



# Solar-Powered Water Treatment Systems in Off-Grid Villages of Burkina Faso: Economic and Health Outcomes Assessment

Poulou Dossou<sup>1</sup>, Issa Ouédraogo<sup>2,3</sup>

<sup>1</sup> Department of Clinical Research, Institut de Recherche en Sciences de la Santé (IRSS)

<sup>2</sup> Institut de Recherche en Sciences de la Santé (IRSS)

<sup>3</sup> International Institute for Water and Environmental Engineering (2iE)

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**Correspondence:** [pdossou@aol.com](mailto:pdossou@aol.com)

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### Author notes

*Poulou Dossou is affiliated with Department of Clinical Research, Institut de Recherche en Sciences de la Santé (IRSS) and focuses on Medicine research in Africa.*

*Issa Ouédraogo is affiliated with Institut de Recherche en Sciences de la Santé (IRSS) and focuses on Medicine research in Africa.*

### Abstract

Solar-powered water treatment systems are increasingly being implemented in off-grid villages of Burkina Faso to address the lack of access to safe drinking water. A mixed-method approach was employed, combining surveys with quantitative economic analysis and qualitative interviews to evaluate system performance and user satisfaction in selected villages. The preliminary findings indicate that solar-powered water treatment systems reduce the incidence of waterborne diseases by up to 30% among users compared to non-users, while maintaining a cost-effectiveness ratio below

5 per household per month. Despite initial challenges in implementation and maintenance, the study concludes that

$\text{logit}(\pi) = \beta_0 + \beta_1 X_1$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** Sub-Saharan, Africa, SolarPhotovoltaics, TreatmentSystems, Epidemiology, Villages

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