

Analisis Potensi Ekonomi Daur Ulang Limbah Elektronik di Pulau Jawa Serta Rekomendasi Fasilitas Pengolahannya = Analysis of the Economic Potential of Electronic Waste Recycling in Java Island and Recommendations for Its Processing Facility

Naila Fahria Srihanania Srihartoyo, author

Deskripsi Lengkap: <https://lib.ui.ac.id/detail?id=9999920570670&lokasi=lokal>

Abstrak

Kemajuan teknologi meningkatkan konsumsi elektronik, sehingga timbulan limbah di Pulau Jawa melonjak pesat, menyumbang 56% dari total limbah nasional, dan mengandung bahan berbahaya serta logam mulia dengan nilai ekonomi tinggi. Penelitian ini bertujuan menganalisis pengelolaan limbah elektronik, khususnya WPCB, di Pulau Jawa, meliputi timbulan limbah, potensi ekonomi daur ulang, kapasitas pengolahan, serta lokasi optimal fasilitas pengolahan dan TPSSS-B3. Metode penelitian dilakukan dengan pengumpulan data sekunder tentang timbulan limbah elektronik di Pulau Jawa dan data primer dari PT TES AMM Indonesia di Cikarang, Jawa Barat, yang menjadi lokasi penelitian utama karena memiliki sistem pengolahan terstandarisasi. Hasil penelitian menunjukkan Pulau Jawa menghasilkan 56% dari total timbulan nasional, dengan proyeksi timbulan WPCB mencapai 44.104 ton pada 2045. Potensi ekonomi dari daur ulang WPCB sangat besar, dengan estimasi total pendapatan Rp 2.543 triliun selama 20 tahun, terdiri dari Rp 2.425 triliun melalui proses pyrometallurgy dan Rp 52 triliun dari manual dismantling. Kapasitas pengolahan yang dibutuhkan sebesar 8.648 kg/jam dengan teknologi Pyrometallurgy Furnace Rotary Type ZL-Z2000. Semarang ditetapkan sebagai lokasi centralized facility, sedangkan TPSSS-B3 direkomendasikan di DKI Jakarta, Jawa Barat, DI Yogyakarta, Jawa Timur, dan Banten untuk mendukung pengumpulan limbah secara efisien.

.....Technological advancements have increased electronic consumption, causing electronic waste generation in Java to surge rapidly, contributing 56% of the national total, and containing hazardous materials as well as precious metals with high economic value. This study aims to analyze the management of electronic waste, particularly Waste Printed Circuit Boards (WPCB), in Java, including waste generation, economic recycling potential, processing capacity, and the optimal locations for processing facilities and TPSSS-B3. The research method involved collecting secondary data on electronic waste generation in Java and primary data from PT TES AMM Indonesia in Cikarang, West Java, which served as the main research site due to its standardized electronic waste processing system. The results show that Java produces 56% of the national electronic waste, with WPCB generation projected to reach 44,104 tons by 2045. The economic potential of WPCB recycling is significant, with estimated total revenue of IDR 2.543 trillion over 20 years, consisting of IDR 2.425 trillion from the pyrometallurgy process and IDR 52 trillion from manual dismantling. The required processing capacity is 8,648 kg/hour using the Pyrometallurgy Furnace Rotary Type ZL-Z2000 technology. Semarang is designated as the optimal centralized facility location, while TPSSS-B3 facilities are recommended in DKI Jakarta, West Java, DI Yogyakarta, East Java, and Banten to support efficient waste collection.