

**APPLICATION OF CLEANER PRODUCTION
TECHNIQUES IN TEA PROCESSING**

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ABSTRACT

The increment of Cost of Production (COP) whilst buyer pressure for lower prices is a major constraint for the sustainable growth of tea processing sector in Sri Lanka. Several studies have been done to find effective ways of minimizing COP, however literature do not evidence any use of Cleaner Production, a waste zeroing system. This study was aimed to evaluate the Cleaner Production concept in tea processing sector, as a solution for minimizing COP. Using Telbedde Tea Processing factory as the host, the production process was analyzed to identify possible waste streams and their causes. Using direct measurements and material balance calculations, the waste streams were then quantified. This was done during forty – two days of sample period of time. The quantified wastes were then expressed in terms of their monetary value. Significant waste streams were identified using Pareto Analysis. Control measures for them were suggested using CP philosophy and CP techniques as a guide. According to the findings of this study, both avoidable and unavoidable wastes occur in the tea manufacturing process. The average annual loss of money due to avoidable wastes is Rs. 4233598.32. Significant waste streams which contribute to this monetary loss are Refuse tea (37.82%), Blowout (22.51%), Dryer Spills (18.05%). The possible control measures for these waste streams are good housekeeping, better process controlling and equipment modifications. According to the forecast done using ARIMA model, the material wastes will be either constant or decreasing in the future. For an organization runs with low profits or losses, as in the case of Telbedde estate where losses were obtained in both July and August, implementation of Cleaner Production will increase the productivity and profit.

Key Words: Tea Processing Sector, Cost of production, Waste Streams, CP philosophy, CP techniques