

ABSTRAK

Proses produksi batik cap didominasi aktivitas manual yang menyebabkan *waste* dan proses produksi batik menghasilkan limbah, sehingga dapat menyebabkan permasalahan lingkungan. Penelitian ini bertujuan untuk mengidentifikasi *waste* dominan, menganalisis penyebab *waste* dan dampak lingkungan, serta merancang usulan perbaikan, dengan tujuan mengurangi *waste* dan dampak lingkungan menggunakan metode *Environmental Value Stream Mapping* (EVSM) dan *Life Cycle Assessment* (LCA). Hasil penelitian menunjukkan bahwa *waste* dan *environmental waste* dominan yaitu *waiting*, *motion*, *defect*, *energy*, *emissions*, *water*, *biodiversity*, dan *material* dengan proses pelorodan sebagai penyumbang dampak terbesar ke lingkungan. Berdasarkan hasil tersebut, dirancang beberapa usulan perbaikan, seperti modifikasi tungku pelorodan, penataan ulang penyimpanan material kayu bakar, perancangan area pendiaman yang tertutup, pengaturan jarak antar kain, penerapan APD, perancangan SOP pelorodan dan biofiltrasi serta pemanfaatan kembali sisa malam. Hasil pembuatan *Process Activity Mapping* perbaikan diantaranya mereduksi waktu aktivitas pengeringan kain, pendiaman kain, pemanasan air serta penggabungan aktivitas, sehingga didapatkan pengurangan total *time* dari 52033,36 s menjadi 43242,51 s dan pengurangan dampak lingkungan dari 4,4 Pt menjadi 3,49 Pt. Penelitian ini mendukung pencapaian *Sustainable Development Goals* poin ke 9 yaitu *industry, innovation, and infrastructure* dan poin 12 yaitu *responsible consumption and production* melalui inovasi perbaikan pada proses produksi serta upaya pengurangan *waste* dan peningkatan efisiensi penggunaan sumber daya.

Kata Kunci: *Environmental Value Stream Mapping* (EVSM), *Life Cycle Assessment* (LCA), Batik Cap, SDG's poin 9 dan poin 12.

ABSTRACT

The production process of stamped batik is dominated by manual activities that cause waste and the batik production process produces waste, which can cause environmental problems. This study aims to identify dominant waste, analyze the causes of waste and environmental impacts, and design improvement proposals, with the aim of reducing waste and environmental impacts using the Environmental Value Stream Mapping (EVSM) and Life Cycle Assessment (LCA) methods. The results of the study indicate that the dominant waste and environmental waste are waiting, motion, defects, energy, emissions, water, biodiversity, and materials with the rolling process as the largest contributor to environmental impacts. Based on these results, several improvement proposals were designed, such as modifying the rolling furnace, rearranging firewood storage, designing a closed living area, adjusting the distance between fabrics, implementing personal protective equipment (PPE), designing standard operating procedures (SOP) for rolling and biofiltration, and reusing leftover wax. The results of making Process Activity Mapping improvements include reducing the time for drying cloth activities, leaving cloth, heating water and combining activities, resulting in a reduction in total time from 52033.36 s to 43242.51 s and a reduction in environmental impact from 4.4 Pt to 3.49 Pt. This research supports the achievement of Sustainable Development Goals point 9, namely industry, innovation, and infrastructure and point 12, namely responsible consumption and production through innovation and improvements in the production process as well as efforts to reduce waste and increase the efficiency of resource use.

Keywords: *Environmental Value Stream Mapping (EVSM), Life Cycle Assessment (LCA), Batik Hats, SDG Point 9 and 12.*