Global Disaster Preparedness Center

Executive Summary

Factors Impeding Comprehension and Inclusion of Early Warning Messages in Kolwa East Ward, Kisumu County, Kenya

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Introduction

Early warning systems (EWS) are crucial for protecting communities in flood-prone areas. In Kenya, recurrent floods cause displacement, asset loss, infrastructure damage, fatalities, and economic disruptions. Globally, investments in EWS are recognized as effective adaptation strategies for mitigating weather-related disasters. However, a disconnect between early warning providers and emergency responders leads to significant losses.

With climate change intensifying, extreme weather events like heavy rainfall and heatwaves are expected to increase, highlighting the urgency of strengthening early warning, preparedness, and response systems. Despite their importance, EWS remain poorly understood and inadequately integrated into disaster risk management in developing countries like Kenya. This study examines gaps in designing and implementing people-centered EWS.

Objectives

This study aims to:

- Identify barriers to accessing early warning messages in Kolwa East Ward, Kisumu County.
- Analyze factors limiting the comprehension and inclusivity of early warning messages.
- Assess the impact of floods on the community in Kolwa East Ward.

Methodology

This study employed qualitative research methods, with Kolwa East Ward purposively selected as study area due to its flood vulnerability and last-mile community characteristics. Data collection involved key informant interviews and focus group discussions using structured questionnaires, which were pilot-tested before deployment. Thematic analysis followed Creswell's lean coding technique, with qualitative data analyzed using Dedoose software. Additionally, Geographic Information Systems (GIS) and remote sensing were utilized to map flood hotspots in Kolwa East Ward.

Key Findings

- **Awareness and Trust Issues**: While respondents understood the climate hazards they faced and the role of EWS, the existing system was inadequate in offering effective protection. Many community members did not fully trust early warning messages and instead relied on indigenous knowledge for flood prediction.

- **Communication Gaps:** Early warning messages were often generic, advising residents to move to higher ground without specifying locations or providing adequate evacuation centers. Messages were not disseminated in a timely manner. The lack of mobile network coverage in some areas, combined with low digital literacy, hindered access to early warning messages through SMS and mobile applications.

- **Overreliance on Informal Networks:** Many community members depended on word-of-mouth, neighbors, and local social structures rather than official early warning messages, which contributed to delayed response times.

- **Inclusion Challenges:** Marginalized groups, including visually impaired and illiterate individuals, faced difficulties accessing and acting on early warning messages due to the lack of tailored communication strategies.

- **Gender and Social Barriers:** Cultural norms discouraged men from evacuating due to concerns about leaving household assets unprotected, while women faced additional burdens in securing food, water, and caregiving responsibilities in evacuation centers.

- **Funding Constraints:** The government lacked sufficient financial resources to establish and maintain EWS infrastructure, including weather stations for improved spatial coverage.

- **Lack of Centralized Coordination:** The absence of a central agency responsible for flood management led to disjointed efforts and delayed dissemination of early warning information.

Implications and Recommendations

Community Involvement: Engaging local communities in the design and implementation of EWS helps ensure their needs are met, including considerations for marginalized and vulnerable populations. Training on disaster preparedness and response should be prioritized.

Integration of Indigenous Knowledge: Combining scientific forecasts with indigenous knowledge can enhance the accuracy and reliability of early warnings.

Strengthening Partnerships: Collaboration between the county government, state agencies, and non-state actors can address funding gaps, improve forecast lead times, and enhance response capacities.

Infrastructure Development: Mapping evacuation routes and establishing well-maintained evacuation centers will improve community resilience and preparedness.

Technology Enhancement: Expanding mobile network coverage, integrating voice-based alerts for visually impaired individuals, and using community radio stations for dissemination can improve access to early warning messages.

Targeted Social and Gender-Inclusive Strategies: Addressing gendered challenges in disaster preparedness through gender-sensitive evacuation planning and support programs can improve overall community resilience.

Conclusion

The study highlights significant gaps in the effectiveness of EWS in Kolwa East Ward, largely due to communication barriers, lack of community involvement, and limited resources. While early warning messages are disseminated, their generic nature, delayed timing, and lack of localized action plans reduce their effectiveness. Cultural and social dynamics further complicate the uptake of these messages, particularly among marginalized groups.

Addressing these challenges requires a multi-faceted approach that integrates community knowledge, improves coordination among stakeholders, and enhances financial and infrastructural support. Strengthening early warning systems in Kolwa East Ward will not only reduce the immediate impacts of flooding but also contribute to long-term community resilience and sustainable disaster preparedness efforts.

Follow this link to read the full paper.