



# THE ROLE OF STREAM-EWS IN DISASTER PREPAREDNESS AND STRENGTHENING COMMUNITY RESILIENCE

A Case Study



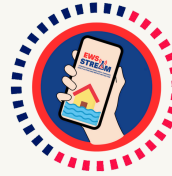
## INTRODUCTION

### The Urgency of Strengthening Localized Early Warning Systems

The Philippines is one of the most disaster-prone countries in the world, ranking consistently high in global risk indices due to its exposure to typhoons, floods, and other natural hazards. According to the World Risk Report (2022), the Philippines ranks first in disaster risk among 193 countries, highlighting its extreme vulnerability to climate-related hazards. The country experiences an average of 20 typhoons annually, with many triggering severe flooding, landslides, and widespread displacement.

In flood-prone areas such as Bacuag, Surigao del Norte, and other target municipalities under the STREAM-EWS project, including:

- Surigao del Norte: Bacuag, Gigaquit, Claver
- Zamboanga del Sur: Molave, Mahayag, Tukuran



- Misamis Occidental: Oroquieta, Clarin
- Surigao del Sur: Tago, San Miguel
- Maguindanao del Sur: Pandag
- Maguindanao del Norte: General Salipada K. Pendatun (GSKP)

communities have long relied on traditional warning methods such as megaphones, radio announcements, and word-of-mouth to prepare for disasters. However, these methods often fail to provide timely, accurate, and localized alerts, leaving households unprepared when floodwaters rise.

*"We used to panic whenever it rained heavily because the water level would rise suddenly. Our things would get soaked, and we would rush to save them,"* shared Fernando B. Escartin Jr., a resident of Brgy. Cabugao, Bacuag. *"During Typhoon Odette, only Purok 1 was spared from flooding, all other areas were submerged."*

The absence of a real-time, community-specific early warning system (EWS) has long been a gap in disaster preparedness efforts. To address this, the Strengthening Resilience through Early action and Impact Mitigation-Early Warning System (STREAM-EWS) was introduced, transitioning communities from outdated and often unreliable alert methods to mobile-based early warning messages. This initiative aims to enhance disaster preparedness, minimize losses, and improve response times in high-risk areas.

## **IMPLEMENTING STREAM-EWS: Ensuring Inclusive Registration and Community Trust**

The project uses an opt-in system which users need to register by texting the needed information to receive flood alerts and typhoon warnings. A critical component of STREAM-EWS is ensuring that at least 52,000 households are registered in the system. In the registration process, initial skepticism posed a major challenge. Some residents hesitated to provide their information due to fears of text scams, a common concern in the Philippines.



*"People were skeptical at first because of the rampant scams. But after barangay officials explained how the system works, we understood that we needed to register to get timely alerts before a disaster happens,"* said Ma. Lourdes D. Ramas from Brgy. Campo, Bacuag.

To build trust and encourage participation, the STREAM-EWS team implemented the following strategies:

- Community Engagement – Local government units (LGUs) and barangay officials were mobilized to conduct house-to-house visits, barangay assemblies, and information drives to explain the importance of the system.
- Addressing Accessibility Barriers – Some residents lacked phone credit (load) to register, so the team manually listed names, phone numbers, and addresses with the help of the Municipal Disaster Risk Reduction Office (MDRR) and barangay personnel.
- Simplifying the Registration Process – The team produced visual materials, such as handheld fans with clear step-by-step instructions for registration. This initiative not only guided residents but also served as a reminder of the importance of disaster preparedness.
- Demonstrating Effectiveness – Once the first batch of alerts was sent, skepticism began to fade. Residents who had initially hesitated saw the value of real-time flood warnings and began registering voluntarily.

*"Here in our family, we are all registered,"* said Fernando B. Escartin Jr., emphasizing how information-sharing among neighbors helped increase participation.





# ENHANCING DISASTER PREPAREDNESS THROUGH MOBILE TECHNOLOGY

With the implementation of STREAM-EWS, communities now receive timely, accurate, and localized warnings through SMS alerts, a significant upgrade from traditional warning systems.

## Key Advantages of STREAM-EWS:

### 1. Faster, More Reliable Alerts

- Unlike megaphone announcements that are often delayed or neglected, mobile alerts reach households immediately, ensuring that families can act quickly.
- The early warnings use a color-coded system (Yellow, Orange, and Red Alerts) to indicate flood risk levels, allowing residents to assess the urgency of the situation.

### 2. Localized Messaging in the Community's Language

- Alerts are sent in the local dialect, ensuring that even children and elderly residents can understand the messages.
- "The messages were very clear because they were in our local language. Even my small child could understand them," said Ma. Lourdes D. Ramas.

### 3. Empowering Households to Take Proactive Measures

- With advanced notice, families can prepare their emergency Go Bags, secure important documents, and plan evacuation routes before floodwaters rise.
- "Last year during the rainy season, I received a yellow warning text message. It made us both confident and proactive. We were ready," added Ramas.
- To further reinforce preparedness, STREAM-EWS worked with LGUs to provide Household Preparedness Plans and install Flood Color Coding and Evacuation Map boards in key areas.

### 4. Eliminating Dependence on Secondary Sources

- Households no longer need to rely on neighbors or barangay officials for updates. Each registered resident receives direct alerts on their mobile phones, ensuring immediate access to critical information.
- "If you're registered, you receive updates about the weather forecast directly. We stay updated and prepare in advance when it rains continuously," said Fernando B. Escartin Jr.



# IMPACT: TRANSFORMING DISASTER RESPONSE AND HOUSEHOLD PREPAREDNESS

The adoption of STREAM-EWS has led to notable improvements in disaster preparedness and response among residents:

- **Faster Evacuations** – Families now evacuate earlier, reducing injuries, casualties, and property damage.
- **Increased Household Preparedness** – More families have prepared emergency kits, evacuation plans, and designated safe zones within their homes.
- **Improved Psychological Resilience** – Knowing that they will receive timely and accurate information has helped reduce anxiety and uncertainty during typhoons and heavy rains.

## CHALLENGES AND FUTURE DIRECTIONS

While STREAM-EWS has significantly improved community preparedness, challenges remain:

### 1. Improving Evacuation Infrastructure

One of the major concerns raised by residents is overcrowding in evacuation centers.

*"For us, the major concern would be just the evacuation area because it gets really cramped when people stay in these areas. I hope this will be improved,"* said Ramas.

#### Recommendation:

- LGUs and humanitarian organizations should explore expanding or upgrading evacuation centers to accommodate more residents safely.
- Establish designated evacuation zones per purok (sub-village) to decentralize displacement during floods.



## 2. Ensuring Continuous Education on Disaster Preparedness

- While SMS alerts improve awareness, regular disaster drills can further reinforce proper evacuation procedures and preparedness actions.

**Recommendation:** Conduct annual community-wide disaster preparedness drills in coordination with LGUs, schools, and local organizations.

## 3. Strengthening Digital Literacy and Access to Technology

- Some residents, especially elderly individuals and low-income households, may struggle with using mobile phones for disaster alerts.

**Recommendation:**

- Introduce orientation programs focused on understanding and responding to mobile alerts.
- Establish barangay help desks where trained personnel assist residents with registration, troubleshooting, and understanding SMS warnings.

# CONCLUSION: TOWARDS A MORE RESILIENT FUTURE

The implementation of STREAM-EWS has transformed the way communities in Bacuag, Surigao del Norte prepare for disasters. By leveraging mobile technology, the system has enhanced flood preparedness, improved evacuation efficiency, and empowered residents with timely, actionable information.

However, disaster resilience is a continuous process. Strengthening evacuation infrastructure, promoting disaster education, and ensuring digital accessibility will be key to sustaining these gains. With continued collaboration between LGUs, humanitarian organizations, and communities, STREAM-EWS can serve as a model for localized early warning systems across disaster-prone regions in the Philippines.

## References:

World Risk Report 2022

Center for Disaster Philanthropy (2022)

National Disaster Risk Reduction and Management Council (NDRRMC)  
Reports