

ABSTRAK
ANALISIS USULAN PRODUKSI BERSIH DI IKM GULA SEMUT
(STUDI KASUS : KUB AGRO BERKAH MANDIRI)

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H1E021058

Persaingan di sektor agroindustri menuntut perusahaan untuk meningkatkan efisiensi proses produksi sekaligus meminimalkan timbulan limbah. KUB Agro Berkah Mandiri sebagai unit usaha pengolahan gula semut masih menghadapi permasalahan ketidakefisienan proses produksi yang ditandai dengan tingginya volume limbah padat dan limbah cair. Penelitian ini bertujuan untuk mengidentifikasi kondisi eksisting proses produksi yang meliputi pembentukan limbah dan konsumsi energi serta merancang usulan penerapan produksi bersih yang sesuai, kemudian menghitung estimasi dampaknya. Metode yang digunakan adalah pendekatan produksi bersih melalui tahapan *planning and organization, pre-assessment, assessment, dan feasibility analysis*. Hasil evaluasi menunjukkan bahwa limbah padat sebesar 2.860 kg per bulan dan limbah cair sebesar 5,2 m³ per bulan belum dikelola secara optimal. Berdasarkan analisis tersebut dirancang tiga inisiatif produksi bersih, yaitu pengadaan swing granulator, pembuatan pupuk organik cair (POC), dan penggantian lampu *Compact Fluorescent Lamp* (CFL) menjadi *Light Emitting Diode* (LED). Estimasi dampak penerapan usulan produksi bersih mampu mengolah seluruh limbah padat dan cair yang dihasilkan, meningkatkan efisiensi energi listrik sebesar 310,752 kWh per tahun, serta meningkatkan pendapatan sebesar Rp 958.444.943,41 per tahun. Dengan demikian, penerapan produksi bersih berpotensi meningkatkan efisiensi operasional sekaligus memberikan manfaat ekonomi dan lingkungan bagi KUB Agro Berkah Mandiri.

Kata Kunci: efisiensi energi, gula semut, pemanfaatan limbah, dan produksi bersih.

ABSTRACT

**ANALYSIS OF CLEANER PRODUCTION PLANS IN THE PALM SUGAR
SMALL AND MEDIUM INDUSTRY (SMI)
(CASE STUDY: KUB AGRO BERKAH MANDIRI)**

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Competition in the agro-industrial sector requires companies to improve production efficiency while minimizing waste generation. KUB Agro Berkah Mandiri, a palm sugar processing unit, continues to experience inefficiencies in its production process, as evidenced by the high volumes of solid and liquid waste generated. This study aims to identify the current conditions of the production process, including waste generation and energy consumption, and to develop appropriate cleaner production initiatives, followed by an assessment of their potential impacts. The method employed is a cleaner production approach consisting of the stages of planning and organization, pre-assessment, assessment, and feasibility analysis. The evaluation results indicate that 2,860 kg of solid waste per month and 5.2 m³ of liquid waste per month are generated and have not been managed optimally. Based on this analysis, three cleaner production initiatives were developed: the procurement of a swing granulator, the production of liquid organic fertilizer (POC), and the replacement of Compact Fluorescent Lamps (CFLs) with Light Emitting Diodes (LEDs). The estimated impact of implementing the proposed initiatives includes the complete processing of all generated solid and liquid waste, an improvement in electrical energy efficiency of 310,752 kWh per year, and an annual revenue increase of Rp 958.444.943,41. Therefore, the implementation of cleaner production has the potential to enhance operational efficiency while providing economic and environmental benefits for KUB Agro Berkah Mandiri.

Key words: *cleaner production, energy efficiency palm sugar, and Waste Utilization.*