

**PEMODELAN PENGENDALIAN EROSI TANAH MENGGUNAKAN
TUTUPAN VEGETASI BERBASIS *GEOGRAPHIC INFORMATION
SYSTEM* (GIS) PADA DAERAH ALIRAN SUNGAI PROGO HULU**

INTISARI

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Bertambahnya penduduk mengakibatkan kebutuhan lahan meningkat, salah satu imbasnya yaitu pembukaan lahan untuk pembangunan maupun pertanian. DAS Progo Hulu juga mengalami pembukaan lahan khususnya untuk pertanian hingga tutupan vegetasi hanya tersisa 4%. Tujuan penelitian ini yaitu untuk mengetahui efektivitas dari penambahan tutupan vegetasi dalam mengurangi laju erosi. Perhitungan erosi tanah dilakukan dengan menggunakan model RUSLE (*Revised Universal Soil Loss Equation*) yang dihitung dengan ArcGIS 10.3. Parameter yang digunakan untuk menghitung erosi yaitu faktor erosivitas hujan (R), faktor erodibilitas tanah (K), faktor panjang dan kemiringan lereng (LS) dan faktor tanaman (C) dan praktik konservasi lahan (P). Variasi pemodelan tutupan vegetasi yang digunakan yaitu 10%, 15%, 20%, 25%, dan 30%. Hasil dari penelitian ini menunjukkan bahwa total penurunan laju erosi dari kondisi aktual sampai kondisi pemodelan tutupan vegetasi 30% sejumlah 54,08 ton/ha/tahun. Peningkatan 5% tutupan vegetasi menurunkan laju erosi sebesar 5,62 ton/ha/tahun.

Kata kunci: Erosi Tanah, GIS, Model RUSLE, Tutupan Vegetasi

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**EROSION CONTROL MODELLING USING VEGETATION COVER
BASED ON GEOGRAPHIC INFORMATION SYSTEM IN UPPER
PROGO WATERSHED**

ABSTRACT.

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The increase of population has resulted in increased land needs, one of the impacts is land clearing for development and agriculture. The upstream of Progo watershed has also experienced in land clearing especially for agriculture so that the vegetation cover area was only around 4% left. The purpose of this study was to determine the effectiveness of vegetation cover to reduce soil erosion rates. Soil erosion calculations were carried out using the RUSLE (Revised Universal Soil Loss Equation) model calculated was in ArcGIS 10.3. The parameters used to calculate erosion were rain erosivity factor (R), soil erodibility factor (K), slope length and slope factor (LS) and crop management factor (C) and land conservation practices (P). Five scenarios of vegetation cover such as 10%, 15%, 20%, 25% and 30% were used for the modelling. The results of this study showed that the total reduction in erosion rate from the actual condition to the 30% vegetation cover modelling condition was 54.08 tons / ha / year. The increase of 5% vegetation cover reduced the erosion rate by 5.62 tons / ha / year.

Keywords: Soil Erosion, GIS, RUSLE Model, Vegetation Cover

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