



Innovative Solar Water Pump Adoption Framework for Smallholder Women Farmers in Northern Nigeria: Yield Improvement and Cost Savings Dynamics

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Abstract

In Northern Nigeria, many smallholder women farmers face significant challenges in irrigation due to unreliable water sources and high operating costs for traditional pumps. The approach will employ a qualitative research method, focusing on case studies of women farmers who have adopted solar irrigation systems. The theoretical model underscores the potential for solar pumps to be a sustainable solution for improving agricultural output and reducing financial risks for smallholder women farmers. Policy makers should consider subsidizing or providing incentives for the adoption of solar irrigation systems as an investment in rural development.

Keywords: *African Geography, Solar Energy, Women Empowerment, Smallholder Agriculture, Innovation Adoption, Sustainable Development, Participatory Research*

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