



# Methodological Evaluation of Process-Control Systems in Ghana: A Randomized Field Trial for Risk Reduction Assessment

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## Abstract

Process-control systems are critical in managing risks within public space design and planning projects. A randomized field trial was conducted to assess the impact of process-control systems on risk reduction. Data were collected from five randomly selected public space design and planning projects across Ghana over a six-month period. In one project, implementing process-control systems led to a 20% reduction in construction delays (mean delay time: 15 days vs. 19 days with no system). Process-control systems significantly improved risk management outcomes in Ghanaian public space design projects. Public sector agencies and private contractors should adopt process-control systems to enhance safety and efficiency. public space, construction, risk reduction, process-control systems, randomized field trial The maintenance outcome was modelled as  $Y_i = \beta_0 + \beta_1 X_i + u_i + \epsilon_i$ , with robustness checked using heteroskedasticity-consistent errors.

**Keywords:** *Sub-Saharan, GIS, Causal inference, Experimental design, Quantitative analysis, Stakeholder engagement, Risk assessment methodologies*

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