



Renewable Energy Technologies and Women's Employment in Kenyan Coffee Plantations: A Mixed Methods Study

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Abstract

Renewable energy technologies (RETs), such as solar panels and biogas digesters, have been introduced to Kenyan coffee plantations over the past two decades, aiming to reduce reliance on fossil fuels and enhance environmental sustainability. A mixed-methods approach combining quantitative surveys with qualitative interviews was employed. The survey collected data on gender-specific employment patterns, while the interviews explored perceptions and experiences related to RET use. Women reported a significant increase ($p < 0.05$) in leisure time by 20% after installing RETs, which allowed them more flexibility in managing household chores and childcare responsibilities. RET installations have led to both positive and negative employment impacts on women, particularly regarding their ability to balance work and family commitments. Policy makers should consider gender-specific benefits of RETs when implementing such technologies in agricultural settings. Women's input is crucial for tailoring interventions that maximise social welfare. The empirical specification follows $Y = \beta_{0+\beta} p X + \text{varepsilon}$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: Kenya, Renewable Energy Technologies (RETs), Biogas Digesters, Solar Panels, Gender Studies, Mixed Methods, Employment Analysis

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