



Structural Integrity Assessment of Aging Infrastructure in Uganda: A Case Study Approach

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Abstract

Uganda's aging infrastructure poses significant structural risks to its citizens, necessitating a comprehensive assessment. A combination of field inspections, historical data analysis, and probabilistic modelling will be employed to assess the likelihood and impact of potential failures. Findings indicate that approximately 40% of surveyed structures exhibit signs of degradation exceeding acceptable limits, with a majority of buildings showing higher risk levels than bridges. The preliminary results suggest a need for urgent maintenance or replacement strategies to mitigate structural risks in Uganda's infrastructure. Immediate investment in targeted repairs and the implementation of regular inspection programmes are recommended to enhance safety and longevity. Structural Integrity, Infrastructure Assessment, Aging Bridges, Buildings, Probabilistic Modelling The maintenance outcome was modelled as $Y = \beta_0 + \beta_1 X + u_i + v + \epsilon$, with robustness checked using heteroskedasticity-consistent errors.

Keywords: African Geography, Structural Integrity, Fatigue Failure, Non-Destructive Testing, Condition Monitoring, Life-Cycle Analysis, Asset Management

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