



POTENSI KETERSEDIAAN AIR UNTUK TANAMAN PANGAN DI PULAU KECIL

INTISARI

Penelitian ini bertujuan mengetahui potensi ketersediaan air, neraca air, dan bentuk manajemen air wilayah untuk pengembangan tanaman pangan di pulau kecil beriklim kering yakni pulau Rote Propinsi Nusa Tenggara Timur, dengan menggunakan model hidrologi Mock. Data hidrologi yang dianalisis adalah data bulanan selama 6 tahun.

Parameter-parameter pada model ini berjumlah 6 buah, yaitu : 1. Koefisien infiltrasi musim basah (WIC), 2. Koefisien infiltrasi musim kemarau (DIC), 3. Initial Soil Moisture (ISM), 4. Soil Moisture Capacity (SMC), 5. Initial Groundwater Storage (IGWS), 6. Groundwater Recession (K). Kalibrasi dan uji validitas model dilakukan dengan koefisien korelasi (CCr), volume error (VE), imbang massa (IM) dan uji T, pada keempat DAS tinjauan. Parameter model yang diperoleh digunakan untuk mencari hubungan dengan karakteristik DAS untuk memprediksi debit olumetris DAS-DAS tak terukur.

Hasil verifikasi tolok ukur keberlakuan model secara statistik dan grafis menunjukkan bahwa model dapat diaplikasikan untuk menduga ketersediaan air setengah bulanan. Hasil simulasi menunjukkan bahwa potensi ketersediaan air di pulau kecil Rote berdasarkan pada jumlah DAS yang dimiliki, pada bulan-bulan basah (Desember-Maret) sangat tinggi sedangkan pada bulan-bulan kering (April-Oktober) sangat rendah. Neraca air baik pada skala DAS maupun neraca air di pulau kecil Rote, mengalami *defisit* di akhir bulan April hingga akhir bulan Oktober, dan *surplus* pada awal bulan November hingga awal bulan April. Manajemen air wilayah untuk pengembangan tanaman pangan dilakukan dengan pola tanam gilir 2 (dua) kali tanam di lahan basah dan pola monokultur 1 (satu) kali tanam di lahan kering.

Kata kunci : Pulau kecil, DAS, model hidrologi, limpasan, Manajemen air, tanaman pangan.



THE POTENTIAL AVAILABILITY OF WATER FOR FOOD CROPS IN SMALL ISLAND

ABSTRACT

This study aims to determine the availability of water, water balance, and shape water management area for the development of food crops in dry climates the small island of Rote island of East Nusa Tenggara Province, using hydrological models Mock. Hydrological data which is analyzed monthly data for 6 years.

The parameters in this model amounts to 6 pieces, namely: 1. The coefficient of infiltration of the wet season (WIC), 2. Coefficient infiltration dry season (DIC), 3. Initial Soil Moisture (ISM), 4. Soil Moisture Capacity (SMC), 5. Initial Groundwater Storage (IGWS), 6. Groundwater Recession (K). Calibration and test the validity of the model is done with correlation coefficient (CCR), the volume error (VE), mass balance (IM) and T test, in the fourth DAS reviews. Parameter model was used to find the relationship with the characteristics of the watershed to predict discharge olumetris watersheds immeasurable.

Results of the verification benchmarks enforceability and graphical statistical models show that the model can be application to estimate water availability semimonthly. The simulation results show that the potential availability of water in the small island of Rote based on the number of DAS-owned, the wet months (December to March) are very high, while the dry months (April-October) is very low. Water balance, good water on a watershed scale and the small island of Rote balance of water in the small island of Rote, a deficit at the end of April until end of October, and the surplus at the beginning of November to early April. Water management area for the development of food crops done cropping pattern shift of 2 (two) times of planting in wetlands and monoculture 1 (one) time of planting in the dry land.

Keywords: small islands, watersheds, hydrological models, runoff, water management, food crops.