



# Methodological Evaluation of Off-Grid Communities Systems in Tanzania: A Randomized Field Trial for Risk Reduction Framework

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## Abstract

This study focuses on evaluating off-grid communities systems in Tanzania, aiming to reduce environmental risks associated with these systems. A randomized controlled trial (RCT) design will be employed, where off-grid communities are randomly assigned into control and intervention groups. Data collection includes environmental impact assessments and socio-economic surveys. This study provides evidence on the effectiveness of randomized trials in measuring risk reduction within off-grid communities, offering insights into sustainable development strategies. The findings from this study should inform policy and practice regarding the deployment and evaluation of off-grid community systems to minimise environmental impacts. The empirical specification follows  $Y = \beta_{0+\beta} X + \text{varepsilon}$ , and inference is reported with uncertainty-aware statistical criteria.

**Keywords:** Tanzania, Sub-Saharan, Sustainability, Methodology, RiskAssessment, GIS, Sampling

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