

ABSTRAK

STRATEGI KONSERVASI MATA AIR BERDASARKAN KUALITAS, KUANTITAS, DAN KONTINUITAS UNTUK PEMENUHAN AIR BERSIH DOMESTIK DI NGENTAK, KALIBENING, DUKUN, MAGELANG

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Mata Air Ngentak merupakan sumber air bersih domestik bagi masyarakat Dusun Ngentak, Desa Kalibening, Kecamatan Dukun, Kabupaten Magelang. Permasalahan yang terjadi yaitu debit mata air yang kecil, kualitas air yang belum memenuhi baku mutu, serta peningkatan kebutuhan air akibat pertumbuhan penduduk. Penelitian ini bertujuan untuk menganalisis karakteristik dan tipe mata air beserta daerah imbuhan, mengklasifikasikan daerah imbuhan berdasarkan Permen PU No. 2 Tahun 2013, serta merumuskan strategi konservasi.

Metode penelitian meliputi survei dan pemetaan lapangan, pengukuran debit, serta pengambilan sampel air dengan metode *grab sampling*. Analisis spasial daerah imbuhan dilakukan menggunakan Sistem Informasi Geografis (SIG) dengan metode *scoring* dan *overlay*. Selanjutnya, dilakukan analisis matematis untuk menghitung debit serta mengkaji kontinuitas mata air secara umum guna menilai kestabilan ketersediaan air.

Hasil penelitian menunjukkan bahwa Mata Air Ngentak termasuk tipe depresi dengan debit rata-rata sebesar 0,3009 L/detik yang tergolong kelas VI. Kualitas air belum memenuhi baku mutu karena parameter *Total Coliform* terdeteksi TNTC dan *E. coli* sebesar 1 CFU/100 mL. Klasifikasi daerah imbuhan terdiri atas kelas buruk, sedang, dan baik yang didominasi oleh kelas sedang sebesar 81,49%. Ketersediaan air saat ini masih mampu memenuhi kebutuhan masyarakat, namun upaya konservasi tetap perlu dilakukan untuk menjaga keberlanjutan mata air. Strategi konservasi difokuskan pada pengelolaan daerah imbuhan dan perlindungan kawasan mata air melalui pembangunan sumur resapan, penerapan teras gulud, serta penetapan zonasi perlindungan dari area mata air hingga daerah imbuhan. Selain itu, dilakukan upaya pengelolaan nonteknis berupa peningkatan kesadaran masyarakat serta penguatan peran pemerintah dan instansi terkait dalam pengelolaan sumber daya air.

Kata kunci: Mata Air, Daerah Imbuhan, Debit, Sistem Informasi Geografis, Konservasi Air

ABSTRACT

SPRING CONSERVATION STRATEGIES BASED ON WATER QUALITY, QUANTITY, AND CONTINUITY FOR DOMESTIC CLEAN WATER SUPPLY IN NGENTAK, KALIBENING, DUKUN, MAGELANG

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Ngentak Spring is a domestic clean water source for the community of Ngentak Hamlet, Kalibening Village, Dukun District, Magelang Regency. The existing problems include decreasing spring discharge, potential decline in water quality, and increasing water demand due to population growth. This study aims to analyze the characteristics and type of the spring and its recharge area, classify the recharge area based on the Regulation of the Minister of Public Works No. 2 of 2013, and formulate conservation strategies.

The research methods included field surveys and mapping, discharge measurements, and water sampling using the grab sampling method. Spatial analysis of the recharge area was conducted using a Geographic Information System (GIS) through scoring and overlay methods. Furthermore, mathematical analysis was carried out to calculate the discharge and assess the general continuity of the spring in order to evaluate the stability of water availability.

The results showed that Ngentak Spring is classified as a depression-type spring with an average discharge of 0.3009 L/s (Class VI). The water quality did not meet the quality standards, indicated by the Total Coliform parameter detected as TNTC and E. coli concentration of 1 CFU/100 mL. The recharge area was dominated by the moderate class at 81.49%, indicating that the groundwater storage capacity is still not optimal. Based on these conditions, the proposed conservation strategies are focused on recharge area management through increasing groundwater storage capacity, controlling surface runoff, and protecting water quality. The recommended efforts include the construction of infiltration wells, the implementation of ridge terraces, and the establishment of protection zoning from the spring area to the recharge area in order to maintain the sustainability of water availability.

Keywords: Spring, Recharge Area, Discharge, Geographic Information System, Water Conservation.