A gendered perspective on flood early warning project implementation in Bangladesh

Project and partners information

This report is prepared based on experiences in 2014 from the project "Mobile Services for Flood Early Warning in Bangladesh" led by Deltares partnering with Cordaid, HKV consultants, RIMES, Concern Universal Bangladesh, Practical Action and MMS, and in 2015 from phase two of this project entitled "People centered risk information gateway (TamTam)" led by Cordaid partnering with Deltares, RIMES, Concern Universal Bangladesh and MMS.

Background

Bangladesh is an extremely flood prone country and an effective flood warning system is essential for preparedness. Although Bangladesh has an extensive flood forecasting system in place, steps are needed to make this an effective flood early warning system where communities receive, understand and take timely action based on warnings. Challenges lie in the need to generate localised flood warnings based on real-time information from the local level and disseminate in a timely and understandable way to everyone at risk.

Addressing the gaps and ensuring women's participation at all stages

Since 2014 the project has brought together government partners, technical institutes and NGOs to address these challenges and improve the availability, accessibility and response to early warnings in Bangladesh. The project addressed each key element of a people-centred early warning system (UNISDR, 2006) and ensured women's participation in each element, see Figure 1. In 2014 (phase 1) the project covered two unions in the remote charlands in Sirajganj and this was scaled up in 2015 (phase 2) to 5 unions, four in Sirajganj and one in Jamalpur.

After the monsoon floods in 2014 and 2015 assessments were conducted using surveys and focus group discussions to analyse the effectiveness of the early warning information and to develop recommendations for improvements. On average, 35% of the survey respondents were women with occupations as teachers, contract fishers and farmers, handloom workers and housewives. Additional focus group discussions were held with groups of women to compliment these surveys.

The following sections explain how women were engaged in each element and the findings from the post flood assessments.
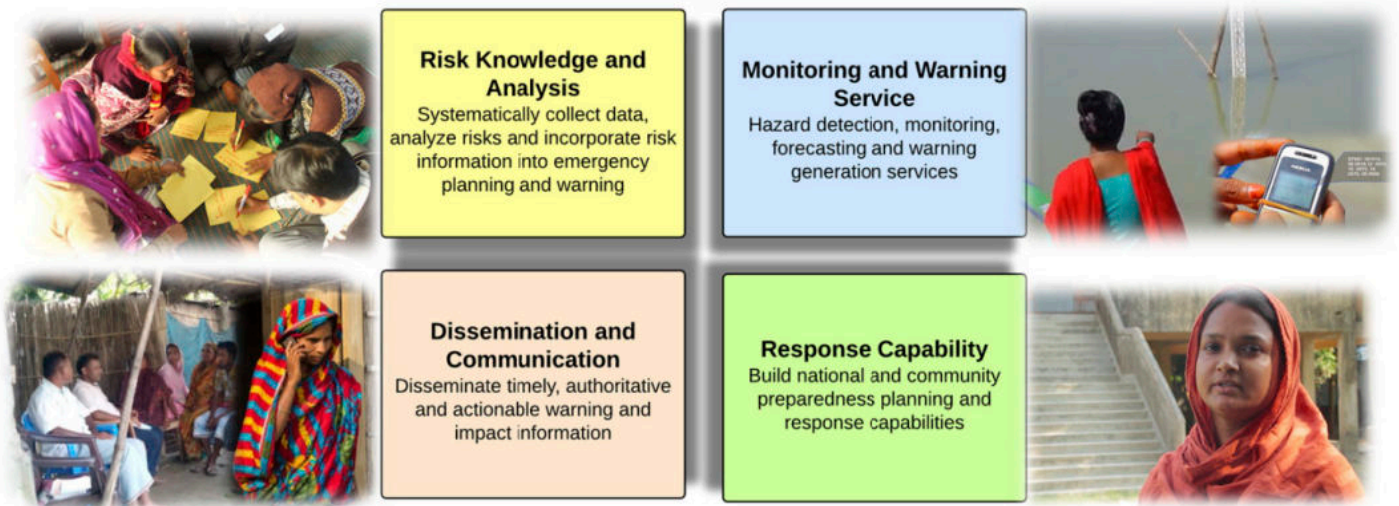
Figure 1   *Four key elements of a people-centred early warning system (based on UNISDR 2006)*

Risk knowledge and analysis

Community risk assessments were conducted in all five unions to assess the hazards, exposure and vulnerability in a participatory way with the community. Separate exercises were conducted with men and women who brought their different perceptions of risk to forefront. The findings showed that women were mainly concerned about protecting household assets, cooking facilities, household farms, and ensuring their children could go to school. Women identified raising the level of the houses in a cluster as an important community resilience increasing measure. This would enable them to continue household activities, protect cattle and household farms, and maintain safe sanitation during floods. Males, many of whom were farmers and fishers, were concerned about protecting their crops and fish. The handloom industry employs both men and women in the area and both were equally concerned about its protection.

Figure 2   *Overview of the tasks completed by the gauge reader named Bishu Momotaj*

Monitoring and warning

The Flood Forecasting and Warning Center (FFWC) prepares a 5-day flood forecast at Siragjanj district but this is not localised enough for people in the communities to take action. This was translated to a union level forecast as part of the project activities. To do this, additional water level gauges were installed at union level and gauge readers. Both men and women were trained as gauge readers to collect water level data using SMS by RIMES and the FFWC, see Figure 2.

The field evaluation results showed that men and women in the community were aware of the water level gauges, felt that they were important for their community and used them during the floods. The gauge readers were seen as very knowledgeable people within the community. The women gauge readers were continuously approached by women community members for advice and confirmation of the warning message. This contact made the gauge readers feel empowered among the community and motivated them to do a thorough and accurate job.

Dissemination and communication

Currently flood warnings cannot successfully reach those who need them in timely and understandable and communication mediums are not tailored to the needs of those receiving them. To tackle this challenge, the project used Voice Message Broadcast (VMB) to disseminate Bangla voice-based messages in a fast, reliable and user-friendly way to improve warning dissemination. VMBs were regularly disseminated to 300 people during the 2014 monsoon and 1300 people during the 2015 monsoon, see figure 3. It was difficult to disseminate VMB to an equal number of male. On average only 10% of the phone numbers collected for VMB dissemination were from women because of a lack of mobile phone ownership. Women, especially housewives, had limited access to mobile

Figure 3   Woman receiving the Voice Message Broadcast (VMB)

phones but the male member of their household usually owned one which they used. The women that were found to have access to mobile phones were mainly students, teachers, day labourers, or women that are members of the Union Parishad who needed the mobile phone for their work.

Digital centres are facilities at the union level that allow communities access to digital services and the project used these as a hub for warning dissemination at the community level. The project implemented two Digital Sub Centres (DSCs) on the charlands because the Digital centers were not available. Ms. Lucky Akhter is now the DSC entrepreneur in Ghorjan and during the monsoon she visited the FFWCs website, received the VMB, shared it with the community, and discussed response actions with them, see figure 4.

In addition to the use of mobile services and the Digital Centers for warning dissemination, community volunteers were trained along with project staff and government officials to build their capacity to understand and react effectively to the warnings. In total 70 volunteers were trained 30% female and 70% male, see figure 5. These female volunteers were mainly teachers, local health workers, and housewives. In some cases the housewife volunteers did not own their own mobile phone so instead they agreed with their husbands to use their phone for their volunteering tasks.

The field evaluation results showed that these female volunteers and the women who directly received the VMB played an important role in disseminating the warning

Figure 4   Digital Sub Center entrepreneur Ms. Lucky Akhter

Figure 5   Community volunteers being trained on flood warning and response

Male response actions	Female response actions
• Protecting the fish ponds with a net and raising the embankment of the pond. • Protecting the handloom factory by moving machinery and building a temporary dike. • Harvesting crops and refraining from spreading seeds. • Building a vela (made out of banana leaves) for transport.	• Health workers collected emergency medicine and oral saline. • Raising furniture and household assets. • Preparing a portable mud oven for cooking • Moving cows and goats to a safe place. • Moving valuable assets to higher and safer places. • Storing dry food and fuel. • Teachers organised boats to bring students to school.

Table 1

information in the community through their networks at the market, households and schools. The women surveyed in the evaluation received the flood warnings from VMB and the volunteers. On average the women that received the warnings shared the information with 10 to 15 additional people. A small percentage of male farmers received warnings through their indigenous knowledge but women were not found to have access to this source of information. The majority of both male and female respondents (80%) had a high understanding and perceived usefulness of the warnings. Similarly, 78% of the respondents, both male and female, were found to trust the warning message because they confirmed it with the volunteers and gauge readers. These positive results show the importance of engaging both men and women as gauge readers, volunteers and direct VMB recipients to ensure the warnings are understood and trusted.

Response capabilities

After the community received and understood the flood warnings they need to translate them into preparedness actions. The evaluation results showed that men and women responded to the flood warnings in different ways, see table 1. Women respondents talked about protecting their households and male respondents mainly talked about protecting their agricultural crops, fishery production and livestock. The warning messages and the assistance from the volunteers helped them to protect these assets and reduce the damages.

Most women were found to take response actions jointly with their husbands or household members. More women were found to get advice from the volunteers when responding to the warning (87%) compared to male respondents (70%). This is a positive result showing the importance of having both male and female volunteers.

Figure 6   Evaluating the community's response to the warnings

The following testimonials demonstrate the benefits of the flood warning information.

Figure 7   Joyvamur Khatun and her goats

Joyvamur Khatun is a woman from a very ultra-poor family in Hat-Gorjan village under Chowhali Upazila, Sirajganj. She owns a small bamboo house and six goats in a flood prone area. In the 2014 monsoon she received flood warning information directly from a project volunteer who received it through VMB. Joyvamur managed to move her family and her six goats valued at BDT 20,000 (approx. 230 EUR). Now Joyvamur is aware of value of flood warning information.

Figure 8   The Begum family and their cows

Salina Begum is a woman from Hat-Gorjan village under Chowhali Upazila, Sirajganj who works as an agricultural day labourer and milk producer. In previous floods her two milking cows worth 75,000 BDT (approx. 850 EUR) were affected by water-borne diseases because she didn't have time to move them to higher ground before the flood onset. In 2015 she was enlisted as a direct VMB receiver and received the 5day advance flood warning information. She took action to raise the plinth of the cowshed and saved her four cows worth BDT 150,000 (approx. 1,600 EUR). She also shared the information with the other women in her network.

Deltares

To improve their flood response capabilities, male farmers requested warnings with longer lead times to have more time to protect their crops while women requested improved transport facilities for moving assets and getting their children to school. Both males and females suggested increasing the number of volunteers to share the messages and help the community to respond to the warnings in time.

Final remarks

- Accessibility to mobile phones is lower for women especially among housewives and extra effort is needed to ensure their access to this technology.

- Women gauge-readers and volunteers (including housewives) were very successful at collecting water level information by SMS, receiving VMB and disseminating the warnings widely within the community.
- Different response actions are taken my males and females in connection to their daily activities. Both should be considered when designing tailored warning messages and guidance.
- Clear benefits of warning information are evident for both males and females which reduce the losses to their assets and livelihoods.

For further information please contact

Lydia Cumiskey
Disaster Risk Management researcher/consultant, Deltares, The Netherlands.
Lydia.cumiskey@deltares.nl

Wahida Bashar Ahmed,
Coordinator, Cordaid, Bangladesh.
Wahida.Ahmed@cordaid.net

Further information on phase one of the project, including a movie and the final report can be found here:
https://www.deltares.nl/en/projects/mobile-services-for-flood-early-warning-in-bangladesh/

Deltares

Deltares is an independent institute for applied research in the field of water, subsurface and infrastructure. Throughout the world, we work on smart solutions, innovations and applications for people, environment and society. Deltares is based in Delft and Utrecht.