



PENENTUAN HASIL AMAN PENURAPAN AIRTANAH DI DEPOK, SLEMAN

Oleh
Indira Dwi Ariani
05/187259/GE/05760

INTISARI

Penelitian ini bertujuan untuk mengetahui ketersediaan airtanah, hasil aman penurapan airtanah dan kebutuhan airtanah di daerah penelitian. Daerah penelitian terdapat di Kecamatan Depok, Sleman yang meliputi 3 desa yaitu Desa Caturtunggal, Desa Condongcatur dan Desa Maguwoharjo, dengan luas seluruhnya 35,55 km². Daerah penelitian terletak pada daerah yang strategis dengan Kota Yogyakarta yang mengakibatkan penduduk Depok terus bertambah yang berakibat bertambah pula jumlah kebutuhan airnya.

Metode yang digunakan dalam penelitian ini adalah dengan uji pompa untuk mengetahui Konduktivitas hidrolika (K). Ketersediaan airtanah dan nilai hasil aman penurapan airtanah dengan menggunakan metode statis. Pemilihan sampel kebutuhan airtanah domestik menggunakan metode *proporsional random sampling* dengan wawancara langsung kepada responden sedangkan untuk kebutuhan air untuk industri dan hotel di daerah penelitian menggunakan perhitungan dari data sekunder.

Hasil penelitian menunjukkan bahwa daerah penelitian merupakan akuifer bebas, materialnya berupa pasir (pasir berbutir halus sampai kasar). Berdasarkan hasil uji pompa, nilai konduktivitas hidrolika (K) sebesar 20,18 meter/hari. Nilai transmisivitas (T) sebesar 161,44 m²/hari, porositas sebesar 39%, dan *specific yield* (Sy) sebesar 21,84%. Berdasarkan perhitungan, volume airtanah daerah penelitian sebesar 62.110.000 m³ dan kebutuhan airtanah di daerah penelitian sebesar 10.922.550,31 m³/tahun (46,89% hasil aman) terdiri dari untuk domestik 7.290.171,76 m³/tahun, untuk industri 3.045.009,6 m³/tahun dan untuk hotel 587.368,95 m³/tahun. Besarnya nilai hasil aman penurapan airtanah di daerah penelitian sebesar 23.292.360 m³/tahun sehingga penurapan airtanah di daerah penelitian belum melampaui hasil amannya, dengan surplus airtanah sebesar 12.369.809,69 m³/tahun.

Kata kunci: akuifer bebas, hasil aman, ketersediaan airtanah, kebutuhan airtanah



DETERMINING THE SAFE YIELD OF GROUNDWATER WITHDRAWAL IN DEPOK, SLEMAN

By
Indira Dwi Ariani
05/187259/GE/05760

ABSTRACT

This research is aimed at knowing groundwater availability, safe yield of groundwater withdrawal and groundwater requirement in this research area. The research was located in Depok district, Sleman Regency which consists of 3 villages named Caturtunggal Village, Condongcatur Village, and Maguwoharjo Village, with overall area as much as 35.55 km². Its located in the strategic zone nearby Yogyakarta City, which cause the increasing of inhabitant in Depok district that will be followed by the increasing of the needs of water.

The method used in this research was pumping test in order to know the value of hydraulic conductivity (K). Groundwater availability and safe yield of groundwater withdrawal using static method. Sampling for domestic groundwater requirement using proportional random sampling by direct interview to the respondents; while the water requirement for hotels and industries using calculation from secondary data.

The result of this research indicate that the aquifer in this research area represent the unconfined aquifer, the aquifer materials build from sand (coarse-fine sand). Based on pumping test, hydraulic conductivity value (K) was 20.18 meter/day. Transmissivity (T) value was 161,44 m²/day, porosity of 39%, and specific yield (Sy) of 21,84%. Based on the calculation, volume of groundwater availability in research area was 62.110.000 m³ and the groundwater requirement in research area was 10.922.550,31 m³/year (46,89% of safe yield) which consists of domestic requirement of 7.290.171,76 m³/year, industry requirement 3.045.009,6 m³/year and hotel requirement 587.368,95 m³/year. The value of safe yield of groundwater withdrawal in the research area is 23.292.360 m³/year, so that groundwater withdrawal in research area was not over the limit of its safe yield yet, with groundwater surplus was 12.369.809,69 m³/year.

Keywords: *unconfined aquifer, safe yield, groundwater availability, groundwater requirement*