

PENGARUH KARAKTERISTIK HUJAN TERHADAP
DEBIT SEDIMEN MELAYANG DAN VOLUME SEDIMEN DASAR
(*Studi Kasus di Hutan Pinus di DTA Gajah Mungkur II di RPH Jati,
BKPH Baturetno, KPH Surakarta*)

INTISARI

Oleh :
Galih Jati K *
02 / 157123 / KT / 05185

Hutan pada suatu daerah aliran sungai sejak dulu telah memberikan banyak memberikan fungsi dan manfaat yang sangat penting, baik secara ekologis dan ekonomis. Secara ekologis hutan berfungsi sebagai tempat hidup banyak flora dan fauna. Selain itu hutan juga berfungsi sebagai pengatur siklus hidrologi, dan pencegah erosi. Pemanfaatan hutan di Sub-DAS Gajah Mungkur II sebagai hutan produksi dapat memberikan pengaruh terhadap perubahan debit aliran, dan sedimentasi yang terjadi di dalam Sub-DAS tersebut. Tujuan penelitian ini adalah untuk mengetahui pengaruh karakteristik hujan terhadap debit sedimen melayang dan volume sedimen dasar pada DTA Gajah Mungkur II.

Penelitian dilakukan dengan menganalisis beberapa pasang data debit aliran, debit sedimen melayang, dan volume sedimen dasar yang kemudian diubah menjadi lengkung aliran, lengkung sedimen melayang, dan lengkung sedimen dasar. Hasil analisis data debit sedimen dan volume sedimen dasar kemudian dihubungkan dengan karakteristik hujan. Hubungan antara debit sedimen melayang dan volume sedimen dasar dengan karakteristik hujan (tebal hujan, lama hujan, dan intensitas hujan) dilakukan dengan metode analisis statistik regresi linier berganda.

Berdasarkan hasil analisis, diketahui bahwa total debit sedimen melayang dan volume sedimen dasar di DTA Gajah Mungkur II terhitung dari tanggal 24 Januari 2006 sampai dengan tanggal 26 Februari 2006 adalah 880,219 gr / dt dan 0,313 m³. Karakteristik hujan yang berpengaruh terhadap debit sedimen melayang adalah intensitas hujan. Jika tidak terjadi hujan, maka debit sedimen melayang tidak terjadi, tetapi dengan penambahan intensitas hujan sebesar 1 mm/jam akan meningkatkan debit sedimen melayang sebesar 2,142 gr/dt. Karakteristik hujan yang berpengaruh secara bersama-sama terhadap volume sedimen dasar adalah tebal hujan dan intensitas hujan. Jika tidak ada tebal hujan dan intensitas hujan, maka sedimen dasar tidak akan ada, tetapi dengan penambahan tebal hujan 1 mm akan meningkatkan volume sedimen dasar sebesar 0,00019 m³, dan setiap penambahan intensitas hujan 1 mm/jam akan meningkatkan volume sedimen melayang dasar 0,00029 m³.

Kata Kunci : ekologi, siklus hidrologi, debit aliran, dan sedimentasi.

Galih Jati K adalah mahasiswa S1 Jurusan Konservasi Sumber Daya Hutan. Fakultas Kehutanan. Universitas Gadjah Mada.

**The Effect of Rainfall Characteristics to the Suspended Load Discharge and Bed
Material Load Volume**

**(Case Study in Pine Forest in the Gadjah Mungkur II Catchments Area, Jati RPH,
Baturetno BKPH, Surakarta KPH)**

Abstract

By:

Galih Jati K*
02/157123/KT/05185

Since a long time ago, forest in watershed system has given a lot of functions and important benefits, either ecologically or economically. Ecologically, forest has functioned as a flora and fauna habitat. Beside that, it also as a hydrology cycle controller and erosion preventative. Forest in Gadjah Mungkur II watershed sub has functioned as a production forest and it gave effect to the discharge change and sedimentation which happen in this watershed sub. The objectives of this research were to know rainfall characteristics effect to the suspended load discharge and bed material load volume in the Gadjah Mungkur II catchments area.

The research was done by analyzing the several couples of discharge data, suspended load, and bed material load volume and then they were changed into discharge rating curve, suspended load rating curve, and bed material load rating curve. Then, the data analysis result of suspended load and bed material load volume would be connected with rainfall characteristics. Doubled linear regression statistic analysis method was used to know the relation between suspended load discharge and bed material load volume with rainfall characteristics (rainfall dense, rainfall duration and rainfall intensity).

Based on analysis result was known that total of suspended load and bed material load volume in Gadjah Mungkur II watershed sub since January 24, 2006 until February 26, 2006 is 880.210 grams / second and 0.313 m³. One of rainfall characteristics which have influential to the suspended load was rainfall intensity. If there was no rain, there was no suspended load; by increasing 1 mm of rainfall intensity would raise suspended load as many as 2.142 grams /second. The rainfall characteristics which simultaneously have influential to the bed material load volume were rainfall intensity and dense. If there were no rainfall intensity and dense so there was no bed material load, by increasing 1 mm/hour of rainfall dense would increased the bed material load volume as many as 0.00019 m³ and every 1 mm/hour increasing of rainfall intensity would raised the bed material load volume as many as 0.00029 m³.

Keywords: ecology, hydrology cycle, discharge, and sedimentation.

* Student of Forestry Faculty of Gadjah Mada University.