



Technological Acceptance Rates and Energy Savings in Renewable Energy Lighting Solutions Among Sub-Saharan African Remote Villages: A Focus on Sierra Leone

Salimatu Koroma^{1,2}, Faruq Kamara³

¹ Njala University

² Department of Interdisciplinary Studies, Fourah Bay College, University of Sierra Leone

³ Fourah Bay College, University of Sierra Leone

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Correspondence: skoroma@outlook.com

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Author notes

Salimatu Koroma is affiliated with Njala University and focuses on Arts & Humanities research in Africa.

Faruq Kamara is affiliated with Fourah Bay College, University of Sierra Leone and focuses on Arts & Humanities research in Africa.

Abstract

Renewable energy lighting solutions are increasingly adopted in remote villages across Sub-Saharan Africa to address energy poverty and environmental challenges. Sierra Leone's remote villages present unique conditions for exploring technological acceptance rates and energy savings. A survey was conducted with a sample of 150 households across 20 randomly selected villages. Respondents provided data on their preferences regarding solar-powered lamps and reported usage patterns over the past year. Among respondents, 78% expressed an interest in adopting solar-powered lighting solutions, primarily driven by cost savings (36%) and environmental benefits (34%). The survey highlights significant potential for renewable energy solutions in Sierra Leone's remote villages, with substantial acceptance rates among local communities. Further research should explore the long-term sustainability of these technologies and their impact on household income and community development. Policies supporting affordable access to solar-powered lighting are recommended.

Keywords: *Sub-Saharan, Africa, Rural, Socioeconomic, Qualitative, Digital, Growth*

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