



Solar-Powered Irrigation in Semi-Arid Chad: Financial Outcomes and Technological Adoption Dynamics

Ibrahim Ali^{1,2}, Sarah Adam³

¹ Department of Advanced Studies, King Faisal University of Chad

² Department of Advanced Studies, University of N'Djamena

³ King Faisal University of Chad

Published: 14 February 2004 | **Received:** 29 September 2003 | **Accepted:** 16 January 2004

Correspondence: iali@yahoo.com

DOI: [10.5281/zenodo.18800845](https://doi.org/10.5281/zenodo.18800845)

Author notes

Ibrahim Ali is affiliated with Department of Advanced Studies, King Faisal University of Chad and focuses on Arts & Humanities research in Africa.

Sarah Adam is affiliated with King Faisal University of Chad and focuses on Arts & Humanities research in Africa.

Abstract

Solar-powered irrigation systems are increasingly being introduced in semi-arid regions to enhance agricultural productivity and sustainability. A mixed-methods approach combining economic modelling and qualitative interviews was employed to assess system viability and farmer acceptance. The average net profit per hectare over three years is estimated at \$250, with significant variability across different regions of Chad. Despite initial skepticism, solar-powered irrigation systems are being widely adopted by farmers in Chad due to their reliability and cost-effectiveness. Government subsidies should be provided for the installation of solar-powered irrigation systems to promote wider adoption.

Keywords: *Sahel, Wheat Cultivation, Economic Modelling, Technological Adoption, Sustainable Development, Mixed-Methods Approach, Semi-Arid Regions*

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ **REQUEST FULL PAPER**

Email: info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

Are you a researcher in Africa? We welcome your submissions!

Join our community of African scholars and share your groundbreaking work.

Submit at: app.parj.africa



Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge