

## **ANALISIS DAYA DUKUNG LINGKUNGAN BERBASIS JASA EKOSISTEM PENYEDIAAN AIR BERSIH DI SUB DAS GAJAHWONG DAERAH ISTIMEWA YOGYAKARTA**

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### **INTISARI**

*Jasa ekosistem penyediaan air bersih merupakan salah satu manfaat ekosistem yang diterima manusia. Sub-DAS Gajahwong merupakan bagian dari DAS Opak yang dinamika penduduknya sangat tinggi. Penelitian ini bertujuan untuk mengetahui potensi daya dukung lingkungan berdasarkan jasa ekosistem dalam penyediaan air bersih di Sub DAS Gajahwong dengan mempertimbangkan kebutuhan air bersih domestik dan peternakan lalu menganalisis status daya dukung lahan di Sub-DAS Gajahwong berbasis jasa ekosistem penyediaan air bersih.*

*Jasa Ekosistem penyediaan air bersih metode Simple Additive Weighting yang mengacu pada karakteristik ekoregion bentanglahan dan penutup lahan. Kebutuhan air bersih didapatkan dari Standar Nasional Indonesia tentang kebutuhan air serta survei langsung kebutuhan air penduduk Sub-DAS Gajahwong. Status daya dukung lahan di Sub-DAS Gajahwong berbasis jasa ekosistem penyediaan air bersih dihitung dengan membandingkan volume air tanah dengan kebutuhan air total di Sub-DAS Gajahwong.*

*Hasil penelitian menunjukkan bahwa Sub-DAS Gajahwong memiliki total cadangan airtanah sebesar 748.010.961,54 m<sup>3</sup>. Sebesar 11,89% wilayah Sub-DAS Gajahwong masuk ke dalam klasifikasi jasa ekosistem penyedia air bersih sangat tinggi. Diikuti 25,10% masuk ke dalam klasifikasi jasa ekosistem penyedia air bersih tinggi lalu 58,77% masuk klasifikasi sedang dan 4,23 klasifikasi jasa ekosistem penyedia air bersih rendah. Status daya dukung lahan di Sub-DAS Gajahwong berbasis jasa ekosistem penyediaan air bersih diketahui surplus untuk keseluruhan Sub-DAS Gajahwong. Setiap kecamatan dan ekoregion di Sub-DAS Gajahwong juga mengalami surplus air bersih. Cadangan air bersih surplus menggambarkan situasi di mana terdapat lebih banyak bekal airtanah yang tersedia daripada yang diperlukan oleh komunitas. Surplus airtanah dapat memberikan manfaat kepada lingkungan di Sub-DAS Gajahwong.*

Kata kunci : Jasa Ekosistem, Penyedia Air, Gajahwong

ENVIRONMENTAL CARRYING CAPACITY ANALYSIS  
BASED ON ECOSYSTEM SERVICES FOR CLEAN WATER SUPPLY  
IN GAJAHWONG SUB-WATERSHED, YOGYAKARTA SPECIAL REGION

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**ABSTRACT**

*Ecosystem services that provide clean water are one of the ecosystem benefits received by humans. Gajahwong sub-watershed is part of the Opak watershed with high population dynamics. This study aims to determine the potential carrying capacity of the environment based on ecosystem services in clean water supply in Gajahwong Sub-watershed by considering domestic and livestock clean water needs and then analyzing the status of land carrying capacity in Gajahwong Sub-watershed based on ecosystem services for clean water supply.*

*Ecosystem services for fresh water providing were calculated using the Simple Additive Weighting method that refers to the ecoregion characteristics of landscape, land cover, and vegetation. Clean water needs were obtained from the Indonesian National Standard on water needs as well as a direct survey of the water needs of the Gajahwong Sub-watershed population. The status of land carrying capacity in Gajahwong Sub-watershed based on ecosystem services for clean water supply was calculated by comparing the volume of groundwater with the total water demand in Gajahwong Sub-watershed.*

*The results showed that Gajahwong Sub-watershed has a total groundwater reserve of 748,010,961.54 m<sup>3</sup>. 11.89% of the Gajahwong Sub-watershed area is classified as a very high clean water ecosystem service provider. Followed by 25.10% into the classification of ecosystem services providing high clean water then 58.77% into the classification of medium and 4.23 classification of ecosystem services providing low clean water. The status of land carrying capacity in Gajahwong Sub-watershed based on clean water provision ecosystem services is known to be surplus for the entire Gajahwong Sub-watershed. Each sub-district and ecoregion in Gajahwong Sub-watershed also experienced a surplus of clean water. Surplus clean water reserves describe a situation where there is more groundwater supply available than required by the community. Surplus groundwater can provide benefits to the environment in the Gajahwong Sub-watershed.*

**Keyword :** *Ecosystem Services, Water Supply, Gajahwong*