African Electoral Studies (Political Science focus)

Innovation Adoption Rates for Solar Irrigation Systems Amongst Smallholder Farmers in Mozambique: A Policy Analysis

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Abstract

Solar irrigation systems are increasingly adopted by smallholder farmers in Mozambique to address water scarcity issues, particularly in arid and semi-arid regions. However, adoption rates vary significantly across different geographic and socio-economic settings. The study employs a mixed-methods approach combining quantitative survey data from 500 randomly selected smallholder farmers across three provinces of Mozambique with qualitative interviews to understand farmer perspectives and challenges. Findings suggest that the proportion of smallholders who have adopted solar irrigation systems ranges from 10% in the northern region to 30% in the central region, indicating significant geographical disparities. Qualitative data reveal common barriers such as initial investment costs and lack of technical knowledge. Despite challenges, there is potential for increasing adoption rates through targeted policy interventions focusing on reducing financial barriers and enhancing farmer education programmes. Policy recommendations include subsidizing solar irrigation systems for smallholder farmers, providing training workshops to improve technological understanding, and implementing community-based initiatives to foster knowledge sharing among adopters.

Keywords: *African Geography, Smallholder Agriculture, Technological Adoption, Renewable Energy, Policy Instruments, Development Economics, Case Study Methodology*

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