



GIS-Assisted Community-Based Disaster Risk Reduction in Mozambique Coastal Communities: A Two-Year Analysis

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Abstract

The Mozambique coastal communities are vulnerable to natural disasters such as cyclones and floods. A mixed-methods approach combining GIS analysis with qualitative interviews was employed to evaluate CBDRR programme outcomes. The spatial distribution of hazard zones indicated a 20% reduction in disaster impacts compared to pre-GIS implementation levels, with significant variance across different communities. GIS-assisted CBDRR programmes have shown promise in enhancing community resilience against coastal disasters. Further research should explore scalability and cost-effectiveness of GIS technology in other Mozambican regions. Geographic Information System (GIS), Community-Based Disaster Risk Reduction, Mozambique Coastal Communities Model estimation used $\hat{\theta} = \underset{\theta}{\operatorname{argmin}} \{ \sum_{i=1}^n (y_i - f(\theta(\xi)))^2 + \lambda \|\theta\|_2^2 \}$, with performance evaluated using out-of-sample error.

Keywords: *Geographic Information Systems (GIS), Community-Based Disaster Risk Reduction (CBDRR), Vulnerability Mapping, Participatory GIS, Remote Sensing, Spatial Analysis, Quantitative Methods*

ABSTRACT-ONLY PUBLICATION

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