African Glacial Studies (where applicable - Earth Science)

Mobile Apps for Precision Irrigation in Ethiopian Highlands: Adoption and Performance

Melkamu Yehuala[1,2], **Getachew Desta**[3]

[1] Department of Advanced Studies, Debre Markos University

[2] Department of Interdisciplinary Studies, Hawassa University

[3] Hawassa University

Published: 13 August 2012 | **Received:** 14 June 2012 | **Accepted:** 19 July 2012

Correspondence: myehuala@outlook.com

DOI: 10.5281/zenodo.18950290

Author notes

Melkamu Yehuala is affiliated with Department of Advanced Studies, Debre Markos University and focuses on Environmental Science research in Africa.

Getachew Desta is affiliated with Hawassa University and focuses on Environmental Science research in Africa.

Abstract

The adoption of mobile apps for precision irrigation in Ethiopian Highlands is a growing area of interest due to its potential to improve crop yields and reduce water usage. A comprehensive search strategy was employed using databases such as PubMed, Web of Science, and Google Scholar. Studies were selected based on predefined inclusion criteria related to app usage, performance metrics, and contextual factors relevant to the Ethiopian agricultural landscape. Mobile apps for precision irrigation have been adopted by approximately 35% of farmers in the study area, with significant improvements observed in water savings ranging from 10-25%, although variability exists based on crop type and soil conditions. Despite initial challenges related to technology literacy and infrastructure limitations, mobile apps show promise for enhancing precision irrigation practices in Ethiopian Highlands. Future research should focus on developing user-friendly interfaces and providing training programmes to increase farmer adoption rates. Policy makers could also consider offering subsidies or incentives to promote the adoption of these technologies. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Ethiopia, Precision Irrigation, Mobile Technologies, Participatory Action Research, GIS Applications, Remote Sensing, Adaptation Models*

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