

ABSTRAK:

Proses bongkar muat curah cair di PT Pelindo Multi Terminal Tanjung Emas masih menghadapi berbagai pemborosan yang menyebabkan tingginya lead time dan belum optimalnya produktivitas operasional. Penelitian ini bertujuan mengidentifikasi pemborosan yang terjadi, menganalisis penyebabnya, serta menyusun usulan perbaikan untuk meningkatkan efisiensi proses bongkar muat Crude Palm Oil (CPO). Penelitian menggunakan pendekatan Lean Six Sigma dengan metodologi DMAIC (Define, Measure, Analyze, Improve, Control) dan tools Value Stream Mapping (VSM). Data diperoleh melalui observasi lapangan, dokumentasi perusahaan, serta Statement of Facts/Time Sheet kapal. Hasil penelitian menunjukkan bahwa kondisi current state memiliki total lead time sebesar 117 jam 40 menit dengan produktivitas bongkar sebesar 47,44 MT/jam dan produktivitas terhadap total lead time sebesar 42,97 MT/jam. Pemborosan yang dominan berupa waiting time dan inappropriate processing yang terjadi pada tahap persiapan bongkar, proses bongkar akibat muatan beku, serta penyelesaian administrasi pascaoperasi. Usulan perbaikan disusun melalui future state mapping dengan meningkatkan koordinasi sebelum kapal sandar, mempercepat persiapan operasional, mengendalikan proses transfer, memantau produktivitas setiap shift, serta menyelesaikan dokumen secara paralel. Hasil usulan perbaikan diperkirakan mampu menurunkan total lead time menjadi 100 jam 30 menit atau sebesar 14,59%, meningkatkan produktivitas bongkar menjadi 53,22 MT/jam, dan meningkatkan produktivitas terhadap total lead time menjadi 50,31 MT/jam. Dengan demikian, penerapan Lean Six Sigma menggunakan Value Stream Mapping mampu meningkatkan efisiensi operasional bongkar muat curah cair.

Kata Kunci: Crude Palm Oil; DMAIC; Lean Six Sigma; operasional bongkar muat; Value Stream Mapping.

ABSTRACT:

Liquid bulk unloading operations at PT Pelindo Multi Terminal Tanjung Emas still experience various process wastes that increase lead time and reduce operational productivity. This study aims to identify operational waste, analyze its root causes, and develop improvement recommendations to enhance the efficiency of Crude Palm Oil (CPO) unloading activities. The study employed the Lean Six Sigma approach using the DMAIC (Define, Measure, Analyze, Improve, Control) methodology and Value Stream Mapping (VSM) as the primary improvement tool. Data were collected through field observations, company operational documents, and the Statement of Facts/Time Sheet of the vessel. The results indicate that the current state process requires a total lead time of 117 hours and 40 minutes, with an unloading productivity of 47.44 MT/hour and an overall lead-time productivity of 42.97 MT/hour. The dominant wastes identified were waiting time and inappropriate processing during unloading preparation, unloading activities affected by solidified cargo, and post-operation administrative processes. Improvement proposals were developed through future state mapping by strengthening pre-arrival coordination, accelerating operational preparation, improving transfer process control, monitoring productivity in every shift, and conducting parallel documentation activities. The proposed improvements are estimated to reduce the total lead time to 100 hours and 30 minutes (14.59%), increase unloading productivity to 53.22 MT/hour, and improve overall lead-time productivity to 50.31 MT/hour. Therefore, the