Constructing Lean-Green Productivity Index to Quantify the Environmental Impact for the Leaner Apparel Industries in Sri Lanka

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The apparel industry in Sri Lanka is having lack of mechanism to measure the environmental benefits from lean, which is well-known philosophy to eliminate waste. The main objective of this study is "To quantify the impact of the lean savings towards the environment, through the lean- environmental matrix based on Green productivity matrix?" The main objective is reached through the following sub-objectives such as: to identify what variable has been the highest correlation among the lean savings and lean earnings with Product Life Cycle Cost in the operational activities in the apparel industry in SL; to identify how to develop the quantify coefficients for the environmental index in the apparel industry in Sri Lanka; to identify what type of relationship prevails between lean productivity and the environmental index in the apparel industry in SL; to identify what type of quantifying relationship prevails between the Lean productivity index and the environmental index in the operational activities in the apparel industry in SL. Secondary data from twenty-five apparel is considered for the sample and Lean savings, Life Cycle cost, variables are considered as independent variables. Solid waste, Toxic waste, Energy waste, Water waste, and Air pollution will be considered as dependent variables. To reach them, Multiple Regression analysis, regression analysis, and Correlation analysis, green productivity matric are expected to use as analytical tools. This study will contribute to generating greener options to achieve Sustainability.

Keywords: Environmental impacts, Green productivity, Lean manufacturing

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