

Pertambangan timah inkonvensional (TI) apung seringkali mengakibatkan pencemaran terhadap lingkungan khususnya daerah aliran sungai. Penelitian ini dilakukan di Desa Paya Benua, Kecamatan Mendo Barat, Kabupaten Bangka, Provinsi Kepulauan Bangka Belitung. Penelitian ini bertujuan untuk menganalisis kandungan unsur Cd, Cu, Pb, Zn, Al, Fe, Mg, dan Mn pada sedimen sungi serta faktor-faktor yang berpengaruh terhadap kandungan logam berat sedimen sungai di lokasi penelitian. Sampel yang diambil pada daerah penelitian yaitu 16 sampel sedimen sungai. Pengujian kandungan logam berat dilakukan dengan ICP-AES (*Inductively Coupled Plasma-Atom Emission Spectroscopy*). Hasil uji laboratorium pada sampel sedimen sungai kemudian dianalisis secara statistika, dan perhitungan indeks geoakumulasi (Igeo) serta faktor pengkayaan (EF). Hasil penelitian menunjukkan bahwa kandungan unsur Cd dan Cu melebihi standar rata-rata pada kerak bumi dan rata-rata sedimen. Unsur Cd pada sedimen sungai mengalami proses pengkayaan yang paling tinggi namun masih masuk kedalam kategori tidak tercemar sampai tercemar sedang berdasarkan nilai indeks geoakumulasi (Igeo). Terdapat perbedaan kandungan logam berat di area pertambangan timah aktif dan di area yang jauh dari penambangan timah atau yang tidak terdapat aktivitas penambangan timah dimana pada area aktivitas penambangan timah aktif secara umum memiliki kandungan logam berat yang lebih tinggi. Nilai logam berat untuk semua unsur yang diteliti, dipengaruhi oleh proses alamiah (geogenik) maupun kegiatan manusia (antropogenik). Kegiatan penambangan timah inkonvensional (TI) apung berperan baik dalam kontribusi peningkatan logam berat akibat penyingkapan batuan pada daerah mineralisasi, yang secara alami mengandung kandungan logam berat yang tinggi

Kata Kunci : Sedimen Sungai, Timah Inkonvensional (TI) Apung, Sungai Pakil, ICP-AES, Indeks Geoakumulasi (Igeo), Faktor Pengkayaan (EF)

ABSTRACT

Tin mining often results in pollution of the environment, especially watersheds. This research was conducted in Paya Benua Village, Mendo Barat District, Bangka Regency, Bangka Belitung Islands Province. This study aims to analyze the elemental content of Cd, Cu, Pb, Zn, Al, Fe, Mg, and Mn in river sediments and the factors that influence the heavy metal content of river sediments at the study site. The samples taken in the research area were 16 samples of river sediments. Heavy metal content testing was carried out using ICP-AES (Inductively Coupled Plasma-Atomic Emission Spectroscopy). The results of laboratory tests on river sediment samples were then analyzed statistically, and calculated the geoaccumulation index (I-geo) and enrichment factor (EF). The results showed that the content of elements Cd and Cu exceeds the average standard in the earth's crust and sediment average. The Cd element in river sediments experienced the highest enrichment process but was still in the category of not polluted to moderately polluted based on the value of the geoaccumulation index (Igeo). There are differences in the heavy metal content in the active tin mining area and in areas far from tin mining or where there is no tin mining activity where in the active tin mining activity areas generally have a higher heavy metal content. Heavy metal values for all elements studied are influenced by natural processes (geogenic) and human activities (anthropogenic). Floating unconventional tin mining (TI) activities play a good role in contributing to the increase in heavy metals due to rock exposure in mineralized areas, which naturally contain high heavy metal content.

Keyword: River Sediment, Tin Mining, Pakil River, ICP-AES, Geoaccumulation Index (Igeo), Enrichment Factor.