SARI

Keberadaan bekas tambang emas tradisional di Dusun Plampang, Kalurahan Kalirejo, Kapanewon Kokap, Kabupaten Kulon Progo, DIY dapat mempengaruhi kandungan kimia air tanah dan air sungai di daerah tersebut. Selain faktor non – alamiah, aspek litologi di Desa Kalirejo akan menentukan konsentrasi ion mayor dan logam berat dalam air tanah dan air sungai. Metode uji yang digunakan untuk mengetahui konsentrasi ion mayor adalah *Ion Chromatography* sementara konsentrasi logam Fe dan Cu diukur menggunakan *Multiparameter Photometer*. Hasil pengukuran TDS dan DHL air tanah menggunakan *water test kit* menunjukkan bahwa air tanah di daerah penelitian termasuk kategori air tawar (Kolle, 2001 dan Fetter 2000), sementara berdasarkan nilai TDS dan DHL air sungai, diketahui bahwa kimia air sungai didaerah penelitian didominasi hasil pelapukan batuan (kategori Gibbs dalam Eby, 2004). Berdasarkan diagram Piper, diketahui tipe kimia air tanah dari hulu ke hilir yaitu *alkaline earth water* dan *alkaline earth water with higher alkaline content*, sedangkan tipe kimia air sungai yaitu *alkaline earth water*. Konsentrasi ion mayor (Na^+, K^+, Ca^{2+}, Mg^{2+}, HCO_3^-, Cl^-, SO_4^{2-}) pada air tanah dan air sungai dominan dipengaruhi faktor geogenik yaitu pelarutan mineral dalam batuan dan sedimen sungai, sedangkan kadar logam berat Fe dan Cu selain dipengaruhi oleh pelarutan oksida besi dan Cu yang cukup tinggi konsentrasinya dalam batuan dan sedimen sungai di daerah penelitian, juga dipengaruhi oleh faktor antropogenik yaitu aktivitas penambangan dan pengolahan emas tradisional. Berdasarkan nilai ambang batas Fe dan Cu dalam PP No. 82 Tahun 2001, diketahui bahwa konsentrasi Fe pada air tanah dan air sungai di daerah penelitian masih memenuhi kualifikasi, sementara konsentrasi Cu telah melewati nilai ambang batas dan termasuk kategori kontaminan.

Kata kunci : geokimia air tanah dan air sungai, litologi, pertambangan emas tradisional, amalgamasi, ion mayor, logam berat, kontaminasi

ABSTRACT

The late of Artisanal and Small – scale Gold Mining (ASGM) *in Plampang, Kalirejo Village, Kokap District, Kulon Progo Regency, DIY can affect the chemical content of groundwater and river water in the area. In additional to non – natural factor, the lithological aspect in Kalirejo Village will determine the concentration of major ions and heavy metals in groundwater and river water. The test method used to determine the concentration of major ions is Ion Chromatography, while the concentrations of Fe and Cu were measured using Multiparameter Photometer. The results of groundwater TDS and DHL measurements using a water test kit show that groundwater in the study area is in the fresh water category (Kolle, 2001 and Fetter 2000), while based on the TDS and DHL values of river water, it is known that the river water chemistry in the study area is dominated by weathering rock (Gibbs category in Eby, 2004). Based on the Piper diagram, it is known that the chemical type of groundwater from upstream to downstream is alkaline earth water and alkaline earth water with higher alkaline content, while the chemical type of river water is alkaline earth water. The concentration of major ions (Na^+, K^+, Ca^{2+}, Mg^{2+}, HCO_3^-, Cl^-, SO_4^{2-}) in groundwater and river water is dominant influenced by geogenic factors, specifically the dissolution of minerals in rocks and river sediments, while the heavy metal consentration of Fe and Cu are influenced by the dissolution of iron and Cu oxides, which are quite high concentration in rocks and river sediments in the study area, also influenced by anthropogenic factors, specifically artisanal gold mining and processing activities. According to the permitted value of Fe and Cu in regulation of Health Minister No. 82 of 2001, it is known that the concentration of Fe in groundwater and river water in the study area is still qualifies, while the Cu concentration has passed the permitted value and categorized as a contaminant.*

Keywords: groundwater and river geochemical, lithology, Artisanal and Small – scale Gold Mining (ASGM)*, amalgamation, major ions, heavy metal, contamination*