Practical Action's Approach to

LOCALIZED FLOOD EARLY WARNING DISSEMINATION IN BANGLADESH

Photo: Practical Action, 2021

ZURICH

Flood Resilience Alliance

Practical ACTION

www.floodresilience.net.bd
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THE CONTEXT

The United Nations has issued numerous charters to comprehensively address the climate change crisis. Its Sendai Framework for Disaster Risk Reduction 2015-2030[1] includes as one of its targets the aim to 'substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030'. This has given high priority to the issue of easy access to, and understandability of, warning systems for communities at risk. In response to the Framework, the Bangladeshi government has developed multiple warning systems and has been a trailblazer in terms of effective early warning system (EWS) for hazards like cyclones. However, challenges remain around flood EWS and their ability to reach the last mile.

An effective EWS ensures that accurate, reliable, actionable, and understandable information reaches those who need it in a timely manner so they can take action to protect themselves and others, their assets, and their livelihoods. Despite flood EWS being an important component in reducing flood risk in Bangladesh, early warning messages on their own do not provide the whole solution. It is vital to also give communities actionable information about how to respond to floods in the best way to minimize their losses and damages.

1 United Nations Office for Disaster Risk Reduction (2015) 'Chart of the Sendai Framework for Disaster Risk Reduction 2015-2030', https://www.preventionweb.net/files/44983_sendaiframeworkchart.pdf

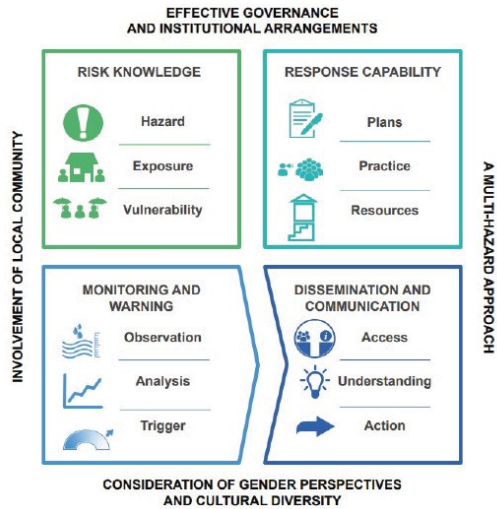


Figure 1: Elements of an effective EWS. Source: Adapted from World Meteorological Organization (2017)

PROBLEM STATEMENT

Flood early warning messages in Bangladesh are generated and provided by the Flood Forecasting and Warning Centre (FFWC) and the Bangladesh Meteorological Department (BMD), and are also shared by the Department of Disaster Management (DDM). In many instances these warnings do not reach the vulnerable communities living in the most remote areas. While the cyclone EWS employs signal-based warning processes, there are no similar mechanisms in place for floods. There is also a lack of location-specific, impact-based flood EWS.

Floodwaters frequently damage people's houses, crops, and livestock, and eventually prevent them from gaining access to external supplies and from selling assets in the markets where they could receive higher prices. Practical Action's field data from household surveys suggest that, in order to recover from flood-induced losses and damages, 54% of women (N=113) opt for loans, followed by selling their livestock (30%) and poultry (9%), usually at a lower price than what they could get at the local market, and it often takes households at least two to three years to recoup their losses.

Practical Action (2022)
'Study on effectiveness of early warning system – present status, existing barriers, and possible solution'

The Study conducted in two upazilas of Faridpur District with the support from Bangladesh Centre for Advanced Studies (BCAS) portrays that a lack of better communication has been the main barrier (50%) in getting flood early warning in remote char areas of Bangladesh followed by lack of proper dissemination channels (47%), and a lack of authenticity of the information (9%). (N=130)


Photo: Ashikul Islam, Practical Action, 2021

LOSSES AND DAMAGES INCURRED BECAUSE OF FLOOD

Our study on 'Effectiveness of early warning system – present status, existing barriers, and possible solution' conducted in the flood-vulnerable unions of Faridpur identified two major effects of flooding that cause enormous losses to the community: forced sale of productive assets and damage to field crops.

In terms of monetary value of flood-induced losses and damages identified by the respondents (N=130) because of the floods in 2019-2020 include:

- 31% lost BDT* 1,000-10,000 (USD 10-98)
- 33% lost BDT 11,000-20,000 (USD 108-196)
- 13% lost BDT 20,000 to 30,000 (USD 206-294)
- 2% lost BDT 31,000 to 40,000 (USD 304-392)
- 8% lost BDT 41,000 to 50,000 (USD 402-490)
- 13% above BDT 50,000 (USD 490)

***USD 1 = BDT 102**

PRACTICAL ACTION'S APPROACH TO DISSEMINATING FLOOD EARLY WARNING

Practical Action has been working on flood early warning dissemination for many years and has been exploring with local people what can be done to reduce the impact of flooding on the poorest, most flood-affected communities in Bangladesh.

In 2018, Practical Action started working with the flood-vulnerable communities of Faridpur in south-central Bangladesh to implement the 'Flood Resilience Project' funded by the Z Zurich Foundation. Faridpur district lies below the lower Ganges river floodplain and is bounded by four major rivers, the Padma, the Madhumati, the Arial Khan, and the Kumar. Practical Action's work in the four unions of Decreerchar and North Channel in the Sadar Upazila, and Char Nasirpur and Dheukhali in the Sadarpur Upazila revealed that the local communities are exposed to high flood risk and are recurrently flooded during the monsoon season.

To support these vulnerable communities and build their resilience against frequent flood events, Practical Action is using the Flood Resilience Measurement for Communities (FRMC) tool, developed by Zurich Flood Resilience Alliance (ZFRA), to undertake holistic assessments of the resilience of these communities in real time. Based on the information collected Practical Action engages in participatory action planning to strengthen the communities' resilience. The roll-out of FRMC in eight communities found that they do not get any localized early warning for flood, which means that they do not get enough time to take preparatory measures to minimize the effect of flooding.

FRMC results show that the lack of EWS in these remote communities has a major negative impact on their resilience and household income continuity after flooding. Based on Practical Action's experience of working with these communities throughout the COVID-19 pandemic, it is clear that building flood resilience is more than just protecting them from flood waters – it is about reducing the risk of flooding, being prepared for future floods, and being able to respond to and recover from floods as quickly as possible.

Increasing flood resilience requires a holistic approach that improves the social, human, natural, financial and physical capacities of these communities. Practical Action's approach of disseminating flood early warning through multiple channels includes:

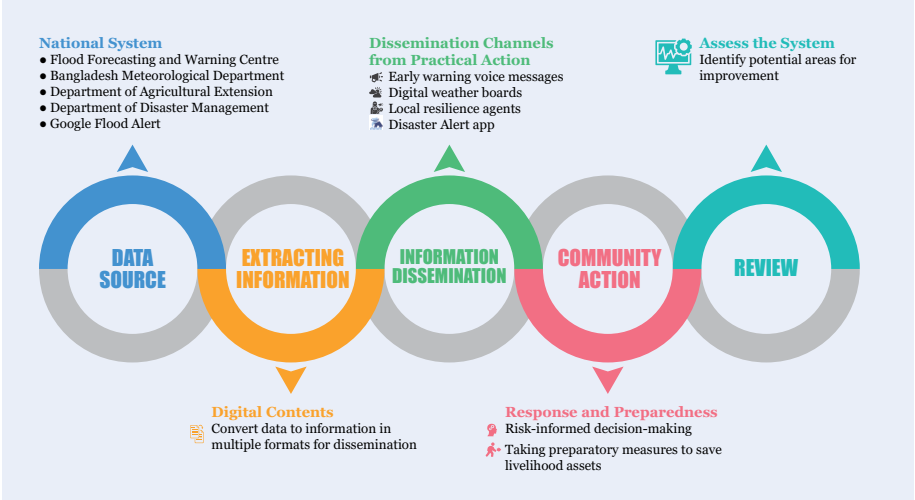


Figure 2: EW dissemination pathways. Source: Practical Action, 2022

LOCALIZED VOICE MESSAGE VIA MOBILE PHONE

Before an impending disaster, Practical Action obtains information from BMD, FFWC and the field implementing area. The warning is then converted into a mobile-phone-based voice message and sent to the communities at risk via software. In light of the literacy rate and local dialect of the communities, the message is articulated in a way that is easily understandable. In addition to the flood early warning, the message includes forecast information on precipitation, excessive rainfall, hailstorm, cold waves and Covid-19-related advisories, among others.

Accessible
Clear
Understandable
Trusted
Useful

96% of project beneficiaries in Faridpur received flood early warning voice messages

93% of project beneficiaries had adequate time to take preparatory measures before the flood

63% of women fully understood the early warning message

DIGITAL WEATHER BOARDS

Digital weather boards are ICT-based systems that Practical Action introduced and, in collaboration with the local governments, installed in the unions' digital centres (UDCs).

Weather boards use web technology to capture data from open sources (e.g., BMD, Google, FFWC) and display it. They are operated by the local entrepreneur, appointed by the local Government, and provide weather information and warnings in real time, as well as up-to-datelocal and national market prices, important contact details, and advisories related to agriculture in the form of audio-visual content.

The boards give daily and weekly weather updates, including temperature, rainfall, sunlight hours and evaporation rates, using simple symbols and numbers in the local language to make the information easily understandable for the local community.

Vulnerable communities living in remote areas with little access to weather information benefit from the digital weather boards, as they increase their knowledge and help farmers to take risk-informed decision regarding their agricultural practices.

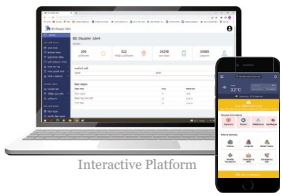
Figure 3: Interface of digital weather board. Source: Practical Action, 2022

DISASTER ALERT APP

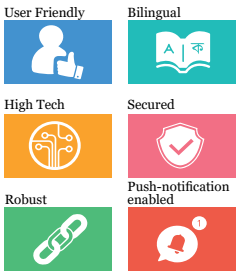
Practical Action launched the mobile-based Disaster Alert app jointly with the Ministry of Disaster Management and Relief (MoDMR), which connects local volunteers with the government response teams to ensure a better coordinated response, thereby maximizing efficiency.

The Disaster Alert app was developed to ensure preparedness, rescue and response coordination, aid distribution and support services before, during and after a disaster for vulnerable communities, volunteers and concerned Government departments working on the EWS. The app automates components of the disaster management process, including:

- Weather updates
- Subsequent risk prevention and precautionary measures
- Early warning to risk-prone communities and individuals
- Information about nearby shelter landmarks, and fire and medical services
- Emergency SMSs to relatives
- Coordination
- Volunteer mobilization
- Multi-hazard knowledge (before, during and after a disaster)
- Links between different ministries and departments
- Links to the Flood Resilience Portal



Interactive Platform



GET IT ON Google Play

https://shorturl.at/PQST6

Scan Me

LOCAL RESILIENCE AGENTS

The Flood Resilience Project has identified 30 local resilience agents (LRAs) – volunteer groups that maintain a good relationship with vulnerable communities and help them to strengthen their resilience capacities. Practical Action's pool of trained LRAs assists with disseminating the flood early warning by visiting households and advising people on flood preparedness and response.

During a flood, LRAs receive early warning voice messages and flood-related information via the Disaster Alert app, and collect information through the digital weather boards by visiting the UDCs. The LRAs then pass the information on to the communities. LRAs are also involved in search-and-rescue activities, which bolsters the limited capacity of the local union disaster management committees (UDMCs). They further support the local government in relief distribution, beneficiary list preparation for relief and other resource distribution, and informing communities about the support they can get during a crisis period.

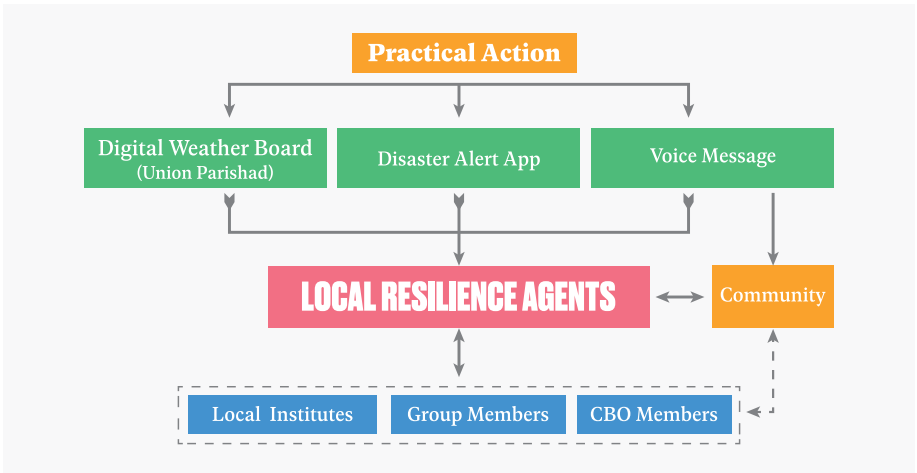


Figure 4: How local resilience agents are helping with disseminating localized flood warnings. Source: Practical Action, 2022

For EWSs to be effective, Practical Action is taking a comprehensive and people-centred approach that ensures that timely, accurate, and understandable information reaches the most vulnerable and marginalized communities.

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The Zurich Flood Resilience Alliance is a multi-sectoral partnership which brings together community programmes, new research, shared knowledge, and evidence-based influencing to build community flood resilience in developed and developing countries.

We help people measure their resilience to floods and identify appropriate solutions before disaster strikes.

Our vision is that floods should have no negative impact on people's ability to thrive. To achieve this we are working to increase funding for flood resilience; strengthen global, national, and subnational policies; and improve flood resilience practice.

Find out more: www.floodresilience.net

The Zurich Flood Resilience Alliance is made up of the following organizations:

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EARLY WARNINGS SAVE LIVES & LIVELIHOODS

Photo: Tamanna Rahman, Practical Action, 2022

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