

## INTISARI

TPA Blondo adalah tempat pemrosesan akhir sampah yang melayani penampungan sampah di wilayah Kabupaten Semarang. TPA ini berdiri sejak tahun 2005 di Dusun Blondo, Kelurahan Bawen, Kecamatan Bawen, Kabupaten Semarang dengan operasional yang menggunakan sistem *open dumping*. Akibat pengelolaan lindi yang belum optimal, air lindi yang timbul dari aktivitas TPA Blondo dibuang tanpa adanya proses pengolahan ke Sungai Geyongan sehingga berdampak terhadap kualitas air sungai. Untuk mengetahui kondisi pencemaran di Sungai Geyongan, maka dilakukan (1) pengukuran kualitas air dan penghitungan indeks kualitas air; (2) menganalisis tingkat pencemaran lingkungan di perairan Sungai Geyongan akibat buangan air lindi TPA Blondo berdasarkan metode IKA-INA; serta (3) merumuskan strategi pengelolaan lingkungan di Sungai Geyongan. Analisis pencemaran dilakukan berdasarkan uji laboratorium terhadap sampel air lindi dan sampel air sungai yang kemudian digunakan dalam perhitungan nilai indeks IKA-INA. Dari analisis pencemaran tersebut kemudian dirumuskan rekomendasi pengelolaan lingkungan menggunakan analisis SWOT. Hasil penelitian menunjukkan bahwa nilai indeks kualitas air Sungai Geyongan berada dalam kategori sedang hingga cukup baik. Parameter dengan kontribusi terbesar terhadap penurunan kualitas air adalah BOD, COD, dan *fecal coliform* yang menunjukkan dominasi pencemaran organik dan biologis dari buangan air lindi. Air lindi yang dihasilkan dari TPA Blondo tidak memenuhi Baku Mutu Air Lindi dengan parameter BOD, COD, dan TSS yang melebihi ambang batas. Sebagai upaya perbaikan kualitas lingkungan, maka dirumuskan strategi pengelolaan lingkungan dengan fokus pada peningkatan sistem pengolahan air lindi, peningkatan kapasitas SDM dan kelembagaan TPA, serta kolaborasi dengan pihak-pihak terkait.

Kata Kunci: Indeks Kualitas Air, IKA-INA, Air Lindi, TPA

## **ABSTRACT**

*The TPA Blondo is a final disposal site that manages solid waste containment for the Semarang Regency area. Established in 2005 in Blondo Village, Bawen District, this landfill facility operates under the open dumping system. A critical consequence of this operational approach has been the suboptimal management of leachate, resulting in the untreated discharge of effluent directly into the Geyongan River. This practice poses a significant environmental risk, primarily impacting the aquatic ecosystem's water quality. To assess the extent of environmental degradation, a study was executed involving the measurement of water quality parameters and the calculation of the Water Quality Index (WQI). The primary objectives of this investigation are to measure the water quality and water quality index quantification; (2) to determine the level of environmental contamination within the Geyongan River due to the TPA Blondo's leachate effluent utilizing the established IKA-INA (Indonesian Water Quality Index) methodology; and (3) to formulate an environmental management strategy for the affected riverine environment. The assessment of environmental pollution was performed through laboratory testing of leachate and river water samples, the results of which informed the calculation of the IKA-INA index value. Following the pollution analysis, environmental management recommendations were developed using a SWOT analysis framework. The research findings indicated that the calculated Water Quality Index for the Geyongan River falls within the classification of moderate to fairly good quality. A deeper analysis revealed that the most significant contributors to the observed degradation in water quality were the parameters Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), and fecal coliform. The high concentrations of these indicators collectively point toward a predominance of organic and biological pollution originating from the untreated discharge of the leachate. The leachate produced by TPA Blondo fails to meet the Leachate Quality Standards, as the Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), and Total Suspended Solids (TSS) parameters are above the acceptable limits. In response to these findings, a strategic framework for environmental remediation was developed. This proposed environmental management strategy centers on a critical enhancement and upgrade of the existing leachate treatment system to ensure compliance with effluent quality standards, comprehensive program for the capacity building of the TPA's human resources and institutional governance structure, and the establishment of collaborative mechanisms with relevant governmental and non-governmental stakeholders to ensure sustainable long-term environmental oversight and co-management.*

*Keywords: Water Quality Index, IKA-INA, Leachate, Landfill*