di Sub DAS Gesing dan Sub DAS Mongo Kabupaten Purworejo

Aneka Anjar

24551/IV-7/577/06

INTISARI

Penelitian dilakukan di Sub DAS Gesing dan Sub DAS Mongo yang merupakan bagian DAS Bogowonto Kabupaten Purworejo. Penelitian bertujuan untuk melakukan zonasi resapan air hujan, mengetahui potensi resapan air hujan, dan menyusun arahan pengelolaan airtanahnya. Penelitian dilakukan menggunakan metode survei dengan teknik sampling. Pengambilan sampel untuk pengukuran kedalaman muka airtanah dan sampel tanah secara *stratified sampling*, mendasarkan pada strata bentuklahan. Pengambilan sampel untuk wawancara penduduk dilakukan dengan *purposive sampling*.

Dasar penentuan kawasan resapan air hujan adalah keterdapatan airtanah. Kontur muka airtanah terdapat pada topografi datar hingga landai, pada bentuklahan fluvial, lembah antar perbukitan, dan lereng kaki perbukitan. Arah aliran airtanah mengalir ke arah barat dan selatan, menuju ke arah sungai. Tipe aliran sungai *effluent*, bahwa aliran sungai tidak memberikan pasokan bagi akuifer dengan tipe akuifer lokal.

Penentuan daerah resapan air hujan dengan *overlay* antara tekstur tanah, permeabilitas tanah, lereng, litologi, intensitas hujan, dan kerapatan penutup lahan. Di daerah penelitian terdapat potensi resapan hujan baik, sedang, dan rendah. Potensi resapan hujan sedang di antaranya pada bentuklahan asal proses fluvial, denudasional, dan struktural.

Bentuklahan dataran aluvial dan tanggul dengan potensi resapan hujan sedang (III). Topografi datar berpotensi meresapkan air hujan. Litologi berupa endapan aluvium berfungsi sebagai akuifer yang dapat menyimpan dan melalukan air. Nilai K baik (1 – 5 m/hari); Sy baik (antara 23 – 28 %); serta porositasnya besar (antara 28 – 42 %).Potensi airtanah statis pada bentuklahan ini kurang lebih 252.552.711,8 m^3 dan potensi airtanah dinamis sebesar 108.681.595 m^3

Bentuklahan perbukitan denudasional (potensi sedang), material penyusun batuan breksi andesit. Batuan berkembang menjadi tanah berupa lempung, nilai K 10^{-8} – 10^{-2} m/hari; porositas 34 – 42 %. Airtanah berupa mataair dan sumur. Potensi airtanah lebih kecil dibandingkan di dataran aluvial.

Bentuklahan perbukitan struktural (potensi sedang) tersusun atas material andesit. Pelapukan yang berkembang menghasilkan tanah lempung dengan nilai K 10^{-8} – 10^{-2} m/hari; nilai Sy 3 – 21 %; dan porositas kurang lebih 41 %. Potensi airtanah terkontrol oleh patahan sehingga airtanah berada dan keluar pada jalur patahan.

Potensi air yang ada ini digunakan untuk mencukupi kebutuhan air penduduk. Namun untuk menjaga ketersediaan air di DAS, perlu dilakukan konservasi air, untuk meningkatkan volume airtanah, meningkatkan efisiensi pemakaian air, memperbaiki kualitas air sesuai peruntukannya

Kata Kunci: resapan air hujan, potensi airtanah, konservasi air

Purworejo District

Aneka Anjar

24551/IV-7/577/06

ABSTRACT

This research is conducted in Gesing sub-watershed and Mongo sub-watershed, which are part of Bogowonto watersheds in Purworejo regency. Its aims are (1) to carry out recharge zoning, (2) to study the recharge potential, and (3) to arrange the management direction of groundwater. This research uses the survey method with sampling techniques. The stratified sampling based on the landform strata is used to measure the depth of water table and the soil sample, while purposive sampling is used to interview the people.

The recharge area is basically determined by groundwater supply. The water table contour can be seen in the level to slope topography, the fluvial landform, the valley among hills, and the mountain toothills. The groundwater flows to the west and to the south, and it goes to the river. The type of this flow is called effluent and it is part of the localized aquifer where the river flow is not able to supply the aquifer.

The recharge area is determined by the overlay among the soil texture, the soil permeability, the slope, the litho logy, the rain intensity, and the land cover density. There are three recharge potentials in this research area, which are good, medium, and low. The medium, otherwise, can be found in the landform where there are fluvial process, denudation process, and structural process.

The medium recharge potential (III) is found in the alluvial level and dike landform. The level topography is able to absorb rainwater. While the deposit alluvium functions as aquifer, which has ability to store and to transmit water. Static groundwater potency in this landform approximately 252.552.711, 8 m^3 ang dynamic groundwater potency is 108.681.595 m^3; where K value is good (1 – 5 m/day); Sy value is good (between 23 – 28 %); and the porosity is big (between 28 – 42 %).

The hills landform is denudation and the rocks material is composed of breccias andesit. The rocks transform into clay with K value is 10^{-8} – 10^{-2} m/day; and the porosity is 34 – 42 %. The groundwater is divided into two, which are spring and well. The spring is composed of rainwater accumulation and it is able to go out into rock crevices. Meanwhile, the well is in the hills slope denudation. The groundwater potential in this area is smaller than the alluvial level.

The hills structural landform is composed of andesit material. The corrosion produces clay with K value is 10^{-8} – 10^{-2} m/day; Sy value is 3 – 21 %; and the porosity is approximately 41 %. The water potential is controlled by fault so that the groundwater stays in and out of the fault line.

Indeed, this water potential is used to fulfill the needs of water for the people. However, water conservation should be carried out in maintaining the water supply in the watershed, in order to increase the groundwater volume, to increase the use of water efficiency, and to improve the water quality based on its allotment.

Keywords: recharge area, groundwater potential, water conservation.