

ABSTRAK

Indonesia menghadapi tantangan lingkungan akibat peningkatan eksploitasi sumber daya alam dan emisi yang dihasilkan oleh proses produksi industri. Penelitian ini bertujuan merancang strategi mitigasi dampak lingkungan menggunakan metode *Life Cycle Assessment* (LCA) di salah satu industri furnitur yaitu UD Putra Bali. Studi ini mencakup analisis siklus hidup pintu kayu yang meliputi tahap pengumpulan data, *Life Cycle Inventory* (LCI), *Life Cycle Impact Assessment* (LCIA), dan *Life Cycle Interpretation*, *Fishbone* diagram, perbaikan dengan *cleaner production*, dan *saving matrix*. Hasil penelitian menunjukkan siklus hidup produk pintu kayu memiliki dampak lingkungan sebesar 13,1 kPt. Tahap yang memiliki dampak terbesar adalah *finishing* kategori *human toxicity water* sebesar 11,3 kPt dan pengiriman produk jadi kategori *global warming* 0,0539 kPt. Penyebab dicari dengan *fishbone* diagram sehingga dapat dilakukan perbaikan. Rekomendasi perbaikan yang diusulkan berdasarkan *cleaner production*. Perbaikan proses *finishing* yaitu penggantian material cat yang semula cat pelarut thinner menjadi cat pelarut air. Perbaikan pada proses transportasi yaitu perusahaan dapat menggunakan perjanjian kontrak kerja sama dengan pihak pengiriman yang berisi syarat penggunaan kendaraan minimal euro 4 dan untuk rute pengiriman yaitu menggunakan rute yang sudah ditentukan dengan *saving matrix nearest insert*.

Kata Kunci: Produktivitas hijau, Dampak lingkungan, Penilaian siklus hidup, Produksi bersih, Matriks tabungan

ABSTRACT

Indonesia faces environmental challenges due to increased exploitation of natural resources and emissions produced by industrial production processes. This research aims to design an environmental impact mitigation strategy using the Life Cycle Assessment (LCA) method in one of the furniture industries, namely UD Putra Bali. This study includes a life cycle analysis of wooden doors which includes data collection stages, Life Cycle Inventory (LCI), Life Cycle Impact Assessment (LCIA), and Life Cycle Interpretation, Fishbone diagram, repair with cleaner production, and saving matrix. The research results show that the life cycle of wooden door products has an environmental impact of 13.1 kPt. The stage that has the biggest impact is finishing in the human toxicity water category at 11.3 kPt and delivery of finished products in the global warming category at 0.0539 kPt. The cause is sought using a fishbone diagram so that improvements can be made. The proposed improvement recommendations are based on cleaner production. Improvements to the finishing process include replacing the paint material from thinner solvent paint to water solvent paint. An improvement in the transportation process is that companies can use a cooperation contract agreement with the delivery party which contains a vehicle usage requirement of at least 4 euros and for the delivery route, namely using a route that has been determined by saving matrix nearest insert.

Keywords: Green Productivity, Environmental Impact, Life Cycle Assessment, Cleaner Production, Saving Matrix