

ENVIRONMENTAL POLLUTION STUDY OF COASTAL WATERS DUE TO NICKEL ORE MINING

Case: Bungku Pesisir District, Morowali Regency, Central Sulawesi

Abstract

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This study was conducted in the coastal waters Bungku Pesisir District, Morowali Regency, Central Sulawesi. Nickel mining resulted in changes to the environmental function with the declining quality of coastal waters is the impact of nickel mining acid water which is part of the mine waste (tailings). The purpose of this study was to (1) assess concentrations of heavy metals in water and sediments as well as the level of environmental pollution in coastal area of research; (2) analyzing the attitudes and perceptions of local communities against nickel mining activities in the area of research; and (3) formulate strategies and policies in the area of environmental management research.

The research method is using the survey method as well as water and sediment sampling with purposive sampling. Analysis of environmental damage coastal waters by comparing the scale of environmental quality standards in accordance Kepmen LH No. 51 of 2004, on Sea Water quality and environmental scale issued by Canter & Hill (1981), and for heavy metals in sediment environmental damage analysis using quality standards issued by the IADC / CEDA (1997). Attitudes and perceptions do interviews, questionnaires and field observations purposive sampling, analysis using a Likert scale with a score interpretation criteria, the results of the analysis are described.

Results of the data analysis and field research shows that: (1) the concentration of heavy metals contained in water that is Pb below the threshold by a **safe category**, while the concentration of heavy metals Cd, Cu, Zn and Ni on average has exceeded the threshold by category **unsafe for aquatic biota beach**, whereas the heavy metals contained in sediments that is Pb, Cd, Cu, Zn and Ni konsentarsinya very high threshold by category unsafe for aquatic biotic. TSS (Total Suspended Solid) concentration has exceeded the threshold with the category of **"bad"** while for pH waters are still appropriate **quality standards**. (2) The public perception: (a) environmental field that nickel mining activities lead to a decrease in the quality of the physical environment (abiotic) and biological (biotic), (b) economics that nickel mining activities benefit society, and (c) social and cultural sectors that nickel mining activities do not have a significant influence and a balance between positive and negative.

Keywords: *nickel mining, heavy metal concentration, coastal environmental pollution, public perception.*

KAJIAN PENCEMARAN LINGKUNGAN PERAIRAN PANTAI AKIBAT PENAMBANGAN BIJIH NIKEL

Kasus: Kecamatan Bungku Pesisir Kabupaten Morowali, Sulawesi Tengah

INTISARI

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Penelitian ini dilaksanakan di Perairan Pantai Kecamatan Bungku Pesisir Kabupaten Morowali, Sulawesi Tengah. Pertambangan nikel mengakibatkan perubahan fungsi lingkungan dengan menurunnya kualitas perairan pantai yaitu dampak dari air asam penambangan nikel yang merupakan bagian dari limbah tambang (*tailing*). Tujuan penelitian ini adalah untuk (1) mengkaji konsentrasi logam berat didalam air dan sedimen serta tingkat pencemaran lingkungan pantai daerah penelitian, (2) menganalisis sikap dan persepsi masyarakat setempat terhadap aktivitas penambangan nikel di daerah penelitian; dan (3) merumuskan strategi dan kebijakan pengelolaan lingkungan di daerah penelitian

Metode penelitian yaitu menggunakan metode survei serta pengambilan sampel air dan sedimen secara *purposive sampling*. Analisis kerusakan lingkungan perairan pantai dengan membandingkan skala baku mutu lingkungan sesuai Kepmen LH No. 51 Tahun 2004, Tentang Baku Mutu Air Laut dan skala lingkungan yang dikeluarkan oleh Canter & Hill, 1981, dan untuk logam berat pada sedimen analisis kerusakan lingkungan menggunakan baku mutu yang dikeluarkan oleh IADC/CEDA (1997). Sikap dan persepsi masyarakat dilakukan wawancara, kuesioner serta observasi lapangan metode *purposive sampling*, analisis menggunakan skala *Likert* dengan kriteria interpretasi skor, hasil analisis dideskripsikan.

Hasil analisis data dan penelitian lapangan menunjukkan bahwa: (1) konsentrasi logam berat yang terdapat didalam air yaitu Pb dibawah ambang batas dengan kategori aman, sementara konsentrasi logam berat Cd, Cu, Zn dan Ni rata-rata telah melampaui ambang batas dengan kategori tidak aman untuk biota perairan pantai, sedangkan logam berat yang terdapat didalam sedimen yaitu Pb, Cd, Cu, Zn dan Ni konsentrasinya sangat tinggi dari ambang batas dengan kategori tidak aman bagi biota perairan. TSS (*Total Suspended Solid*) konsentrasinya telah melampaui ambang batas dengan kategori “buruk” sedangkan untuk pH perairan masih sesuai baku mutu; (2) Persepsi masyarakat: (a) bidang lingkungan bahwa aktivitas pertambangan nikel menimbulkan penurunan kualitas lingkungan fisik (*abiotik*) maupun hayati (*biotik*), (b) bidang ekonomi bahwa kegiatan pertambangan nikel menguntungkan masyarakat, dan (c) bidang sosial budaya bahwa kegiatan pertambangan nikel tidak memberikan pengaruh yang signifikan dan terjadi keseimbangan antara positif dan negatif.

Kata kunci: *penambangan nikel, konsentrasi logam berat, pencemaran lingkungan pantai, persepsi masyarakat.*