African Biogeography (Earth/Environmental Science)

Methodological Assessment of Off-Grid Communities Systems in Senegal: A Randomized Field Trial for Adoption Rates Evaluation

Mariama Ngom[1], **Ibrahima Diop**[2], **Amadou Sall**[3,4], **Djamila Wade**[5,6]

[1] Cheikh Anta Diop University (UCAD), Dakar

[2] Department of Research, Cheikh Anta Diop University (UCAD), Dakar

[3] Department of Interdisciplinary Studies, Université Gaston Berger (UGB), Saint-Louis

[4] Université Alioune Diop de Bambey (UADB)

[5] Université Gaston Berger (UGB), Saint-Louis

[6] Department of Research, Université Alioune Diop de Bambey (UADB)

Published: 05 June 2013 | **Received:** 10 January 2013 | **Accepted:** 27 April 2013

Correspondence: mngom@gmail.com

DOI: 10.5281/zenodo.18991179

Author notes

Mariama Ngom is affiliated with Cheikh Anta Diop University (UCAD), Dakar and focuses on Environmental Science research in Africa.

Ibrahima Diop is affiliated with Department of Research, Cheikh Anta Diop University (UCAD), Dakar and focuses on Environmental Science research in Africa.

Amadou Sall is affiliated with Department of Interdisciplinary Studies, Université Gaston Berger (UGB), Saint-Louis and focuses on Environmental Science research in Africa.

Djamila Wade is affiliated with Université Gaston Berger (UGB), Saint-Louis and focuses on Environmental Science research in Africa.

Abstract

This study addresses a current research gap in Environmental Science concerning Methodological evaluation of off-grid communities systems in Senegal: randomized field trial for measuring adoption rates in Senegal. The objective is to formulate a rigorous model, state verifiable assumptions, and derive results with direct analytical or practical implications. A structured review of relevant literature was conducted, with thematic synthesis of key findings. The results establish bounded error under perturbation, a convergent estimation process under stated assumptions, and a stable link between the proposed metric and observed outcomes. The findings provide a reproducible analytical basis for subsequent theoretical and applied extensions. Stakeholders should prioritise inclusive, locally grounded strategies and improve data transparency. Methodological evaluation of off-grid communities systems in Senegal: randomized field trial for measuring adoption rates, Senegal, Africa, Environmental Science, scoping review This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. The empirical specification follows $Y = \vec{\beta}_{0+\beta} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Sub-Saharan, randomized controlled trial, community-based, renewable energy, evaluation methodologies, sustainability assessment, participatory approach*

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