

ABSTRAK

EVALUASI TIPE DAN KARAKTERISTIK MATAAIR SEBAGAI DASAR KONSERVASI UNTUK KEBUTUHAN AIR DOMESTIK DI KADIPIRO, SEYEGAN, SLEMAN, DIY

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Mataair Kadipiro terletak di Dusun Kadipiro, Kalurahan Margodadi, Kapanewon Seyegan, Kabupaten Sleman dan dimanfaatkan untuk memenuhi kebutuhan air domestik masyarakat. Secara hidrogeologi, mataair ini berkembang pada akuifer lokal endapan fluvial *paleochannel* yang memiliki sebaran terbatas. Penelitian ini bertujuan untuk menganalisis karakteristik dan jenis mataair sebagai dasar penilaian potensi sumber daya air, menganalisis potensi kuantitas mataair dalam memenuhi kebutuhan domestik selama 10 tahun ke depan, menganalisis tingkat kerentanan airtanah terhadap potensi pencemaran, serta menyusun arahan pengelolaan mataair berdasarkan karakteristik, potensi, dan tingkat kerentanan airtanah.

Metode penelitian meliputi survei dan pemetaan, wawancara (*in-depth interview*), pengambilan sampel dengan metode *grab sampling* dan *purposive sampling*, serta pengujian laboratorium. Analisis data dilakukan secara deskriptif spasial melalui *overlay* satuan lahan dan daerah resapan air, serta menggunakan metode DRASTIC modifikasi untuk menilai tingkat kerentanan airtanah. Selain itu, digunakan metode matematis untuk menghitung Indeks Kekritisan Mataair (IKA) dan analisis proyeksi kebutuhan air guna mengevaluasi kecukupan debit dalam jangka waktu 10 tahun.

Hasil penelitian menunjukkan bahwa mataair Kadipiro merupakan mataair kontak (*contact spring*) dengan tipe aliran tahunan (*perennial spring*) dan debit sebesar 0,0314 liter/detik yang termasuk dalam kelas debit VII menurut klasifikasi Meinzer. Kualitas air belum memenuhi baku mutu berdasarkan Peraturan Menteri Kesehatan Republik Indonesia Nomor 2 Tahun 2023 pada parameter pH, fosfat, dan *total coliform*. Hasil proyeksi menunjukkan bahwa mataair diperkirakan mampu memenuhi kebutuhan air domestik hingga tahun 2032 dan mulai memasuki kondisi kritis pada tahun 2033, setelah itu berpotensi mengalami kondisi defisit. Tingkat kerentanan airtanah berada pada kategori sedang hingga tinggi, yang menunjukkan kerentanan terhadap pencemaran cukup signifikan. Berdasarkan kondisi tersebut, arahan pengelolaan difokuskan pada perlindungan kawasan mataair melalui penerapan zonasi perlindungan, pengendalian aktivitas berpotensi pencemar, serta konservasi daerah imbuhan melalui penerapan teknologi rorak dan lubang resapan biopori. Selain itu, diperlukan perbaikan bangunan pelindung mataair serta peningkatan peran masyarakat dan dukungan kebijakan untuk menjaga keberlanjutan kualitas dan kuantitas mataair.

Kata kunci: mataair, kualitas air, kuantitas air, kerentanan airtanah, konservasi.

ABSTRACT

EVALUATION OF SPRING TYPES AND CHARACTERISTICS AS A BASIS FOR CONSERVATION FOR DOMESTIC WATER NEEDS IN KADIPIRO, SEYEGAN, SLEMAN, DIY

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The Kadapiro Spring is located in Kadapiro Hamlet, Margodadi Village, Seyegan District, Sleman Regency, and is used to meet the community's domestic water needs. Hydrogeologically, this spring develops in a local aquifer formed by fluvial paleochannel sedimentation with limited distribution. This study aims to analyze the characteristics and types of springs as a basis for assessing water resource potential, analyze the potential quantity of springs to meet domestic needs over the next 10 years, analyze the level of groundwater vulnerability to potential contamination, and develop guidelines for spring management based on the characteristics, potential, and level of groundwater vulnerability.

Research methods included surveys and mapping, in-depth interviews, sampling using grab and purposive sampling methods, and laboratory testing. Data analysis was conducted using a spatial descriptive method through overlaying land units and air catchment areas, and using a modified DRASTIC method to assess the level of groundwater vulnerability. Furthermore, mathematical methods were used to calculate the Spring Criticality Index (IKA) and to analyze water demand projections to achieve sufficient discharge over a 10-year period.

The results of the study indicate that the Kadapiro spring is a contact spring with a perennial spring flow type and a discharge of 0,0314 liters/second, which is included in the discharge class VII according to the Meinzer classification. Water quality does not meet the quality standards based on the Regulation of the Minister of Health of the Republic of Indonesia Number 2 of 2023 on the parameters of pH, phosphate, and total coliform. Projections show that the spring is estimated to be able to meet domestic water needs until 2032 and will begin to enter a critical condition in 2033, after which it has the potential to experience a deficit condition. The level of groundwater vulnerability is in the moderate to high category, which indicates a significant vulnerability to pollution. Based on these conditions, management directions are focused on protecting the spring area through the implementation of protective zoning, controlling potentially polluting activities, and conserving recharge areas through the application of rorak technology and biopore infiltration holes. In addition, repairs to spring protection structures are needed, as well as increasing community participation and policy support to maintain the sustainability of spring water quality and quantity.

Keywords: spring, water quality, water quantity, groundwater vulnerability, conservation.