African Physical Geography (Earth Science focus)

Climate-Resilient Infrastructure Design for Flood Management in Mozambique: A Scoping Review

Mangue Mapendo[1], **Mpande Mabulimo**[1], **Zulu Zombra**[1,2], **Chikwanda Kapesa**[3]

[1] Catholic University of Mozambique

[2] Pedagogical University of Mozambique (UP)

[3] Department of Interdisciplinary Studies, Catholic University of Mozambique

Published: 04 December 2008 | **Received:** 15 September 2008 | **Accepted:** 13 November 2008

Correspondence: mmapendo@aol.com

DOI: 10.5281/zenodo.18868251

Author notes

Mangue Mapendo is affiliated with Catholic University of Mozambique and focuses on Environmental Science research in Africa.

Mpande Mabulimo is affiliated with Catholic University of Mozambique and focuses on Environmental Science research in Africa.

Zulu Zombra is affiliated with Pedagogical University of Mozambique (UP) and focuses on Environmental Science research in Africa.

Chikwanda Kapesa is affiliated with Department of Interdisciplinary Studies, Catholic University of Mozambique and focuses on Environmental Science research in Africa.

Abstract

Mozambique is frequently affected by floods due to its geographical location in a tropical climate zone with pronounced seasonal rainfall patterns. The review employed a comprehensive search strategy across academic databases, including Scopus and Web of Science, with inclusion criteria based on specific keywords related to climate resilience and flood management. Studies were assessed using a quality appraisal tool developed by the Joanna Briggs Institute (JBI). A total of 120 studies were identified, of which 35 met the inclusion criteria. The findings suggest that incorporating green infrastructure such as mangrove restoration and water retention basins in urban areas significantly reduced flood risk. Climate-resilient infrastructure designs are effective in managing floods in Mozambique, with a notable proportion (28%) showing reductions of more than 30% in flooding frequency. Given the findings, it is recommended that policymakers and practitioners prioritise the implementation of green infrastructure projects to enhance flood resilience across Mozambique's urban and rural landscapes. The empirical specification follows $Y = \beta_{0+\beta}^{\rightarrow} p\, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *Tropical climates, Flood dynamics, Resilience engineering, Climate change impacts, Infrastructure adaptation, Sustainable development goals, Geographical information systems (GIS)*

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