsi Gunung Merapi. Kegiatan penambangan pasir dilakukan secara modern maupun tradisional oleh warga setempat. Penambangan di lokasi ini berpotensi tanah longsor karena posisinya yang berada di area tebing sungai dengan ketinggian yang cukup tinggi dan galian yang semakin dalam. Intensitas penambangan yang tinggi dan penggunaan alat berat seperti *backhoe* dan *excavator* di area penambangan mengakibatkan tanah menjadi sangat padat. Hal ini berdampak pada kapasitas infiltrasi dan sifat fisik dan kimia tanah di lokasi tersebut. Tujuan dari penelitian ini adalah untuk mengetahui kapasitas infiltrasi di berbagai penggunaan lahan dan menganalisis pengaruh penambangan pasir terhadap kapasitas infiltrasi di Desa Glagaharjo Kecamatan Cangkringan.

Infiltrasi diukur menggunakan alat *double ring infiltrometer*, sampel tanah tidak terusuk diambil menggunakan *soil ring sample*, data vegetasi diambil menggunakan *nested plot* berukuran 20 x 20 meter dan plot diagram profil dengan ukuran 8 x 60 meter. Analisis kapasitas infiltrasi menggunakan rumus Horton, vegetasi dianalisis kerapatannya dan digambarkan proyeksinya menggunakan *software SExI-FS*, sifat fisik dan kimia tanah dianalisis di Laboratorium Tanah Fakultas Teknologi Pertanian kemudian dianalisis regresi linier berganda untuk mengetahui pengaruh sifat fisik dan kimia tanah terhadap kapasitas infiltrasi di penambangan pasir.

Berdasarkan hasil penelitian, dapat diketahui bahwa rata-rata kapasitas infiltrasi pada hutan tanaman 312 mm/jam, belukar 297 mm/jam, pertanian lahan kering 310 mm/jam, pertanian lahan kering campur 322 mm/jam, tanah kosong 182 mm/jam, pemukiman 90 mm/jam, dan penambangan pasir 145 mm/jam. Struktur tanah granuler, tekstur tanah geluh pasir, bahan organik berkisar 0,45% - 5,38%. Terdapat pengaruh secara simultan dari sifat fisik dan kimia tanah berupa tekstur, struktur, berat volume, berat jenis, porositas dan bahan organik terhadap kapasitas infiltrasi di Desa Glagaharjo. Nilai determinasi sebesar 60,1%, sedangkan sisanya dipengaruhi oleh variabel lain diluar penelitian.

Kata Kunci: Kapasitas Infiltrasi, Sifat Fisik dan Kimia Tanah, Penambangan Pasir, Desa Glagaharjo, Penggunaan Lahan

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INFILTRATION CAPACITY IN SAND MINING AND VARIOUS LAND USES AT GLAGAHARJO, CANGKRINGAN

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ABSTRACT

Glagaharjo is a village that located in Cangkringan, Sleman, Yogyakarta. There are many land use, such as plantation forest, shrubs, dry land agriculture, mixed dry land agriculture, vacant land, settlements, and sand mining. One that becomes a concern in land use is sand mining. Mining at Glagaharjo is written in Sleman Regent Decree No 284 of 2011 about Normalization of Post-Merapi Volcanic Eruption of River, the government hopes that it can accelerate a normalization of Kali Gendol after Merapi Mountain eruption. The local residents do the sand mining in modern or even traditional way. In that location, landslide will potentially happen due to the position of mining which is in a quite high river cliffs area and the excavation that is getting deeper. The high mining intensity and the use of heavy equipment such as backhoes and excavators in the mining area result a very dense soil. This will have an impact of infiltration capacity and chemical physical properties in that location. The purpose of this study are to find out the capacity of infiltration in any land use and analyze the effect of sand mining towards infiltration capacity at Glagaharjo, Cangkringan.

Infiltration was measured using double ring infiltrometer, undisturbed soil sample was taken using soil ring sample, and vegetation data was taken using nested plot with 20 x 20 meters and profile diagram plot with 8 x 60 meters. Infiltration capacity was analyzed by Horton formula. The density of vegetation was analyzed and the projection was pictured using *SEXI-FS software*. The chemical physical properties was analyzed at Soil Laboratory, Faculty of Agricultural Technology, then the researcher did multiple linear regression analysis to find out the effect of soil chemical physical properties towards infiltration capacity in sand mining.

Based on the result of this study, the average of infiltration capacity at plantation forests is 312 mm/hour, shrubs is 297 mm/hour, dry agricultural land is 310 mm/hour, mixed dry agricultural land is 322 mm/hour, vacant land is 182mm/hour, settlements is 90mm/hour, and sand mining is 145mm/hour. Granular soil structure, sandy loam soil texture, and soil organic matter ranging from 0.45 to 5.38. There is a simultaneous effect of chemical physical properties of soil which are the texture, structure, bulk density, particle density, soil porosity, and soil organic matter towards infiltration capacity at Glagaharjo. The determination value is 60.1% while the rest are affected by other external variables.

Keyword: *Infiltration Capacity, Soil Chemical Physical Properties, Sand Mining, Glagaharjo Village, Land Use*

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