



# Renewable Energy Microgrids and Livelihoods Among Smallholder Farmers in Guinea: A Participatory Action Research Analysis,

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## Abstract

Renewable energy microgrids have been proposed as a solution to enhance agricultural productivity among smallholder farmers in Guinea, particularly in rural areas with limited access to electricity. Participatory Action Research was employed to engage local communities in decision-making processes related to renewable energy projects. Data collection included surveys, focus group discussions, and observations. Microgrids demonstrated an average increase of 20% in electricity usage for irrigation purposes among farmers, contributing significantly to crop yields and water management efficiency. The microgrids not only improved energy access but also facilitated the adoption of more sustainable farming practices, leading to a notable enhancement in farmer incomes and resilience against climate-related shocks. Policy makers should prioritise funding for renewable energy infrastructure development in rural areas, while encouraging community participation in project design and implementation.

**Keywords:** *African, Renewable Energy, Microgrids, Smallholder Farmers, Livelihoods, Participatory Action Research, Sustainability*

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