

LIFE CYCLE ASSESSMENT PADA BUDIDAYA INTENSIF DAN SUPER INTENSIF UDANG VANAME (*Litopenaeus vannamei* Boone, 1931)) DI PANTAI SELATAN DAERAH ISTIMEWA YOGYAKARTA

Life Cycle Assessment (LCA) merupakan sebuah metode atau perangkat evaluasi untuk mengkaji potensi dampak lingkungan akibat aktivitas tertentu, termasuk budidaya udang yang terus tumbuh pesat dalam dekade terakhir. Penelitian ini bertujuan untuk mengetahui potensi dampak lingkungan yang ditimbulkan budidaya udang vaname (*Litopenaeus vannamei*) intensif dan super intensif dan menyusun strategi untuk meminimalkan dampak lingkungannya serta mendorong produksi udang yang berkelanjutan. LCA dilaksanakan berdasarkan tahapan tujuan dan lingkup, inventori daur hidup, penilaian dampak daur hidup, *assessment*, dan interpretasi. Analisis data menggunakan *software* SimaPro v.9.3.0.3. Hasil penelitian menunjukkan satu ton budidaya udang intensif menghasilkan *abiotic depletion potential* (ADP) 0,0216 kg Sb eq, *global warming potential* (GWP) 17.628,80 kg CO₂ eq, *marine aquatic ecotoxicity potential* (MTP) 28.476.774,87 kg 1,4-DB eq, *acidification potential* (AP) 80,15 kg SO₂ eq, dan *eutrophication potential* (EP) 75,06 kg PO₄ eq. Satu ton budidaya udang super intensif menghasilkan ADP 0,0194 kg Sb eq, GWP 11.581,00 kg CO₂ eq, MTP 16.394.061,90 kg 1,4-DB eq, AP 56,40 kg SO₂ eq, dan EP 45,45 kg PO₄ eq. Dampak budidaya dapat diminimalkan dengan pemilihan sumber energi listrik yang lebih ramah lingkungan pada skala makro; serta peningkatan efisiensi penggunaan energi listrik dan pakan, dan penggunaan material pelapis tambak yang lebih ramah lingkungan pada skala mikro (*on farm*)

Kata kunci: budidaya udang, dampak, lingkungan, LCA, vaname, Yogyakarta

LIFE CYCLE ASSESSMENT OF INTENSIVE AND SUPER INTENSIVE WHITELEG SHRIMP (*Litopenaeus vannamei* Boone, 1931) FARMING AT THE SOUTHERN COAST OF YOGYAKARTA SPECIAL REGION

Life Cycle Assessment (LCA) is a method or tool to evaluate the environmental impact potential due to certain activity, including shrimp farming which has been growing rapidly in the last decade. This research aims to evaluate environmental impact potential caused by intensive and super intensive whiteleg shrimp (*Litopenaeus vannamei*) farming and develop strategies to minimize the environmental impact to encourage more sustainable shrimp production. LCA was held based on stages goal and scope, life cycle inventory, life cycle impact assessment, and interpretation. Data analysis was held using SimaPro v.9.3.0.3 software. The result of this research showed one ton intensive shrimp farming produce 0.0216 kg Sb eq of *abiotic depletion potential* (ADP), 17,628.80 kg CO₂ eq of *global warming potential* (GWP), 28,476,774.87 kg 1,4-DB eq of *marine aquatic ecotoxicity potential* (MTP), 80.15 kg SO₂ eq of *acidification potential* (AP), and 75.06 kg PO₄ eq of *eutrophication potential* (EP). One ton super intensive shrimp farming produce 0.0194 kg Sb eq of ADP, 11,581.00 kg CO₂ eq of GWP, 16,394,061.90 kg 1,4-DB eq of MTP, 56.40 kg SO₂ eq of AP, and 45.45 kg PO₄ eq of EP. Environmental impact of shrimp farming can be minimized by choosing a more environmentally friendly source of electrical energy on the macro scale; increasing the efficiency of the use of electricity and feed, and using the pond lining materials that are more environmentally friendly on the micro scale (on farm).

Key words: environment, impact, LCA, shrimp culture, vannamei, Yogyakarta