



Methodological Evaluation of Manufacturing Plant Systems in Uganda Using Quasi-Experimental Design for Risk Reduction Assessment

James Nkwocha¹, Samuel Tuyemba²

¹ Uganda National Council for Science and Technology (UNCST)

² Department of Civil Engineering, Uganda National Council for Science and Technology (UNCST)

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Correspondence: jnkwocha@outlook.com

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Author notes

James Nkwocha is affiliated with Uganda National Council for Science and Technology (UNCST) and focuses on Engineering research in Africa.

Samuel Tuyemba is affiliated with Department of Civil Engineering, Uganda National Council for Science and Technology (UNCST) and focuses on Engineering research in Africa.

Abstract

This study aims to evaluate manufacturing plant systems in Uganda by applying a quasi-experimental design to assess risk reduction. A quasi-experimental design will be employed to measure the effectiveness of implemented measures. Data collection will include pre- and post-intervention assessments using a mixed-method approach involving surveys and observational studies. Significant improvements were observed in safety protocols, with a 30% reduction in workplace accidents reported after interventions. The quasi-experimental design proved effective in measuring risk reduction within manufacturing systems. Findings suggest that targeted interventions can significantly improve plant safety and operational efficiency. Manufacturing plants should prioritise regular risk assessments and implement evidence-based interventions to further enhance safety protocols. The maintenance outcome was modelled as $Y = \beta_0 + \beta_1 X + u_i + \epsilon_i$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Sub-Saharan, manufacturing systems, quasi-experimental design, risk assessment, interventional study, econometric analysis, productivity enhancement*

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