



Methodological Evaluation of Manufacturing Systems Yield Improvement in Kenyan Plants: A Quasi-Experimental Design Study

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Published: 12 February 2010 | **Received:** 09 October 2009 | **Accepted:** 24 December 2009

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DOI: [10.5281/zenodo.18907132](https://doi.org/10.5281/zenodo.18907132)

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Abstract

The manufacturing sector in Kenya has seen significant growth but faces challenges in maintaining consistent product quality and yield. A quasi-experimental design was employed to assess the impact of implemented manufacturing systems. Data from pre- and post-intervention periods were collected through structured surveys and direct observations to measure yield improvements. Manufacturing yield increased by 15% in plants adopting new system protocols, with a confidence interval (CI) around this estimate indicating robust reliability. The quasi-experimental design demonstrated that the new manufacturing systems significantly improved yield in Kenyan plants, providing actionable insights for further optimization and standardization. Adoption of these systems should be scaled up to all relevant manufacturing facilities within Kenya. Continuous monitoring and refinement are recommended to sustain improvements. Manufacturing Systems, Quasi-Experimental Design, Yield Improvement, Industrial Productivity The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: Kenya, Geographic Information Systems, Quality Control, Lean Manufacturing, Design of Experiments, Process Improvement, Statistical Process Control

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