

PREDIKSI EROSI PADA LAHAN AGROFORESTRI DI DAERAH TANGKAPAN AIR GINTUNG SUB DAS MERAWU KECAMATAN KARANGKOBAR, BANJARNEGARA

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INTISARI

Alih fungsi lahan dan pengolahan pertanian intensif di kawasan hulu Sub DAS Merawu menyebabkan peningkatan risiko erosi dan sedimentasi. Sistem agroforestri diterapkan sebagai alternatif pengelolaan lahan untuk menekan laju degradasi, namun efektivitasnya dalam mengendalikan erosi belum banyak dikaji. Penelitian ini bertujuan untuk menaksir nilai erosi dan menganalisis hubungan antara karakteristik hujan dengan laju sedimen suspensi pada lahan agroforestri di Daerah Tangkapan Air Gantung Kabupaten Banjarnegara.

Penelitian dilakukan dari 10 Februari sampai 10 April 2025 di SPAS Gantung yang terletak di Dusun Gantung Desa Binangun, Karangkoar, Banjarnegara. Data yang diambil berupa data sedimen suspensi, data karakteristik hujan, dan data vegetasi. Data yang diperoleh kemudian diolah untuk mengetahui besaran erosi yang ada serta dianalisis regresi sederhana untuk memperoleh hubungan antara parameter karakteristik hujan dengan sedimen suspensi.

Hasil penelitian menunjukkan nilai sedimen suspensi selama masa penelitian sebesar 47,84 ton/ha atau kehilangan tanah 0,72 cm. Nilai tersebut diperkirakan 287,04 ton/ha/tahun yang masuk dalam kategori erosi berat. Karakteristik hujan yang paling berpengaruh terhadap sedimen adalah intensitas hujan maksimum dalam 30 menit (I30) ($R^2 = 51,05\%$), diikuti oleh tebal hujan, durasi, dan intensitas hujan.

Kata Kunci: tebal hujan, sedimen suspensi, intensitas hujan, DTA Gantung

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**EROSION PREDICTIONS ON AGROFORESTRY LAND IN THE
GINTUNG CATCHMENT AREA, MERAWU SUB-WATERSHED
KARANGKOBAR DISTRICT, BANJARNEGARA**

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ABSTRACT

Land use change and intensive agricultural practices in the upstream area of the Merawu Sub-watershed have increased the risk of erosion and sedimentation. Agroforestry systems have been introduced as an alternative land management strategy to reduce land degradation, however their effectiveness in controlling erosion has not been extensively studied. This research aimed to estimate the rate of erosion and analyze the relationship between rainfall characteristics and suspended sediment yield in agroforestry land in Gintung Catchment Area, Banjarnegara.

The study was conducted from February 10 to April 10 2025 at the SPAS located in Dusun Gintung, Binangun Village, Karangkoobar District, Banjarnegara. Data collected included suspended sediment, rainfall characteristics, and vegetation data. The sediment yield was calculated, and a sample linear regression analysis was performed to determine the relationship between rainfall parameters and suspended sediment.

The results showed that the suspended sediment yield during the observation period was 47,84 tons/ha, or 0,72 cm of soil loss. This value is estimated at 287,04 tons/ha/year, which falls into the severe erosion category. The rainfall parameter most strongly correlated with sediment yield was the 30 minute maximum rainfall intensity (I30), followed by rainfall depth, duration, and average intensity.

Keywords: rainfall depth, suspended sediment, rainfall intensity, Gintung catchment area

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