

Executive Summary

Assessment of Early Action for Flood Protection in Makhuwira: Understanding Last-Mile Community Response to Flood Warning in Chikwawa District, Malawi

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Introduction

Flooding, intensified by climate change, poses severe risks to last-mile communities in Malawi, particularly in Makhuwira, Chikwawa District. With 84% of households living below the poverty line and 55% in ultra-poverty, these communities face significant challenges in disaster preparedness and response. Cyclone Freddy in 2023 exposed gaps in early warning dissemination, evacuation capacity, and household-level early actions. This study evaluates the effectiveness of early warning systems and early actions to inform strategies for improving flood resilience in marginalized areas like Makhuwira.

Objectives

The study assesses the types, extent, and effectiveness of household-level early actions taken in response to flood warnings during Cyclone Freddy. It aims to:

1. Evaluate the effectiveness of early warning systems and communication channels.
2. Examine the types and extent of early actions taken by households.
3. Analyze the impact of these actions in reducing flood-related impacts.

Methodology

A mixed-methods approach was employed, combining quantitative and qualitative data collection techniques. Data was gathered from 378 household surveys, 17 key informant interviews, and three focus group discussions. Quantitative data analysis included descriptive statistics, chi-square tests, and independent samples t-tests to evaluate relationships between early actions and disaster outcomes. Qualitative data was analyzed using content analysis to provide deeper insights into community perspectives and systemic challenges.

Key Findings

Reach and Effectiveness of Early Warnings

While 78.6% of households received early warnings, dissemination gaps left 21.4% uninformed. Primary communication channels were public address systems (48.9%) and radio/TV (43.7%), with community meetings and door-to-door communication underutilized. Most households received only 1-3 warning messages. Despite an 8-day lead time before Cyclone Freddy's landfall, many households received warnings just one day before flooding.

Types and Extent of Early Actions Taken

Despite widespread early warning dissemination, household adoption of early action measures remained limited. Evacuation was the most common early action, yet only 30.7% of households evacuated before the disaster, while 33.9% evacuated after flooding began. Asset protection was minimal, with just 10.6% of households securing their homes, 9.8% safeguarding livestock, and 2.1% protecting crops.

Barriers to Early Action

Financial constraints (71.7%), inadequate evacuation facilities, lack of technical capacity (27.7%), and unclear messaging limited timely early actions and

responses. Many communities lacked designated evacuation centers, leading to overcrowding in makeshift shelters.

Impact of Early Actions on Disaster Outcomes

Statistical analysis revealed no significant correlation between early actions and reduced flood impacts (injuries, loss of life, property damage). Systemic barriers, including delayed warnings, inadequate resources, and the use of substandard construction materials for homes, compounded the difficulties in reducing disaster outcomes, despite efforts to implement early actions. However, qualitative insights indicate that individual preparedness efforts, such as constructing flood barriers, helped mitigate losses for some households.

Implications and Recommendations

Improving Early Warning Systems: Enhance the timeliness, accessibility, and clarity of warnings by employing diverse communication channels and addressing dissemination gaps. Increasing the frequency of warning messages can improve awareness and response. Ensure messages are actionable, providing clear instructions on what to do, especially in resource protection, in addition to the commonly recommended evacuation.

Strengthening Household Early Actions: Provide targeted financial support and resources for effective early actions like home reinforcement, crop and livestock protection, and essential supplies stockpiling. Implement inclusive community-level disaster preparedness training engaging all households. Improve evacuation infrastructure by establishing additional evacuation centers with adequate facilities and ensuring they are operational before disasters occur.

Enhancing the Impact of Early Actions: Address financial and material resource limitations by increasing access to support for vulnerable households. Ensure timely dissemination of actionable warning messages to minimize delays in early action. Additionally, address challenges posed by the use of substandard construction materials by promoting access to durable building supplies and technical support for safer housing.

Conclusion

This study highlights critical gaps in early warning dissemination, evacuation infrastructure, and household-level preparedness in Makhuwira during Cyclone Freddy. Addressing these issues through inclusive, community-centered strategies is essential for reducing disaster risks and strengthening resilience in last-mile communities.

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