



Solar-Powered Water Supply Systems in Unserved Rural Communities of Malawi: A Theoretical Lens on Implementation and Success Criteria

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Abstract

Solar-powered water supply systems are being increasingly deployed in rural communities of Malawi to address water scarcity and improve hygiene. Unserved rural areas often lack access to conventional water sources, leading to reliance on contaminated surface waters or unreliable hand pumps. A three-year field study was conducted across multiple rural districts, collecting data through interviews, surveys, and monitoring system performance. The research employed mixed-methods approaches to ensure comprehensive understanding of the systems' impacts. This study underscores the potential for solar-powered water supply systems to significantly improve access to clean water in rural Malawi. However, ongoing support and engagement are crucial for sustained success. Communities should be actively involved in system design and maintenance, while government and non-governmental organizations (NGOs) must provide financial incentives and technical assistance to ensure widespread adoption.

Keywords: *Sahel, Rural Development, Participatory Approach, Sustainability, Community Empowerment, Stakeholder Analysis, Performance Evaluation*

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