WARNINGS
BRIEFING NOTE

ENHANCING WARNINGS
Developing and supporting effective warnings

Key Points
- Warnings must consider and integrate multiple hazards and vulnerabilities.
- Working across silos builds trust via idea and action exchange.
- People need to be supported to identify and fulfil their own warning needs.

State of the Art

Ineffective warnings can contribute to major disasters. Warnings are seldom considered beyond the issuance of a message, yet should be carefully crafted as a process through integrated systems of preparedness involving vulnerability analysis and reduction, hazard monitoring and forecasting, disaster risk assessment, and communication [1]. Before a storm, warning people in the areas that could flood and to what depth is important to generate awareness. If people do not understand or do not trust these messages, or if they do not want to act or cannot afford to do so, then the warnings have limited effectiveness. Enhancing warnings means a long-term process of supporting and enabling everyone to take timely and effective action to reduce disaster risks in advance of hazards. Then, when a location is about to flood, the people there are ready, are willing, are able, and can afford to prepare their property, evacuate, and return to clean up swiftly.

Core Needs

Warnings are long-term social processes that should include the 3 E's (Education, Exchange, Engagement) to help create understanding, and the 3 I's (Imagination, Initiative, Integration) to create action [2]. In 1985, detailed hazard maps were available for Colombia's Nevado del Ruiz volcano and, after an eruption, scientists issued accurate warning messages, yet over 22,000 people died in mudflows. The 3 I's and 3 E's should have been enacted long beforehand so that the people directly affected would know what to expect, would believe the messages, and would act on them. Accuracy, flexibility, timeliness, and transparency further facilitate warning success [3]. Warnings:
- Must use multiple channels and modes of communication (from traditional to high tech) while being clear, transparent, consistent, and credible.
- Must be relevant to everyone, by covering short-term and long-term timings from local to global scales.
- Require integration across vulnerabilities to respond to multiple hazards, sequences, and cascades.

Recommendations / Guidance
- Develop warnings that consider multiple hazards, multiple vulnerabilities, and cascades by integrating across everyone affected and involved.
- Create and support mechanisms to overcome silos and territorialism, through venues for information, idea, and action exchange that build trust and connections.
- Adopt a public engagement and outreach programme that supports people in identifying and fulfilling their own warning needs for enhancing preparedness and response behaviours and actions [3].

Bangladesh Cyclone Warnings

Bangladesh's coasts are low-lying, subject to devastating storm surges from cyclones. Hundreds of thousands died in a cyclone in 1970 followed by tens of thousands in another storm in 1991. Over recent decades, the country has been battered by further cyclones killing dozens or hundreds. This massive reduction in death toll was effected by engraining cyclone warning and response within the local culture and linking it to day-to-day life via the Cyclone Preparedness Programm (CPP) [4]. People receive local warnings, know where to evacuate to, and are confident that much of their livelihoods and services will remain viable while rebuilding. Local training for responding to cyclone warnings is linked to developing household businesses, creating local markets for goods, mapping difficulties and dreams in the community, and training for first aid and search-and-rescue.

Many of these activities might not seem to be typical for warnings. They nonetheless create the needed, wider warning system and warning process to improve daily life and livelihoods continually. People are connected to the warnings, which enhances their self-directed and effective actions.
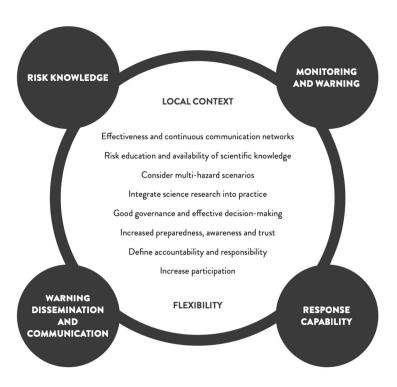
These successes do not guarantee an absence of disasters. Mistakes could happen for a cyclone, plus Bangladesh is highly prone to river floods, earthquakes, tsunamis, landslides, and other hazards. A key lesson is that warning is a continual societal process because past success does not guarantee future success. Multiple hazards and multiple vulnerabilities need to be continuously considered.

Warning systems are successful when they link together the four elements as defined by UNDRR [5]

Warnings should translate knowledge into action through a multi-element, diverse, integrated, and engaging process rather than linear, one-directional, or top-down approaches.

In many cases, processes linking the four individual elements of warnings (as recommend by UNDRR [3] and shown in the black circles) can fail, resulting in a warning failing, rather than the individual elements themselves leading to problems.

Factors improving links among different elements are shown in this figure and relate to early actions, commonly adopted as part of anticipatory action programs. All stakeholders must work together to unite efforts to achieve effective warnings and disaster risks, with the at-risk communities at the core of this process.

RISK KNOWLEDGE — MONITORING AND WARNING

LOCAL CONTEXT

Effectiveness and continuous communication networks
Risk education and availability of scientific knowledge
Consider multi-hazard scenarios
Integrate science research into practice
Good governance and effective decision-making
Increased preparedness, awareness and trust
Define accountability and responsibility
Increase participation

WARNING DISSEMINATION AND COMMUNICATION — FLEXIBILITY — RESPONSE CAPABILITY

References

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[2] Kelman, I., & Fearnley, C. (2021). *Enhancing Warnings*. National Preparedness Commission, UK.

[3] UN. (2006). *Global Survey of Early Warning Systems*. United Nations, Geneva and Bonn.

[4] Cyclone Preparedness Programm (CPP). Bangladesh Red Crescent Society.

[5] Garcia C, & Fearnley CJ (2012) Evaluating critical links in early warning systems for natural hazards. Environmental Hazards 11(2):123-137 https://www.doi.org/10.1080/17477891.2011.609877