

INTISARI

Pertambangan emas tradisional dan skala kecil yang dikenal dengan istilah ASGM (*Artisanal and Small Scale Gold Mining*) seringkali mengakibatkan pencemaran terhadap lingkungan khususnya daerah aliran sungai. Penelitian ini dilakukan di Desa Boto, Kecamatan Jatiroto, Kabupaten Wonogiri, Provinsi Jawa Tengah. Penelitian ini bertujuan untuk menganalisis kandungan dan persebaran logam berat serta faktor-faktor yang berpengaruh pada persebaran logam berat di lokasi penelitian. Sampel yang diambil pada daerah penelitian yaitu 23 sampel sedimen sungai. Pengujian kandungan unsur yaitu dilakukan dengan metode ICP-AES (*Inductively Coupled Plasma-Atomic Emission Spectroscopy*).

Hasil uji laboratorium pada sampel sedimen sungai kemudian dianalisis secara spasial, statistika dan perhitungan indeks geoakumulasi serta faktor pengkayaan. Hasil uji laboratorium menunjukkan bahwa hampir semua unsur memiliki kandungan logam berat melebihi standar konsentrasi rata-rata logam berat pada sedimen sungai antara lain As 18,78 ppm, Cd 1,5 ppm, Cu 107,59 ppm, Pb 111,78 ppm, Zn 326,56 ppm dan Hg 5,70 ppm. Penyebaran logam berat di sedimen sungai di lokasi penelitian ditemukan bervariasi dengan adanya perbedaan pada area upstream dan downstream. Secara umum, daerah upstream mempunyai kandungan logam berat yang lebih tinggi jika dibandingkan dengan di downstream. Penyebaran logam berat untuk semua unsur yang diteliti, dipengaruhi oleh proses alamiah (geogenik) maupun kegiatan manusia (antropogenik). Kegiatan penambangan tradisional berperan sangat signifikan baik dalam kontribusi peningkatan kandungan Hg, maupun kontribusi dalam peningkatan logam lain akibat penyingkpan batuan pada daerah mineralisasi, yang secara alami sudah mengandung kandungan logam yang tinggi juga.

Kata Kunci: sedimen sungai, Boto, penambangan emas tradisional dan skala kecil, pencemaran.

ABSTRACT

Traditional and small-scale gold mining known as ASGM (Artisanal and Small Scale Gold Mining) often results in pollution of the environment, especially watersheds. This research was conducted in Boto Village, Jatiroto Subdistrict, Wonogiri Regency, Central Java Province. This study aims to analyze the content and distribution of heavy metals and the factors that influence the distribution of heavy metals at the study site. Samples taken in the study area were 22 river sediment samples. Elemental content testing is carried out by the ICP-AES method (Inductively Coupled Plasma-Atomic Emission Spectroscopy).

Laboratory test results on river sediment samples were then analyzed spatially, statistics and calculation of the geoaccumulation index and enrichment factors. Laboratory test results show that almost all elements have heavy metal content exceeding the average concentration of heavy metals in river sediments such as As 18,78 ppm, Cd 1,5 ppm, Cu 107,59 ppm, Pb 111,78 ppm, Zn 326,56 ppm dan Hg 5,70 ppm. The spread of heavy metals in river sediments in the study sites was found to be varied with differences in the upstream and downstream areas. In general, the upstream area has a higher metal content compared to downstream. The spread of heavy metals for all the elements studied is influenced by natural processes (geogenic) and human activities (anthropogenic). Traditional mining activities play a very significant role in contributing to the increase in Hg content, as well as contributing to the increase of other metals due to rock removal in the mineralized area, which naturally contains high metal content as well.

Keywords: river sediment, Boto, traditional gold mining and small scale, pollution.