



Mitigating Greenhouse Gas Emissions Among Smallholder Farmers in Rwanda: A Two-Year Policy Impact Study Methodology

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Abstract

Rwanda's smallholder farmers contribute significantly to greenhouse gas (GHG) emissions, particularly in the Southern Highlands region due to intensive agricultural practices and wood fuel use for cooking. Climate change mitigation efforts are crucial but require robust methodologies to assess their impact. A mixed-methods approach combining quantitative surveys and qualitative interviews was employed. A linear regression model with robust standard errors is used to estimate the impact of interventions on GHG emissions, accounting for farmer characteristics and contextual factors as control variables. Farmers reported a reduction in wood fuel consumption by an average of 15% over two years, leading to a decrease in CO₂ equivalent emissions by approximately 3.5 tonnes per farm ($n=100$). The study confirms the potential of agricultural policies to mitigate GHG emissions among smallholder farmers. Further research should explore longer-term impacts and scalability across different agro-ecological zones in Rwanda.

Keywords: *Geographic, Highlands, Smallholder, Farmer, Sustainability, Carbon, Modelling*

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