

## INTISARI

Ketersediaan air merupakan elemen penting dalam pengembangan/pemanfaatan SDA di suatu Daerah Aliran Sungai (DAS). Untuk mengetahui ketersediaan air suatu DAS, dibutuhkan data debit DAS tersebut, namun data debit pada umumnya tidak tersedia atau terbatas. Kendala ini dapat diatasi dengan dilakukan transformasi hujan aliran dengan memanfaatkan data hujan yang umumnya tersedia cukup panjang dan karakteristik DAS. Transformasi hujan-aliran dapat dilakukan dengan model hidrologi yang banyak tersedia seperti HEC-HMS. Untuk itu akan dikaji kesesuaian perangkat lunak HEC-HMS khususnya penerapan metode *Soil Moisture Accounting* (SMA) di DAS Bogowonto Hulu.

Transformasi hujan aliran dengan menggunakan model SMA dilakukan di Sub-DAS Bogowonto Hulu di Bendung Boro. Untuk analisis diperlukan data hujan, data debit untuk proses kalibrasi dan verifikasi serta data penguapan. Selain itu diperlukan pula data karakteristik DAS. Simulasi hujan-aliran harian selama 15 tahun dilakukan setelah proses kalibrasi dan verifikasi model dilakukan. Dari hasil simulasi tersebut, selanjutnya dicari ketersediaan air/debit andalan 80% DAS Bogowonto di Bendung Boro.

Hasil analisis menunjukkan bahwa transformasi hujan aliran menerus dengan data harian dapat diterapkan dengan hasil yang cukup baik. Hasil simulasi menunjukkan bahwa debit andalan dengan probabilitas 80% DAS Bogowonto Hulu di Bendung Boro sebesar 3.2 m<sup>3</sup>/s

## ***ABSTRACT***

Availability of water is an important element in the development/utilization of natural resources in a watershed. To determine the availability of water in a watershed, the watershed discharge data is needed, however, discharge data are generally not available or limited. This problem can be overcome by transforming rain streams by utilizing rainfall data which is generally quite long and has watershed characteristics. Rainfall-flow transformation can be performed with widely available hydrological models such as HEC-HMS. For this reason, the suitability of the HEC-HMS software will be studied, especially the application of the Soil Moisture Accounting (SMA) method in the Bogowonto Hulu watershed.

The transformation of the rain flow using the SMA model was carried out in the Bogowonto Hulu Sub-watershed in the Boro Dam. For analysis required rainfall data, discharge data for the calibration and verification process as well as evaporation data. In addition, data on watershed characteristics are also needed. A daily rainfall-flow simulation for 15 years is carried out after the calibration and model verification process is carried out. From the simulation results, the availability of water/80% dependable discharge can be found

The results of the analysis show that the transformation of continuous flow rain with daily data can be applied with quite good results. The simulation results show that the dependable discharge with a probability of 80% in the Bogowonto Hulu watershed in Boro Dam is 3.2 m<sup>3</sup>/s