ABSTRAK

ANALISIS LAJU EROSI DAN SEDIMENTASI MENGGUNAKAN METODE PETAK KECIL PADA HILIR SUB DAS CELENG DI KALURAHAN WUKIRSARI, IMOGIRI, BANTUL

Oleh
Nawang Endah Astanto
NIM: 114220131
(Program Studi Sarjana Teknik Lingkungan)

Hilir Sub DAS Celeng di Kalurahan Wukirsari, Imogiri, Bantul memiliki kondisi topografi perbukitan curam, curah hujan tinggi, serta variasi tutupan lahan yang berpotensi meningkatkan kerentanan erosi. Kenampakan erosi parit ditemukan di wilayah ini pada lahan dengan tutupan hutan jati dan semak belukar. Sementara itu, Kali Celeng diketahui mengalami sedimentasi yang tinggi. Kondisi tersebut menunjukkan pentingnya kajian erosi sebagai salah satu proses degradasi lahan di hilir Sub DAS Celeng. Oleh karena itu, penelitian ini bertujuan untuk menganalisis laju erosi parit dan sedimentasi pada kedua tutupan lahan serta memberikan arahan pengelolaan lahan yang sesuai untuk menekan terjadinya erosi.

Metode penelitian yang digunakan adalah metode petak kecil dengan teknik *purposive sampling* pada dua lokasi penelitian, yaitu lahan hutan jati dan semak belukar dengan kemiringan lereng curam. Pengumpulan data dilakukan melalui pengukuran langsung terhadap limpasan permukaan, volume sedimen, intensitas hujan, kemiringan lereng, dan karakteristik tanah. Analisis data dilakukan secara deskriptif dan analisis grafik trendline untuk melihat kecenderungan hubungan intensitas hujan dengan laju erosi dan sedimentasi.

Hasil penelitian menunjukkan bahwa hutan jati memiliki total laju erosi dan sedimentasi lebih tinggi, yaitu sebesar 8,794 ton/ha dan 41.332,7 g/L, dibandingkan semak belukar sebesar 3,068 ton/ha dan 14.417,4 g/L. Besarnya erosi dan sedimentasi dipengaruhi oleh intensitas hujan, kondisi vegetasi, kemiringan lereng, dan karakteristik tanah. Peningkatan intensitas hujan umumnya diikuti oleh peningkatan laju erosi dan sedimentasi. Arahan pengelolaan lahan yang direkomendasikan meliputi penerapan teras guludan dan rorak, penanaman *Calopogonium mucunoides*, *Mucuna pruriens*, dan *Chrysopogon zizanioides*, serta penguatan peran pemerintah dan masyarakat dalam konservasi tanah untuk menekan laju erosi dan sedimentasi.

Kata kunci: Erosi Parit, Sedimentasi, Intensitas Hujan, Hutan Jati, Semak Belukar, Teras Guludan, Rorak, Konservasi Tanah

ABSTRACT

ANALYSIS OF EROSION AND SEDIMENTATION RATES USING THE SMALL PLOT METHOD IN THE UPPER CELENG SUB-WATERSHED IN WUKIRSARI VILLAGE, IMOGIRI DISTRICT, BANTUL

By
Nawang Endah Astanto
NIM: 114220131
(*Environmental Engineering Undergraduated Program*)

The downstream Celeng Sub-watershed in Wukirsari Village, Imogiri, Bantul, is characterized by steep hilly topography, high rainfall, and varied land cover, potentially increasing erosion vulnerability. Gully erosion is observed in this area on land covered by teak forest and shrubland. Meanwhile, the Imogiri Reservoir and the Celeng River are known to experience high sedimentation. These conditions highlight the importance of studying erosion as a key factor in land degradation processes in the downstream Celeng Sub-watershed. Therefore, this study aims to analyze the rates of gully erosion and sedimentation on both land cover types and to provide guidance on appropriate land management to reduce erosion.

The research method used was a small plot method with purposive sampling at two study sites: teak forest and shrubland with steep slopes. Data collection was carried out through direct measurements of surface runoff, sediment volume, rainfall intensity, slope gradient, and soil characteristics. Data analysis was conducted descriptively and using trendline graphs to identify trends in the relationship between rainfall intensity and erosion and sedimentation rates.

The research results show that teak forests have higher total erosion and sedimentation rates, at 8,794 tons/ha and 41,332.7 gr/L, respectively, compared to shrubs at 3,068 tons/ha and 14,417.4 gr/L. The extent of erosion and sedimentation is influenced by rainfall intensity, vegetation conditions, slope gradient, and soil characteristics. Increasing rainfall intensity is generally followed by increased erosion and sedimentation rates. Recommended land management guidelines include the implementation of ridge and rorak terraces, the planting of Calopogonium mucunoides, Mucuna pruriens, and Chrysopogon zizanioides, and strengthening the role of government and communities in soil conservation to reduce erosion and sedimentation rates.

Keywords: Gully Erosion, Sedimentation, Rainfall Intensity, Teak Forest, Shrubs, Grill and Rorak Terraces, Soil Conservation