Climate Resilience Alliance

SOLUTIONS BRIEF

August 2025

Practical Action

Localized early warning voice messages

Summary

Many remote communities in Faridpur District, Bangladesh, do not receive warnings when floods or heavy rain are forecast, leaving them little time to protect their assets or move to safety. When communities do receive warnings, they are often highly technical, making it unclear what protective actions to implement. A straightforward early warning voice message based on national forecasting data for impending flooding, heat, or a cold wave can be sent to mobile phones, providing communities with key information that encourages early and protective actions.

Our approach

Based on Flood Resilience Measurement for Communities (FRMC) data and community input, Practical Action identified a need for flood early warning messages to reach the most vulnerable. Using information from the national forecast, Practical Action develops understandable and actionable voice messages and sends them to registered mobile phone numbers to warn communities when there is a flooding risk and advise them on protective and life-saving actions to take. Community leaders who receive the warning pass it on to additional community members, ensuring the messages reach the 'last mile'.

Facts and figures

Cost:
Moderate US$960 to reach 10,000 households

Cost to community:
Free

Skills:
Expert input

Time to implement: Three months to set up the process and collect mobile phone numbers

People reached:
40,000

Easy to replicate?
Yes.

Bangladesh

Practical ACTION

Listen to the interview

Rabeya explains how early warning voice messages are being used to reach the most vulnerable communities.

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A farmer in Faridpur receives an early warning voice message. Photo: Practical Action

What was the problem?

Warnings generated at the national level by the Flood Forecasting & Warning Centre (FFWC) are very technical and are not always easy to understand. Furthermore, remote areas often do not receive even the highly technical national early flood warnings, so they often do not have time to move their belongings to a safe place. This deprives those communities of the assets they rely on for future income, with individuals sometimes forced to sell cattle or agricultural tools to buy food for their families. It can take households years to recover their losses.

What was the solution?

Working with the FFWC, Practical Action set up an early warning dissemination channel using voice messages. When Practical Action receives information from the FFWC that there is a risk of flooding in the week ahead, it translates the information into a short, easy-to-understand voice message that details the potential impacts to certain areas and provides advice on the next steps to take to protect assets and livelihoods. The message is based on contextual information (i.e. what is being planted) that Practical Action has gathered through working with the community and from trained local resilience agents (LRAs).

The message is then shared via a blast server to 10,000 registered phone numbers (at least one number from each household in the LRAs' working communities). This includes the mobile phones of Union Disaster Management Committee members and key community leaders. If community members do not have a mobile phone or service/data, they receive warnings through other dissemination channels such as digital weatherboards, which have been installed at the union parishad (the lowest administrative tier in Bangladesh) as well as via LRAs, who amplify the warning by visiting vulnerable households and using public address systems.

Currently, improved warnings are reaching up to 40,000 people, delivered several days in advance of potential flooding.

How does it increase resilience?

Straightforward, actionable voice messages delivered several days in advance of extreme weather increase the ability of community members to prepare and respond.

When communities receive a warning or view the information on digital weatherboards, they use that information to make informed decisions about the protective actions they need to take. For example, when farmers receive advance warning of a flood, they can adapt their cropping systems to avoid major losses, including delaying seeding and instead creating nursery beds on floating platforms to allow them to rapidly plant out their seedlings when the flood-water recedes.

These measures increase resilience as they keep communities safe and help prevent individuals from losing livelihood options. A recent survey by Practical Action found that 96 per cent of project participants in Faridpur received flood early warning voice messages; 63 per cent of women fully understood the voice messages and, of those, almost all (93 per cent of the 63 per cent) had adequate time to take preparatory measures before the flooding.

A farmer in Khulna receives an early warning voice message.
Photo: Practical Action

Climate Resilience Measurement for Communities (CRMC)

The Climate Resilience Measurement for Communities (CRMC) is a data-driven process, complemented by a web-based tool and mobile app, which helps communities to evaluate and measure how resilient they are to climate hazards. Using the results, they can identify and implement resilience-building interventions and run additional measurements to track improvements.

Find out more: ZCRAlliance.org/crmc

Early Warning Systems (EWS)

EWS are one of the best-proven and effective measures for saving lives and minimising losses and harm caused by disasters. They help those at risk of floods, heatwaves, wildfires and other climate hazards to take risk-informed, timely, meaningful and impactful early action to keep themselves and their assets safe. The Alliance works across all eight components of an EWS so that they deliver essential services for the most vulnerable women, men, and children, supporting communities to be resilient to climate hazards, enabling them to thrive.

Other benefits:

- National-level warnings are reaching the most remote communities, expanding the coverage of the national government's early warning system and increasing its utility by making warnings understandable and actionable.
- These messages can be used for additional hazards such as heat events and cold fronts.

Common conditions for success

Q: *Is this intervention appropriate for other communities?*

A: Yes, the FRMC baseline identified the need for localized early warning voice messages in communities that do not receive the necessary warnings already.

Q: *What conditions are needed for the intervention to be appropriate?*

A: Communities having access to mobile phone, access to electricity during regular/extreme weather conditions.

Q: *Was there anything special about the communities where this was most effective?*

A:Communities in the Faridpur District did not already have a localized early warning system. With this intervention in place, communities are able to take early action.

Success story

Thanks to the early warning voice messages, villagers in Basherdangi in Dheukhali Union now know what to do when flooding is forecast. Schools have even rescheduled exams because of flood risks.

"Earlier, our preparation for floods was limited because early flood warnings were seldom received in the chars [sandbar islands]. Now, with the early warnings, we get from various channels, every member of my family is alerted during events like pandemics or floods, which greatly aids our safety and preparedness."

Rabeya Begum, LRA, Dheukhali Union

A local resilience agent explains the early warning messages to a community member. Photo: Practical Action

Listen to the interview

Rabeya explains how early warning voice messages are being used to reach the most vulnerable communities.

Expert view

Our monitoring data suggest that community people took preparatory measures like storing firewood, preparing a portable cooking stove, storing dry food items, keeping important documents in safer places, [and] taking children and elderly to a safer place.

Some of them also harvested their crops early and stored [them] in a safer place as they received the warning in due time.

Tamanna Rahman,
Climate Resilience Thematic Lead,
Practical Action

A community member protects her water source after receiving an early warning message. Photo: Practical Action

Lessons learnt

- Identifying contextual information to shape messaging, and understanding the ideal channel, length, and timing can help to ensure that the warnings are easy to understand and actionable.
- Having back-up dissemination channels (the Disaster Alert app, digital weatherboards, and public address systems) is critical.

Get in touch

If you have any questions contact:
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For more resilience solutions visit:
https://zcralliance.org/solutions/

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Further reading

Practical Action (2023) Practical Action's approach to localized flood early warning dissemination in Bangladesh, Practical Action Publishing, Rugby.
https://zcralliance.org/resources/item/practical-actions-approach-to-localized-flood-early-warning-dissemination-in-bangladesh/

Rahman, T. and McQuistan, C. (2022) 'Early warning systems to reduce loss and damage in riverine char communities in Bangladesh', Climate Tribune, April, 2022. https://zcralliance.org/resources/item/early-warning-systems-to-reduce-loss-and-damage-in-riverine-char-communities-in-bangladesh/

Practical Action (2024) Local Resilience Agents: Solutions brief, Zurich Climate Resilience Alliance
https://zcralliance.org/resources/item/local-resilience-agents-solutions-brief/

The Zurich Climate Resilience Alliance is a multi-sectoral partnership, powered by the Z Zurich Foundation, focused on enhancing resilience to climate hazards in both rural and urban communities. By implementing solutions, promoting good practice, influencing policy and facilitating systemic change, we aim to ensure that all communities facing climate hazards are able to thrive. **Find out more at ZCRAlliance.org**

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