

Executive Summary

Towards Participatory Flood Early Warning for Early Action: A Situational Analysis of Flood Risk Communication in the Zambezi Region, Namibia

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Introduction

Flood hazards significantly impact rural riparian communities in the Zambezi Region of Namibia, where livelihoods are intricately linked to the natural environment. Effective flood risk communication is essential to ensure that upon receiving early warning information, these communities can take appropriate early action to reduce risk. However, existing approaches in developing countries often employ top-down, bureaucratic methods that overlook the unique environmental, economic, and social contexts influencing community access to information and response actions.

This study examines the efficacy of the current flood risk communication structure in the Zambezi Region. It explores the benefits of leveraging existing governmental

resources and innate community capacities to develop a bilateral, impact-based flood risk communication system tailored to community needs. The central question addressed is whether the current risk communication structure is sufficient to enhance flood risk preparedness, response, and resilience.

Methodology

Adopting a qualitative case-study approach, the researchers conducted:

- Key Informant Interviews (KIIs): With multi-level governmental Disaster Risk Reduction (DRR) officials from national, regional, and local levels, community leaders, and an official from the Namibia Red Cross.
- Focus Group Discussions (FGDs): With residents from four high flood-risk communities—Isze, Mbalasinte, Kalumbesa, and Ihaha in the Kabbe constituency.

The study utilized a sustainable early action risk communication framework, which emphasizes the interconnectedness of technical (scientific), institutional (administrative), and socio-cultural components in effective risk communication. It also considered the environmental, economic, and social capacities that define community responses to floods.

Key Findings

Assessment of Existing Flood Early Warning Communication

Technical Component: The Hydrological Services Namibia (HSN) faces significant technical challenges that hinder accurate flood forecasting and early warning validation. These include inadequate monitoring stations—especially near homesteads—poor data availability, and a shortage of trained personnel. There is also a lack of risk mapping and minimal community engagement, resulting in generic warnings that are not tailored to the specific needs of communities.

Institutional Component: The communication system is centralized, leading to poor coordination among stakeholders, insufficient resources, and restricted mandates at sub-national levels. The absence of Standard Operating Procedures (SOPs) at regional and local levels contributes to delays and inefficiencies. Communication is predominantly one-sided, lacking feedback mechanisms to assess the reach and impact of warnings.

Socio-Cultural Component: Socio-cultural barriers significantly impact the effectiveness of flood warnings. Warnings are issued in English using scientific terminology that many residents find difficult to understand. The formal system does

not integrate indigenous knowledge or consider local customs. As a result, residents are largely unaware of the formal flood warning system and rely on traditional practices and local networks for information. Existing communication methods fail to effectively reach all vulnerable groups within communities.

Capacity Assessment for Effective Early Action

The study identifies several capacities that influence flood risk communication:

Environmental Capital: The community depends heavily on natural resources like land and water for livelihoods such as farming and fishing. There is a strong attachment to ancestral land, and most residents are unwilling to relocate despite flood risks. While traditional preparedness practices are common, infrastructure deficits—such as lack of transportation, healthcare, and communication facilities—hinder effective warning dissemination and evacuation efforts.

Economic Capital: Approximately half the population lives below the poverty line due to limited economic development. Low-income levels make recovery from floods difficult. However, residents own natural assets like livestock and land, which they use for bartering during floods to mitigate food shortages. Community support systems like share-farming help sustain livelihoods during flood seasons.

Social Capital: Strong community networks exist, with residents actively participating in organizations like farmers' associations and village committees. Almost 50% of focus group discussion (FGD) participants considered social networks their primary source for flood information and warnings, while all agreed they were a popular secondary or tertiary source. There is a high level of trust and willingness to assist each other during emergencies. Residents prefer warnings in their native language and favour simple, actionable instructions over technical jargon.

Implications and Recommendations

1. **Strengthen Community Engagement:** To improve the efficacy of flood warnings, the government should adopt a more participatory approach, integrating community knowledge and capacities into the formal EWS. This can be achieved by forming local partnerships, improving risk communication channels, and developing community-based early warning practices.
2. **Decentralize the EWS:** Risk communication should be decentralized to regional and local levels, enabling quicker and more contextually relevant warnings. Building local capacity through training and improved infrastructure (e.g., additional monitoring stations and communication tools) is crucial.

3. **Tailor Risk Messages:** Flood warnings must be clear, concise, and tailored to the specific needs of end-users. Utilizing local languages, simple terminology, and appropriate dissemination methods such as SMS, radio, and visual aids will enhance community understanding and action.
4. **Build Institutional Capacity:** Expanding the roles of regional and local authorities in disaster risk management (DRM) is necessary. Clear roles, responsibilities, and communication protocols should be established across all levels of government, with sufficient resources allocated for risk reduction and response activities.
5. **Develop Communication Links Between Authorities and Communities:** Establish direct communication channels between local authorities and communities to foster trust and engagement. Encourage participation in public information events and community development organizations.

Conclusion

The study found that the current risk communication structure in the Zambezi Region falls short in supporting effective flood preparedness, response, and mitigation. To improve system efficacy, it is essential to recognize, assess, and integrate the social, economic, and environmental capacities of local communities into risk communication strategies. A bilateral, participatory, and community-centred approach is recommended to bridge the gap between authorities and residents, fostering timely early action and strengthening long-term resilience.

Follow [this link](#) to read the full paper.

This work was part of a [multi-country research initiative](#) led by the Global Disaster Preparedness Center of the American Red Cross.