Case study: Flood early warning systems

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Short summary

The importance of having effective flood early warning systems is widely accepted as one component to manage disaster risk. The Hyogo Framework for Action (2010 – 2015) made early warning a Priority for Action and the post 2015 framework for Disaster Risk Reduction is expected to continue this focus *"Continuing to further strengthen early warning systems and tailoring them to users' needs, including social and cultural requirements*" (Pre zero draft HFA, 2014)[1]. A people-centred early warning system comprises four key elements: knowledge of the risks; monitoring, analysis and forecasting of the hazards; communication or dissemination of alerts and warnings; and local capabilities to respond to the warnings received (Basher, 2006)[2]. Ultimately an early warning system will only be effective if all components are effective. Communication and dissemination component has been recognised as the component which lacks sufficient attention and results in a huge gap between the information produced by national level forecasting agencies and the information that is actually received and acted upon by the flood affected communities.

Furthermore, there is limited research on the capacity of young people to assist in this role. Co-Chair of the 3rd UN World Congress for Disaster Risk Reduction (3WCDRR) states that "that youth are important actors in reducing disaster risks… youth and children can contribute throughout the whole process up to and beyond Sendai." The Children and Youth Blast, 3WCDRR is to be held in Sendai in 2015 and will give young people the opportunity to influence decision makers, display their unique abilities, make commitments, co-educate and plan actions to reduce the risks our communities face to disasters. This

[1] Pre Zero Draft HFA http://www.wcdrr.org/documents/wcdrr/Pre-zero_draft_post2015_frmwk_for_DRR_8_August.pdf

[2] Basher, R. (2006) Global early warning systems for natural hazards: systematic and people-centred. Philosophical Transactions of the Royal Society A, 364: 2167-2182.

event will be introduced in this case study presentation as the author is acting as the co-chair of the organizing committee for the Children and Youth Blast, 3WCDRR.

The vision of this case study is to enhance the warning communication gap and to engage youth in this process. To achieve this, a pilot study was conducted focused on using mobile services and a network of volunteers (including youth) for warning dissemination and response, in the flood prone communities of Siragjang, Bangladesh during the 2014 floods. The important role and capacity/resource of young people as risk communicators and responders is highlighted.

Key words:

Reduce number of deaths and number of affected people ; Reduce economic losses ; Protection of the poor and vulnerable

Issues addressed:

Risks (mortality, economic losses caused by natural and human-induced disasters)

1. Flood risk
2. Flood early warning
3. Communicating risk (hazard information) using mobile services
4. Increasing risk knowledge

The effects of the 2014 floods in Siragjang Bangladesh. In particular the impacts of flood early warning on reducing risk in vulnerable communities. A special focus will be placed on the role of young people in the response.

The benefits of strengthened flood risk communication (flood forecasts) using mobile services. Increasing risk knowledge through capacity building trainings.

Tools for implementation:

Governance: Institutions / legal framework:

Strengthening the existing DRR structure for warning dissemination (creating connections) rather than a parallel system.

Utilising volunteers – including young people (students) as communication agents. Build a team of volunteers (linked to the govt. institutions) at the local level (including young people) that can assist in the warning dissemination and response.

Utilising local information centres. Importance of linking to non-disaster institutions already available at the local level (in this case local information centers) and training these so they can be activated during the disaster period.

Technology: Mobile Services technology

Voice Message Broadcast (VMB) communication tool for early warning. VMB was used to communicate flood forecast information to 300 people including the most vulnerable, govt. officials, NGOs and selected volunteers.

Short messaging service (SMS). Water level readings were collected and disseminated by trained local people to the national flood warning center using SMS.

Capacity development:

Technical forecasting and early warning training for NGO partners and selected community volunteers. The training focused on the current early warning system and how to receive, interpret and respond to the warnings.

Lessons learned:

Triggers: Need for better communication of national level information to the local level. Huge mobile phone availability (70% of the population) in Bangladesh. Capacity of the youth to be engaged as risk communicators.

Drivers: Potential benefits from the end users (both decision makers and flood affected people) receiving early warning information. Potential of young people to quickly disseminate information.

Barriers: Institutional challenges as the national forecasting agency is under a different ministry to the disaster management department creating a gap between their efforts in early warning.

Limited capacity (human and financial) at the national level agencies and the local level agencies mandated for early warning dissemination.

What has worked well? The trained volunteers and gauge readers were very successful in building trust and awareness in the community about the new warning communication system.

The messages were sent immediately to the local level from national level (no time lag).

The warnings were very understandable for the illiterate members of the community.

What can be improved? Further adjustments to the message length, frequency, volunteer group (include more students and teachers).

Give more responsibility to the local information center operator to prepare the VMB and disseminate to the community.

Increase awareness raising activities especially among children/ students through methods such as serious gaming and risk awareness activities in schools.

The way forward: Investigate how to use to the local information centers (decentralize the preparation of the VMB) to disseminate the warnings and provide risk information to communities all year round

Assign more young people as volunteers and receivers of the VMB

Increase the number of people that receive the VMB

Demonstrate early warning serious games in schools with volunteers

Test in another larger area

Links: These can be added at a later stage when the project details are available online.