EXECUTIVE SUMMARY

Global Disaster
Preparedness Center

Factors Influencing Accessibility and Actionability of Risk Reduction Measures in Last Mile Communities: Insights from the Northern Philippines

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This study investigates the factors influencing access to and action on early warning information related to risk reduction measures before and after Super Typhoon Mangkhut. It focuses on two geographically and socially vulnerable last-mile communities: Mapita and Cabalitian in Pangasinan, Philippines. The research sought to explain how these communities access early warning (EW) information and what factors trigger them to act on it. Data were collected using quantitative and qualitative methods, covering socio-demographics, risk and early warning systems (EWS) information, EWS accessibility, and elements of Protection Motivation Theory (PMT).

Mapita and Cabalitian represent two distinct geographical contexts: Mapita, a remote mountainous area in Aguilar, and Cabalitian, a coastal island village in Sual. Both are highly vulnerable to typhoons—Mapita faces landslide risks, while Cabalitian is exposed to storm surges and marine pollution. Due to their isolation, poor communication and transport infrastructure, and proximity to hazards, these communities face significant challenges in disaster risk management. In addition to physical vulnerabilities, these communities also face social challenges, with many residents relying on traditional livelihoods that become precarious during extreme weather events like Typhoons Haiyan, Mangkhut, and Rai. As a result, recovery in these areas is often slow and difficult.

Residents in both communities primarily rely on social media and SMS alerts from the National Disaster Risk Reduction and Management Council (NDRRMC) for early warning information. However, traditional sources like TV, radio, and updates from relatives still play a significant role. Mapita, residents also draw on indigenous knowledge to predict storms by interpreting natural signs, which remains a vital cultural practice and complements modern early warning systems. As one resident noted, "*We trust the old ways because they have saved us many times. But we also listen to the radio and watch the news to be fully prepared.*" Both communities face challenges accessing early warning systems (EWS) during strong typhoons due to power and internet outages.

Using Protection Motivation Theory (PMT), the study identified key factors influencing the decision to implement risk reduction measures before and after Super Typhoon Mangkhut. Both threat appraisal (perceived vulnerability, severity, and fear) and coping appraisal (response efficacy and self-efficacy) were found to influence the residents' decision to implement risk reduction measures in both pre- and post-Super Typhoon Mangkhut. The perception of susceptibility to Mangkhut's impact and the severity of its potential damage to safety, livelihoods, and property motivated pre-typhoon responses to early warning information, as well as post-typhoon measures. Additionally, the belief in the effectiveness of recommended actions (response efficacy) and confidence in carrying them out (self-efficacy) were positively linked to the implementation of risk reduction measures before and after the typhoon.

Other factors, such as previous experience with typhoons, trust in local authorities, and strong social networks, also played a role in decision-making. Socio-economic variables showed mixed results: while gender (in Mapita) and age (in Cabalitian) were significant, income, education, and home ownership were not. These findings suggest that tailoring disaster communication and risk reduction strategies for different groups in last-mile communities is critical. The study also proposes several actionable recommendations for policy development.

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