STUDI KUALITAS AIRTANAH PADA WILAYAH YANG TERKENA BENCANA LAHAR GUNUNGAPI MERAPI DI SEBAGIAN DAS PABELAN, KABUPATEN MAGELANG, PROVINSI JAWA TENGAH

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INTISARI

Daerah Aliran Sungai (DAS) Pabelan merupakan salah satu DAS yang berhulu di Gunungapi Merapi. Lahar dari Gunungapi Merapi mengaliri kawasan ini setelah erupsi pada tahun 2010. Dampak aliran lahar adalah perubahan kualitas air permukaan, sementara efek terhadap kualitas airtanah belum diketahui. Penelitian ini memiliki tujuan untuk mengetahui kualitas airtanah setelah lahar pasca erupsi 2010 dan kondisinya tahun 2013; membandingkan hasil analisis kualitas airtanah 2010 dan 2013 untuk menyelidiki pengaruh lahar; dan membandingkan kualitas airtanah hasil pengukuran dengan baku mutu air minum.

Metode penelitian yang digunakan adalah teknik *purposive sampling*. Sampel merupakan air sumur yang dekat dengan sungai pada DAS Pabelan. Lokasi penelitian dibatasi pada zona tengah hingga hilir yang termasuk ke dalam wilayah administrasi Kecamatan Mungkid, Muntilan, Sawangan, dan Dukun. Sampel diuji di laboratorium untuk menentukan kualitas airnya. Penentuan kualitas air secara kimiawi bertujuan untuk menyelidiki pengaruh lahar. Tambahan parameter fisika dan biologi digunakan untuk menyelidiki kelayakan airtanah sebagai bahan baku air minum. Kelayakan air minum perlu diketahui karena sumber bahan baku air minum berasal dari sumur penduduk. Pengolahan hasil penelitian dilakukan secara deskriptif, spasial, dan komparatif.

Hasil penelitian menunjukkan bahwa, terdapat variasi kualitas airtanah; kemudian lahar tidak mempengaruhi kualitas airtanah di lokasi penelitian berdasarkan hasil analisis arah aliran airtanah dan analisis terhadap sampel airtanah menurut parameter yang diteliti serta menurut perbandingan data primer dengan sekunder. Penelitian ini juga menunjukkan bahwa, parameter Fe dan *E coli* dinyatakan tidak layak digunakan sebagai air minum. Parameter lainnya seperti Daya Hantar Listrik, Ca, Mg, dan SO_4 dinyatakan layak digunakan sebagai air minum.

Kata kunci: erupsi, lahar, kualitas airtanah, baku mutu air minum

GROUNDWATER QUALITY STUDIES IN THE AREAS WHERE MERAPI VOLCANO LAHARS AFFECTED IN THE PART OF PABELAN WATERSHED, MAGELANG DISTRICT, CENTRAL JAVA PROVINCE

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ABSTRACT

Pabelan Watershed was one of the watersheds tipped at Merapi Volcano. Merapi Volcano lahars were flowing to this region after the eruption in 2010. The lahars flow caused the change of surface water quality, while the effects on groundwater quality are not discovered yet. The purposes of this study are to determine the quality of groundwater after the lahars on post eruption in 2010 and its conditions in 2013; comparing the results of the analysis of groundwater quality in 2010 and 2013 in order to investigate the effect of lahars; and compare the quality of groundwater measurement results with drinking water quality standards.

The research method which was used in this research was purposive sampling technique. The samples were water wells located near the river in the Pabelan Watershed. The research location was bordered from the middle into the downstream zone which included to the administrative region of Mungkid, Muntilan, Sawangan, and Dukun Sub-district. The sample was tested in the laboratory to determine the water quality. The determination of the chemical water quality aims to investigate the influence of lahars. The additional physical and biological parameters were used to investigate the feasibility of groundwater as basic materials of drinking waters. The feasibility of drinking waters needs to be known because the basic materials of drinking waters came originally from the resident's wells. The processing of the research results were conducted descriptively, spatially, and comparatively.

The results of the research showed that they were variations on groundwater quality. Furthermore, the lahars did not affect groundwater quality on the research location based on the groundwater flow analysis and groundwater samples analysis according to researched parameter and according to the secondary against primary data comparison. This research also showed that Fe and *E coli* parameters were not feasible to be used as drinking waters. Other parameters, such as Electric Conductivity, Ca, Mg, and SO_4 were feasible to be used as drinking waters.

Keywords: eruption, lahars, groundwater quality, drinking water quality standard.