



## A Governance and Sustainability Framework for Community-Managed Borehole Systems in Turkana County, Kenya

Achieng Omondi<sup>1</sup>, Wario Lekuton<sup>2</sup>, Chebet Kipkorir<sup>3</sup>

<sup>1</sup> Department of Interdisciplinary Studies, Egerton University

<sup>2</sup> Egerton University

<sup>3</sup> International Centre of Insect Physiology and Ecology (ICIPE), Nairobi

Correspondence: [aomondi@gmail.com](mailto:aomondi@gmail.com)

Published: 27 October 2010 Received: 30 June 2010

Accepted: 11 October 2010 DOI:  
[10.5281/zenodo.18943591](https://doi.org/10.5281/zenodo.18943591)

### Author notes

*Achieng Omondi is affiliated with Department of Interdisciplinary Studies, Egerton University and focuses on African Studies research in Africa.*

*Wario Lekuton is affiliated with Egerton University and focuses on African Studies research in Africa.*

*Chebet Kipkorir is affiliated with International Centre of Insect Physiology and Ecology (ICIPE), Nairobi and focuses on African Studies research in Africa.*

### ABSTRACT

Community-managed borehole systems are critical for water security in arid regions, yet their long-term functionality remains precarious. In Turkana County, frequent system failures undermine livelihoods, highlighting a critical gap in understanding the governance mechanisms that underpin sustainable management. This article develops a novel theoretical framework to analyse the relationship between the structural and operational characteristics of community water management committees and the technical sustainability of borehole systems in arid African contexts. The framework is synthesised through a critical review of existing community-based management and polycentric governance theories, integrated with empirical findings from the water, sanitation and hygiene (WASH) sector. It proposes testable propositions linking governance variables to sustainability outcomes. The framework posits that committee functionality is not binary but exists on a spectrum, where a critical threshold of institutional maturity—specifically, the presence of transparent financial auditing and inclusive conflict resolution mechanisms—must be reached to significantly reduce the risk of borehole failure. A key proposition is that technical sustainability is directly mediated by these governance factors. The proposed framework moves beyond descriptive accounts of failure to offer a diagnostic model for analysing the governance determinants of borehole sustainability. It provides a necessary theoretical foundation for future empirical research and targeted intervention design. Future research should apply this framework in longitudinal, comparative case studies. Policymakers and NGOs should design capacity-building programmes that explicitly target the identified governance variables, particularly financial transparency and conflict resolution, rather than focusing solely on technical training. water governance, community-based management, sustainability, boreholes, arid lands, institutional analysis This article's novel contribution is the integration of polycentric governance theory with WASH sector praxis to create a diagnostic

framework that identifies specific, actionable governance variables affecting borehole sustainability in arid African communities.

**Keywords:** *Community-based natural resource management, Water governance, Arid and semi-arid lands (ASALs), Institutional sustainability, Participatory development, Sub-Saharan Africa, Common-pool resources*

#### Article Highlights

- Proposes a diagnostic framework linking governance variables to borehole sustainability outcomes.
- Identifies transparent financial auditing as a critical threshold for institutional maturity.
- Argues committee functionality exists on a spectrum, not as a binary state.
- Integrates polycentric governance theory with WASH sector praxis for arid communities.

#### Core Proposition

Sustainable borehole management requires moving beyond technical training to explicitly build capacity in financial transparency and inclusive conflict resolution mechanisms within community committees.

*This framework provides a diagnostic tool for researchers and policymakers.*

## 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](mailto: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](http://app.parj.africa)



Scan to visit [app.parj.africa](http://app.parj.africa)

### **Open Access Scholarship from PARJ**

Empowering African Research | Advancing Global Knowledge