ANALISIS DAYA DUKUNG LINGKUNGAN BERBASIS JASA EKOSISTEM PENGATURAN TATA ALIRAN AIR SEBAGAI DASAR PENGELOLAAN LINGKUNGAN SUB DAS JUWET DI KABUPATEN GUNUNGKIDUL

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INTISARI

Sub DAS Juwet sebagai salah satu DAS pedesaan yang terletak di Kabupaten Gunungkidul, menghadapi permasalahan kondisi tata aliran air. Hal ini berimplikasi terhadap potensi peningkatan limpasan permukaan. Sehubungan dengan kondisi ini, jasa ekosistem pengaturan tata aliran air memegang pernanan penting dalam menjaga keseimbangan hidrologi di wilayah tersebut. Tujuan dari penelitian ini adalah menganalisis nilai dan persebaran spasial jasa ekosistem pengaturan tata aliran air di Sub DAS Juwet serta merumuskan strategi pengelolaan lingkungannya.

Metode *Simple Additive Weighting* digunakan untuk menghitung jasa ekosistem pengaturan tata aliran air berdasarkan karakteristik ekoregion bentanglahan, penutup lahan, kemiringan lereng, curah hujan, dan jenis tanah. Karakteristik pada setiap parameter yang digunakan dianalisis secara kuantitatif dan kualitatif dengan pendekatan secara ekologis. Selain itu, analisis tingkat jasa ekosistem juga didasarkan menurut tingkat administratif untuk memperoleh strategi pengelolaan yang tepat sasaran.

Hasil menunjukkan bahwa jasa ekosistem pengaturan tata aliran air di Sub DAS Juwet terbagi menjadi tiga klasifikasi: tinggi (15,18%) seluas 499,28 ha, sedang (67,48%) seluas 2219.21 ha dan rendah (17,34%) seluas 570,32 ha. Nilai jasa ekosistem sedang tersebar hampir di seluruh ekoregion, dengan nilai tinggi dominan di bagian hilir dan rendah di bagian hulu. Analisis berdasarkan administrasi menunjukkan bahwa jasa ekosistem tinggi terluas berada di Desa Ngalang, sedangkan nilai sedang dan rendah terbanyak di Desa Hargo Mulyo. Strategi pengelolaan yang direkomendasikan meliputi penerapan praktik pertanian konservasi pada ladang/tegalan dan pengelolaan permukiman yang memperhatikan aspek konservasi air untuk meningkatkan resapan air dan mengurangi aliran permukaan.

Kata kunci: *daya dukung lingkungan, jasa ekosistem, tata aliran air, pengelolaan lingkungan*

ANALYSIS OF ENIRONMENTAL CARRYING CAPACITY BASED ON ECOSYSTEM SERVICES FOR WATER FLOW REGULATION AS THE BASIS FOR ENVIRONMENTAL MANAGEMENT OF JUWET SUB-WATERSHED IN GUNUNGKIDUL REGENCY

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ABSTRACT

The Juwet Subwatershed, as one of the most remote rural watersheds in Gunungkidul Regency, faces problems of water flow management conditions. This has implications for the potential increase in surface runoff. In relation to this condition, ecosystem services for water flow management play an important role in maintaining hydrological balance in the region. The objective of this study is to analyze the value and spatial distribution of water flow regulation ecosystem services in the Juwet Subwatershed and formulate an environmental management strategy.

The Simple Additive Weighting method was used to calculate the ecosystem services of water flow regulation based on ecoregion characteristics of landscape, land cover, slope, rainfall, and soil type. The characteristics of each parameter used were analyzed quantitatively and qualitatively with an ecological approach. In addition, the level of ecosystem services was analyzed based on the village level to obtain targeted management strategies.

The results showed that the ecosystem services of water flow regulation in Juwet Sub Watershed were divided into three classifications: high (15.18%) covering 499.28 ha, medium (67.48%) covering 2219.21 ha and low (17.34%) covering 570.32 ha. Medium ecosystem service values are spread almost throughout the ecoregion, with high values dominant in the downstream and low in the upstream. Analysis based on administration shows that high ecosystem services are most extensive in Ngalang Village, while medium and low values are most prevalent in Hargo Mulyo Village. Recommended management strategies include the implementation of conservation agriculture practices on fields and settlement management that pays attention to water conservation aspects to increase water infiltration and reduce surface runoff.

Keyword: ecosystem services, environmental carrying capacity, environmental management, water flow system