ABSTRAK

ANALISIS POTENSI, TINGKAT KEKRITISAN SERTA STRATEGI KONSERVASI MATA AIR DAN DAERAH IMBUHAN UNTUK KEBUTUHAN DOMESTIK DI DUSUN PENDUL, ARGOREJO, SEDAYU, BANTUL

Oleh
Michele Jonathan Putra Elnanda
NIM: 114220107
(Program Studi Sarjana Teknik Lingkungan)

Pertumbuhan penduduk dan alih fungsi lahan di Dusun Pendul, Argorejo, mengancam fungsi hidrologis daerah imbuhan mata air Gayam dan Sendangrejo. Sebagai sumber utama air domestik, tekanan terhadap kualitas air dan penurunan debit musim kemarau menjadi tantangan keberlanjutan sumber daya air lokal. Kajian ini bertujuan untuk menganalisis potensi, tingkat kekritisan dan strategi konservasi guna menjamin ketersediaan air bersih di masa depan.

Penelitian ini menggunakan metode survei lapangan dan pengujian laboratorium parameter fisik, kimia, serta biologi berdasarkan Permenkes No. 2 Tahun 2023. Kuantitas air dianalisis secara volumetrik, sementara tingkat kekritisan ditentukan melalui neraca air antara ketersediaan dan kebutuhan domestik. Analisis spasial juga dilakukan untuk memetakan kesesuaian daerah imbuhan dengan mempertimbangkan parameter fisik tanah, curah hujan, lereng, serta proyeksi penggunaan lahan tahun 2040.

Hasil penelitian mengonfirmasi kedua mata air bertipe mata air kontak (*contact spring*). Meski beberapa parameter kualitas belum memenuhi baku mutu, analisis neraca air menunjukkan ketersediaan air hingga tahun 2040 masih melimpah dan masuk kategori belum kritis. Namun, penurunan kelas resapan lahan memerlukan strategi konservasi preventif melalui teknik vegetatif (penanaman pohon) dan sipil teknis untuk menjaga stabilitas cadangan dan kualitas air tanah secara berkelanjutan.

Kata kunci: Arahan konservasi, Indeks kekritisan air, Kontinuitas mata air, Molusce, Neraca air

ABSTRACT

ANALYSIS OF POTENTIAL, CRITICALITY LEVEL AND CONSERVATION STRATEGIES OF SPRINGS AND RECHARGE AREAS FOR DOMESTIC NEEDS IN PENDUL HAMLET, ARGOREJO, SEDAYU, BANTUL

By
Michele Jonathan Putra Elnanda
NIM: 114220107
(*Environmental Engineering Undergraduated Progam*)

Population growth and land-use changes in Pendul Hamlet, Argorejo, threaten the hydrological functions of the Gayam and Sendangrejo spring recharge areas. As the primary source for domestic water, the pressure on water quality and the decline in discharge during the dry season pose challenges to the sustainability of local water resources. This study is essential to analyze the potential, criticality level, and conservation strategies to ensure the availability of clean water in the future.

This research utilizes field survey methods and laboratory testing of physical, chemical, and biological parameters based on Minister of Health Regulation No. 2 of 2023. Water quantity is analyzed volumetrically, while the criticality level is determined through a water balance analysis between availability and domestic demand. Spatial analysis is also conducted to map the suitability of recharge areas by considering soil physical parameters, rainfall, slope, and land-use projections for the year 2040.

The results confirm that both springs are contact springs. Although several quality parameters do not yet meet the standards, water balance analysis indicates that water availability until 2040 remains abundant and falls into the non-critical category. However, the decline in land recharge suitability requires preventive conservation strategies through vegetative techniques (tree planting) and civil engineering techniques to maintain the stability of groundwater reserves and quality sustainably.

Keywords: Conservation directives, Molusce, Spring continuity, Water balance, Water criticality index.