



# Technological Innovations in Coastal Disaster Management Systems: A Three-Year Evaluation in Mozambique

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### Abstract

Coastal communities in Mozambique are vulnerable to natural disasters such as cyclones and floods, necessitating robust disaster management systems. A mixed-methods approach combining quantitative data from surveys and interviews with qualitative insights through focus groups was employed. The technology integration resulted in a 25% reduction in disaster-related casualties compared to pre-intervention levels (95% confidence interval: -10% to -40%). While the technological innovations showed promise, further research is needed to address technical issues and community acceptance challenges. Communities should be actively involved in system development and maintenance, and ongoing monitoring of technology performance is essential. coastal management, disaster prevention, Mozambique, technological integration The maintenance outcome was modelled as  $Y = \beta_0 + \beta_1 X + u_i + \text{varepsilon}$ , with robustness checked using heteroskedasticity-consistent errors.

**Keywords:** Coastal, GIS, Remote Sensing, Community Engagement, Participatory Mapping, Risk Assessment, Adaptive Management

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