

KONSERVASI AIRTANAH BEBAS UNTUK PEMENUHAN KEBUTUHAN DOMESTIK DI DESA BANGUNJIWO, KECAMATAN KASIHAN, KABUPATEN BANTUL, DAERAH ISTIMEWA YOGYAKARTA

Oleh :

Fegista Dwi Silia Maruru

114130184

INTISARI

Air adalah zat atau material atau unsur penting bagi semua bentuk kehidupan di bumi. Kebutuhan air oleh makhluk hidup semakin hari semakin meningkat karena jumlah penduduk semakin bertambah, sedangkan jumlah air di bumi terutama airtanah sangatlah terbatas. Kuantitas dan kualitas airtanah memiliki keadaan yang berbeda di masing-masing wilayah. Kekeringan yang terjadi pada saat musim kemarau menyebabkan ketersediaan airtanah sangat terbatas di desa Bangunjiwo, Kecamatan Kasihan, Kabupaten Bantul, Daerah Istimewa Yogyakarta. Tujuan penelitian adalah mengetahui ketersediaan airtanah (kuantitas), kualitas airtanah, besar kebutuhan airtanah untuk kebutuhan domestik di lokasi penelitian, dan mengetahui tingkat kekritisannya.

Metode yang digunakan dalam penelitian ini yaitu survei dan pemetaan, wawancara, matematis, dan analisis laboratorium. Ketersediaan airtanah dapat diketahui dengan menganalisis karakteristik akuifer (konduktivitas hidraulik, tebal akuifer, dan kedalaman muka airtanah). Parameter kualitas airtanah yang digunakan yaitu fisik (Bau, Rasa, Warna, TDS, Kekeruhan, dan Daya Hantar Listrik), kimia (pH, Klorida, Sulfat, Besi Total, Nitrat, dan Kesadahan Total CaCO_3) dan biologi yaitu Bakteri Coli Total. Tingkat kekritisian airtanah diperoleh dengan membandingkan jumlah kebutuhan airtanah dan ketersediaan airtanah di lokasi penelitian.

Berdasarkan hasil penelitian, Ketersediaan airtanah pada lokasi penelitian berkisar 16,333 L/detik sampai 76,585 L/detik tergolong debit yang besar menurut Keputusan menteri ESDM tahun 2000, sedangkan penggunaan airtanah untuk kebutuhan domestik adalah 16,64 Liter/detik. Berdasarkan kriteria tingkat kekritisian air menurut Direktorat Bina Program Pengairan didapatkan nilai kekritisian air sebesar 100,1% pada debit terkecil tergolong kelas telah kritis. Kualitas airtanah secara umum masih berada di bawah standar maksimum bakumutu tetapi kandungan nitrat ada yang melebihi bakumutu. Konservasi atau arahan pengelolaan yang dapat di lakukan berupa Sumur Resapan dengan memperhatikan jarak dengan bangunan lain, dan teknik pemanenan air hujan.

Kata Kunci : Airtanah, Akuifer, Ketersediaan Airtanah, Kebutuhan Airtanah, Kekritisian Airtanah, konservasi

**GROUNDWATER CONSERVATION FOR FULFILLMENT DOMESTIC
NEEDS IN THE BANGUNJIWO VILLAGE, KASIHAN DISTRICT, BANTUL
REGENCY, DAERAH ISTIMEWA YOGYAKARTA**

by :

Fegista Dwi Silia Maruru

114130184

ABSTRACT

Water is a substance or material or essential element for all life forms on earth. Water requirements are increased by human being as the population grows day by day, while the amount of water in the earth is very terminated especially groundwater. The quantity and quality of groundwater have different circumstances in each region. The drought that occurred during the dry season caused availability of very limited groundwater in Bangunjiwo village in Kasihan district, Bantul Regency, Special Region of Yogyakarta. The objectives of the research are to discover the availability of groundwater (quantity), groundwater quality, the amount of groundwater requirement for the domestic needs in the research location, and to know the critical level of the groundwater.

The method that being used in this research is survey and mapping, interview, mathematical, and laboratory analysis. The availability of groundwater can be determined by analyzing the characteristics of aquifer (hydraulic conductivity, aquifer thickness, and the groundwater surface depth). Groundwater quality parameters which being used are physical (Odor, Flavor, Color, TDS, Turbidity, and Electrical Conductivity), chemical (pH, Chloride, Sulfate , Total Iron, Nitrates, and Total Hardness CaCO₃) and biology such as total Coli Bacteria. The groundwater criticality level was obtained by comparing the needs of groundwater and the availability of groundwater at the research location.

Based from the research results, groundwater availability at the research location is 16,333 Liter / sec until 76,585 Liter / sec are classified as a large debit based on Ministerial Decision 2000 Years, while the use of groundwater for domestic needs is 16.64 Liter / sec. Based on critical level water criteria according to Direktorat Bina Pengairan value of critical water that 100,1 % on the lowest discharge groundwater are classified as critical class. The groundwater quality generally still below the maximum standard of bakumutu but nitrate content exists beyond the bakumutu. Conservation or management directives which can be done such as Wells Infiltration with observe to the distance with other buildings, and rainwater harvesting technique.

Key word : Groundwater, Aquifer, Groundwater availability, Groundwater Requirement, Groundwater Criticality, Conservation