ABSTRAK

Dusun Plampang, Desa Klekehan, Kecamatan Botolinggo, Kabupaten Bondowoso merupakan wilayah pertanian palawija yang masih mengandalkan sistem tadah hujan sehingga rentan mengalami kekurangan air pada musim kemarau. Penelitian ini bertujuan menganalisis ketersediaan air hujan dan kebutuhan air irigasi sebagai dasar perencanaan embung serta menilai dampak ekonominya bagi petani. Metode penelitian meliputi analisis curah hujan, perhitungan limpasan permukaan dari daerah tangkapan $A = 14,5$ km² dengan koefisien limpasan $C = 0,4$, perhitungan hujan langsung ke embung dengan asumsi luas embung 1% dari daerah tangkapan, serta penyusunan neraca air berdasarkan kebutuhan air tanaman. Hasil analisis menunjukkan total ketersediaan air hujan tahunan sekitar 3.476.233,03 m³/tahun yang berasal dari limpasan permukaan dan hujan langsung ke embung. Berdasarkan neraca air, kapasitas tampungan total embung yang dibutuhkan sebesar 2.335,5 m³ untuk memenuhi kebutuhan irigasi lahan palawija seluas 8,69 ha. Secara ekonomi, keberadaan embung berpotensi meningkatkan stabilitas produksi dan menekan risiko gagal panen pada musim kemarau dengan produktivitas rata-rata palawija sebesar ±5,51 ton/ha per musim tanam.

Kata Kunci : Embung, Hidrologi, Limpasan, Irigasi, Produktivitas.

ABSTRACT

Plampang Hamlet, Klekehan Village, Botolinggo District, Bondowoso Regency is a secondary crop farming area that still relies on rain-fed systems, making it vulnerable to water shortages during the dry season. This study aims to analyze rainwater availability and irrigation water needs as a basis for reservoir planning and assess its economic impact on farmers. The research methods include rainfall analysis, calculation of surface runoff from a catchment area of A = 14.5 km² with a runoff coefficient of C = 0.4, calculation of direct rainfall into the reservoir assuming a reservoir area of 1% of the catchment area, and preparation of a water balance based on crop water needs. The results of the analysis show that the total annual rainwater availability is approximately 3,476,233.03 m³/year originating from surface runoff and direct rainfall into the reservoir. Based on the water balance, the total reservoir storage capacity required is 2,335.5 m³ to meet the irrigation needs of 8.69 ha of secondary crop land. Economically, the existence of reservoirs has the potential to increase production stability and reduce the risk of crop failure during the dry season with an average productivity of secondary crops of ±5.51 tons/ha per planting season.

Keywords *: Reserv Reservoirs, Hydrology, Runoff, Irrigation, Productivity.*