



Study on Disability-inclusive and Gender-responsive Early Warning Systems in Khulna Division, Bangladesh

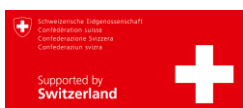
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Acknowledgement:

The study team is grateful for the initiative by CBM Global Disability Inclusion to evaluate the disability-inclusiveness and gender responsiveness of Bangladesh's Early Warning Systems (EWS) for people with disabilities and women. This review is timely as Bangladesh is currently crafting its roadmap to achieve the objectives of the Early Warnings for All (EW4All) campaign led by the UN Secretary-General.

The team is grateful to CBM Global Disability Inclusion, Access Bangladesh Foundation, Caritas Bangladesh, and Nabolok Parishad for their meaningful contributions to finalising the questionnaire, planning the primary data collection field visit, coordinating with the respondents, and facilitating the study field visit with warm support for accommodation and mobility. The study team also acknowledges that DCF participated in the study process during the period of data collection, prior to the conclusion of the partnership.

Above all, the study team appreciates the participants in the focus group discussions and key informant interviews from the ward to the national level. Without their valuable time and insights, the study could not have been completed.

The study was conducted by A M Nasir Uddin (lead consultant), Sheila Cabusao, Saika Shahrin Disha, Claudia Bailey, and A H Mamun. The report was produced by Claudia Bailey, on behalf of CBM Global Disability Inclusion.

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Forward

Early warning systems are one of the most powerful tools we have to protect lives and livelihoods from the increasing threats of natural hazards and climate-induced crises. As highlighted in the Sustainable Development Goals and the Sendai Framework for Disaster Risk Reduction 2015-2030, timely and effective warnings are essential to building national resilience, safeguarding development gains, and ensuring the safety of citizens. Yet for far too many people, particularly persons with disabilities, women, and other groups experiencing heightened disaster risks, current early warning systems are inaccessible. When early warnings fail to include those most at risk, they reinforce existing inequalities, rather than reducing them. Ensuring that early warning systems are disability-inclusive and gender-responsive is therefore not just good practice, but also a fundamental human rights obligation.

This **disability-inclusive and gender-responsive Early Warning System Development Study Report** was undertaken to explore how Bangladesh's early warning systems can be strengthened to be disability-inclusive and gender-responsive, to ensure that no one is left behind during disasters. This report assesses existing early warning models, identifies gaps and barriers experienced by people with diverse disabilities, and highlights opportunities to integrate universal design, accessibility, and inclusive community engagement approaches throughout early warning systems.

As Bangladesh prepares to operationalise its forthcoming Early Warnings for All (EW4All) National Roadmap, the evidence generated through this study offers timely and practical support. These findings can help ensure that the Roadmap meaningfully incorporates disability inclusion, gender responsiveness, accessibility, and the perspectives of those most at risk.

We hope that the insights and recommendations offered in this report will support government agencies, DRR and humanitarian organizations, development partners, and community networks, as they strengthen early warning systems that are accessible, understandable, and actionable for all.

I extend my sincere thanks to the study team and our partners at Caritas Bangladesh, Nabolok Parisad, Access Bangladesh Foundation, and CBM Global Disability Inclusion for their valuable input and guidance. I also acknowledge the support of SDC, DFAT, and the CALL consortium, whose collaboration made this work possible.

Together, we can transform early warning mechanisms from a system that is not just accessible for many, into a system that is truly accessible for all.



Mohammed Zahidur Rahman
Country Director, CBM Global Disability Inclusion

Message from the Director, Department of Disaster Management

Bangladesh is globally recognized for its significant progress in disaster risk reduction, particularly in developing early warning systems (EWS) for cyclones, floods, and other climate-induced hazards. However, as climate change intensifies these risks, it is imperative that our warning systems become truly inclusive—accessible and responsive to the diverse needs of every citizen.

I am pleased to present the report, **“Study on Disability-Inclusive and Gender-Responsive Early Warning Systems (EWS).”** This timely, evidence-based analysis evaluates the current landscape of EWS in Bangladesh with a dedicated focus on women and persons with disabilities. This study directly supports the Government of Bangladesh’s commitment to the *Standing Orders on Disaster (SOD) 2019*, the *Sendai Framework for Disaster Risk Reduction (SFDRR)*, and the global *Early Warnings for All (EW4All)* initiative.

The findings highlight both the successes and the critical gaps in our current mechanisms. While our community-based dissemination—notably through the Cyclone Preparedness Programme (CPP)—is highly effective, the study emphasizes the urgent need to scale these inclusive approaches to address all hazards. Key recommendations include adopting accessible communication formats, enhancing infrastructure, and ensuring the meaningful participation of women and persons with disabilities in disaster governance.

I commend **Caritas Bangladesh, Nabolok Parishad, CBM Global**, and their technical partners for this vital initiative. Their work provides a practical roadmap for policymakers and practitioners to strengthen inclusivity at both national and local levels.

The Department of Disaster Management remains steadfast in its commitment to ensuring that **no one is left behind**. I am confident that this study will serve as a cornerstone for policy improvement and collective action toward a safer, more resilient, and inclusive Bangladesh.



Netai Dey Sarker

Director

Department of Disaster Management (DDM)

Ministry of Disaster Management and Relief

Government of the People’s Republic of Bangladesh

Acronyms

Acronym	Description
BDRCS	Bangladesh Red Crescent Society
BMD	Bangladesh Meteorological Department
CRPD	Convention on the Rights of People with Disabilities
CPP	Cyclone Preparedness Program
DDM	Department of Disaster Management
DMC	Disaster Management Committees
EW4ALL	Early Warning for All
EWS	Early Warning System
FFWC	Flood Forecasting and Warning Centre
ITU	International Telecommunication Union
MoDRM	Ministry of Disaster Management and Relief
NEOC	National Emergency Operation Centre
NDRCC	National Disaster Response Coordination Centre
OPD	Organisations of People with Disabilities
RRAP	Risk Reduction Action Plan
SOD	Standing Orders on Disasters
WDMC	Ward Disaster Management Committee



Women from a DRR self-help group in Khulna. Photo:

Executive Summary:

This study assesses the inclusivity, accessibility, and gender-responsiveness of early warning systems (EWS) in Bangladesh.

At a systems level, early warning mechanisms remain fragmented and hazard-specific, with no unified Common Alert Protocol (CAP), limiting coordination and consistency. In addition, **weak last-mile delivery systems and the absence of disaggregated data**, including disability mapping, significantly constrain the ability to reach those most at risk.

A critical barrier is the inaccessibility of warning communication. EWS rely heavily on using one single delivery channel, such as sirens or microphones alerts, which do not effectively reach people with disabilities or women who are socially isolated. Accessible formats, such as sign language, picture-based formats, clear audio, and easy-to-understand messages, are rarely used. As a result, many people most at risk do not receive, understand, or trust early warning messages in time to act.

For people with disabilities, barriers are further compounded by indirect socio-economic factors, including lower levels of education, limited access to assistive devices, higher costs of living, and exclusion from training and awareness activities. These factors reduce both access to information and the ability to

respond. **In addition, different disability groups face specific barriers**, for example, deaf people cannot access verbal microphone warnings, while people who are blind or have low vision cannot access visual signals, and people with cognitive disabilities are excluded by complex messaging.

Women face distinct gender-related barriers, as EWS remain largely gender-neutral rather than gender-responsive. Social norms, mobility restrictions, and unpaid care responsibilities limit women's access to information, and participation in decision-making. Many women, particularly those who are socially isolated or lack access to digital communication devices, do not receive timely warnings.

These challenges are most significant for **women with disabilities, who experience overlapping discrimination based on both gender and disability**. They are often excluded from community networks, live in remote locations, rely on others for information, and face heightened risks of delayed or inaccurate warnings.

Overall, the findings demonstrate that **achieving inclusive EWS requires a shift toward people-centred approaches** that address systemic gaps, ensure accessible communication, and actively include people with disabilities and women, especially women with disabilities, in the design and implementation of EWS.



Photo: CBMG/Kaizer

Background:

In 2022, the UN Secretary-General launched the “Early Warnings for All” initiative to ensure that every individual globally is protected by early warning systems (EWS) by 2027. Adequate early warning enables people with disabilities to evacuate with fewer difficulties. However, across 137 countries, only **56% of people with disabilities report not having access to early warning information in accessible formats.**¹

Bangladesh has taken important steps towards strengthening EWS, building on its Cyclone Preparedness Programme (CPP), and wider disaster risk reduction efforts. The country has strengthened EWS for cyclones and floods and aligned these efforts with global commitments such as the Sendai Framework for Disaster Risk Reduction, the CRPD, and the Dhaka Declaration, which emphasise the importance of addressing the specific needs of people with disabilities and women in DRR. These frameworks and conventions guarantee equal access to information and resources while ensuring safety and protection during disasters.

While cyclone warning systems are relatively established, flood EWS is less developed, particularly in terms of location-specific and impact-based alerts, resulting in individuals in cyclone-prone areas having better access to early warnings than those in flood-prone regions. **Existing systems also do not consistently meet the accessibility needs of people with disabilities or the gender-specific needs of women and girls**, especially those living in remote and hazard-prone areas.

Bangladesh’s geographical location and the escalating impacts of climate change are expected to lead to more extreme weather events and climate-induced disasters, which is increasing the urgency of addressing these gaps.

Rationale:

Bangladesh’s coastal communities face increasing threats from cyclones, storm surges, and climate change, which disproportionately impact marginalised groups, particularly people with disabilities and women.

To address these challenges, CBM Global, Access Bangladesh Foundation, Caritas Bangladesh, and Nabolok are implementing projects to strengthen inclusive disaster risk management, through two projects 'Strengthening People Centered Inclusive Disaster Risk Management in Khulna of Bangladesh' and 'Establishing Disaster Resilient Communities in Satkhira'.

Recognising the critical role of an inclusive EWS, CBM Global Disability Inclusion has undertaken this study.

By identifying gaps and best practices, the study will contribute to designing and implementing an EWS that is accessible, effective, and responsive to the populations' diverse needs. Ultimately, the findings aim to improve inclusive disaster preparedness efforts for at-risk communities.

1. Objective and Methodology:

1.1 Objective of the study:

The overall objectives of the study are to:

- **Analyse** the current EWS in the project areas
- **Understand how accessible and inclusive EWS are** for people with disabilities and women, both with and without disabilities
- **Understand the barriers and requirements of people with diverse disabilities** (physical, sensory, cognitive, and psychosocial disabilities) regarding access to EWS, and
- **Gather insights from key stakeholders**, including Organisations of Persons with Disabilities (OPDs) and disability self-help groups, community members, local government representatives, and relevant



Image: A woman with disability is pictured using crutches, Bangladesh. CBM UK.

organisations into their current initiatives, future plans, and progress towards making EWS more inclusive and accessible for all.

1.1.1 Study Area:

The study areas are two districts: Khulna and Satkhira. In Khulna, it focused on two upazilas: Koyra and Dacope, and one upazila in Satkhira: Shyamnagar.

These districts' geographic locations and topography expose them to hazards such as cyclones, floods, landslides, salinity, and storm surges, and their fragile infrastructural makes them ideal for examining a disability-inclusive, gender-responsive EWS.

1.1.2 Study Design:



Figure 1: Study design

1.2 Methodology:

The study was carried out in **two phases**. The initial phase involved a review of secondary literature, followed by primary data collection and analysis.

1.2.1 Literature review

The study team reviewed various documents, including project reports from implementing organisations, baseline studies, and a range of international and national publications, frameworks, conventions, policies, laws, guidelines, and tools. This literature review provided an initial assessment of the current status and gaps in EWS in Bangladesh, focusing on their accessibility for people with disabilities and women. The initial findings from the literature review were subsequently

verified against the actual data that was collected and analysed.

A list of the reviewed documents is detailed in the Reference section of the report.

1.2.2 Primary data collection

The study team conducted focus group discussions (FGDs) and key informant interviews (KIIs) to gather community experiences, assess the current status of the EWS accessibility, and explore future expectations regarding access to early warnings for people with disabilities and women.

FGD participants' breakdown:



Gender	Type of disability	Number
Women	People with physical disabilities	19
	People with low vision	8
	People with sensory disabilities	5
	People with multiple disabilities	2
	Without disabilities	35
Men	People with physical disabilities	21
	People with low vision	5
	People with sensory disabilities	4
	People with cognitive or intellectual disabilities	1
	People with multiple disabilities	2
	Total	102

To gather primary data, 11 FGDs were conducted with community members, which involved 102 participants, of these:

- 67 were people with disabilities, representing 66%
- 69 were women, representing 68%
- 34 were women with disabilities, representing 34%.

In addition, 38 KIIs were conducted across three Upazilas in the Khulna and Satkhira Districts, and at the national level, covering community members, local government representatives, community-based organizations, Organisations of People with Disabilities (OPDs), disability self-help group members, local administration, and representatives from relevant ministries and departments responsible for EWS.

1.2.3 Data analysis

Primary data from FGDs and KIIs were analysed to identify key findings on the

accessibility and inclusivity of EWS for people with disabilities and women. **The findings from the FGDs and KIIs were compared with secondary data** to validate and identify gaps, areas for improvement, and recommendations.

1.2.4 Limitations:

The research team identified several limitations associated with the study. These include **small sample sizes, limited geographical coverage, inadequate representation of the various types of disabilities (particularly those with cognitive and psychosocial disabilities), and time constraints that may have affected the findings**. The areas covered in this study are at risk of cyclones, salinity, riverbank erosion, tidal surges, and coastal flooding. However, the current EWS is limited only to cyclone disasters. Future studies could be expanded to various hazards and provide a larger coverage area for deeper analysis and interventions.



Attending a FGD with women on DRR. Photo: CBMG/Kaizer

2. Findings:

2.1 Findings from secondary literature

The review of global and national frameworks, policies, and relevant studies highlights strong commitments to disability-inclusive and gender-responsive EWS. These frameworks provide clear guidance on accessibility, participation, and equal access to information. However, **significant gaps remain** in translating these commitments into consistent and effective practice in Bangladesh.

Global frameworks

International frameworks establish that inclusive early warning is both a human rights obligation and a critical element of effective disaster risk reduction (DRR).

- **The Convention on the Rights of People with Disabilities (CRPD)** Articles 9, 11, and 21, highlights the right of people with disabilities to access information and be protected in situations of risk, requiring early warning systems to be accessible and usable.
- **The Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW)** General Recommendation No. 37 emphasises the integration of gender-responsive approaches into disaster risk governance, including early warning systems.
- **The Sendai Framework for Disaster Risk Reduction (2015–2030)** reinforces the need for **inclusive, people-centred and multi-hazard early warning systems**, ensuring accessibility for all, particularly those most at risk.
- **The Dhaka Declarations (2015 and 2018)** further build on these

commitments by **promoting universal design, multi-channel communication (visual, auditory, tactile), participation of people with disabilities**, and strengthened local implementation supported by technology and capacity strengthening.

National DRR policies

Bangladesh has an established disaster management framework, however, the extent of disability inclusion and gender responsiveness varies.

- The **National Disaster Management Act (2012)** establishes the institutional structure for disaster risk management, including early warning dissemination, but **does not explicitly reference people with disabilities or gender considerations**. As a result, inclusion depends largely on interpretation and implementation.
- In contrast, the **Standing Orders on Disaster (SOD) 2019** **explicitly integrates disability-inclusive and gender-responsive principles**. It mandates the identification of at-risk groups, dissemination of warnings in accessible formats, and tailored communication approaches to reach women and people with disabilities. It also assigns responsibilities to Disaster Management Committees (DMCs), ministries, and other actors to operationalise inclusive early warning.

Despite these advancements, **inconsistencies between policy frameworks and operational practice** continue to limit effective implementation.

Disability-inclusiveness

Across the literature, **accessibility and disability inclusion remains a major gap in Bangladesh's DRR sector, despite policy commitments under Sendai Framework, CRPD and the SOD 2019**. Current early warning dissemination relies heavily on sirens, flags, loudspeakers, and mass media. These **EWS methods are not accessible to all disability groups**, particularly people who are deaf, hard of hearing, blind, or with cognitive disabilities. There is limited use of accessible and assistive communication formats such as sign language, picture-based formats, audio alternatives, braille, or easy-to-read materials.

In addition, limited digital access, affordability of devices, and low digital literacy further restrict access to technology-based warning systems for people with disabilities.

As a result, most people with disabilities are unable to receive, understand, or act on early warning messages in a timely manner.

Gender-responsiveness

Gender responsiveness is recognised in international and national frameworks, including CEDAW General Recommendation No. 37, the Sendai Framework, and the SOD 2019. These frameworks emphasise the need for gender-sensitive risk communication, women's participation, and tailored approaches to reach women effectively.

However, **in practice, early warning systems remain largely gender-neutral rather than gender-responsive**. Women-centred communication strategies are limited, and systems often fail to address social norms, mobility constraints, unpaid care responsibilities, and restricted access to information that affect women's ability to receive and act on warnings.



Image: A woman with disability from Khulna, Bangladesh. CBM/Kaizer.

As a result, women, particularly those in remote or marginalised contexts, face increased risks during disasters.

Disaggregated data challenges

A key constraint is **the lack of reliable, disaggregated data on disability and gender**, despite provisions in the SOD 2019 assigning responsibility for maintaining such data, there is limited systematic mapping at local levels.

The **limited data on disability and gender in Bangladesh is not used to plan for inclusion and measure progress**, limiting the ability to target inclusive early warnings, plan evacuations, and provide tailored support.

Structure and coordination of Early Warning Systems (EWS)
Bangladesh's early warning system involves multiple institutions, including the Bangladesh Meteorological Department (BMD), Flood Forecasting and Warning Centre (FFWC), Department of Disaster Management (DDM), Cyclone Preparedness Programme (CPP), and local Disaster Management Committees (DMCs).

- There is **no unified system or Common Alert Protocol (CAP)** to standardise and integrate warnings across agencies.
- Responsibilities are distributed across actors, but **system integration and coordination are limited**, affecting accessibility, consistency and timeliness of warnings reaching communities.
- **Early Action Protocols (EAPs) were developed in 2024, but did not adequately address or integrate disability and gender.** These are planned to be reviewed and updated.

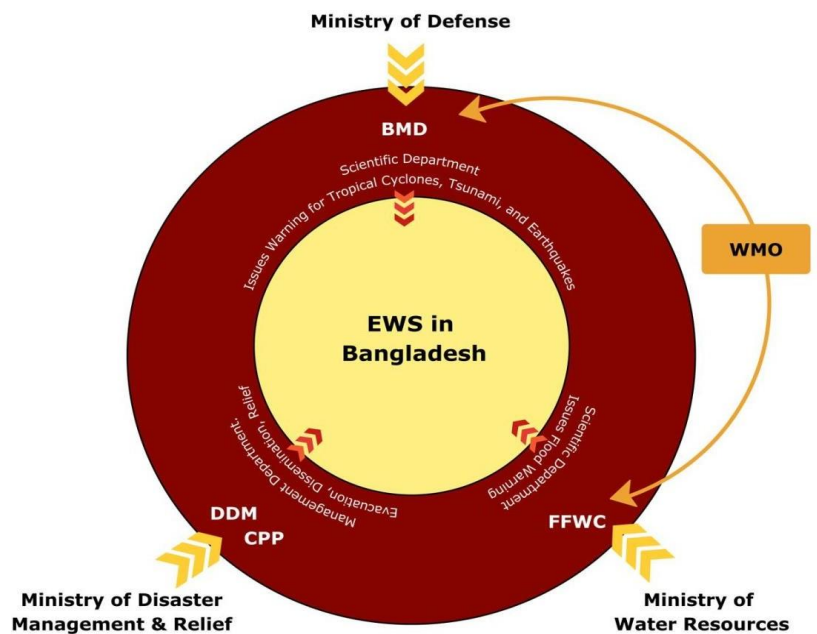


Figure 2: Ministries, Departments, and executive agencies involved in the early warning system in Bangladesh

Different authorities are responsible for detecting and forecasting various hazards, while other agencies communicate early warnings to the at-risk communities.

However, progress has been slow, and **no unified system or CAP is yet in place to ensure that these warnings are effectively consolidated and delivered** to the end users or the communities facing those hazards.

Actors and agencies

Bangladesh's government and non-governmental actors are involved in forecasting hazards and disseminating early warnings to at-risk populations.

These agencies operate within their respective mandates to ensure timely and accurate information reaches those at risk. From meteorological predictions to community-level communication, these actors play critical roles in the EWS, helping reduce the impacts of disasters through coordinated action.

Key agencies in EWS:

- The Bangladesh Meteorological Department detects and generates forecasts.
- Bangladesh Flood Forecasting and Early Warning Center forecasts specifically for floods and flash floods.
- Department of Disaster Management disseminates early warnings.
- The Cyclone Preparedness Programme (CPP) communicates early warnings about cyclones in coastal regions.
- Red Crescent and NGO volunteers communicate early warnings about floods, flash floods, and landslides.
- The Department of Agriculture Extension provides agro-met services to farmers.

Cyclone Preparedness Program (CPP)

The literature review findings indicate that Bangladesh's EWS has significantly improved over the years, particularly since the CPP was established in 1972. However, **this improvement does not extend much to other hazards**, such as riverbank erosion, salinity, heatwave, heavy rain, tidal surge. **Even the CPP has limitations and challenges** in offering and disseminating early warnings to everyone in the communities, especially to people with disabilities, the elderly, women who are socially isolated, and pregnant women.

As a result, **Bangladesh's early warning system remains largely hazard-specific rather than fully multi-hazard, limiting its overall effectiveness.**

- **The Bangladesh Meteorological Department (BMD)** currently generates forecasts for all hydro-

meteorological extreme events.

- On the other hand, **the Flood Forecasting and Early Warning Centre (FFWC)** generates forecasts on floods.
- In Bangladesh, **only cyclone forecasts and early warnings have an end-to-end user dissemination system.** Once the forecast is produced, the **Department of Disaster Management (DDM)** and the **CPP** are notified to cascade messages to their Upazila and Union officials through their channels, activating the disaster management committees and units. The CPP volunteers and the **Ward Disaster Management Committee** members are mandated to facilitate the dissemination of early warnings to community members.

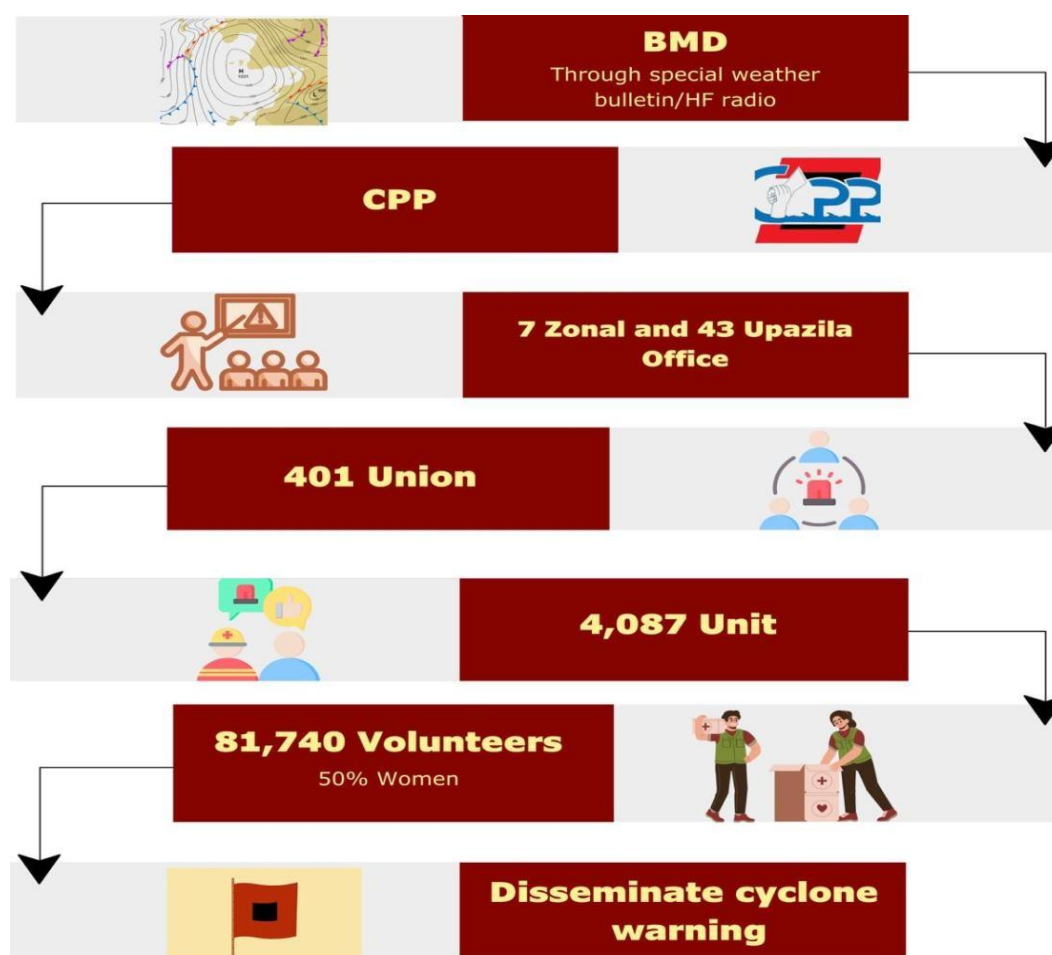


Figure 3: CPP Structure and Flow chart on early warning dissemination by CPP



Photo: CBMG/Kaizer

Bangladesh Red Crescent Society (BDRCS)

The BDRCS plays a significant role in disaster management in Bangladesh, including in the implementation of EWS outlined in the Standing Orders on Disaster (SOD) 2019. While the SOD does not explicitly detail out the BDRCS's role in inclusive EWS, BDRCS plays a vital role in ensuring inclusive disaster preparedness, particularly for people with disabilities and women. As an auxiliary to the government, BDRCS supports early warning dissemination, community engagement, and inclusion of at-risk groups. Through accessible communication tools, trained volunteer networks, and partnerships with disability and gender-focused organisations. **BDRCS works to ensure early warning messages reach all individuals, including people with disabilities and women.** Their efforts also include training volunteers, empowering women in disaster preparedness, and tailoring warning systems to address social and physical barriers.

Despite these strengths, the BDRCS faces several challenges in fully realizing disability-inclusive and

gender-responsive early warning systems. Resource constraints, cultural norms, and a lack of disaggregated data on disability and gender hinders the effectiveness and scalability of inclusive interventions. Nevertheless, through its Protection, Gender, and Inclusion (PGI) framework, community-based approaches, and proactive strategies like forecast-based financing, the BDRCS continues to align with the SOD 2019's emphasis on inclusive, resilient, and community-centered disaster risk reduction.

Early Warnings for All (EW4All)

The EW4All initiative in Bangladesh marks a significant step toward strengthening the country's disaster preparedness and resilience. As part of this effort, **the government has completed a comprehensive consultation process to develop the EW4All National Road Map, with the goal of achieving its targets by 2027.** The roadmap, expected to be finalized and made public very soon, reflects a collaborative approach, incorporating the input and commitments of various organisations and agencies active in humanitarian aid and disaster risk management.

Key gaps identified in secondary data

Despite ongoing efforts to strengthen Bangladesh's early warning systems, critical gaps remain in ensuring EWS's inclusive, accessible and effective.

Below are the **key identified gaps in secondary data (literature)**:

Limited implementation of commitments under CRPD, CEDAW, Sendai Framework, and SOD 2019.

Insufficient disability-disaggregated data and mapping.

Institutional, infrastructural, and socio-cultural barriers restricting access.

Absence of a unified system such as a Common Alert Protocol (CAP).

Limited multi-hazard early warning coverage beyond cyclones. EWS for flash floods, landslides, lightning, riverbank erosion, coastal erosion, and coastal floods are still developing.

Inadequate accessibility of early warning communication methods.

Mobile communication and internet systems are not yet effectively used to disseminate EW to the front line.

Insufficient focus on preparing and disseminating early warning messages tailored for women or people with disabilities.

Lack of understanding of the intersectional needs of women with disabilities.

Lack of resources, funds and budget for inclusive EWS.

3.3.1 Findings from primary data

3.3.2 Barriers to disability-inclusive EWS

The study found that whilst early warning messages about cyclones and floods are available, they are not sufficiently accessible to people with disabilities.

Cross-cutting barriers affecting people with disabilities

Across all disability groups, people with disabilities reported experiencing several common barriers that limit their access to EWS. These intersecting barriers are largely **indirect**, meaning they do not arise from the design of EWS itself, but from broader social, economic, and environmental factors that enable people with disabilities to access, understand, and act on early warning information.

The following cross-cutting barriers were identified:

- **Limited access to education** among people with disabilities contributes to lower literacy levels, which can reduce the ability to understand early warning messages communicated in written formats.
- **Barriers to accessing assistive devices** (such as wheelchairs, white canes, hearing aids, communication devices, or glasses) can restrict access to information and reduce the ability to respond to early warnings effectively. These barriers include access to affordability of, and accessibility of assistive device service providers.
- **Unaffordable electronic devices used to disseminate EWS** (e.g. television, radio, social media, and mobile applications) exclude many people with disabilities from receiving timely early warning messages, who



experience much higher household costs as a result of disability-related costs, and cannot afford these.

- For those with direct access to electronic devices, they experience barriers due to **digital literacy** and **no orientation** provided to people with disabilities on how to use apps, pages, and websites to access early warning information.
- Respondents with disabilities reported that they were **rarely invited to attend** community meetings or awareness-raising activities on EWS.
 - On the occasion they were invited, they reported that **EWS awareness activities are often conducted in inaccessible locations or inaccessible formats**, which prevents participation of people with disabilities, therefore reducing their understanding of how to interpret and respond to early warnings. This was identified as a result of lacking human and financial resources on accessibility or reasonable accommodation.
- Respondents with disabilities also expressed that **across the DRR**

sector, there is very little emphasis on communicating early warnings to people with disabilities, and a lack of understanding about the rights of people with disabilities, and the barriers they experience that increase their disaster risks.

- In some areas, such as the Suter Khali Union, the **CPP is not aware of people with disabilities or how to reach them** to ensure early warning for everyone.

All the FGD participants agreed that the **current EWS is not accessible for all disability types**.

EWS barriers for different disability types

The table below outlines the types of early warnings intended to be accessible to different disability groups, however, in practice, **these warnings do not always effectively reach people with disabilities**.

	Miking, Sirens, Mosque Mike	Flags	Door-to-door	TV	Radio	SMS/ What sapp	Social media (Facebook, Instagram, YouTube)	Caregivers
Physical disability	✓	✓	✓	✓	✓	✓	✓	✓
Deaf or hard of hearing		✓	✓			✓		✓
Blind or low vision	✓		✓		✓			✓
Psychosocial disability			✓	✓		✓		✓
Cognitive disability		✓				✓		✓

The findings below outline various barriers encountered by each disability type.

Barriers for people with physical disabilities:

- **As a result of poor road conditions and limited access to assistive devices** (e.g., wheelchairs, walking sticks), people with physical disabilities living in remote or outskirts areas often **cannot reach disaster warning points such as flag stands or miking locations**, where early warning messages are disseminated.
- **When EWS awareness activities are conducted in inaccessible locations** within the community, respondents with physical disabilities highlighted that they have **low awareness of EWS** and do not understand warning flags.



Barriers for people who are blind or have low vision:

- People who are blind or have low vision reported experiencing barriers to accessing early warnings that are **delivered in visual formats, such as through television, SMS or flags**, all of which are common in Bangladesh.
- There are **no early warning messages or related learning materials available in braille**, and there is a **lack of affordable assistive communication devices**, such as text-to-voice, that are accessible for people who are blind or have low vision.
- **Microphones are not audible** since they are mostly used on the main roads, where during rough weather, it is very challenging to hear the



warning due to winds, cars, and other loud noises.

- The findings also highlight that people who are blind or have low vision also experience barriers related to microphone warnings due to **inaccessible roads and pathways**, which makes it challenging to access

Barriers for people who are deaf or hard of hearing:

- Most early warning messages in Bangladesh are inaccessible to people who are deaf or hard of hearing, due to the **use of microphones** to relay early warnings, which are not accessible for them.
- The study revealed that **family members of people who are deaf or hard of hearing can be unwilling to communicate early warnings to them**, creating further exclusion and marginalisation.
- **Early warnings are not provided in Bangla sign language**, despite many early warning messages being communicated primarily through verbal announcements or sirens.
- In EWS awareness trainings there is often **no sign language interpreter** provided, which excludes deaf people.
- **People who are deaf face barriers to accessing sign language education** (in standard sign language, either Bangali or the international standard). This further creates barriers to using a shared sign language to distribute and communicate with them.
- **Caregivers often lack training in sign language interpretation**, which limits their ability to assist deaf people to understand and act on EWS.



Barriers for people with cognitive and psychological disabilities:

- **There is a lack of early warning messages tailored for people with cognitive and psychological disabilities**, such as those developed in picture-based formats, or using plain language and easy-to-understand terms or warning instructions.
- **Parents or family members who attend trainings on EWS often do not share this information with people with cognitive or psychological disabilities**, despite early warning messages being disseminated through their family members with the intention to share with them.
- **Early warning awareness sessions are not delivered or conveyed in accessible formats** for people with cognitive and psychosocial disabilities, and efforts are not taken to ensure people with



cognitive and psychosocial disabilities can directly access or understand early warning messages.

- More widely, there is a **lack of understanding of how to create early warning messages in accessible formats** for people with cognitive and psychological disabilities.

Note: Due to the **lack of representation of people with cognitive and psychological disabilities in this study**, additional research should be conducted in the future to understand and analyse the barriers and requirements specific to these disability groups for inclusive, accessible early warning systems.



3.3.3 Barriers to gender-responsive EWS

Barriers for women

- This study found that **gendered expectations and social hierarchies frequently result in women's voices being deprioritised in early warning decision-making**, leading to gaps in effective warning dissemination, which continues to exclude women in Bangladesh.
- **Time constraints from unpaid care work significantly impact women**, who are frequently overwhelmed by unpaid responsibilities at home. This situation leaves them minimal time or focus to access early warning information sessions.
- **Many women are excluded from accessing training to understand warning signals**, such as flags or cautionary messages conveyed through microphones. The absence of preparatory messages alongside these cautionary signals complicates their ability to understand and respond effectively.
- In households where male family members are absent or family support is minimal, **women face significant challenges in accessing early warning information due to limited social networks and lack of access to electronic devices**, such as mobile phones or TVs. This was mentioned as a common experience in areas



such as the Suterkhali Union, where women who are **socially isolated** from the community, do not receive early warnings directly.

- **Warning flags are often positioned far from homes, making them inaccessible for women to see**, as they are often home, caring for children, doing housework or working close to the home. Miking for cyclone warning is usually done along main roads, causing announcements to be inaudible for those living farther away or in more remote areas. Mosque announcements are not always clear in all areas, which limits the reach of critical warnings.

3.3.4 The intersection of gender and disability

The intersection of gender and disability disproportionately affects women and girls with disabilities since they experience **compounding challenges shaped by both gender and disability**, which limits their

opportunities and access to essential services and rights, including early warning messages.

Women with disabilities consulted in this study shared that they experience inaccessible and unsuitable EWS methods, discrimination, and a lack of inclusive disaster preparedness planning, as they are **often excluded** from early warning consultations and decision-making processes.

Barriers for women with disabilities

- Due to barriers to participating in social activities, such as visiting markets or helping children outside their homes, **women with disabilities are frequently excluded from informal information-sharing networks.** Whilst gender-related barriers are starting to be addressed within disaster preparedness networks, the added stigma of disability contributes significantly to exclusion from EWS information which further isolates and heightens barriers for women with disabilities.
- As women with disabilities are more likely to experience poverty and low income, this means their **homes are often**

on the outskirts of the community, away from main roads or evacuation routes.

As Bangladesh relies significantly on microphone announcements from Cyclone Preparedness Program teams or mosques for early warnings, these announcements may not effectively reach women with disabilities. For example, in Moharajpur Union, **women with disabilities living in remote areas** shared that they could not hear the microphone warnings as they were too far away.

- Due to a lack of support services, many women with disabilities may rely on family members or neighbours for early warning information. **When no family member is available or neighbours are not nearby, they may experience additional challenges in obtaining timely and accurate early warning information.**
- Early warning information conveyed by others may not always be reliable, leaving women with disabilities susceptible to **misinformation or delayed EWS alerts.**



3. Recommendations

3.1 Recommendations for government



1. Establish a national standard, multi-channel early warning system to meet the diverse needs of women and people with disabilities.

- **Develop and pilot an accessible, multi-channel early warning approach** (audio, text, pictures) in partnership with OPDs and women-led organisations, and use the results to inform **national EWS standardisation and scale-up**.
- Require all disaster management committee levels to **use multiple, coordinated dissemination channels** and work with OPDs to **integrate accessible methods of communication** (e.g., both visual and auditory alerts) into all systems.



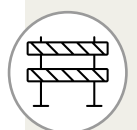
2. Strengthen last-mile dissemination of early warning messages, inclusive of people with disabilities and women

- **Review and strengthen the organisational structure of the Cyclone Preparedness Programme (CPP)** to expand coverage to the household level, to reach all people, including people with disabilities and female-headed households.
- Assign **clear community-level responsibilities** (e.g. CPP volunteers or UDMC focal points) to ensure all households receive warnings.
- Ensure **early warnings are directly communicated**, including through simple visual tools, such as **early warning picture cards**, in door-to-door outreach.



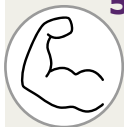
3. Commit to inclusive participation and capacity-strengthening in EWS

- Ensure **representation of women and people with disabilities** in disaster management committees, supported through mandated roles.
- Strengthen **partnerships with OPDs and women-led organisations to co-design, test, monitor, and evaluate** the accessibility and reach of EWS, throughout the implementation of the National EW4All Roadmap.
- **Strengthen capacity of government and EWS actors on accessible communications** and inclusive early warning approaches, including through training delivered by OPDs, disability and women-led organisations.



4. Address systemic barriers to accessing early warning information

- **Improve access and funding for assistive devices**, recognising their role in enabling access to early warnings for people with disabilities in Bangladesh.
- **Strengthen critical infrastructure (e.g. roads and access routes) in high disaster-risk areas**, particularly to connect roads with busy public spaces and ensure access to cyclone shelters where the warning flags are hoisted.
- Strengthen **coverage and placement of EWS**, including in remote areas and locations where women and people with disabilities are less likely to be reached.



5. Strengthen governance, coordination, and accountability for inclusive EWS

- Commit to **regular EWS testing, simulation, and feedback mechanisms**, including participation of people with disabilities and women, and **ensure accessibility is systematically assessed as a key performance measure**.
- **Define clear roles and responsibilities across national, district, and upazila levels**, and strengthen coordination between government, CPP, OPDs, NGOs, and women's organisations on inclusive EWS.
- Allocate and track **budget for accessibility** and inclusion measures (including budget for OPD engagement in governance processes), and **strengthen disaggregated data systems** (gender, age and disability).

3.2 Recommendations for NGOs in early warning programming



1. Improve communication & early warning accessibility

- Involve women and people with disabilities and/or OPD representatives (especially from under-represented disability groups) in the **decision-making process for disseminating** early warning messages in all DMCs.
- Ensure that OPDs and people with disabilities are included to **develop and user-test** accessible early warning messages.
- **Use multiple early warning channels**. For example, when using auditory early warnings (such as microphones) ensure they are accompanied by visual warning signs, such as flood level markers, digital signage, and community noticeboards.
- **Send advanced early warning text messages** to all people of the respective area, well ahead (two to three days ahead).
- **Install an early warning traffic light on a taller post**, ensuring that people far from the main roads can still see the warning signals.
- **Use folk art forms, such as Pot Gaan¹, or street drama** on the EW message and follow-up actions with households with disabilities.



2. Ensure project activities are accessible

- **Budget for, and provide reasonable accommodations** (such as sign language interpreters, picture-based methods and accessible venues) to enable people with disabilities to participate equally in project activities on EWS.
- **Train CPP volunteers and disaster management members** on how to produce and disseminate early warnings to reach all households. This can be achieved by **ensuring early warning announcements reach inner roads and remote areas** via multiple methods such as loudspeakers, LED signs, social media, and door-to-door alerts.

¹ Pot Gaan (Pot song) is a traditional, folk-cultural performance popular in the Southern part of Bangladesh that promotes pro-social behavioural change among people entertainingly.

- **Train staff and volunteers to communicate EW messages to people with disabilities in accessible formats.** Partner with OPDs to provide training on how to communicate with people from **under-represented disability groups**, such as those who are deaf, have a cognitive or intellectual disability, or have a psychosocial disability, as these are disability types often excluded.
- Ensure participation is accessible by addressing barriers such as **location, timing, and care responsibilities**, particularly for women and women with disabilities.
- Provide basic **orientation and digital literacy support** to assist people with disabilities and women to access and understand early warnings.
- Promote **disability awareness and inclusion** at community level to reduce stigma and strengthen inclusive communication of early warnings.



3. Support access to assistive devices:

- Support people with disabilities to access assistive devices by **providing referrals and transport** to assistive technology service providers.
- **Advocate alongside OPDs to the Social Welfare office** to increase allocation for assistive devices for people with disabilities.

4. Conclusion:

The study demonstrates that **while Bangladesh has established strong foundations in cyclone EWS, these systems are not yet inclusive in practice.** Persistent gaps in accessibility, coordination, data, and infrastructure, combined with entrenched social and gender norms, continue to exclude those most at risk. People with disabilities, women, and particularly women with disabilities, face overlapping and reinforcing barriers that limit their ability to receive, understand, and act on early warning information in a timely manner. **The findings underscore the need for targeted interventions to address the identified gaps in inclusivity across multiple early warning channels.** Moving forward, a concerted effort involving government agencies, civil society organisations, OPDs and women-led organisations, is crucial to translate these findings into actionable strategies that build more equitable and effective early warning systems for all in Bangladesh.

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