

**ANALISIS TAMPUNGAN BANGUNAN PENGENDALI
SEDIMEN (*CHECK DAM*) MARGALUYU
DI DAS CITANDUY HULU**

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ABSTRAK

DAS Citanduy merupakan salah satu DAS prioritas di Provinsi Jawa Barat karena kondisinya yang kritis. DAS Citanduy memiliki beberapa sub DAS, salah satunya adalah Sub DAS Citanduy Hulu yang mencakup area 71.616,2 ha. Sub DAS ini sedang menghadapi masalah serius terkait erosi yang menyebabkan sedimentasi berlebihan. Faktor-faktor seperti perubahan tata guna lahan, curah hujan yang tinggi, dan topografi yang curam menyebabkan peningkatan sedimentasi sebesar 40,95% dari tahun 2007 hingga 2020. Sebagai upaya pengendalian sedimentasi, *Check Dam* Margaluyu dibangun di DAS Cikalang, yang merupakan anak sungai DAS Citanduy Hulu. Analisis tampungan sedimen menjadi sangat penting untuk menilai kinerja dan efektivitas *check dam*, serta merencanakan tindakan pemeliharaan atau peningkatan yang diperlukan. Metode *Universal Soil Loss Equation* (USLE) diaplikasikan dengan bantuan Sistem Informasi Geografis (SIG) untuk menghitung laju erosi di DAS Cikalang seluas 4.541,3 ha, menghasilkan estimasi 263,08 ton/ha/th. Metode *Sediment Delivery Ratio* (SDR) dengan pendekatan empiris digunakan untuk memperkirakan jumlah sedimen yang mencapai *Check Dam* Margaluyu, yaitu sebesar 207.435,34 ton/th atau 17,36% dari total laju erosi lahan. Berdasarkan pendekatan mekanis, total sedimen yang mencapai *Check Dam* Margaluyu pada tahun 2019 adalah 211.919,02 ton/tahun, jumlah ini terdiri dari sedimen dasar sebesar 38.728,22 ton/tahun yang tertahan oleh *check dam* dihitung menggunakan metode Meyer-Peter Muller, dan sedimen layang sebesar 173.190,8 ton/tahun yang melewati *check dam*.

Kata Kunci: *Check dam*, Erosi, Meyer-Peter Muller, *Sediment Delivery Ratio* (SDR), Sedimentasi, *Universal Soil Loss Equation* (USLE)

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**STORAGE ANALYSIS OF MARGALUYU SEDIMENT
CONTROL BUILDING (CHECK DAM) IN THE
UPPER CITANDUY WATERSHED**

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ABSTRACT

The Citanduy Watershed is one of the priority watersheds in West Java Province due to its critical condition. The Citanduy watershed has several sub-watersheds, one of which is the Upper Citanduy sub-watershed, which covers an area of 71,616.2 ha. This watershed is facing serious problems related to erosion that causes excessive sedimentation. Factors such as land use change, high rainfall, and steep topography caused an increase in sedimentation by 40.95% from 2007 to 2020. As an effort to control sedimentation, Margaluyu Check Dam was built in the Cikalang watershed, which is a tributary of the Upper Citanduy watershed. Sediment storage analysis is very important to assess the performance and effectiveness of the check dam, as well as to plan necessary maintenance or improvement actions. The Universal Soil Loss Equation (USLE) method was applied with the help of Geographic Information System (GIS) to calculate the erosion rate in the 4,541.3 ha Cikalang watershed, resulting in an estimate of 263.08 tons/ha/year. The Sediment Delivery Ratio (SDR) method with an empirical approach was used to estimate the amount of sediment reaching the Margaluyu Check Dam, which amounted to 207,435.34 tons/year, or 17.36% of the total land erosion rate. Based on the mechanical approach, the total sediment reaching the Margaluyu Check Dam in 2019 was 211,919.02 tons/year; this amount consisted of 38,728.22 tons/year of bottom sediment retained by the check dam calculated using the Meyer-Peter Muller method and 173,190.8 tons/year of elevated sediment passing through the check dam.

Keywords: *Check dam, Erosion, Meyer-Peter Muller, Sediment Delivery Ratio (SDR), Sedimentation, Universal Soil Loss Equation (USLE)*

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