ABSTRAK

KONSERVASI MATA AIR SUNGGINGAN BERDASARKAN KUALITAS DAN KUANTITAS DI DESA LESANPURO, KAJORAN, MAGELANG, JAWA TENGAH

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Mata Air Sunggingan merupakan sumber air bersih utama bagi warga Desa Lesanpuro. Namun, sumber air ini menghadapi masalah berkurangnya debit air selama musim kemarau. Seiring dengan pertumbuhan penduduk, jumlah pengguna mata air mengalami peningkatan, serta ancaman pencemaran dari limbah cair di sekitarnya. Penelitian ini bertujuan untuk mengetahui tipe mata air dan menganalisis kerentanan mata air secara kualitas dan kuantitas air yang bertujuan untuk merumuskan strategi konservasi adaptif untuk daerah resapan mata air tersebut di Kabupaten Magelang.

Metode penelitian yang digunakan meliputi survei lapangan dan pemetaan, wawancara terhadap pengguna air, pengambilan sampel air menggunakan teknik *grab sampling*, serta uji laboratorium. Penilaian status keberlanjutan air dihitung melalui Indeks Kekritisan Air (IKA). Selain itu, analisis spasial deskriptif diterapkan melalui teknik *overlay* menggunakan pembobotan dan skoring terhadap parameter fisik lingkungan yang meliputi penggunaan lahan, curah hujan, tekstur tanah, dan kemiringan lereng guna mengidentifikasi zona kerentanan dan sumber pencemar.

Hasil menunjukkan Mata Air Sunggingan termasuk tipe depresi menahun berdebit 0,65 l/d (kelas 6). Uji mikrobiologi mengonfirmasi paparan bakteri *E. coli* dan *Total Coliform* telah melampaui batas aman Permenkes Nomor 2 Tahun 2023. Proyeksi IKA berbasis debit rata-rata memperkirakan pasokan air memasuki fase kritis pada tahun 2076 dan defisit tahun 2111, sedangkan skenario debit minimum menunjukkan fase kritis terjadi lebih awal pada tahun 2051 dan defisit total tahun 2079. Strategi konservasi untuk pengelolaan kualitas yaitu penutupan bak penampung dan pemasangan unit filtrasi. Upaya untuk kualitas dilakukan melalui pembuatan rorak, sumur resapan, dan penanaman tanaman pionir. Strategi ini dilengkapi dengan kolaborasi antara masyarakat dan pemerintah setempat untuk penerapan strategi konservasi yang telah ditentukan.

Kata kunci: Indeks Kekritisan Air (IKA), Konservasi, Kualitas air, Kuantitas air, Mata air

ABSTRACT

CONSERVATION OF SUNGGINGAN SPRING BASED ON QUALITY AND QUANTITY IN LESANPURO VILLAGE, , KAJORAN, MAGELANG, JAWA TENGAH

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The Sunggingan Spring serves as the primary clean water source for the residents of Lesanpuro Village. However, this water resource faces a critical challenge of declining discharge during the dry season amidst rising domestic demand driven by population growth, alongside potential contamination from surrounding wastewater. This study aims to determine the spring type and evaluate its vulnerability in terms of water quality and quantity to formulate an adaptive conservation strategy for its recharge area in Magelang Regency.

The research methodology integrates field surveys, mapping, and structured interviews with water users. Water biological characteristics were analyzed in the laboratory using the grab sampling technique. The sustainability status of the water supply was calculated through the Water Criticality Index (WCI) by projecting discharge fluctuation trends against long-term domestic demand. Furthermore, descriptive spatial analysis was conducted using the overlay method with a weighted-scoring system on physical environmental parameters—including land use, rainfall, soil texture, and slope steepness—to identify vulnerability zones and pollution sources.

The results indicate that Sunggingan Spring is a perennial depression spring with a discharge of 0.65 *l/s (Class 6). Microbiological tests confirm that E. coli and Total Coliform contamination has exceeded the safety thresholds stipulated by the Minister of Health Regulation No. 2 of 2023. Based on WCI projections, the average discharge scenario shows that the water supply will enter a critical phase by 2076 and experience a deficit by 2111. Meanwhile, the minimum discharge scenario predicts that the critical phase will occur sooner in 2051, leading to a total deficit by 2079.*

To mitigate these risks, the quality conservation strategy focuses on roofing the collection tanks and installing filtration units. Quantity management efforts are implemented through the construction of silt pits (rorak), recharge wells, and the planting of pioneer vegetation. This strategy is complemented by multi-stakeholder collaboration between the community and local government to implement the designated conservation measures.

Keywords: Conservation, Spring, Water Criticality Index (WCI), Water Quality, Water Quantity.