

ANALISIS HASIL SEDIMEN DI SUB-DAS CILIWUNG DENGAN METODE SWAT

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INTISARI

DAS Ciliwung mengalami kondisi yang sangat mengkhawatirkan yang disebabkan oleh banjir, juga sangat tingginya tingkat erosi dan sedimentasi. Model SWAT (*Soil and Water Assessment Tool*) adalah suatu model yang digunakan dalam melakukan prediksi dalam penggunaan lahan dan pengaruhnya pada debit aliran, hasil sedimen, dan material yang terinfiltrasi dalam sungai ataupun badan air di DAS. Tujuan penelitian ialah mengetahui hasil sedimen di sub-DAS Ciliwung dengan menjalankan pemodelan SWAT, dan mengetahui zona produksi, transportasi, dan deposisi di sub-DAS Ciliwung Hulu. Parameter yang dibutuhkan dalam model SWAT antara lain penggunaan lahan, jenis tanah, dan kemiringan lereng serta data curah hujan dan temperatur. Pemodelan SWAT pada sub-DAS Ciliwung selama 4 tahun (2016-2019) mengindikasikan bahwa Sub-DAS Ciliwung memiliki rerata hasil sedimen sebesar 1.636.382.31 ton/tahun. Unit HRU ke 39 yang terdapat pada sub-DAS 28, hasil sedimen menjadi yang paling tinggi yaitu sekitar 103.275,34 ton/tahun. Zona produksi di sub-DAS Ciliwung terdapat pada 43 sub-DAS hasil delineasi otomatis pada pemodelan SWAT yang terletak di area hulu dari sub-DAS Ciliwung, sedangkan zona transportasi di sub-DAS Ciliwung terdapat pada 43 sub-DAS yang terletak di area antara hulu dari sub-DAS Ciliwung dan area hilir dari sub-DAS Ciliwung, sementara zona deposisi di sub-DAS Ciliwung terdapat pada 27 sub-DAS yang terletak di area hilir dari sub-DAS Ciliwung.

Kata kunci : Hasil Sedimen, Ciliwung Hulu, Pemodelan, SWAT

SEDIMENT YIELD ANALYSIS OF CILIWUNG WATERSHED WITH SWAT METHOD

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ABSTRACT

Ciliwung Watershed is experiencing very worrying conditions caused by flooding, as well as very high levels of erosion and sedimentation. SWAT (Soil and Water Assessment Tool) model is a model used to make predictions on land use and its effect on flow rate, sediment yield, and infiltrated material in rivers or water bodies in watersheds. The aim of the study was to determine the yield of sediment in the Ciliwung sub-watershed by running SWAT modeling, and and to determine the production, transportation and deposition zones in the upper Ciliwung sub-watershed.. Parameters needed in the SWAT model include land use, soil type, and slope as well as rainfall and temperature data. SWAT modeling in the Ciliwung sub-watershed for 4 years (2016-2019) indicates that the Ciliwung sub-watershed has an average sediment yield of 1,636,382.31 tons/year. The 39th HRU unit, which is in sub-DAS 28, has the highest sediment rate, which is around 103,275.34 tons/year. The production zone in the Ciliwung sub-watershed is found in 43 sub-watersheds resulting from automatic delineation in SWAT modeling which are located in the upstream area of the Ciliwung sub-watershed, while the transportation zone in the Ciliwung sub-watershed is found in 43 sub-watersheds which are located in the area between the upstream from the Ciliwung sub-watershed and the downstream area of the Ciliwung sub-watershed, while the deposition zone in the Ciliwung sub-watershed is found in 27 sub-watersheds located in the downstream area of the Ciliwung sub-watershed.

Keyword : Sediment, Upper Ciliwung, Modeling, SWAT