



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

**Linda Obiero (University of Nairobi, Lydia Olaka (Technical University of Kenya), Jane Mutune (University of Nairobi & World Agroforestry Centre)**



## Introduction

- Extreme weather events increasing in severity and frequency.
- Early Warning Systems (EWS) are vital for disaster risk reduction.
- Kenya experiences frequent floods causing displacement, food insecurity, and economic losses.
- Kolwa East Ward is highly vulnerable to floods due to location and poverty levels.



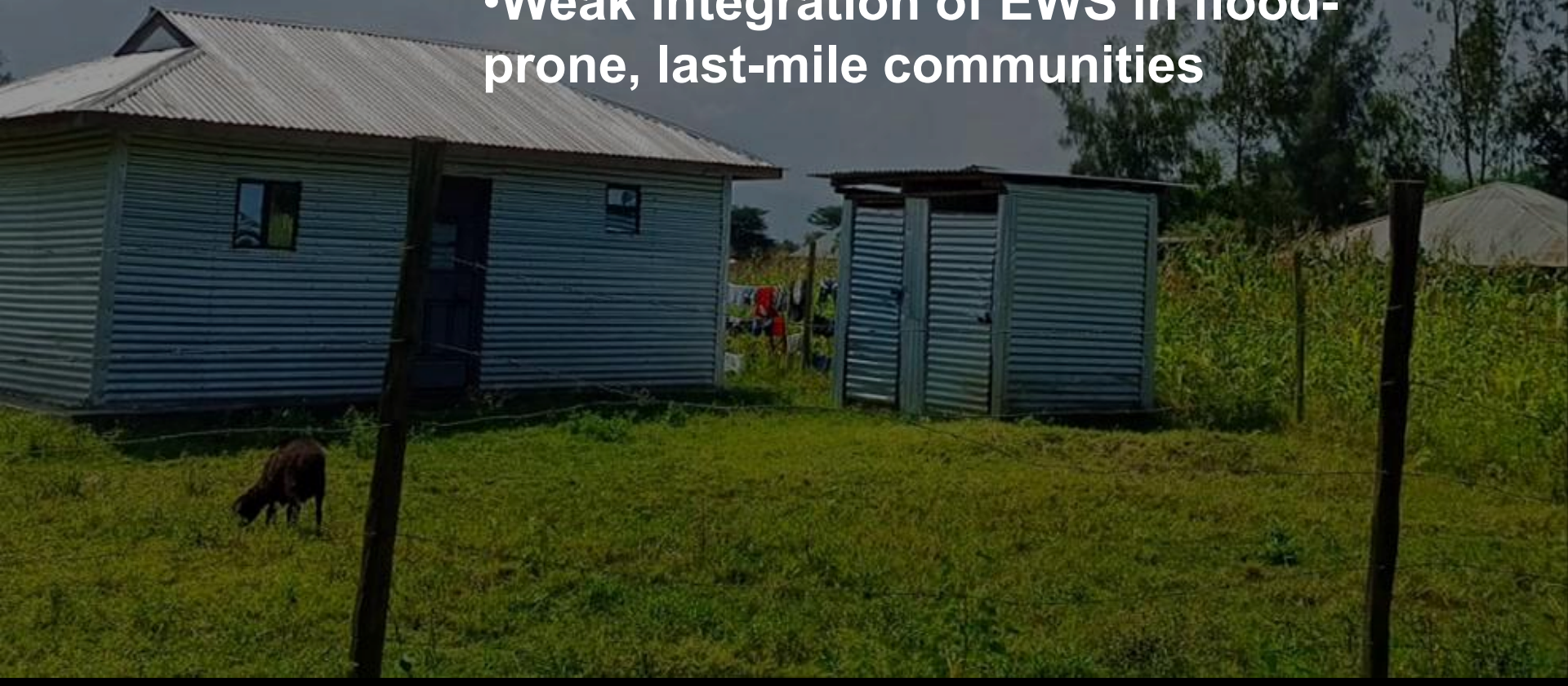
# Problem Statement

## Importance of EWS

- Crucial for disaster risk reduction
- Help strengthen preparedness and reduce impacts

## Current Situation in Kenya

- Weak integration of EWS in flood-prone, last-mile communities



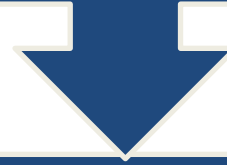
# Research Questions

1. What are the barriers to accessing early warning messages in Kolwa East ward, Kisumu County?
2. Which factors impede comprehension and inclusivity of early warning messages in Kolwa East ward, Kisumu County?
3. What are the effects of the flood on the community in Kolwa East ward, Kisumu County?



# Methods

Mixed-methods approach,  
integrating GIS and remote sensing  
with a descriptive research design



Tools: Key Informant Interviews  
(16), Focus Group Discussions (4  
groups, 78 participants)



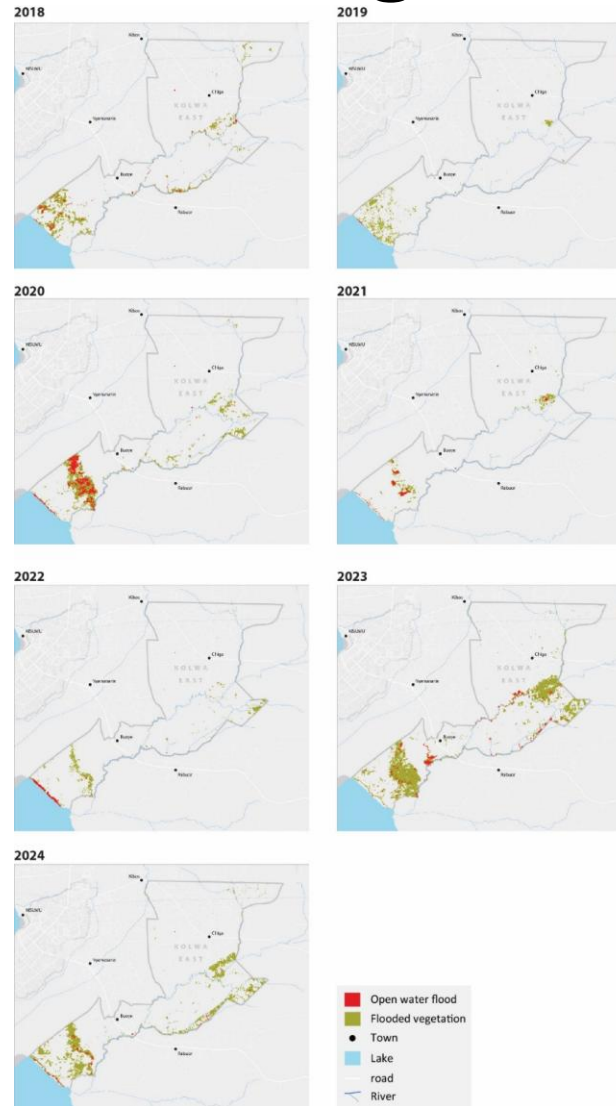
Analysis: Thematic analysis + GIS  
flood mapping (2018–2024)





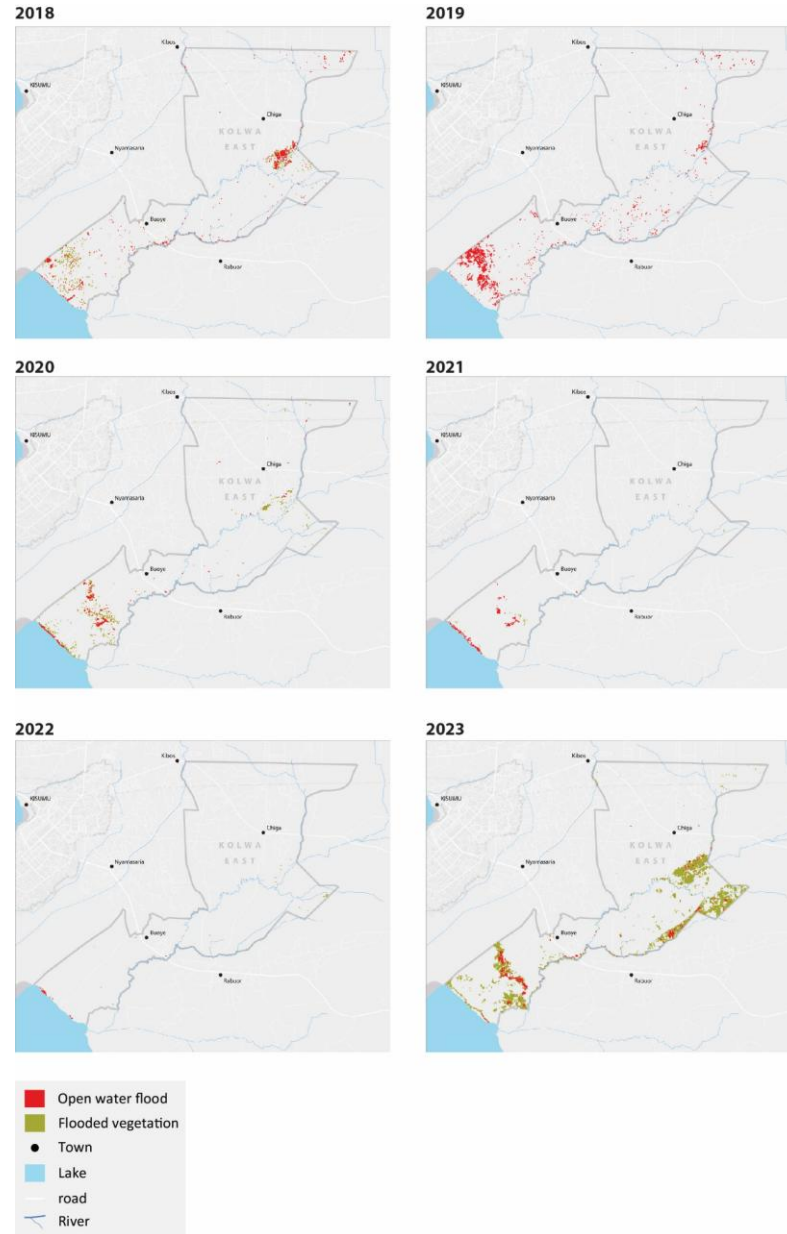
# Findings

# Findings



**Figure 1 Flooded covered region during the March April May (MAM) Seasons between 2018 – 2024**

# Cont.



**Figure 2 Flooded covered region during the October November December (OND) Seasons between 2018 – 2023**



# Findings from the Qualitative Analysis

## Theme

### 1. Knowledge of Climate Risk

### 2. Climate Change Effects

### 3. Early Warning Awareness

### 4. Community Involvement in Flood Management

### 5. Disaster Response Capacity of County Government

### 6. Marginalized & Vulnerable Groups

## Key Findings

Communities highly aware; attribute floods to heavy rainfall, poor drainage, waste disposal, deforestation, encroachment, and siltation. Floods are becoming more frequent, unpredictable, and variable.

Aware of changing temperature and weather patterns. Impacts include displacement, disrupted planting, frequent floods/droughts, food insecurity, health issues, livelihood loss, family separation, mental stress, GBV, cultural disruption, and home destruction.

Receive EWM from KALRO, KMD, Red Cross, and apps (Digifarm, iShamba) via SMS, radio, and TV. Gaps include limited government guidance, unclear relocation info, disparities in access, and exclusion of Indigenous Knowledge.

Communities willing to participate, citing past food-for-work success. Cultural norms and gender roles hinder evacuation. Excluded from EWS design and unaware of disaster management committees.

County has a preparedness plan, but NGOs, CSOs, and private sector unaware. Disconnect caused by reliance on climate change committees for message dissemination.

PWDs, illiterate, widows, and elderly excluded due to lack of tailored messages (no sign language/braille). Women and children relocate while men stay behind. GBV, exploitation, and added burdens for women rise during floods.

# Conclusion

Barrier Category	Examples from Kolwa East
<b>1. Governance &amp; Coordination</b>	Fragmented EWS from KMD, Red Cross, KALRO, apps; weak county disaster plan;
<b>2. Communication Gaps</b>	Messages not timely or accurate; lack of local dialects (e.g., Dholuo); no disability-inclusive formats (sign language, braille).
<b>3. Infrastructure &amp; Preparedness</b>	No evacuation centres or higher ground; absence of safe routes; limited disaster drills/training for community.
<b>4. Funding &amp; Resources (resource gaps)</b>	Only 2% county budget for climate actions; inadequate funds for monitoring systems, maintenance, and forecasting tools.
<b>5. Inclusivity &amp; Social Barriers (social exclusion)</b>	Women, elderly, widows, and PWDs excluded; gender roles hinder evacuation; Indigenous Knowledge not integrated with science.

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# Acknowledgement



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