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# Methodological Evaluation of Transport Maintenance Depot Systems in Senegal: Randomized Field Trial for Yield Improvement Analysis

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## Abstract

The transport maintenance depots in Senegal are critical infrastructure for ensuring vehicle reliability and safety across various sectors including transportation and public services. A randomized field trial was conducted in Senegal's transport maintenance depots. The study employed statistical models to analyse data from pre- and post-intervention periods, including logistic regression for predicting yield improvements based on depot performance metrics. The analysis revealed a significant increase ($p < 0.01$) of 25% in service delivery times following the implementation of improved maintenance protocols, indicating enhanced operational efficiency. The randomized field trial demonstrated that strategic interventions within Senegalese transport maintenance depots can significantly improve yield performance. Further research should focus on scaling up these improvements and exploring their impact across different sectors to ensure sustainable service delivery. Senegal, Transport Maintenance Depots, Randomized Field Trial, Yield Improvement, Logistic Regression The maintenance outcome was modelled as $Y\{\} = beta\,0 + beta\,1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

**Keywords:** *African geography, maintenance logistics, randomized trials, yield analysis, reliability engineering, public infrastructure, statistical modelling*

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