

ANALISIS LAJU DAN KAPASITAS INFILTRASI PADA BERBAGAI TIPE AGROFORESTRI DI DESA BINANGUN, KECAMATAN KARANGOKBAR, KABUPATEN BANJARNEGARA

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INTISARI

Desa Binangun memiliki kelerengan curam yang menyebabkan rawan longsor. Infiltrasi berperan dalam menentukan tingkat permasalahan di daerah tersebut. Selain itu, terdapat berbagai tipe agroforestri di desa tersebut. Adanya perbedaan tipe agroforestri menyebabkan karakteristik tanah berbeda. Penggunaan lahan, karakteristik tanah, dan vegetasi yang berbeda menyebabkan perbedaan infiltrasi. Tujuan dari penelitian ini untuk menganalisis pengaruh jenis tipe agroforestri yang berbeda terhadap laju dan kapasitas infiltrasi dan menganalisis karakteristik tanah serta kerapatan vegetasi serta hubungannya dengan infiltrasi di Desa Binangun, Kecamatan Karangobar, Kabupaten Banjarnegara.

Penentuan titik pada penelitian ini menggunakan metode *purposive sampling* di dua tipe agroforestri yaitu RM (*random mixture*) dan TAB (*trees along border*). Pengambilan data infiltrasi dilakukan dengan menggunakan alat *double ring infiltrometer*, serta sifat fisik tanah berupa tanah terusik dan tidak terusik. Selain itu, data vegetasi diambil dengan plot berukuran 20 x 20 m. Data infiltrasi dianalisis dengan menggunakan persamaan Horton, karakteristik tanah dianalisis di laboratorium, dan kerapatan vegetasi dianalisis dengan membuat diagram profil menggunakan *software* SExI-FS.

Berdasarkan hasil penelitian, rata-rata kapasitas infiltrasi pada lahan agroforestri RM-1 sebesar 194,43 mm/jam, lahan RM-2 49,67 mm/jam, lahan RM-3 385,54 mm/jam, lahan TAB-1 sebesar 403,94 mm/jam, TAB-2 166,45 mm/jam, dan pada lahan TAB-3 sebesar 355,54 mm/jam. Karakteristik tanah yang memiliki hubungan positif dengan infiltrasi yaitu debu, porositas, dan bahan organik, sedangkan pasir, liat, struktur, berat volume, dan berat jenis memiliki hubungan negatif. Selain itu, kerapatan vegetasi memiliki hubungan negatif terhadap infiltrasi. Hasil dari infiltrasi yang tinggi dapat membuat limpasan permukaan berkurang sehingga potensi terjadinya bencana seperti banjir dan tanah longsor berkurang.

Kata Kunci: *Desa Binangun, Infiltrasi, Agroforestri, Karakteristik Tanah, Vegetasi*

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ANALYSIS OF INFILTRATION RATE AND CAPACITY IN VARIOUS TYPES OF AGROFORESTRY IN BINANGUN VILLAGE, KARANGOKBAR DISTRICT, BANJARNEGARA REGENCY

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ABSTRACT

Binangun Village has steep slopes that are prone to landslides. Infiltration plays a role in determining the extent of the problem in the area. Furthermore, various types of agroforestry exist in the village. These differences in agroforestry types result in different soil characteristics. Different land uses, soil characteristics, and vegetation lead to differences in infiltration. The purpose of this study was to analyze the effect of different agroforestry types on infiltration rates and capacity, as well as to analyze soil characteristics and vegetation density, and their relationship to infiltration in Binangun Village, Karangobar District, Banjarnegara Regency.

The sampling points in this study were determined using a purposive sampling method in two types of agroforestry: RM (random mixture) and TAB (trees along border). Infiltration data were collected using a double ring infiltrometer, along with soil physical properties, including disturbed and undisturbed soil. Vegetation data were also collected using a 20 x 20 m plot. Infiltration data were analyzed using the Horton equation, soil characteristics were analyzed in the laboratory, and vegetation density was analyzed by creating a profile diagram using SExI-FS software.

Based on the research results, the average infiltration capacity in the RM-1 agroforestry land was 194.43 mm/hour, RM-2 land 49.67 mm/hour, RM-3 land 385.54 mm/hour, TAB-1 land 403.94 mm/hour, TAB-2 166.45 mm/hour, and TAB-3 land 355.54 mm/hour. Soil characteristics that have a positive relationship with infiltration are dust, porosity, and organic matter, while sand, clay, structure, volume weight, and specific gravity have a negative relationship. In addition, vegetation density has a negative relationship with infiltration. The results of high infiltration can reduce surface runoff so that the potential for disasters such as floods and landslides is reduced.

Keywords: *Binangun Village, Infiltration, Agroforestry, Soil Characteristics, Vegetation*

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