Analisis Risiko Pajanan Logam Berat pada Mata Air Gunung Merapi : Studi Kasus di Desa Krinjing dan Sewukan Kecamatan Dukun Kabupaten Magelang Provinsi Jawa Tengah Tahun 2019 = Risk Analysis of Heavy Metals Exposure In Mount Merapi Springs : Case Study in Krinjing and Sewukan Villages, Dukun Subdistrict, Magelang District, Central Java Province in 2019

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Abstrak

Bahaya kimia dari berbagai sumber dan jenis zat kimia sebagian besar memiliki efek akumulasi di dalam tubuh manusia terutama pada masyarakat yang mengonsumsi air mengandung logam berat. Penelitian ini bertujuan untuk mengetahui tingkat risiko pajanan logam berat yang akan menimbulkan gangguan kesehatan terhadap masyarakat. Penelitian ini menggunakan Metode ARKL jenis kajian lapangan dilakukan pemeriksaan di Laboratorium Fisika Kimia Air BBTKLPP Yogyakarta dengan jumlah sampel manusia 110 responden usia dewasa 18-55 tahun dan sampel lingkungan 20 titik mata air. Pengumpulan data terhadap responden melalui wawancara langsung menggunakan kuisioner dan pengukuran antropometri, pada sumber mata air dilakukan pemeriksaan terhadap kandungan Cd dan Pb di Desa Krinjing dan Sewukan bulan Mei-Juni 2019. Konsentrasi Cd dan Pb di Desa Krinjing lebih rendah dibandingkan di Desa Sewukan.

Hasil semua kadar logam berat masih di bawah nilai baku mutu sesuai dengan Peraturan Menteri Kesehatan Nomor 492/Menkes/Per/IV/2010 tentang Persyaratan Kualitas Air Minum. Apabila kadar logam berat melebihi dari nilai baku mutu efek yang ditimbulkan mulai dari timbulnya gejala ringan seperti gatal-gatal, batuk, iritasi ringan hingga kanker, mutasi gen bahkan kematian. Dari konsentrasi Cd dan Pb didapatkan intake dan nilai RQ. Risiko ada dan perlu dikendalikan jika RQ>1 dan tidak perlu dikendalikan apabila RQ1. Variabel yang terdapat perbedaan proporsi besarnya tingkat risiko terhadap gangguan kesehatan responden adalah variabel berat badan responden dan variabel durasi pajanan pada konsentrasi Cd.

Dari hasil penelitian didapatkan 13 responden dengan RQ>1 pada Cd dan 8 responden pada Pb. RQ>1 didapatkan di Desa Sewukan artinya penduduk Desa Sewukan memiliki risiko mengalami gangguan kesehatan akibat pajanan Cd dan Pb pada air minum dibandingkan pada penduduk Desa Krinjing sehingga perlu dilakukan pengelolaan risiko dengan menentukan batas aman konsumsi, melakukan inovasi pengelolaan risiko dengan pendekatan teknologi pengolahan/penyaringan air seperti Teknologi Tepat Guna (TTG) untuk menurunkan kadar logam berat pada sumber air yang mengandung logam berat.
.....Most of hazards from various sources and types of chemicals have the accumulation effects in human body, especially in people who consume water containing heavy metals. This study aims at determining the risk level of heavy metal exposure which will cause health problems to the community. This study uses the ARKL Method type of field study which carried out an examination at the Water Chemistry Physics Laboratory of BBTKLPP Yogyakarta. It brings samples of 110 respondents aged 18-55 years and environmental samples of 20 springs. Respondents data is collected through direct interviews using questionnaires and anthropometric measurements. The researcher has an examination onthe content of Cd

and Pb at the source of the spring in Krinjing and SewukanVillage in May-June 2019. The concentration of Cd and Pb in Krinjing Village is lower than in Sewukan Village.

The results of all levels of heavy metals are still below the value of quality standards in accordance with the Regulation of the Minister of Health Number 492/Menkes/Per/IV/2010 about Drinking Water Quality Requirements. If the levels of heavy metals exceed the value of the quality standard, it will have very effects from the onset of mild symptoms such as itching, coughing, mild irritation to cancer, gene mutations and even death. From the concentration of Cd and Pb, the intake and RQ values were obtained. Risk exists and needs to be controlled if RQ>1 and does not need to be controlled if RQ1. There are variables that have differences in the proportion of to respondents risk level of health problems: the variable weight of the respondent and the variable duration of exposure to the concentration of Cd.

From the results of the study, it is found that 13 respondents with RQ>1 in Cd and 8 respondents in Pb. While, RQ>1 was found in Sewukan Village, which means that the residents of Sewukan Village have a higher risk of health problems due to exposure to Cd and Pb in drinking water compared to Krinjing Village residents. So, the risk management is needed by determining safe consumption limits, innovating risk management with an approacg of water processing/filtering technology such as Appropriate Technology (TTG) to reduce levels of heavy metals in water sources containing heavy metals.