

PEMODELAN TUTUPAN VEGETASI BERBASIS *GEOGRAPHIC INFORMATION SYSTEM* (GIS) UNTUK PENGENDALIAN EROSI TANAH PADA DAERAH TANGKAPAN AIR WADUK SEMPOR, PROVINSI JAWA TENGAH

INTISARI

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Erosi tanah di Indonesia semakin meningkat akibat adanya deforestasi pada kawasan hulu Daerah Aliran Sungai (DAS). Erosi tanah mengakibatkan kerugian baik di wilayah hulu dan hilir DAS. Erosi tanah dapat ditangani dengan menggunakan metode mekanis dan vegetatif. Pengendalian erosi tanah perlu dilakukan dari sumbernya pada bagian hulu DAS menggunakan metode vegetasi. Studi ini dilakukan untuk mengetahui efektifitas dan standar minimum tutupan lanskap vegetasi untuk praktik pertanian dengan risiko erosi tanah yang rendah. Model RUSLE berbasis Sistem Informasi Geografis (SIG) digunakan untuk pemodelan tutupan vegetasi pada kondisi eksisting dan lima skenario. Data penelitian dikumpulkan dari berbagai sumber dan disajikan dalam format raster dengan resolusi 30 meter. Hasil penelitian menunjukkan kondisi 50% tutupan lanskap vegetasi dapat menurunkan laju erosi 55,73 ton/ha/tahun. Penurunan erosi tanah tertinggi terdapat pada perubahan tutupan vegetasi 10% menjadi vegetasi 20% serta rerata penurunan laju erosi tiap peningkatan 10% tutupan vegetasi yaitu 11,15 ton/ha/tahun. Studi ini memberikan referensi mengenai standar minimum tutupan vegetasi yang diperlukan untuk meminimalisir erosi tanah pada skala DAS.

Kata kunci: Erosi tanah, model RUSLE, Waduk Sempor, tutupan vegetasi

**VEGETATION COVER MODEL BASED ON GEOGRAPHIC
INFORMATION SYSTEM (GIS) FOR SOIL EROSION CONTROL IN
THE SEMPOR WATER CATCHMENT AREA, CENTRAL JAVA
PROVINCE**

ABSTRACT

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Soil erosion in Indonesia is increasing due to deforestation in the upstream watershed. Erosion causes many losses in the upstream and downstream areas of the watershed. Soil erosion can be handled by using mechanical and vegetative methods. Soil erosion control needs to be applied from the source in the upstream area of watershed by using the vegetation method. This study aims to investigate the effectiveness and the minimum standard of vegetation cover for agricultural practices with low risk of soil erosion. Geographic Information System (GIS) based model of RUSLE was used for vegetation cover modelling in existing and five scenarios conditions. Data of study was collected from various sources and presented in a raster format with 30 meters resolution. The results showed that 50% of the landscape vegetation cover was able to reduce the erosion rate by 55.73 tons/ha/year from the actual condition. The highest decrease in soil erosion was found in the change in vegetation cover from 10% to 20% vegetation and the average decrease in erosion rate for every 10% increase in vegetation cover was 11.15 tons/ha/year. The result of this study provides a reference about minimum limit of vegetation cover required to minimize soil erosion in a watershed scale.

Keywords: Soil erosion, RUSLE method, Sempor's reservoir, vegetation cover