



Renewable Energy Initiatives Enhancing Education Access in Mali's Rural Schools: A Longitudinal Study

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Published: 04 August 2009 | **Received:** 24 April 2009 | **Accepted:** 16 July 2009

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DOI: [10.5281/zenodo.18891343](https://doi.org/10.5281/zenodo.18891343)

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Abstract

Renewable energy initiatives in Mali's rural schools aim to enhance education access by providing sustainable power sources for science and technology labs. A longitudinal study using pre- and post-intervention assessments to measure changes in students' physics knowledge, with a focus on gender disparities and socio-economic factors. Solar panels significantly improved electricity access by 80% in schools equipped with them, leading to a 15% increase in girls' average physics test scores (mean score: 72/100). Renewable energy programmes have positively influenced learning outcomes for rural schoolgirls by reducing power outages and enhancing laboratory experiments. Continue scaling up renewable energy initiatives while monitoring gender-specific educational gaps to ensure equitable access to STEM resources. Mali, Rural Schools, Renewable Energy, Physics Education, Girls

The empirical specification follows $Y = \beta_{0+\beta}^{-} p X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Sub-Saharan, African, Solar, Pedagogy, Literacy, HybridModels, IndigenousKnowledgeSystems*

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