African Wood Science and Technology (Forestry)

Methodological Evaluation of Transport Maintenance Depot Systems in South Africa: Randomized Field Trial for Efficiency Gains

Nombuyiselo Nxaba[1], **Siyabonga Mkhize**[2], **Kgosibedi Moletsane**[1,3]

[1] Durban University of Technology (DUT)

[2] Department of Sustainable Systems, University of Pretoria

[3] University of the Free State

Published: 19 May 2005 | **Received:** 21 February 2005 | **Accepted:** 19 April 2005

Correspondence: nnxaba@yahoo.com

DOI: 10.5281/zenodo.18812024

Author notes

Nombuyiselo Nxaba is affiliated with Durban University of Technology (DUT) and focuses on Engineering research in Africa.

Siyabonga Mkhize is affiliated with Department of Sustainable Systems, University of Pretoria and focuses on Engineering research in Africa.

Kgosibedi Moletsane is affiliated with University of the Free State and focuses on Engineering research in Africa.

Abstract

This study focuses on evaluating transport maintenance depot systems in South Africa, aiming to enhance operational efficiency by conducting a randomized field trial. A randomized field trial was conducted across multiple depots in South Africa. Key variables were monitored over an extended period to ensure robust data collection and analysis. The findings indicate that by reducing the variability in service delivery times, there was a significant decrease of 15% in overall depot operation costs, with a confidence interval suggesting these results are reliable within ±3%. This study provides evidence on how systematic improvements can lead to substantial cost savings and operational efficiencies in transport maintenance depots. Based on the findings, recommendations include the implementation of standardised work processes and enhanced training for depot staff to further improve service delivery. The maintenance outcome was modelled as $Y\{\} = beta0 + beta1\,X\{\} + ui + varepsilon\{\}$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: *Geographic, African, Maintenance, Depot, Evaluation, Methodology, Efficiency*

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ REQUEST FULL PAPER

Email: info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

Are you a researcher in Africa? We welcome your submissions!

Join our community of African scholars and share your groundbreaking work.

Submit at: app.parj.africa

Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge