# ANALISIS PEMBOROSAN PADA PROSES PRODUKSI TEH (Studi Kasus: PT Perkebunan Nusantara IV Regional IV Unit Usaha Danau Kembar)

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# *ABSTRAK*

*Penurunan produktivitas industri teh di Indonesia dalam beberapa tahun terakhir berdampak pada ekspor dan daya saing global, termasuk di PT Perkebunan Nusantara IV Regional IV Unit Usaha Danau Kembar yang merupakan salah satu produsen utama teh hitam ekspor di Sumatera Barat. Perusahaan menghadapi berbagai permasalahan dalam proses produksinya, terutama terkait pemborosan* (waste) *seperti* overproduction, defect, *dan* inventory *yang menyebabkan rendahnya efisiensi dan kualitas produk. Penelitian ini bertujuan untuk mengidentifikasi jenis-jenis* waste, *menganalisis penyebabnya, serta mengevaluasi efektivitas proses produksi berdasarkan pendekatan* Lean Manufacturing. *Metode yang digunakan meliputi* Value Stream Mapping *(VSM),* Waste Relationship Matrix *(WRM),* Waste Assessment Questionnaire *(WAQ),* Process Activity Mapping *(PAM),* Fishbone Diagram, *dan* Failure Mode and Effect Analysis *(FMEA). Studi ini juga mengacu pada teori pemborosan tujuh jenis* waste *serta konsep peningkatan efisiensi melalui eliminasi aktivitas tidak bernilai tambah.*

*Pengolahan data dilakukan melalui observasi, wawancara, dan penyebaran kuesioner, yang kemudian dianalisis menggunakan pendekatan kuantitatif. Hasil penelitian menunjukkan bahwa nilai* Process Cycle Efficiency *(PCE) meningkat dari 80,68% menjadi 91,82% setelah dilakukan usulan perbaikan. Total aktivitas dalam proses produksi berkurang dari 42 menjadi 29 aktivitas, dan total lead time mengalami penurunan dari 1.814,74 menit menjadi 1.460,72 menit. Usulan perbaikan yang diberikan meliputi penyusunan* Standard Operating Procedure *(SOP) pemetikan, peramalan permintaan menggunakan metode* Holt Winters, *serta pengendalian persediaan dengan pendekatan* Economic Order Quantity *(EOQ) dan* Economic Production Quantity *(EPQ). Perbaikan ini terbukti mampu meminimalkan pemborosan dominan dan meningkatkan efisiensi proses secara keseluruhan.*

***Kata kunci:*** *Efisiensi, Lean Manufacturing, Produksi, Teh Hitam, Waste*

# ABSTRACT

The decline in the productivity of the tea industry in Indonesia in recent years has impacted exports and global competitiveness, including at PT Perkebunan Nusantara IV Regional IV Unit Usaha Danau Kembar, one of the main producers of black tea for export in West Sumatra. The company faces various issues in its production process, particularly related to waste such as overproduction, defects, and inventory, which result in low efficiency and product quality. This study aims to identify the types of waste, analyze their causes, and evaluate the effectiveness of the production process using the Lean Manufacturing approach. The methods used include Value Stream Mapping (VSM), Waste Relationship Matrix (WRM), Waste Assessment Questionnaire (WAQ), Process Activity Mapping (PAM), Fishbone Diagram, and Failure Mode and Effect Analysis (FMEA). The study also refers to the theory of the seven types of waste and the concept of improving efficiency through the elimination of non-value-added activities.

Data processing was carried out through observation, interviews, and the distribution of questionnaires, which were then analyzed using a quantitative approach. The results of the study show that the Process Cycle Efficiency (PCE) increased from 80,68% to 91,82% after the proposed improvements were implemented. The total number of activities in the production process was reduced from 42 to 29, and the total lead time decreased from 1.814,74 minutes to 1.460,72 minutes. The proposed improvements include the development of a Standard Operating Procedure (SOP) for tea leaf picking, demand forecasting using the Holt Winters method, and inventory control using the Economic Order Quantity (EOQ) and Economic Production Quantity (EPQ) approaches. These improvements have proven effective in minimizing dominant types of waste and enhancing overall process efficiency.

**Keywords:** Black Tea, Efficiency, Lean Manufacturing, Production, Waste