# RINGKASAN

Aktivitas penambangan pasir dari dasar atau tepi sungai dapat berdampak negatif pada lingkungan, terutama pada kualitas air misalnya peningkatan kekeruhan air yang dapat membahayakan ekosistem dan kesehatan manusia. Penelitian ini bertujuan untuk analisis kualitas air sungai di sekitar area penambangan pasir menggunakan metode *Water Quality Index* (WQI). Dalam penelitian ini, sampel air diambil di tiga titik yakni hulu, tengah, hilir dengan tiga kali pengulangan selama tiga hari berturut-turut di sekitar area penambangan pasir Desa Sembubuk Kabupaten Muaro Jambi.

Hasil pengujian menunjukkan nilai-nilai penting pada beberapa parameter seperti TSS di titik tengah mencapai 252 mg/L, angka ini menunjukkan banyaknya partikel tersuspensi dalam air. Nilai kekeruhan di titik tengah juga sangat tinggi yakni 285 NTU, mengindikasikan air yang sangat keruh. Selain itu kadar DO di titik tengah penambangan ditemukan paling rendah yakni 2,21 mg/L. Rendahnya DO ini mengindikasikan proses penambangan akan melepaskan material teroksidasi yang terperangkap dalam sedimen dasar sehingga mengonsumsi oksigen dalam air. Parameter-parameter ini secara individu belum memenuhi baku mutu air sungai, metode yang digunakan akan menggabungkan berbagai parameter dan nilai keseluruhan dapat mencerminkan kombinasi kondisi dari masing-masing parameter.

Dengan demikian, dapat disimpulkan bahwa analisis tingkat pencemaran WQI Sungai Batanghari di sekitar area penambangan pasir di Desa Sembubuk Kabupaten Muaro Jambi menunjukkan bahwa tingkat pencemaran sungai Batanghari di sekitar area penambangan pasir berada pada status "*Poor*" (Buruk) dengan nilai rata-rata WQI 50,33. Titik tengah terpantau memiliki nilai klasifikasi WQI paling tinggi dibandingkan titik lainnya, yaitu 50,42, yang menunjukkan kontribusi terbesar dari aktivitas penambangan terhadap penurunan kualitas air. Meskipun terjadi sedikit perbaikan status menjadi "*Good*" pada hari kedua, kondisi ini hanya bersifat sementara. Secara umum kondisi sungai tetap tergolong buruk karena kembali terjadi perubahan status menjadi "*Poor*" pada hari ketiga.

## *SUMMARY*

*Sand mining activities from riverbeds or banks can have a negative impact on the environment, especially on water quality such as an increase in water turbidity which can endanger ecosystems and human health. This study aims to analyze the water quality of the river around the sand mining area using the Water Quality Index (WQI) method. In this study, water samples were taken at three points, namely upstream, middle, and downstream, with three repetitions for three consecutive days around the sand mining area of Sembubuk Village, Muaro Jambi Regency.*

*The test results showed significant values in several parameters such as TSS at the mid-point reaching 252 mg/L. This figure indicates a high amount of suspended particles in the water. The turbidity value at the mid-point was also very high, at 285 NTU, indicating very cloudy water. In addition, the DO level at the mid-point of the mining site was the lowest, at 2.21 mg/L. This low DO indicates that the mining process releases oxidized materials trapped in the bottom sediment, which consumes oxygen in the water. These parameters individually have not met the river water quality standards. The method used will combine various parameters and the overall value can reflect the combined conditions of each parameter.*

*Thus, it can be concluded that the analysis of the WQI pollution level of the Batanghari River around the sand mining area in Sembubuk Village, Muaro Jambi Regency shows that the pollution level of the Batanghari River around the sand mining area is at "Poor" status with an average WQI value of 50.33. The midpoint was observed to have the highest WQI classification value compared to other points, namely 50.42, which indicates the largest contribution of mining activities to the decline in water quality. Although there was a slight improvement in the status to "Good" on the second day, this condition was only temporary. In general, the condition of the river remained classified as poor because the status changed again to "Poor" on the third day.*