



Early
Warnings
for All

Scaling up the Multi-Hazard Early Warning System of Bangladesh: Implementation Roadmap 2025-2030





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We gratefully acknowledge the active involvement of the Ministry of Defence; Ministry of Water Resources; Post and Telecommunication Division; Ministry of Agriculture and Ministry of Fisheries and Livestock. We recognize the essential technical and operational inputs from the Bangladesh Meteorological Department; Flood Forecasting and Warning Centre; Bangladesh Telecommunication Regulatory Commission; Department of Disaster Management; Cyclone Preparedness Programme (CPP), Department of Agricultural Extension; Department of Meteorology, Dhaka University; Institute of Water and Flood Modeling, Bangladesh University of Engineering and Technology; BRAC University; and Bangladesh University of Professionals.

In developing the roadmap, these institutions contributed by sharing their expertise, data, and sector-specific insights. Their combined efforts ensured that the roadmap reflects a comprehensive, multi-sectoral approach to strengthening Bangladesh's early warning systems—covering all the four pillars of Early Warnings for All initiative. We also extend our heartfelt gratitude to our development partners, including United Nations agencies, bilateral organizations, the Red Crescent Society, international and national NGOs, private sector stakeholders, and all individuals and institutions who contributed directly or indirectly. Their unwavering commitment and technical inputs were pivotal to the successful formulation of the roadmap.

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In closing, we express our sincere appreciation to the leading international and national NGOs whose research, consultations, workshops, and stakeholder engagement meetings provided valuable feedback and recommendations that helped refine and finalize this roadmap.



Foreward

The Early Warnings for All (EW4ALL) Roadmap 2025–2030 has been developed through an extensive process that included in-depth studies, multi-stakeholder consultations, and dedicated engagements with relevant ministries, departments, authorities, and development partners. This process ensured the integration of both national and international best practices, while aligning the roadmap with Bangladesh’s National Adaptation Plan (NAP), National Disaster Management Plan 2021–2025, Bangladesh Delta Plan 2100, Standing Orders on Disaster 2019, and the Sendai Framework for Disaster Risk Reduction 2015–2030.

The structure and content of this roadmap are tailored to address the diverse contexts of Bangladesh. They are fully consistent with national policies, relevant legislation, and sectoral development plans, while maintaining strong connections to regional and global initiatives. The roadmap is organized into key sections: background; purpose and objectives; methodology and guiding principles; the national implementation roadmap for scaling up early warning systems; implementation structure and approach; monitoring and evaluation framework; and references.

This roadmap represents the collective efforts, commitments, and responsibilities undertaken by the Government of Bangladesh, in close collaboration with regional and international partners. It underscores the importance of international cooperation in strengthening roles, obligations, and shared responsibilities for implementing EW4ALL in Bangladesh, while promoting effective integration with regional and global policies, strategies, and conventions.

Disaster risk reduction and climate change adaptation, particularly early warning and early action are among the most effective and cost-efficient strategies to reduce disaster-related deaths and losses. Recognizing this, the United Nations Secretary-General, António Guterres, launched the EW4ALL initiative in 2022, with Bangladesh selected as one of 30 pilot countries. While the UN’s global roadmap runs from 2023 to 2027, Bangladesh has adopted a 2025–2030 timeframe to align with national planning cycles, strengthen institutional readiness, and ensure the integration of multi-hazard early warning systems into broader disaster risk reduction and climate adaptation strategies.

In an era where climate change is intensifying the scale and frequency of natural hazards, robust early warning systems are vital. These systems not only forecast hazards such as cyclones, storm surges, and floods, but also enable timely and appropriate responses, including proper risk knowledge and preparedness measures. Equally critical is ensuring that at-risk populations, such as flood-prone communities living downstream or cyclone-prone coastal populations, understand, trust, and respond to these warnings effectively.

Bangladesh is one of the most disaster-prone countries in the world, facing seasonal floods, flash floods, cyclones, tornadoes, lightning/thunderstorms, cold waves, heatwaves, riverbank erosion, and landslides, among others. Building on ongoing efforts to reduce disaster risks, the EW4ALL Roadmap 2025–2030 marks a significant milestone in strengthening disaster management and resilience-building in the country.

The Ministry of Disaster Management and Relief has led its development in close collaboration with the Ministry of Defence; Ministry of Water Resources; Posts and Telecommunications Division; Ministry of Agriculture; Ministry of Fisheries and Livestock; relevant departments and authorities, development partners, the private sector, and community-based organizations. Together, these collective efforts have produced a roadmap that is people-centered, inclusive, and committed to leaving no one behind.

Looking ahead, the United Nations Office for Disaster Risk Reduction (UNDRR), World Meteorological Organization (WMO), International Telecommunication Union (ITU), World Food Programme (WFP), along with other UN agencies, the International Federation of Red Cross and Red Crescent Societies (IFRC), the Bangladesh Red Crescent Society (BDRCS), and international and national NGOs, have expressed their commitment to support the Government of Bangladesh in implementing this roadmap. This will require sustained coordination, capacity building, technical support, and resource mobilization. The Ministry of Disaster Management and Relief remains proactive in allocating dedicated funding for the successful execution of the roadmap.

01 INTRODUCTION

1.1 Background information

In a world increasingly shaped by uncertainty and extreme events, the ability to anticipate danger before it strikes is no longer a luxury — it is a necessity. Both the Sustainable Development Goals (SDGs) and the Sendai Framework for Disaster Risk Reduction 2015–2030 underscore this urgency, identifying strengthened early warning systems as a cornerstone for building resilience against disasters and ensuring sustainable development.

Early warning systems (EWSs) are more than just technical tools; they are lifelines — essential instruments of disaster risk reduction (DRR) and climate change adaptation. When designed well, they empower communities, save lives, and protect development gains. But to be effective, early warning systems need to be risk-informed, target communities most at risk, disseminate messages and warnings efficiently, ensure preparedness and support early action. Early warning systems must rely on a sound scientific and technical basis and focus on the most vulnerable people and sectors. This implies the adoption of a system-based approach incorporating all relevant risk factors, whether arising from the climate-related hazards or social vulnerabilities, and from short-term or long-term processes.

An EWS includes four pillars: 1) Disaster risk knowledge, 2) Detection, observation, monitoring, analysis, and forecasting, 3) Warning dissemination and communication and 4) Preparedness and response capabilities.

Yet, an effective EWS is not just about technology or data. It requires collaborative governance, community engagement, and a strong institutional and legal framework. Coordination across sectors, clear mandates, sufficient operational capacities, and inclusive strategies are essential to deliver early warnings that truly serve all — especially the most at-risk populations.

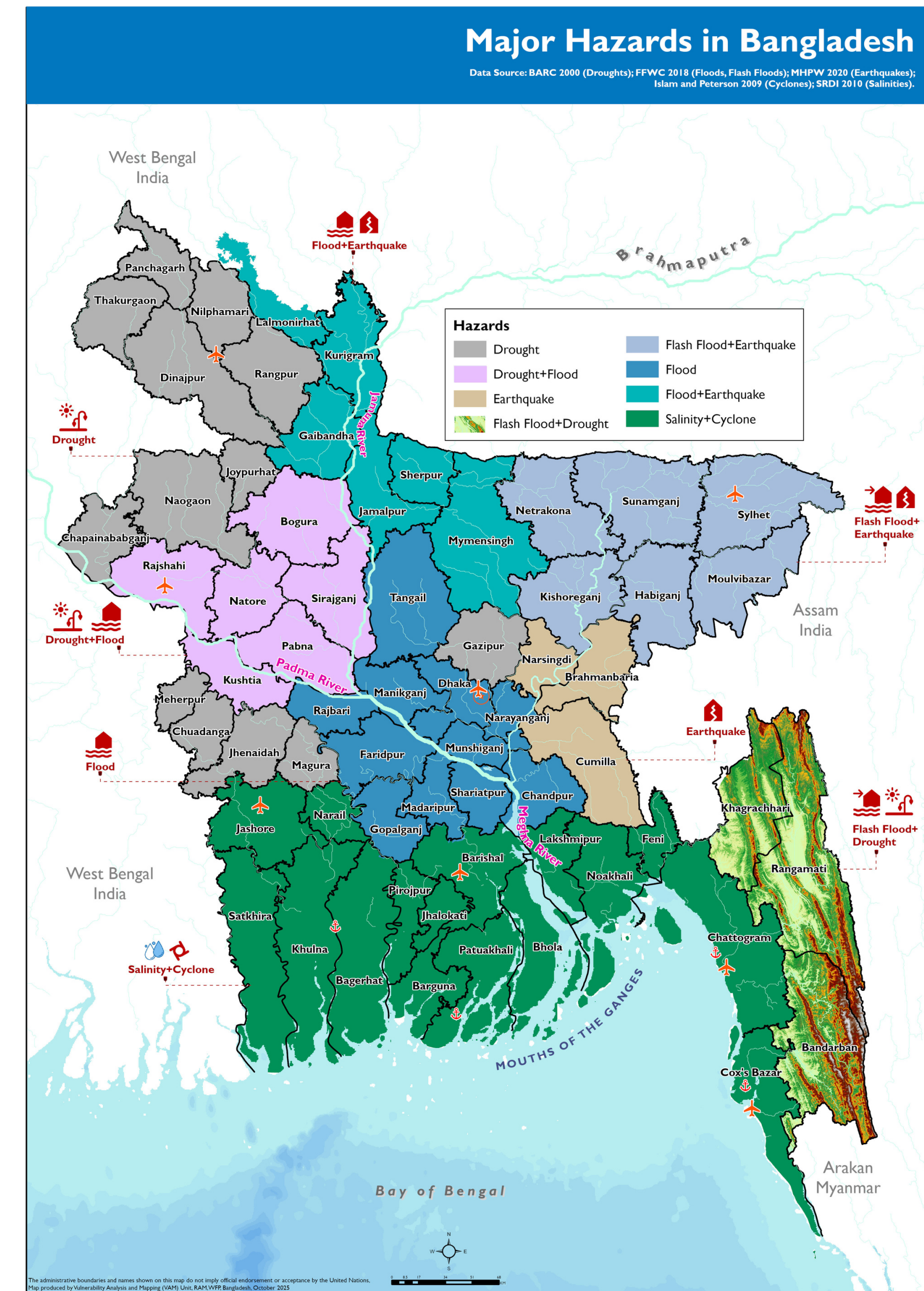


In response to this global call, the United Nations (UN) Secretary-General launched the ‘Early Warnings for All’ (EW4All) initiative, an ambitious vision to ensure that every person on the Earth is covered by lifesaving EWSs by 2027. Under this global banner, Bangladesh is stepping forward to accelerate its efforts – building on its long-standing experience in disaster preparedness and risk communication.

As one of the most climate-vulnerable countries in the world, Bangladesh is no stranger to early warnings. From cyclones and floods to heatwaves and landslides, communities here have long relied on alerts to prepare for the worst. Yet, significant gaps remain – particularly in terms of last-mile connectivity, multi-hazard integration, localized communication strategies, and institutional coherence.

Bangladesh has a long and evolving history of disaster risk management, underpinned by a strong policy and institutional framework that supports early warning dissemination and community preparedness. Key among these frameworks is the Standing Orders on Disaster (SOD), which lays out the roles and responsibilities of all ministries, agencies, and actors involved in DRR. The SOD mandates that early warnings be timely, understandable, and actionable at all administrative levels – from national to union parishad.

The National Plan for Disaster Management (NPDM) 2021–2025 further reinforces the country’s commitment to strengthening EWSs, identifying it as a cross-cutting enabler for resilience building. The NPDM promotes a multi-hazard approach, emphasizing early warning dissemination for floods, cyclones, landslides, earthquakes, and emerging climate risks such as heatwaves, cold waves, and thunderstorms/lightning



Key institutions driving the early warning agenda in Bangladesh include:

- The **Ministry of Disaster Management and Relief (MoDMR)** - responsible for formulation and implementation of laws, policies and action plans associated to disaster management, emergency humanitarian assistance and rehabilitation activities and development as well as maintenance of database of all relevant social security programs.
- The **Department of Disaster Management (DDM)** – serving as a national coordination body for preparedness, risk reduction, and early warning dissemination.
- The **Bangladesh Meteorological Department (BMD)** – responsible for meteorological monitoring, forecasting, and cyclone warnings.
- The **Flood Forecasting and Warning Centre (FFWC)** under the Bangladesh Water Development Board (BWDB) – providing riverine flood forecasts.
- The **Cyclone Preparedness Programme (CPP)** – a flagship community-based early warning and response programme.
- **Bangladesh Telecommunication Regulatory Commission (BTRC)** – responsible for warning dissemination and communication engaging mobile network operators and licensees.
- The **Bangladesh Red Crescent Society (BDRCS)** - auxiliary to the government and responsible dissemination and preparedness and response at community level.
- **Local Disaster Management Committees (LDMCs)** – critical for last-mile outreach and community engagement.

Despite this robust infrastructure, significant gaps and challenges remain:

- Fragmentation of data systems and a lack of full interoperability across agencies.
- Limited coverage of EWSs for non-cyclonic hazards (e.g., heatwaves, landslides, urban flooding).
- Gaps in last-mile communication, especially in remote, urban slum, and marginalized communities.
- Insufficient multi-hazard integration and people-centered warning messages, particularly those that consider the needs of women, persons with disabilities, and children.
- Inadequate localized capacity to translate warnings into early action at the community level.

With climate risks intensifying, these gaps pose serious threats to Bangladesh’s development trajectory. The EW4All initiative, therefore, offers an opportunity not only to align national systems with global goals, but also to catalyze transformative improvements in the way early warnings are produced, communicated, and acted upon in Bangladesh.

1.2 Purpose and objectives

This EWS Implementation Roadmap for 2025-2030 serves as a strategic guide to drive initiatives spanning national to local levels, channel investments towards enhancing EWSs for more effective DRR, and facilitates the seamless integration of comprehensive early warning mechanisms. Organizations are encouraged to incorporate these actions into their operational frameworks, aligning with their primary and supportive responsibilities. This harmonization ensures the optimal utilization of resources across the spectrum from national to local levels.

The primary objective of this Roadmap is to provide the national and local governments with a structured blueprint for fortifying a people-centric EWS in Bangladesh through targeted actions and resource allocation. This Roadmap stems from an extensive gap analysis of Bangladesh's EWS, which included the application of a Minimum Core Capability Checklist in the form of [workshop / surveys / stakeholder consultations]. This roadmap presents a set of recommended actions designed to prioritize investments in EWS and DRR, in accordance with target Goal of the Sendai Framework for Disaster Risk Reduction 2015-2030, and the NDPM 2021-2025, Disaster Management Act 2012, National Adaptation Plan of Bangladesh 2023-2050, Bangladesh Delta Plan 2100, and National Disaster Risk Financing Strategy.

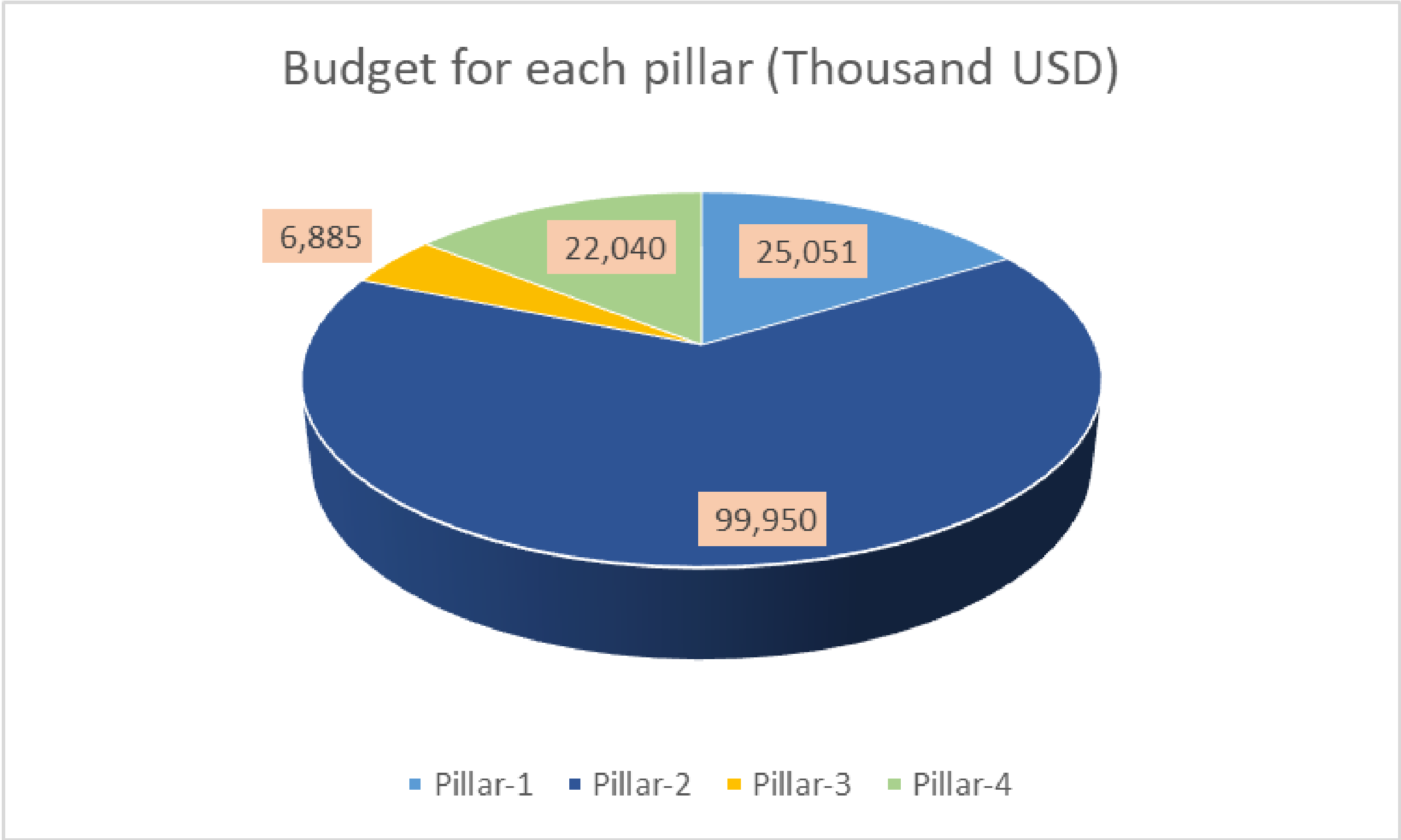
Collaboratively crafted with inputs from MoDMR, DDM, BTRC, BMD, FFWC, BDRCS, CPP, Academic Institutions like Dhaka University (DU), Bangladesh University of Engineering and Technology (BUET), IFRC, various UN entities such as the UN Resident Coordinator Office (UNRCO), United Nations Office for Disaster Risk Reduction (UNDRR), World Meteorological Organization (WMO), International Telecommunication Union (ITU) and World Food Programme (WFP) and multiple (International) Non-Governmental Organizations (INGOs/NGOs), this Roadmap was developed by MoDMR, DDM, BTRC, BMD, and FFWC. It provides a basis for coordinated efforts among diverse national and local agencies, channelings focused programming and resource allocation towards scaling up national early warning systems.



The recommendations presented herein are based on identified national gaps, priorities and needs and cover the four pillars as well as the interpillar domain of an EWS and as such of the EW4All initiative:

- Pillar 1: Disaster Risk Knowledge
- Pillar 2: Detection, Observation, Monitoring, Analysis, and Forecasting
- Pillar 3: Warning Dissemination and Communication
- Pillar 4: Preparedness to Respond

Additionally, the EWS Roadmap takes into account the interpillar domain, covering aspects around governance, stakeholder coordination, advocacy, monitoring and evaluation and financing for EWSs. This holistic approach guarantees a comprehensive and well-rounded enhancement of Bangladesh’s early warning infrastructure





2.1 Pillar 1

Disaster Risk Knowledge

Objective: Promote knowledge about risks, exposure and vulnerabilities to disasters in order to increase community resilience through actions to reduce disaster risks and adapt to climate change

Gaps and Activities

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
Outcome 1.1 Production of quality, timely and relevant risk information													
Gap 1.1 Key hazards (outline the types and names of the hazards) have been identified but it is also believed that the list could be expanded to add some more emerging issues	Localized and updated multi-hazard profiling system institutionalized	Number of updated hazard profiles validated and disseminated to stakeholders	Review and update of the existing hazard list, considering the localized hazards following Hazard Information Profile (HIP) -Ensure access to all relevant stakeholders with clear understanding	MoDMR/DDM	BMD, BBS, FFWC, UNDRR, UNRCO, FSD							50,000	MoDMR through DPP/TAPP, Start Network (Partial), Hydro SOS BaNe project (under approval)
Gap 1.2 Damage data is available, but loss and hazardous event tracking systems and data accessibility need to improve aligning with Global standard	Revised existing loss and damage tools	Number of tools for loss and damage tracking revised	Review and update of existing disaster damage and loss data collection tools (SOS and D-form) in line with global loss and damage tracking and Sendai Framework Monitoring indicators	MoDMR	DDM, UN agency, Concern							60,000	UNDP/CARE, UNICEF
	Strengthened national system for disaster loss and damage tracking aligned with global standards	Existing National tracking system updated and upgraded	Update and Upgrade existing National Loss and Damage tracking system (Emergency Operation Dashboard) and ensure proper repository for historical data.	MoDMR	DDM, UNDRR							200,000	UNDRR (Partial)+MoDMR
	National Loss and damage calculation protocol guideline to support improved loss and damage tracking	National Loss and damage calculation protocol in place with clear understanding of relevant practitioner	Protocol and guidelines for disaster loss and damage calculation in close collaboration with all sectoral ministries.	MoDMR/DDM	All sectoral Ministries and relevant UN Agencies							70,000	CARE, START Network and NIRAPAD
	Improved visibility and tracking of adaptation investments	Adaptation investment stocktaking report published and utilized	Stocktaking Adaptation Investment from national to local level and establish a mechanism to continue this effort	MOEFCC	Relevant sectoral Lead Agencies in collaboration with NGO affairs Bureau							70,000	DPP/TAPP
	Enhanced post-disaster needs assessment (PDNA/JNA) process with urban tools integrated	Number of PDNA/JNA processes conducted with revised tools and stakeholder coordination	Enhance coordinated post disaster need assessment process (JNA, PDNA/Rapid) including specialized tools for urban settings	MoDMR/DDM	UNDP, CARE							1,500,000	FCDO (Partial)

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
Outcome 1.1 Production of quality, timely and relevant risk information													
Gap 1.3 Static risk map (INFORM) available as of 2022 which needs to be updated based on recent census and updated hazard specific risk analysis and maps are not available.	Dynamic and hazard-specific vulnerability and risk maps developed and institutionalized	Number of dynamics, hazard-specific risk analysis with maps updated and shared with stakeholders	Update Hazard specific Vulnerability and Risk Assessment (for priority hazards) with Dynamic Hazard and Risk Map for respective hazards	MoDMR	BBS, DDM, MoDMR, UN Agency, NGO/INGO, RIMES							1,000,000	MoDMR through DPP/TAPP,UNDP/UN DRR, Adaptation Funded Hydro SOS BaNe project (under approval)
	Catastrophic Model for Major Hazards in Bangladesh	Number of catastrophic models developed for different hazard	Develop Catastrophic model for major hazards based on hazard specific risk analysis	MoDMR, Ministry of Finance	DDM, Planning Commission							300,000	MoDMR through DPP/TAPP
	INFORM risk index and map updated with latest demographic and census data and enabled for dynamic updates	INFORM map updated and automated update mechanism established	Review and update the risk map (INFORM) by using the latest census data and develop a digital form to periodically update the risk map based on the latest data.	MoDMR	BBS, DDM, MoDMR, UN Agency, NGO/INGO							200,000	UNRCO (Partial), Start Network (Partial), MoDMR through DPP/TAPP, Adaptation Funded HydroSOS BaNe project (under approval)
	Union-level INFORM risk indexing system developed and operational	Number of union-level INFORM indexes published and accessible on national platforms	Downscaling the Inform Risk Indexing up to Union Level (Admin 04) with an interactive platform to portray the INFROM risks for different admin level (2,3,4)	MoDMR	DDM, Relevant Sectoral Agencies, UNDRR and other non-govt. agencies							3,000,000	MoDMR through DPP/TAPP
Gap 1.4 Lack of detailed DEM data	Updated high-resolution DEM data for implementing accurate inundation, storm-surge, landslide modelling and Impact-based Forecasting (IbF)	High-resolution DEM data updated for bathymetric, flood-prone and coastal areas at least once in 5 years	-Generate good quality DEM for flood prone areas/hotspots -Low cost bathymetric and DEM survey -Near-shore bathymetric/ topographic survey for piloting impact-based coastal inundation forecasting -Update the DEM data on regular interval for generating IbF	MoDMR & DDM	UN organization and other relevant non-govt. agencies							5,000,000	MoDMR through DPP/TAPP
Gap 1.5 Climate impact projection is available at national level, but sub-national level climate projection modeling needs to develop	Sub-national climate impact projections developed and integrated into planning	Number of Dynamic Sub-national climate projection model in place with access and upon clear understanding utilised as planning tools	Develop climate impact projection at sub-national level (Admin 02 and 03)	MoDMR/MoEFCC	MoEFCC, UNESCAP							1,500,000	MoDMR through TAPP, UN ESCAP, Adaptation Funded HydroSOS BaNe project (under approval)

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
Gap 1.6 Lack of coherent and comprehensive common Risk assessment tools	Standardized and digitized URA and CRA tools integrated into risk assessment systems with improved access mechanisms	Number of updated URA and CRA tools institutionalized and number of CRA reports accessible at national and local levels	Review, update and standardize the urban risk assessment (URA) tools and process.	MoDMR	DDM/Developm ent Partners							10,000	UDD, DAM, ISLAMIC Relief
			Review and update the Community Risk Assessment tools, considering the context of both Disaster Risk Reduction (DRR) and Climate Change Adaptation.	MoDMR	DDM Concern							10,000	UDD, DAM, ISLAMIC Relief
			Ensure Access of CRA reports and systematic arrangements for accessing localized risk information.	MoDMR	DDM							1,000,000	UDD, DAM, ISLAMIC Relief
Outcome 1.2 Access of standardized, interoperable and up to date risk information													
Gap 1.7 Absence of digitized and interactive Hazard and Risk Map for National and local level decision making	National Risk Information Platform (DRIP) updated with multi-hazard and sub-national profiles	DRIP platform upgraded and accessible with sub-national layers and interoperability protocols	Update and Upgrade Disaster and Climate Risk Information Platform (DRIP) with a sustainable and flexible mechanism to regular update/add risk information for different admin layers (Admin 02, 03, 04)	MoDMR, Planning ministry	BBS, DDM, BMD, BWDB, SOB, GSB							2,000,000	MoDMR through TAPP, UNDP, Adaptation Funded HydroSOS BaNe project (under approval)
	Contingency plans, and digitized risk profiles, risk information integrated in DRIP platform	Number of risk assessments/plans, risk information datasets updated and linked to DRIP	Stocktaking and updating different risk assessments/information, contingency plans including sector specific risk assessments/information and ensure integration with DRIP platform	MoDMR/ MoP	Relevant Sectoral Agencies, UNDP, other non-govt. agencies							250,000	Adaptation Funded HydroSOS BaNe project (under approval)
	Guideline and protocol for adding risk information, datasets in DRIP platform	Updated Guideline and protocol for adding risk information in DRIP platform with clear dissemination plan	Updating the protocol and guideline for data integration in Disaster Risk Information Platform (DRIP) – (e.g. Sectoral disaggregated data, INFROM risk index, Hazard wise risk information)	MoDMR, Ministry of Planning	Relevant sectoral Lead Agencies, UNDP							250,000	UNDP, UNDRR
	Risk Information Platforms actively used by national and sub-national stakeholders	Number of institutions oriented and using DRIP/DMKP platforms	Clear Dissemination and communication of risk information platforms across all relevant stakeholders -Risk Anticipation for preparedness and informed Decision Making (RAPID PORTAL) as an integral part of DDM	MoDMR	Planning ministry, DDM, MoDRM, BMD, BBS, FFWC, SOB, RIMES							100,000	MoDMR through TAPP, UNDP, Adaptation Funded HydroSOS BaNe project (under approval)

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
Gap 1.8 Lack of assessment of critical infrastructure	Risk-informed database of polder and embankments digitized and integrated with DRIP	Number of digitized datasets of critical infrastructures	Digital dataset of Polder/ Embankments and other key critical infrastructures (protection road, bridge culverts, access road) focusing on hazard risk	MoD MR, Planning commission	Different Sectoral departments, offices							2,000,000	MoDMR through TAPP, UNDP, Adaptation Funded HydroSOS BaNe project (under approval)
Gap 1.9 Lack of sectoral risk assessment	Sectoral risk profiles developed and integrated into national risk systems	Number of sector-specific risk assessments completed and shared	Conduct sectoral risk assessment with meaningful access of data/information to integrate with National Risk Information platform	MoDMR	Different Sectoral departments, offices							500,000	MoDMR thorough TAPP, Adaptation Funded HydroSOS BaNe project (under approval)
	Gender risk unpacked from environment Lense	Gender and Environment survey report with interoperable and accessible dataset	Conduct Gender and environment survey	BBS	UN Women							207,000	UN Women
Gap 1.10 Multi-hazard displacement management system needs to be reviewed	National strategy for internal displacement developed and aligned with disaster and climate risk frameworks	Plan of Action for IDPs, strategy developed, validated, and adopted by key ministries	Develop plan of action for National internal displaced populations (IDPs)	MoDMR	IOM, UNHCR, IFRC							100,000	MoDMR thorough TAPP, IOM, UNHCR, IFRC
	Enhanced and interoperable displacement tracking system (EoD) institutionalized	Number of districts using EoD system to report internal displacement during post disaster scenario	Enhance and interoperable displacement tracking mechanism in national disaster loss and damage tracking system (EoD)	DDM	District Administration, WFP, UNDRR, CeGIS							50,000	MoDMR thorough TAPP, IOM, UNHCR, IFRC

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
	Baseline of Nationwide displaced and climate migrants population	Number of climate migrants due to slow onset events at Union Level (Admin O4) and associated economic loss	Baseline of Displaced and Climate Migrant Population Loss and Damage Associated with Mobility and Methodological Pilot to Quantify Climate Migrants due to Slow Onset Events	MoEF CC	CEGIS, IOM, Sectoral offices							100,000	IOM
Gap 1.11 Institutional arrangements and digital infrastructure need to be interoperable to enable data exchange between relevant stakeholders	Standardized data exchange protocol and interoperable risk data infrastructure established	Data standard guidelines adopted and interoperable COD developed close collaboration with all key departments/offices	Develop data standard guideline for interoperability, data exchange and develop common operational database (COD)	BBS,	MoDMR, DDM, BMD, FFWC, CPP, FSCD							150,000	MoDMR thorough TAPP, UNICEF (Partial)
			Develop Pre-crisis dataset and ensure alignment with National Tracking system for automated feed of Baseline Information (By admin 2, 3, 4)	BBS	DDM with different sectoral ministries/depar tment							200,000	DPP, TAPP
	Disaster risk information integrated with National Data Center for unified access	Risk information nodes connected with National Data Center	Disaster Related Data/Information needs to be connected with National Data Center ensuring universal data format, updated common data archiving and cloud storage	ICT ministry	MoDMR, DDM, BMD, FFWC, CPP, FSCD							200,000	MoDMR thorough DPP, TAPP

[illegible]

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
Outcome 1.3 Ability to use risk information to inform decision making for Early Warning													
Gap 1.14 Efforts should be strengthened to develop multi-sectoral experts trained in the collection, generation, verification, utilization, and dissemination of risk information, including the establishment and maintenance of a centralized database of qualified personnel.	National risk information capacity strengthening program developed with trained resource pool from different sectors	Number of multi-sectoral experts trained across risk information domains	Develop training manuals and guidelines for experts on collecting and managing risk information from different sectors and prepare a trained resource pool.	BMD, BWDB	DDM, DAE, DLS, BBS, SoB, DWA, CPP, FSCD							150,000	MoDMR thorough DPP, TAPP, Adaptation Funded HydroSOS BaNe project (under approval)
		Training manuals for risk informed Humanitarian, DRR and Development action with proper access and pool of trained personal	Training and skills development program for decision makers to ensure risk informed action upon developing training manual and guidelines (DRR, Humanitarian and development) using available national risk analysis (e.g. INFROM, DRIP)	BMD, BWDB	DDM, DAE, DLS, BBS, SoB, DWA, CPP, FSCD							500,000	MoDMR thorough DPP, TAPP, Adaptation Funded HydroSOS BaNe project (under approval)
		Training manuals and guideline for Risk knowledge integration across all EW4ALL pillars	Contextualized training manuals and guidelines for integration of risk knowledge in early warning forecast, dissemination and prior preparedness and organize training for relevant officials and prepare pool of trained experts	MoDMR, BMD	DDM, FFWC							200,000	MoDMR thorough DPP, TAPP
		Training manual and contextualized guideline for collecting displaced population information through national loss and damage information collection system	Develop training manual and contextualized guideline for collecting displaced population information through national loss and damage tracking mechanism	DDM	District Administration, WFP, UNDRR, CeGIS							30,000	MoDMR thorough TAPP, IOM, UNHCR, IFRC

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
		Generic Training module for training on loss and damage tracking at national level	Design generic training module, including online and form a ToT panel for loss and damage tracking with regular maintenance and update of trained resource pool	DDM	DDM, UN agency, NGO/INGO							300,000	MoDMR, Practical Action, BDRCS, CARE, FAO, WFP, UNDP, ACF, ADPC
		Expert database established and regularly updated	Development and regular maintenance/update of expert database	MoDMR, BMD, BWDB	DDM, DAE, DLS, BBS, SoB, DWA, CPP, FSCD							50,000	MoDMR through DPP, TAPP
Gap 1.15 Strengthen the process of identifying individuals at risk to ensure they receive timely social and humanitarian support, supported by reliable and actionable early warning systems.	Integrated beneficiary and risk data system established for social protection, anticipatory action, and index-based insurance	Number of beneficiary databases developed and linked to updated response systems	Update and maintenance of humanitarian assistance portal	DDM	DSS							200,000	MoDMR through DPP, TAPP
		Humanitarian assistance portal updated	Develop common beneficiary database for anticipatory action and response	DDM	WFP, NGOs							300,000	MoDMR through DPP, TAPP, WFP
		Risk information archived for insurance design	All related risk information should be collected and archived to introduce Index based risk insurance (linked with pillar 4)	IDRA, SBC	DDM, BMD, FFWC, FID							50,000	MoDMR through DPP, TAPP
	Ensure effective implementation of Multi Hazard Early Warning System	Guideline and strategy for inclusive early warning system	Prepare guideline and strategy for inclusive Multi Hazard Early Warning system in Bangladesh based on Inclusive Early Warning and Early Action: Checklist and Guideline in line with Sendai Gender Action Plan	MoDMR	BMD, BTRC, FFWC, DDM							100,000	MoDMR through DPP, TAPP

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
Gap 1.16 Awareness, simulation/drills and exercises to be conducted regularly at regional, national, local and community level for enhanced decision support systems	Institutionalized multi-level simulation, awareness, and cooperation mechanisms for anticipatory decision support	Number of tools/guidelines developed	Tools and guidelines for awareness raising simulation/drills and exercises for different hazards that contain all elements of risk	MoDMR	DDM, BMD, FFWC, FID							100,000	MoDMR through DPP, TAPP
		Number of risk informed awareness, simulation/drills and exercise organized	Conduct risk informed awareness, simulation/drills and exercises	MoDMR	DDM, BMD, FFWC, FID							200,000	MoDMR through DPP, TAPP
		Number of regional coordination events held	Regional network and cooperation	MoDMR	DDM, BMD, FFWC, FID							100,000	MoDMR through DPP, TAPP
Gap 1.17 Multi-sectoral SoP for decision support systems for early warning system	Institutionalized multi-sectoral decision support system with SoPs and operational plan	Number of SoPs developed and adopted by key ministries	Develop multi-sectoral SoP for decision support systems for early warning system	MoDMR	DDM, BMD, FFWC, FID', RIMES							200,000	MoDMR through DPP, TAPP
		Plan of action endorsed and implemented	Plan of action for multi-sectoral decision support systems for risk informed early warning	MoDMR	DDM, BMD, FFWC, FID							300,000	MoDMR through DPP, TAPP

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
Outcome 1.4 strengthened collaboration between key ministries and relevant sectors													
Gap 1.18 Role of private sector in risk analysis and reduction needs to be strategized	Private sector engagement framework developed and operationalized in national EWS and risk knowledge systems	Policy guidelines on private sector roles developed	Develop policy guidelines on roles and responsibilities of private sector in supporting Risk informed Early Warning Systems (EWS)	MoDMR	DDM, Development Partners							30,000	MoDMR through DPP, TAPP
		Number of orientation sessions conducted	Orientation session for related private sector partners at different levels	MoDMR	DDM, Development Partners							20,000	MoDMR through DPP, TAPP
Gap 1.19 Identify and pursue opportunities to enhance risk financing based on risk financing strategy and expand financial products, such as risk transfer tools, to support anticipatory action	National Plan of Action for Risk Financing developed to support anticipatory action and disaster risk transfer mechanisms	National Risk Financing Plan of Action developed and endorsed	Develop Plan of Action for Risk Financing Strategy including anticipatory action and risk transfer mechanisms	MoDMR	Planning commission, Ministry of Finance							100,000	MoDMR through DPP, TAPP
Gap 1.20 Collaboration with academic experts on risk identification and impact-based solutions	Strengthened partnerships with academic and research institutions for risk modeling and impact-based forecasting	Number of academic institutions engaged in risk analysis	Explore opportunities for research engaging in academia on use of latest technology for comprehensive risk analysis	MoDMR	DDM, BBS							100,000	MoDMR through DPP, TAPP

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
Gap 1.21 Weak inter-ministerial coordination for impact-based forecasting	National coordination mechanism for multi-sectoral co-production of impact-based forecasts established	Number of ministries/agencies participating in co-production of forecasts	Establishing coordination mechanism among ministries to co-produce impact-based forecasts engaging the affected community	MoDMR	DDM, All sectoral departments/off ice							20,000	MoDMR through DPP, TAPP
	Strengthened data governance for disaster statistics aligned with ESCAP guidelines	ESCAP-Disaster Related Statistics (DRSF) aligned disaster statistical framework adopted and agreed by key sectoral ministries	Strengthen inter-ministerial coordination to ensure improved disaster-related statistics adapting ESCAP Guidelines	MoDMR, BBS	DDM, All sectoral departments/off ice							150,000	MoDMR through DPP, TAPP
	Protocol, tools and Guideline for After Action Review of Multi Hazard Early Warning System (MHEWS)	Protocol, tools and Guideline developed for MHEWS system and # of coordinated After Action Review of MHWES conducted	Yearly After-Action Review of Multi hazard Early Warning System with detailed protocol tools and guidelines	FBF taskforce, MoDMR	AATWG, DDM							50,000	MoDMR through DPP, TAPP

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
Outcome 1.5 Risk knowledge capability build through a combination of Indigenous and local knowledge													
Gap 1.22: Stock taking and Recognition of Indigenous and local knowledge and integration in risk assessment process	Indigenous and local knowledge documented and integrated into national DRR and MHEWS policy frameworks	Number of DRR policies/guidelines updated to reflect local/indigenous knowledge	Explore the learning and landscape of local and indigenous knowledge integration in Risk knowledge	MoDMR/DDM	Relevant sectoral agencies other non-govt. agencies							100,000	MoDMR through DPP, TAPP
		Number of studies/reviews conducted on local knowledge systems	Guideline to integrate local/indigenous knowledge in existing national DRR policy/Guidelines and EWS	MoDMR	Relevant sectoral agencies, UN and other non-govt. agencies								60,000
1.23: Understanding Risk Knowledge at Multi-level stakeholders including communities	Risk knowledge integrated into national education and governance systems	Number of curriculum and training manuals integrating risk information	Including Risk identification in national School curriculum through NCTB	MoDMR	DDM, NCTB and other relevant agencies							50,000	MoDMR through DPP, TAPP

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
Outcome 1.6 Increased use of innovation and technology in countries to improve risk knowledge capability													
Gap 1.24 Integration of innovative ways of AI and other computing technologies could be considered.	Opportunities and use cases for AI and emerging technologies explored and documented for DRR and EWS	Number of AI-based pilots or scoping studies initiated	Explore opportunities for integration of AI and other Computing in DRR and EWS	MoDMR	DDM and Sectoral Agency RIMES							200,000	MoDMR through DPP, TAPP
Gap 1.25 Lack of policy and guideline for Aerial Data collection and dissemination	National policy and technical standards for aerial and satellite data collection and analysis in DRR developed and adopted	Aerial/satellite data policy and guideline published	Policy Development for Aerial Data Collection and open platform establishment (Guideline and Policy for use of satellite data and image in risk assessment)	MoDMR								70,000	MoDMR through DPP, TAPP
		Number of agencies trained or using the standards	Training Manual and guidelines for using satellite data and image analysis in risk information and develop trained expert pool	MoDMR								200,000	MoDMR through DPP, TAPP
Gap 1.26 Lack of efficient and predictable funding for technology acquire and utilization for risk assessment	Risk knowledge technology funding strategy co-developed with GoB, donors, and private sector	Risk knowledge funding mechanism established	Advocacy for developing financial strategies and mechanism of GoB, Development Agencies and Private Sectors for risk knowledge	MoF, MoDMR and MoST								20,000	MoDMR through DPP, TAPP
Gap 1.27 Insufficient capacity to use the technology and integrate into mainstream risk assessment	National capacity strengthening strategy on risk tech developed and piloted	Number of stakeholders trained using tailored strategy, endorsed by ministries	Capacity gap analysis and developing a tailored strategy for different stakeholders in utilizing technology for risk analysis	MoDMR and MoST	DDM							50,000	MoDMR through DPP, TAPP
Gap 1.28 Collaborative platform for integration of expertise from various stakeholders, - community, academia, research, policymakers, practitioners etc.	Collaborative platform hosted by national entity to promote cross-sectoral expertise	Number of sectors engaged in the formally established national platform	Identifying a national body or establishing a coordination body for hosting a platform to support Risk Knowledge and integration of technology in the broader spectrum of risk knowledge among various stakeholders	MoDMR and MoST	DDM							100,000	MoDMR through DPP, TAPP
Total budget for pillar- 01												25,051,273	



2.2 Pillar 2

Detection, Monitoring, Analysis and Forecasting of Hazards

Objective: Improve the technical and institutional capacity for weather detection, observation, monitoring, analysis and forecasting, in order to issue inclusive, impact-based multi-hazard alerts and warnings to save lives and property.

Gaps and Activities

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
Observation & Monitoring													
Gap 2.1 Gaps in observational infrastructure due to faulty instruments	Ensure 80% of BMD’s existing observationalinfrastruc ture (AWS) is operational and 95% of BMD’s existing manual observational infrastructure is operational	More than 80% of AWS and more than 95% of manual observational infrastructure is operational and well-maintained at all times	- Regular Maintenance of all observational stations - Maintain stock of spare sensors for observation stations (⅓ of operational sensors) -Monitoring/security through CCTV for observational stations - At least one annual training for maintenance staff and observer.	BMD	WMO Supplier/ Private Sector							1,000,000	GoB, SOFF, Additional support required
			-Redundant transmission systems (2 modes) -Introduce satellite communication for observational data transmission - At least one annual training	BMD	WMO Supplier/ Private Sector							3,500,000	GOB,Addl. support required
			-Maintenance of climate data management system - At least one annual training on calibration forthe relevant staff	BMD	WMO (e.g. RICs) Supplier/ Private Sector							1,500,000	GoB, SOFF, additional support required.
		Ensure 80% of FFWC’s existing observational infrastructure is operational	More than 80% of automatic stations and more than 95% of manual observational infrastructure is operational and well-maintained at all times	- Upgradation and operationalize existing river and rainfall monitoring stations of FFWC - Conduct calibration - Regular O&M check - At least one annual training for data readers of FFWC	BWDB- FFWC	RIMES, ICIMOD,WMO Supplier/ Private Sector						2,000,000	GoB, additional support required, Adaptation Funded HydroSOS BaNe project (under approval).
				- Regular sensor calibration, data quality control for FFWC -Security/monitoring through CCTV for automated stations - At least one annual training for data readers of FFWC	BWDB- FFWC	RIMES, ICIMOD,WMO Supplier/ Private Sector						1,500,000	GoB, additional support required.

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
Observation & Monitoring													
Gap 2.2Limited scope for discharge and cross-section measurements	Improved flood forecasting accuracy	At least 10 additional discharge stations installed at major points	-Install additionalautomated discharge monitoring stations -Conduct calibration -Regular O&M check -Capacity Building	FFWC	RIMES, ICIMOD, WMO Supplier							1,000,000	GoB, additional support required, Adaptation Funded HydroSOS BaNe project (under approval).
		Frequency of morphological measurements increased up to 3 times annually	-Increase the frequency of cross-section measurements -Install additional morphological measurement stations -Conduct calibration -Regular O&M check -Capacity Building	FFWC	RIMES, ICIMOD, Supplier							1,500,000	GoB, additional support required.
Gap 2.3 Three (3) existing Radars are Faulty, Radar data assimilation at BMD is not operational	Upgradation and expansion of the radar network currently in existence for enhanced nowcasting and short-range forecasting	Weather RADAR network down time reduced to less than 10% per annum (for 3 Faulty Radars)	- Assess & replaceexisting radar stations of BMD (3 S-Band) - Conduct calibration - Regular O&M check - Capacity building	BMD	NWS (USA), JMA, Met Norway, WMO RIMES							30,000,000	GoB, WB, JICA, ADB, additional support required.
		Model performance and forecasting skill increased	-Radar data assimilation by integrating weather radar data, regional and global collaboration -Capacity building	BMD	NWS (USA), JMA, Met Norway, WMO RIMES							500,000	GoB, WB, JICA, ADB, additional support required, WMO.
	Increase the number of radar for extreme weather systems monitoring (tornado, cyclone, thunderstorms, heavy rainfall etc.)	Improvement of nowcasting for extreme weather systems	- A comprehensive assessment is for design of the radar network, to identify potential radar sites and types -Install 3 X-Band Radar for extreme weather systems monitoring -Conduct calibration -Regular O&M check -Capacity building	BMD	NWS (USA), JMA, MRI,WMO Met Norway, RIMES							200,000	GoB, WB, JICA, ADB, additional support required.

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
Observation & Monitoring													
Gap 2.4 No marine observation	Establishment of Ocean observation and forecasting (ocean current, wave, surge etc.)	Marine observation and forecasting available	-Establish 3 Marine observation buoys including -Conduct calibration -Regular O&M check -Capacity building	BMD, Bangladesh Navy	JMA, MRI, Met Norway,UKMet WMO							2,000,000	GoB, WB, ADB, additional support required.
		At least 30 Tide/surge Gauges operational	-Upgradation of 40 Tide/surge Gauges stations with telemetry -Conduct calibration -Regular O&M check -Capacity building	BMD, BWDB-FFWC	JMA, MRI, Met Norway,UKMet WMO							5,000,000	GoB, WB, ADB, additional support required.
		At least 4 Sea-level stations operational	- Installation 5 Sea-level stations -Conduct calibration -Regular O&M check -Capacity building	BMD, BWDB-FFWC	JMA, MRI, Met Norway, UKMet, WMO							1,000,000	GoB, WB, ADB, additional support required.
Gap 2.5 Lack of sufficient Surface Weather Observations	Enhancement of Surface observation and forecasting	At least 25 AWS installed and made operational	-Installation of additional 25AWS -Regular sensor calibration, data quality control at every phase -Redundant transmission systems (2-3 modes) -Regular observatory maintenance -Spare 1/3 of sensors for calibration -Monitoring/security through CCTV for automated stations in remote and hard-to-reach locations	BMD	WMO RIMES, SCI, Local Gov., Hum. Partners							1,500,000	GFFO, ECHO, WB, ADB, additional support required, Adaptation Funded HydroSOS BaNe project (under approval).
	Ensure real-time weather condition monitoring through video surveillance	CCTVs installed at all 60 BMD observatories and made operational	-Install CCTVs at all 60 observatories and other strategic locations to monitor extreme weather through video surveillance - Conduct calibration - Regular O&M check - Ensure security protocol	BMD	Local Gov., Hum. Partners,							500,000	GoB, additional support required.

Gap Identified	Associated Output	Output Indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
Observation & Monitoring													
Gap 2.6: Lack of Earthquake Monitoring and Observation System, including the need for upgradation and automation.	Enhanced earthquake monitoring.	2 Additional earthquake monitoring station establishment and upgradation.	Maintenance of existing 13 stations, installation of 2 additional earthquake monitoring stations, system installation and upgradation to automated analysis mechanism, at least one annual training, organize earthquake simulation.	BMD	RIMES, JICA, MRI, CMA, Met Norway, UKMet, USGS, GSB, WMO							750,000	GoB, WB, ADB, additional support required.
Gap 2.7Limited Aviation Forecasting system	Enhanced forecast for aviation safety	Visibility sensors installed in at least 4 airports across Bangladesh	-Installation new AWOS & RVR (including redundant sensors) and Enhancement of existing forecasting capacity in Met Office in all Airports across Bangladesh - Regular O&M check - Conduct calibration and validation - Capacity building of operators	BMD	BAF, Local Gov., RIMES WMO							5,000,000	GoB, WB, ADB, additional support required.
Gap 2.8 Lack of air quality monitoring for urban areas	Enhanced air quality monitoring	At least one sensor installed in all 8 divisional cities and in 5 most polluted areas in Bangladesh	-Installation of Sensors (as per need) in all divisional cities and mostly polluted areas in Bangladesh - Regular O&M check - Capacity building of operators	DoE BMD	MoFECC, (WMO)							3,000,000	GoB, WB, ADB, additional support required.
Modelling and Forecasting													
Gap 2.9 Lack of Data Assimilation	Enhanced forecast skill for short and medium range forecasting	Data assimilation operational within BMD	-Integrating satellite, radar, synoptic and upper air observations -Installation of necessary computing equipment, software and server - At least one training annually	BMD	WMO, RIMES, ECMWF, MRI, Met Norway, UKMet, MeteoFrance, CMA, KMA							1,500,000	GoB, additional support required, Adaptation Funded HydroSOS BaNe project (under approval).
Gap 2.10 Lack of Probabilistic Forecasting System	Establishment of medium range probabilistic forecasting	Availability of ensemble forecast to address uncertainty	-Setup NWP model to prepare ensemble and multi-model ensemble -Setup servers to downscale members -Calibration and ensemble weightage -Capacity building training	BMD	WMO, RIMES, ECMWF, MRI, Met Norway, UKMet, MeteoFrance, CMA, KMA,							3,000,000	GoB, WB, ADB, additional support required.
Gap 2.11 Lack of model-based flood forecasting for small basins like the Feni River, Teesta River	Establishment of short rangeflood forecasting and EWS	Availability of localised short range flood forecasting and EWS for small basins	-Develop rainfall-based threshold for early flood detection in small basins (Feni River, Teesta River, etc.) -Implement hydrological/hyrdrodynamicmodels for rainfall-runoff simulation and upstream flow estimation. -Set up detailed 1D hydrodynamic modeling for forecasting of flood depth and flow velocity profiles. -Capacity building training	BWDB-FFWC	BMD, WMO, RIMES, UNICEF , CWW, Local Gov., Hum. Partners							1,000,000	GoB, ZCRA, Adaptation Funded HydroSOS BaNe project (under approval).

Gap Identified	Associated Output	Output Indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
Modelling and Forecasting													
Gap 2.12 Lack of upgradation of existing flood model	Enhanced Flood Model capacity for localised flood forecasting	Flood forecasting model upgraded at least once in 5 years	-Upgradation of model input (topography, bathymetry, etc.) -Calibration and validation -Regular upgradation and maintenance of software -Upgradation and maintenance of computing equipment -At least 1 capacity building training annually	BWDB-FFWC	WMO, RIMES							1,000,000	GoB, DANIDA, additional support required, Adaptation Funded HydroSOS BaNe project (under approval).
Gap 2.13 Lack of operational flood impact-based forecasting	Flood Impact-based Forecasting practiced as part of FFWC’s operations	Impact-based flood forecasts generated for major flood events for pilot areas	-Impact-based flood forecasts generation with sectoral focus -Localized flood impact and Hazard Mapping -sector-specific data (i.e. land-use data) -Organize sensitization workshop on IBF with different DMCs and stakeholders -Capacity Building	BWDB-FFWC	WMO, RIMES, ICIMOD, WMO							2,500,000	GoB, ECHO, GFFO, IFAD, additional support required, Adaptation Funded HydroSOS BaNe project (under approval).
Gap 2.14 Lack of regional hydrological model	Enhanced regional flood forecasting	Regional Hydrological status outlook system developed	-Development of regional hydrological model -Establishment of regional operational hydrological centre -Capacity Building	BWDB-FFWC	WMO, Nepal NMHS							5,000,000	Adaptation Funded HydroSOS BaNe project (under approval), GoB.
Gap 2.15 Lack of integrated Landslide Early Warning System (LEWS)	Enhancement of LEWS for CHT, Chattogram, Cox’s Bazar and Sylhet	Dynamic and localized threshold-based operational LEWS	-Development of localized landslide EWS for early detection and alert generation -Generation of color-coded landslide susceptibility maps Capacity building of local DMCs and stakeholders for dissemination of landslide EWS. -Community engagement -Capacity building -Awareness building	BMD	RIMES, UNICEF , SCI, Caritas, FAO, WFP (WMO)							1,500,000	ECHO, GFFO, Norad, additional support required.

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
Modelling and Forecasting													
Gap 2.16 Lack of operational Cyclone IbF	Operational IbF for Cyclone	Operational high resolution (localised) IbFwith sectoral focus	-Dynamic risk data collection -Operational Near Real-time (NRT) exposure data collection -Development of operational high resolution (localised) IbF with sectoral focus -Color-coded maps for Cyclone IbF -Development of integrated IbF Framework for cyclone Capacity building of local DMCs, volunteers and others stakeholdersthrough training and sensitization workshop on IBF -Capacity building -Awareness building	BMD	WMO (e.g. SWFP), WMO-ESCAP PTC, RIMES, SCI, ACF, BDRCS							2,000,000	ECHO, GFFO, CREWS South-Asia Addl. Support required
Gap 2.17 Lack of operational Lightning Nowcasting system	Operational Lightning nowcasting system	Automated lightning alert dissemination system	- Establish Lightning Nowcasting system -Quick Warning Dissemination through IVR -Capacity Building of local DMCs, Volunteers and stakeholders on dissemination of lighting EWS. -Awareness building among the local volunteers and community on lighting EWS. -Shelter housing	BMD	WMO, RIMES, Plan Int, WMO, UNICEF							2,000,000	ECHO, GFFO, Norad, additional support required.
Gap 2.18 Lack of operational storm surge inundation forecasting and warning system	Better Prediction of storm surge and extent of inundation area	Establishment of surge-inundation couple Model for coastal area of Bangladesh	-Model developed for inundation, need upgradation and scaling up -Automation of web visualization -Coupling of Models -Piloting storm surge inundation -Capacity building	BMD	JMA, RIMES Start Network, ACF, SCI,WMO							4,000,000	GFFO, Addl. Support required
Gap 2.19 Lack of Heatwave monitoring and EWS	Better Prediction of Heatwave EWS	Heatwave alerts and color-coded forecast maps generated for each heatwave event	-Development of Comfort/Heat-stress index (for human and animal) based Heatwave monitoring and forecasting system -Color-coded forecast maps -Capacity Building of local DMCs , volunteers and stakeholders on heatwave EWS through training and sensitization. -Awareness building with community and volunteers.	BMD	WMO, GHIN RIMES, Start Network, BDRCS, RCRC, CWW, ICDDR, WMO							500,000	GoB, (GHIN resources), CREWSouth Asia, ZFRA, Need additional support

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
Modelling and Forecasting													
Gap 2.20 Lack of Fog monitoring and forecasting	Enhanced fog monitoring and forecasting system	Fog alert generation through DSS for highway/ bridge/ river port visibility	-Piloting Fog monitoring and detection system -Develop DSS for roads/ highway/ bridge/ river port visibility -Capacity Building	BMD	RIMES, WMO							1,000,000	GoB, Need Addl. Support
Gap 2.21 Lack of drought monitoring and EWS system	Enhanced drought monitoring and EWS system	Integrated Drought Monitoring Index available for vulnerable areas	-Integration of Drought Monitoring Indices (NDVI, SPI, SPEI, CDI, VCI, EDI, AAI, CMI, DAI etc) -Scale up drought monitoring and forecasting across Bangladesh Development of trigger for AA for drought. - Capacity Building	BMD	BWDB-FFWC, DAE, FAO RIMES,UKMO? WMO(incl. IDMP), GWP							1,500,000	GoB, ECHO, CREWS South Asia, WISER, Adaptation Funded Hydro,CREWS South Asia, WISER, Adaptation Fund (regional project under development, led by WMO)” SOS BaNe project (under approval) Need Addl. Support, IDE_SA.
Gap 2.22 Lack of City Early Warning Systems (CEWS)	Early Warning for Heavy Rainfall and in city area	Impact maps for water-logging in at least 3 major cities	-Enhance the forecasting framework for early warning systems for high impact rainfall-prone areas - Develop forecasting system for waterlogging in major cities - Generation of impact maps for water-logging in major city areas - Capacity Building -Awareness building	BMD, BWDB-FFWC WMO	City Corporation, WASA, WMO							1,000,000	GoB, Need Addl. Support
	Early Warning for urban heat island	Impact maps for urban heat island	-Enhance the forecasting framework for early warning systems for urban heat island - Capacity Building of local DMCs, volunteers and stakeholders on heatwave EWS through training and sensitization workshop. -Awareness building on Heatwave	BMD	City Corporation, DGHS, RIMES, UNICEF , Met Norway, WMO, GHHIN							1,000,000	GoB, Need Addl. Support
Gap 2.23 Forecast Performance is not systematically evaluated	Improved forecast performance	Increased forecast accuracy and precision and (Model Output Statistics) MOS	-Annual validation and verification of forecast performance -Documentation of forecast performance through annual report -Bias-correction and increase forecast accuracy and precision	BMD	Met Norway, RIMES, UK Met, WMO							500,000	GoB, Need Addl. Support

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
Modelling and Forecasting													
Gap 2.24 Lack of cloud basedanalytics platform and data warehouse	Improved data storage and data management	Cloud-based data management system	- Implement a data warehouse for historical and forecast data - Implement a cloud baseddata analytics and collaboration platform for forecast analytics -At least 1 capacity building training annually	BMD, BWDB-FFWC	Met Norway, UK Met, JMA, RIMES, WMO							2,000,000	GoB, Need Addl. Support
Gap 2.25 Lack of operational Common Alerting Protocol (CAP)	CAP generated for improved dissemination of EW and forecast	CAP generated for multi-hazard	-Generation of CAP as part of BMD and FFWC’s regular operations -Awareness workshops with stakeholders and user sectors -At least 1 capacity building training annually for NMHS	BMD, BWDB-FFWC	WMO, DDM, ITU, BTRC, RIMES							1,000,000	GoB, SIDA, CREWSouth Asia, Need Addl. Support, Adaptation Funded HydroSOS BaNe project (under approval)
Policy, Governance, Management and Institutional Mechanisms													
Gap 2.26 Lackof institutional platform for bridging the gaps between forecaster and user sectors	Bangladesh National Center for Climate Applications (BANCCA) established for improved coordination, cooperation and connectivity	Bangladesh National Center for Climate Applications (BANCCA) established	-Establishment of Bangladesh National Center for Climate Applications (BANCCA) -Develop organogram with NMHS and Sectoral organisations -Develop Charter of Duties/Portfolio of Services for BANCCA -Develop SOP for smooth operations -Climate Application Forums integrated as core operations of BANCCA -Allocation for research in annual budget	MoD, MoDMR, MoWR, BWDB BMD	DoE, DLS, DAE, DDM, DGH, DoF, EMRD, RIMES, , UKMO? , WMO							1,000,000	GoB, SIDA, CREWS South Asia, WISER?, Need Addl. Support
Gap 2.27 Misinformation - disinformation Limited awareness of weather and climate information/ mandate of NMHS and Meteorological Act		At least 2 awareness raising activities conducted per year	- Awareness activities - Raise awareness through social media and media advocacy -Distributing awareness materials, booklets -Integrating disaster and EWS concepts into children’s textbooks	BMD, BWDB-FFWC, DDM	RIMES, SCI, STARTNETWORK, Plan Int., WMO. WFP							1,000,000	GoB, Need Addl. Support

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
Modelling and Forecasting													
Gap 2.28 Lack of youth engagement in weather and climate information awareness and dissemination		At least 1 Met Club formed in all divisional and major cities	-Scale up the school-based Met Club formation across Bangladesh -Connect Met Club activities with NMHS	BMD	RIMES SCI WFP STARTNETWORK STEP Plan International							1,000,000	GFFO, GoB, Need Addl. Support
Gap 2.29 Lack of integrated platform for IbF		One Integrated platform for IbF established within BANCCA	-Establish an integrated platform for multi-hazard Impact-based Forecasting (IbF) within BANCCA -Sector-specific co-production of IbF for multi-hazard -Capacity building of relevant stakeholders	BMD, BWDB-FFWC	DoE, DLS, DAE, DDM, DGH, DoF, EMRD, RIMES, SREDA, WMO, SAHF							1,000,000	GoB, CREWSouth Asia, WISER, Need Addl. Support
Gap 2.30 Poor coordination among stakeholders; Overlapping efforts by different organizations on EWS development for the same hazard, pilot-based enhancement that does not sustain beyond project period	Enhanced Coordination among stakeholders	At least one Policy developed for enhanced coordination	-Establish policy for ensuring all EWS related projects must be conducted under the guidance of the relevant National Meteorological and Hydrological Services (NMHSs) -Ensure proper sustainability plan for retaining and scaling up successful pilot projects -Ensure technology transfer (if applicable) and capacity building of relevant stakeholders	MoD, BMD MoWR, BWDB	WMO,WFP SAHF							500,000	GoB, SIDA, CREWS South Asia, Need Addl. Support
Gap 2.31 Limited transboundary and regional data sharing	Strengthening hydrological data availability for enhanced flood forecasting	Uninterrupted data sharing with neighboring countries	-Establish agreements with neighboring countries for collaboration -Advocacy at high level	BWDB, MoWR	JRC, WMO, SAHF							2,000,000	GoB, CREWS South Asia,Adaptation Funded HydroSOS BaNe project (under approval)
Total budget for pillar- 2												99,950,000	



2.3 Pillar 3

Warning Dissemination and Communication

Objective: Make the mechanism for sharing alerts and warnings faster and clearer, using reliable, inclusive communication channels that reach all communities.

Gaps and Activities

[illegible]

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
Gap 3.3 Lack of facilitation for emergency communication needs.	3.3 Proper facilitation or infrastructure for emergency communication needs.	Facilitation of communication services during emergencies.	3.3.1 Planning and deployment of mobile charging stations using solar power or alternative energy in schools/community centers in 30 districts (including travel costs).	MoDMR,DDM	BTRC/PTD, MNO, ITU, Ministry of Education, Ministry of Religion.							1,500,000	MoDMR/Donor
Gap 3.4 Cell broadcast technology has not yet been implemented for wider use of mobile-based early warning systems.	3.4 Effective use of mobile-based early warning technologies.	A study on existing channels for emergency communications has been carried out.	3.4.1 The study on existing infrastructure to enable cell broadcast facilities in mobile networks has been completed. The study will need to be validated.	BTRC, DDM	MNO, ITU							20,000	MNO, ITU
		Tender process conducted for procurement	3.4.2 Technical specifications are developed for the tender phase.	BTRC/PTD, DDM	MNO, ITU							30,000	Donor/TBD
			3.4.3 Support for the procurement of Cell Broadcast technology.	BTRC/PTD, DDM	ITU							20,000	ITU
			3.4.4 Acquisition of the selected Cell Broadcast solution, including 5 years of maintenance.	BTRC/PTD	ITU, DDM							3,600,000	ITU, DDM
		Implementation of the Cell Broadcast Service.	3.4.5 Implementation of the Cell Broadcast Service and establishment of the project office.	BTRC/PTD	MNO, ITU, DDM							40,000	MNO, ITU, DDM

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
Gap 3.5 Lack of identification of communication channels to disseminate alerts	3.5 Identification of mobile and other communication channels to disseminate alerts	Identification of mobile coverage gaps and identification of alternative channels (apart from mobile) to disseminate alerts to the population living in the coverage gaps	3.5 .1 The Early warning connectivity map (EW CM) that identifies mobile network coverage gaps including hill, sea and less populated areas has been completed. EWCM would need to be validated, and staff trained to update and maintain it.	BTRC/PTD	MNO, ITU							30,000	MoDMR/DDM/BTRC/Donor
		An alert dissemination strategy is developed	3.5 .2 Develop an alert dissemination plan/strategy on where and how to implement and/or include (in addition to the CB system) other means of alert diffusion such as radio and television broadcasting, sirens, etc.	DDM, BTRC, PTD	BDRCS, CPP, IFRC, I/NGOs, ITU							40,000	Government, Donor, Adaptation Funded HydroSOS BaNe project (under approval)
		Identification of alternative channel to disseminate information	3.5.3.1 Identification of relevant infrastructure to cover fishermen in the deep sea and coastal communities engaging community radio	BTRC/PTD	MNO, DDM, Dept of Fisheries, BIWTA, ITU							40,000	MoDMR, BRTC
			3.5.3.2 Develop and have pilot for fishermen plus device	BTRC/PTD	MNO, DDM, Dept of Fisheries, ITU							60,000	
			3.5 .4 Connect the online platform to MNOs via API to disseminate SMS, Voice Message Service, upgrade of IVR toll-free 1090during disasters scenario. It requires BAMIS to be integrated to the IVR. It would also include on-set extreme events like lightning early warning or tsunami.	DDM, BTRC	MNO, BMD							180,000	MoDMR, BRTC
Gap 3.6 Early warning systems-related infrastructure has not yet been identified for regular testing and upgrades.	3.6 Proper infrastructure of EW system for regular testing and upgrade	Established early warning system practices are integrated into platform	3.6 .1 Existing early warning products (hazard and inundation maps, color coding flag, gauges etc.) need to be integrated into infrastructure/platform, and overlay with EWCMs.	MoDMR, DDM	BMD/FFWC/RIMES/BDRCS, BTRC/PTD							100,000	MoDMR, DDM, donors

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
			3.6 .2 Conduct training sessions with a strong focus on inclusiveness and organize inclusive drills for relevant government officials, media representatives, community members, and other stakeholders	BTRC/PTD/ DDM	Government departments/NG Os, UN organization, BBC Media Action and other media							150,000	MoDMR, DDM, donors, Adaptation Funded HydroSOS BaNe project (under approval)
Gap 3.7 Warning messages are not tailor-made & need-based	3.7 Custom warning message based on need	Study conducted on customising alert messages	3.7 .1 Sector-specific tailored messages should be provided (e.g. for farmers, fishermen etc.)	BTRC, DDM	I/NGOs, UN organization, BBC Media Action and other media, RIMES							50,000	MoDMR, BTRC,donors INGOs
		Dissemination of alert messages are inclusive.	3.7 .2 Develop guidelines and build capacity of first responders to ensure messages are in accessible formats that address the diverse communication needs of persons with disabilities, including those with visual, hearing and cognitive impairments.	DDM	Ministry of Social Welfare, CDD, I/NGOs, BBC Media Action and other media, RIMES							800,000	Donors I/NGOs
Gap 3.9 Lack of consistency, clarity, and progressive updates on warning alerts which are sent through different channels	3.9 Consistent and clear warning alert	Developed capacity of warning disseminators and alerting authorities	3.9.1 Conduct CAP training to create awareness for different stakeholders	MoDMR, BMD, BTRC, DDM, FFWC	WMO, ITU, BBC Media Action and other media RIMES							25,000	DDM/BMD/WMO
		The number of channels integrated with the CAP gateway in a multi-channel dissemination process	3.9.2 Conduct study on integration other channels to the Common Alerting Protocol (CAP) in the warning dissemination process.	MoDMR, BMD, BTRC, DDM, FFWC	WMO, ITU, BBC Media Action and RIMES							40,000	
Total budget for pillar- 3												6,885,000	



2.4 Pillar 4

Preparedness and Response Capabilities

Objective: Strengthen how government and private actors are organized and prepared, at all levels, so communities become more resilient and can respond better when natural disasters happen.

Gaps and Activities

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
Gap 4.1 Standard operating procedures are partially available in BD. - CAP Not available in the country - IBFWS Not available in the country - GMAS Not available in the country	CAP, IBFWS and GMAS are well operationalized in the most at-risk sub-districts	50% of the upazilas operationalized on CAP, IBFWS, GMAS	-Assist in institutionalization, and operationalization of CAP, IBFWS, GMAS - Support capacity building on CAP, IBF & GMAS of relevant stakeholders and sensitize at-risk population along at education institutions especially on EW & AA	MoDMR, DDM	BMD, FFWC, WMO (development), Academicians, I/NGOs, RIMES							8,000,000	WB, IMF, ADB, UKAID, EUCO, JICA, SIDA, Global Shield, IFRC-DREF, GAC, DFAT, SDC, UN-CERF, Adaptation Funded HydroSOS BaNe project (under approval)
Gap 4.2 There is no institutionalized framework to guide Early/Anticipatory Actions for Bangladesh	Multi-hazard National Framework on EA/AA is in place	01 framework on EA/AA	Development of Multi-hazard National Framework on EA/AA (align with different laws and SOD, others existing framework like NAP, NPDM, Disaster Management act)	MoDMR	FbF/A Taskforce, AATWG, IFRC/BDRCS RIMES, FAO							100,000	WB, IMF, ADB, UKAID, EUCO, JICA, SIDA, Global Shield, IFRC-DREF, GAC, DFAT, SDC, UN-CERF
Gap 4.3 National Early Action Protocols (NEAPs) for all specific hazards have not been developed yet, and the developed one has not been operationalized yet.	Existing NEAP for Cyclone and Monsoon flood is operational and development of other NEAP	8 NEAPs	- Development and operationalization of NEAP for forecasted hazards (cyclone, monsoon flood) Flashflood, Heatwave, Coldwave, Drought, Landslide, Lightning - Localized trigger mechanism for NEAP development	MoDMR, DDM	BMD, FFWC, AATWG, Academician, IFRC/BDRCS RIMES, FAO							500,000	WB, IMF, ADB, UKAID, EUCO, JICA, SIDA, Global Shield, IFRC-DREF, GAC, DFAT, SDC, UN-CERF
Gap 4.4 Social Safety Net (SSN) programs are not integrated into AA	Integration of SSN into AA	20% of HA is utilized for AA	Review of Humanitarian Assistance Guideline to incorporate SSN into AA and consider climate adaptive features	MoDMR, DDM	MoSW, AATWG, BDRCS, FAO							50,000	WB, IMF, ADB, UKAID, EUCO, JICA, SIDA, Global Shield, IFRC-DREF, GAC, DFAT, SDC, UN-CERF
Gap 4.5 There is a lack of common procedure for contingency plans considering natural hazards and climate change impacts where special plans should be installed for specific hazards and geographical context.	A common SoP is in place to develop a harmonized district wise CP	50% of the districts have the contingency plan	Development of district-wise multi-hazard contingency plan	MoDMR, DDM	Academicians, MoD, BDRCS							800,000	WB, IMF, ADB, UKAID, EUCO, JICA, SIDA, Global Shield, IFRC-DREF, GAC, DFAT, SDC, UN-CERF, Start Network, UNWOMEN

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025		2027	2028	2029	2030		
Gap 4.6 DMEF exists, however, there is no budget allocation for integrating early actions or AA within this national fund.	Pre-allocated funds are available for DMEF at district level	50% of the districts (DMCs) is sensitized	- Advocacy for pre-allocated budget in DMF and sensitization on DMF guidelines -Advocacy for revising DMEF guideline (Local fund should not be reimbursed to govt. National fund). Local level public outreach activities for fund allocation.	MoDMR, MoF	DDM, FbFTask force Committee, I/NGOs and Humanitarian Organizations, IFRC/BDRCS							125,000	It can be merged with a similar district activity.
Gap 4.7 Reaching and evacuating the last mile population (remote islands, chars and hill tracts) remains a major difficulty because of geographical constraints and a lack of human resources e.g., volunteers, police, local government officials, etc.	Volunteers are mobilized from the pool	75% of probable impacted districts are covered by CVP	- Development of country-wide common volunteer pool (where not available) and training and refresher for the formalized volunteer pool -Sensitize or build capacity of the first responder and EW disseminator on inclusive EW dissemination	MoDMR, DDM	CPP, BDRCS , FSCD, AFD, RIMES							1,000,000	MoDMR/DDM, WB, IMF, ADB, UKAID, EUCO, JICA, SIDA, Global Shield, IFRC-DREF, GAC, DFAT, SDC, UN-CERF, Start Network, UN Women.
Gap 4.8 There is inadequacy, inconsistency, and overlap in the exercises undertaken to test and optimize the effectiveness, inclusiveness, and accessibility of the early warning dissemination processes, as well as preparedness	EAP simulation or exercise by following common guidelines	50% of the districts are covered	Simulation and mock drill on developed NEAPs	DDM	CPP, FbF/A taskforce, AATWG, DMCs. IFRC/BDRCS, RIMES							1,000,000	WB, IMF, ADB, UKAID, EUCO, JICA, SIDA, Global Shield, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF, Start Network, UN Women.
Gap 4.9 There are some such public education programs on a small scale, especially for cyclones. But they do not consider all types of hydro-meteoritical hazards and geophysical hazards.	EW4ALL initiative is integrated into the education curriculum at university level	50% of universities are reached	-Initiate public education program considering all prominent hazards at broader scale (risk knowledge, EW, DRM, AA- reactive and proactive approach) -Roll out AA Training module for foundation course for BCS Cadre, DMC & SMC, DRR, PIO	MoDMR, DDM, MoPME, MoE	Academicians, I/NGOs, University Grant Commission, BDRCS							800,000	WB, IMF, ADB, UKAID, EUCO, JICA, SIDA, Global Shield, IFRC, GAC, DFAT, SDC, UN-CERF, Start Network, UN Women.
Gap 4.10 Except cyclone earlywarnings for other hazards, significant gaps persist in awareness about early warnings for other hazards such as floods, flash floods, landslides, heatwaves, and cold waves.	Simulation handbooks on multi hazards is developed	1 simulation handbook	Development of simulation handbook on multi hazards	MoDMR, DDM, BMD, BWDB	CPP, BDRCS, I/NGOs							250,000	WB, IMF, ADB, UKAID, EUCO, JICA, SIDA, Global Shield, IFRC-DP, GAC, DFAT, SDC, UN-CERF, Start Network, UN Women.

Gap Identified	Associated Output	Output Indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentativ	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
Gap 4.11 There are noticeable shortcomings in converging the community at risk regarding capacity development for early actions in response to warnings. In context of Bangladesh, actions regarding early warning messages primarily focus individuals at risk evacuating to safe shelters, however not all individuals opt for these shelters due to inadequate accommodation and exclusive nature of community people.	Populations at risk are equipped with skills and knowledge through AA	25% of the at-risk population are reached through required skills and knowledge	Capacity development of at-risk population to equip them with required skills and knowledge to undertake Forecast uncertainty, EWS & anticipatory actions	MoDMR, FbF Task force Committee, DDM	Academician, AATWG, I/NGOs and Humanitarian Organizations, IFRC,BDRCS							2,000,000	WB, IMF, ADB, UKAID, EUCO, JICA, SIDA, Global Shield, IFRC-DP, GAC, DFAT, SDC, UN-CERF, Start Network, UN Women.
Gap 4.12 Organizations working on women and persons with disabilities are often part of public awareness and education campaigns for disaster management on different priority hazards. However, there are very few instances where these organizations lead such programs, highlighting the importance of inclusiveness in effective early actions	Leadership and capacity development materials are developed	20% of at-risk population are provided public awareness and campaigns	Strengthening the capacities of those relevant organizations by providing leadership and capacity development training (local DMCs, SMCs, etc.)	MoDMR, MoWCA, MoSW	DDM, DSS, DWA							80,000	WB, IMF, ADB, UKAID, EUCO, JICA, SIDA, Global Shield, IFRC-DREF, GAC, DFAT, SDC, UN-CERF, Start Network, UN Women
Gap 4.13 Lacking fund for preparedness of the women and girls and other marginalized groups	Last-minute preparedness is ensured for Women and Girls at the targeted flood and cyclone prone districts	20% of at-risk sub-districts are covered	- Support community women, girls, and gender diverse groups in five of the target districts to take last-minute preparedness after receiving early warning	MoDMR, DDM	I/NGOs and Humanitarian Organizations, BDRCS							800,000	WB, IMF, ADB, UN Women, SIDA, IFRC-DREF 4.14, IFRC-DP.
Gap 4.14 Inadequate drills and simulations, predominantly focused on cyclones and, to some extent, floods, while other hazards receive limited or zero attention.	NEAP simulations and capacity development activities to sensitize the local govt institutions	25% of sub-districts are covered	- Sensitization of local government and institutions on developed NEAP - Functionalize SOD emergency response group and train up on EW/AA. -Activate DMC and SMCS where not active yet and provide orientation on EW4All. - Strengthen capacity on inclusive search & rescue and evacuation skill of the first responder. Roll out Disability Inclusive Search and Rescue Manual.	MoDMR, DDM, BMD, FFWC	I/NGOs and Humanitarian Organizations, IFRC,BDRCS							1,000,000	WB, IMF, ADB, UKAID, EUCO, JICA, SIDA, Global Shield, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF.
Gap 4.15 No comprehensive analysis or evaluation of anticipatory actions has been undertaken by the relevant government departments and EWAA partners yet.	. Common M&E mechanism is in place	1 common M&E mechanism is developed	-Yearly progress evaluation and learning sharing - Establish an inclusive FCRM for better AA and response. -Periodic evaluation on how communities are receiving and wants EWS.	MoDMR., DDM	FbF Task force Committee, Academicians, I/NGOs and Humanitarian Organizations, BDRCS							250,000	WB, IMF, ADB, UKAID, EUCO, JICA, SIDA, Global Shield, IFRC-DREF, GAC, DFAT, SDC, UN-CERF.

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
Gap 4.16 Investments in forecast-based actions incorporate cash systems, supply chains, stockpiling and prepositioning	Capacity building of relevant people (PIO, DRRO and local administration)	25% of at-risk population receive investments	Capacity development on beneficiary and stockpiling tracking management system	MoDMR, DDM	AATWG, I/NGOs and Humanitarian Organizations, IFRC/BDRCS							500,000	WB, IMF, ADB, UKAID, EUCO, JICA, SIDA, Global Shield, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF.
Gap 4.17 There is an absence of continuous funding in anticipatory actions and there is no dedicated national funding mechanism for it.	A dedicated national funding mechanism is established to ensure continuous funding for AA	20% of at-risk population receive funding	Advocacy for establishing a dedicated national funding mechanism to ensure continuous budget in AA.	MoDMR, FbF/A Taskforce	DDM, AA TWG							60,000	WB, IMF, ADB, UKAID, EUCO, JICA, SIDA, Global Shield, IFRC-DREF, GAC, DFAT, SDC, UN-CERF.
	▪ IEC materials on earthquake preparedness (posters, leaflets, and handbooks in Bangla) are developed and	25% of IEC materials on earthquake preparedness in Bangla developed and distributed	Prepare IEC materials (posters, leaflets, and handbooks in Bangla explaining “Do’s and Don’ts” before, during, and after an earthquake) and distribute those	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							400,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
4.18: Lack of Earthquake awareness and preparedness at institutions, DMCs and community level	▪ Increase earthquake-safety awareness of the targeted population via TV, radio, social media, and schools/colleges	60% people reached through TV, radio, social media, and school/college campaigns #of people demonstrating improved earthquake-safety knowledge after the	-Conduct awareness campaigns through TV, radio, social media, and schools on earthquake safety	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							600,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
	Targeted institutions (schools/colleges, hospitals, government offices, and workplaces) conduct earthquake preparedness mock drills.	earthquake preparedness mock drills conducted at least 60% targeted institutions (schools/colleges, hospitals, government offices, and workplaces)	-Conduct mock drills in educational institutes, hospitals, government buildings, and workplaces	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							250,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
	Community volunteers are trained on disaster preparedness (DP), search and rescue (S&R), and first aid (FA), and each is provided with the	5000 community volunteers trained on DP, S&R, and FA, and provided with equipment by the end of the project period	Train community volunteers on DP, S&R, FA etc. and provide them equipment	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							200,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
	Staff and volunteers from BDRCS, FSCD, police, and Ansar receive specialized training on disaster response and emergency management	1000 staffs and volunteers from BDRCS, FSCD, police, and Ansar trained in specialized disaster response and emergency management.	Conduct specialized training to staff and volunteers of BDRCS, FSCD, police, and Ansar	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations, and universities like BUET, DU etc.							150,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
	Disaster management committees at national, district, and local levels receive simulation-based training to strengthen their disaster preparedness and response capacities	500 disaster management committees trained through simulation-based exercises	Conduct simulation-based training for disaster management committees at different levels	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							150,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
	Key institutions (ministries, departments, educational, hospitals, emergency agencies, humanitarian and UN agencies) participate in a tabletop exercise to test and strengthen earthquake preparedness and response plans	50 institutions representative participated in a tabletop exercise to test earthquake preparedness and response plans	Tabletop Exercise (TTX) for Earthquake Preparedness	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							50,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
4.19: Limited understanding and implementation of BNBC 2020	Engineers, architects, and masons trained and sensitized on key provisions of BNBC 2020 related to seismic safety	5000 of participants in seismic-focused BNBC 2020 sensitization sessions demonstrating knowledge of key seismic compliance requirements.	Sensitize Bangladesh National Building Code (BNBC 2020) and advocacy for ensuring proper implementation, especially in seismic zones	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							200,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
	Engineers, architects, and masons are trained on earthquake-resistant design and construction techniques	5000 participants demonstrating improved knowledge and practical skills in earthquake-resistant design and construction	Train local engineers, architects, and masons on earthquake-resistant design and construction	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							200,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
4.20: Lack of vulnerability assessment of earthquake	▪ EVCA/CRA conducted at education institutions and wards in seismic zones, with evacuation plans developed for all assessed educational institutes	500 of evacuation plans prepared and validated for educational institutes and wards	Conduct EVCA or CRA for educational institutes and wards in seismic zones and prepare evacuation plans for educational institutes	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							200,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
	▪ Open spaces identified and clearly marked for evacuation in the targeted urban areas	100 open spaces identified and marked in each city (Dhaka, Chattogram, Sylhet).	Identify and mark open spaces for evacuation in urban areas like Dhaka, Chattogram, and Sylhet	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							50,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
4.21: Lack of awareness and earthquake safety measures among developers	Developers oriented on seismic safety standards and best practices	100 participants demonstrating understanding of seismic safety standards	Conduct orientation for developers to follow seismic safety standards	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							100,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
	Old or structurally weak buildings identified and targeted for retrofitting awareness and technical guidance	5000 buildings are identified as old or structurally weak	Promote retrofitting of old or weak structures	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							50,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
4.22: Proper communication channel is not available	▪ A functional emergency communication network established connecting key stakeholders, including government agencies, humanitarian and development partners, and local authorities	100 frequency of network activation or communication drills conducted to test functionality	Establish an emergency communication network among government agencies, humanitarian and development partners and local authorities	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							1,000,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
	▪ Emergency alert systems using SMS, loudspeakers, and radio messages developed and tested in pilot locations	100 simulations conducted to verify functionality of the alert systems	Develop and test emergency alert systems (SMS, loudspeakers, radio messages)	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							200,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
4.23:Divisional and district level CP is not available	Comprehensive Earthquake Contingency Plans developed and approved for national, divisional, and city corporation levels	200 contingency plans developed and officially approved at national, divisional, and city corporation levels.	Develop Earthquake Contingency Plans at national, divisional, and city corporation levels	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							100,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
4.24: Lack of pre-positioned emergency items	Emergency supplies, including first aid kits, water, food, and tents, pre-positioned in at least 50 strategic locations across targeted locations	50 strategic locations where emergency supplies are pre-positioned	Pre-position emergency supplies (first aid kits, water, food, tents) in strategic locations	MoDMR, DDM	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							200,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
4.25: Mass casualty management plan is not at place.	Mass casualty management plans, including hospital preparedness protocols, developed and validated for implementation in targeted districts	50 hospitals and health facilities covered under the mass casualty management plan.	Plan for mass casualty management, including hospital preparedness	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							200,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
	Critical lifelines in targeted areas, including roads, bridges, hospitals, and power grids, mapped and marked for rapid repair	50 critical lifelines identified, mapped, and marked	Map and mark critical lifelines (roads, bridges, hospitals, power grids) for rapid repair	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							100,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
			□ Develop community evacuation maps and share them with residents	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							300,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
	Seismic hazard maps and risk assessment reports developed for at least 6 high-risk urban areas	6 high-risk areas for which seismic hazard maps and risk assessments have been completed	□ Support seismic hazard mapping and risk assessment for high-risk areas (Dhaka, Sylhet, Chattogram, Rangpur, etc.)	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							200,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
4.26: Earthquake database, contingency plan and damage assessment tools is not at place	A comprehensive national earthquake risk database established and operational, covering hazard, vulnerability, and exposure data	# of datasets integrated into the database (e.g., seismic hazard, population, infrastructure, critical facilities).	Create a national earthquake risk database to guide policy and planning □ Update the Earthquake Contingency Plan	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							225,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
	Post-earthquake recovery frameworks developed for housing reconstruction and livelihood support, validated by relevant stakeholders	10 of recovery frameworks prepared and endorsed by key stakeholders.	□ Prepare post-earthquake recovery frameworks (e.g., for housing reconstruction, livelihood support)	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							100,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
	A standardized damage and loss assessment mechanism developed and operational, covering key sectors	# of sectors (e.g., housing, infrastructure, livelihoods) covered by the mechanism.	Develop a damage and loss assessment mechanism	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							100,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF

Gap Identified	Associated Output	Output indicator	Activities	Responsibility		Implementation Timeline						Budget, USD (tentative)	Budget Source (potential)
				Lead	Support	2025	2026	2027	2028	2029	2030		
	Financial tools, including disaster insurance schemes and emergency recovery funds, designed and piloted for targeted communities or sectors	# of financial tools developed and operational (e.g., insurance schemes, recovery funds).	Create financial tools like disaster insurance and emergency recovery funds	MoDMR, DDM	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							1,000,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
4.27: Lack of family emergency plan	Family emergency plans prepared and shared with at least 5000 households in targeted communities	5000 households provided with a family emergency plan	Prepare a family emergency plan (safe exits, meeting points, emergency contacts)	MoDMR, DDM	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							200,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
	Emergency kits prepared and maintained by at least 5000 households in targeted communities	5000 households equipped with a complete emergency kit	Keep an emergency kit (water, food, flashlight, radio, medicines, important documents)	MoDMR, DDM	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							200,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
	Safe spots inside homes identified and communicated to at least 5000 households in targeted communities	5000 households having identified safe spots inside their homes.	□ Identify safe spots inside the home (under sturdy furniture, away from windows)	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							200,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
	Heavy furniture and shelves secured to walls in at least 5000 households or public buildings in targeted communities	5000 households or buildings where heavy furniture and shelves have been properly secured.	Secure heavy furniture and shelves to walls	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							200,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
	▪ At least 5000 households conduct regular earthquake drills at home	5000 households that have participated in at least one earthquake drill	Practice earthquake drills at home	MoDMR, DDM, FSCD	IFRC/BDRCS, UN, I/NGOs and Humanitarian Organizations and universities like BUET, DU etc.							200,000	WB, IMF, ADB, UKAID. EUCO, JICA, SIDA, Global Sheild, IFRC-DREF, IFRC-DP, GAC, DFAT, SDC, UN-CERF
Total budget for pillar -4												25,040,000	

03 METHODOLOGY & GUIDING PRINCIPLES

METHODOLOGY FOR ROADMAP DEVELOPMENT

3.1 Literature Review: The methodology used for compiling the national implementation roadmap included several steps and considerations. First, a background research phase as conducted to examine the existing scenario information on hazards and the status and gaps in the EWS. This phase involved a desk review and analysis of foundational documents, including the government's laws, policies, and strategies, study reports, and research papers related to disaster risk management, climate change, and EWSs.

Recently BMD completed Bangladesh Weather and Climate Services Regional Project funded by World Bank. The project has fundamentally enhanced Bangladesh's capacity to monitor weather, predict extreme events, and deliver critical climate services, thereby significantly contributing to disaster resilience, economic security, and public safety.

Through this project

- Installed 125 automatic agrometeorological instruments across Upazilas for Enhanced Agricultural Forecasting,
- Converted 35 manual observatories into automatic weather observatories, ensuring continuous, reliable, and high-frequency flow of data from across the country.
- Installed 65 automatic rain gauges with Water Supply and Sewerage Authorities (WASA) in Dhaka, Chattogram, Rajshahi, and Khulna for Improving Urban Flood Management.
- Strengthened Core Forecasting and Computational Capacity through installation of a High-Performance Computer (HPC) and established an integrated Archive System & Forecast Production System, Climate Database Management System (CDMS), and Integrated File & Message Switching System (IFMSS).
- Enhanced Safety and Efficiency in Aviation by Installed cutting-edge weather observation equipment at the three international airports in Dhaka, Chattogram, and Sylhet.
- Established Robust Data Exchange and ICT Infrastructure through Global Data Exchange and Unified ICT Network.
- Provided critical support, including consultancy and equipment, for establishing a Department of Meteorology, Dhaka University of Dhaka. This initiative seeds the future generation of meteorologists and climate scientists in Bangladesh.

03 METHODOLOGY & GUIDING PRINCIPLES

3.2 Stakeholder Mapping: A crucial component of effective EWSs is collaboration and coordination among stakeholders. A stakeholder mapping survey was conducted among development partners and governments to identify the stakeholders working on EWS and disaster risk management in the country aiming to foster coordination and collaboration in the EW4All roadmap. According to the stakeholder mapping survey, it is found that out of the 38 agencies, 20 of them are currently engaged in early warning systems, with 27 ongoing projects contributing to at least one pillar of the EW4All initiative.

The development of Bangladesh's EW4All roadmap for 2025–2030 followed a structured, participatory, and evidence-based approach:

- **Pillar-Wise Gap Analysis:** Utilizing the EW4All Gap Analysis Checklist, stakeholders conducted a comprehensive assessment across the four EW4All pillars—risk knowledge, monitoring and forecasting, warning dissemination and communication, and preparedness and response capabilities. This process identified existing capacities, gaps, and areas requiring enhancement.
- **Stakeholder Consultations:** A national consultative workshop in November 2023, led by MoDMR with support from IFRC, WFP, BDRCS, and UN RCO, facilitated multi-sectoral dialogue. Participants included representatives from government agencies, UN bodies, NGOs, and technical experts.

- **Inter-Pillar Coordination and National Roadmap Designing Workshop:** Finalize, and refine the activities proposed to address the gaps identified during the pillar-wise consultation workshops and establish a clear understanding and mutual agreement on the implementation structure, monitoring and evaluation framework, and cross-cutting issues (e.g., inclusion and transboundary early warning) to ensure these aspects are well-articulated in the EW4All roadmap a three day long workshop was organized in December 2024.
- **Integration of Foundational Documents:** The roadmap aligns with existing national frameworks such as the National Plan for Disaster Management (NPDM) 2021–2025, the National Adaptation Plan (NAP), and the Nationally Determined Contributions (NDCs). It also incorporates insights from international guidelines, including the EW4All Executive Action Plan 2023–2027. This roadmap will also contribute to achieving target G of the Sendai Framework Disaster Risk Reduction 2015-2030.
- **Validation and Endorsement:** Draft versions of the roadmap underwent validation through stakeholder feedback sessions, ensuring relevance, feasibility, and alignment with national priorities. The final document received endorsement from key ministries and development partners.

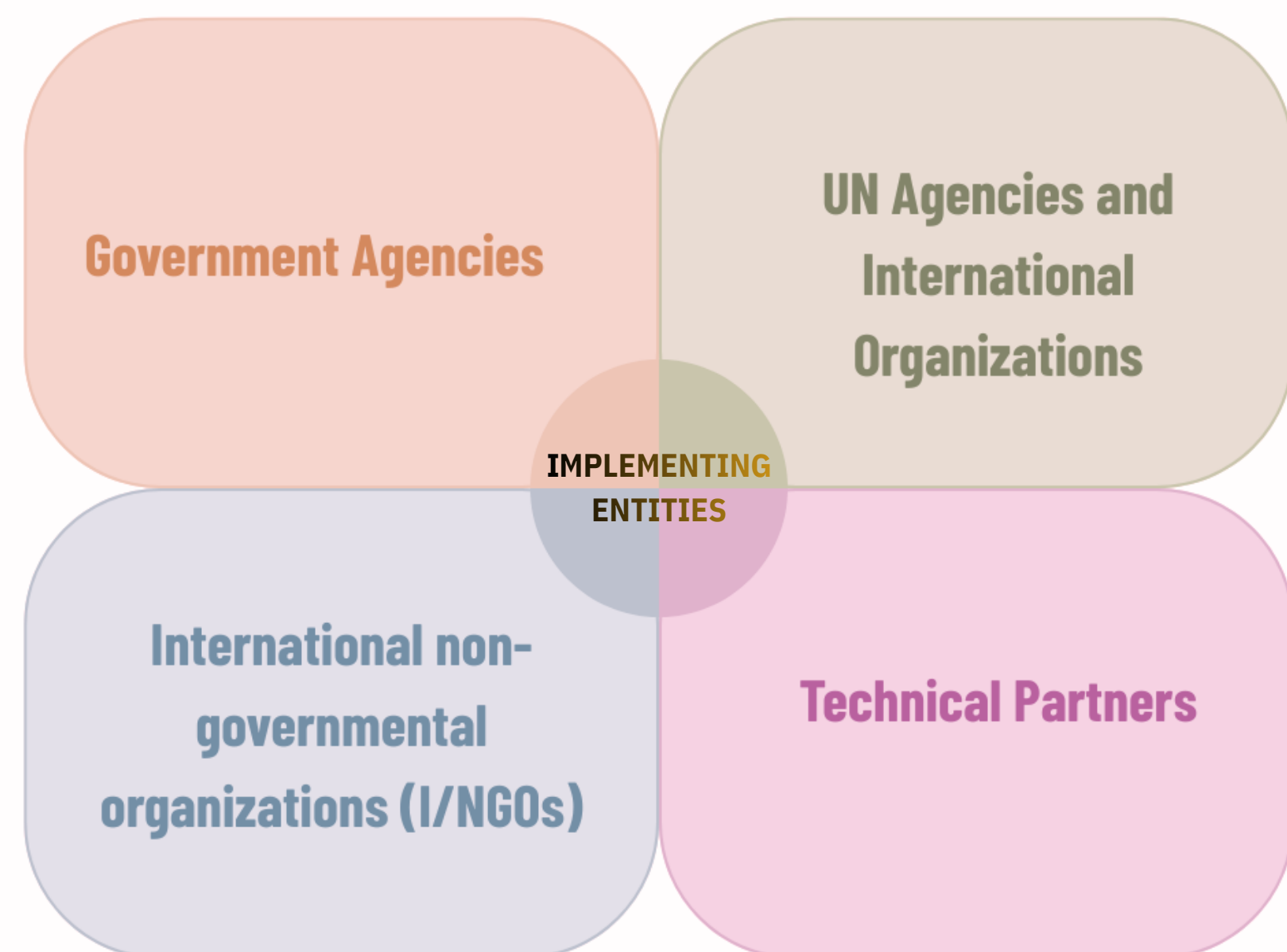
	3.3 GUIDING PRINCIPLES FOR IMPLEMENTATION The implementation of the EW4All roadmap in Bangladesh is underpinned by the following guiding principles:
Institutional Commitment and Ownership	Strong leadership from MoDMR and active participation from relevant ministries and agencies are essential. Institutional buy-in ensures sustainability and integration of EWSs into national development planning.
Risk-Informed MHEWS	Risk-informed, evidence-based Multi-Hazard Early Warning System that delivers clear outcomes and actionable measures, including: Impact-based, customized early warning messages; Targeted dissemination aligned with the National Emergency Telecommunication Protocol. Tailored preparedness and response actions for the people at risk.
Inclusivity and Equity	EWSs must be accessible to all, including women, children, the elderly, persons with disabilities, and marginalized communities. This involves: Developing gender-responsive and disability-inclusive early warning messages. Engaging community-based organizations and local leaders in the design and dissemination of warnings. Ensuring that communication channels are accessible and culturally appropriate
Child and Youth Sensitivity	Recognizing the unique vulnerabilities and capacities of children and youth, the roadmap promotes: Incorporating disaster risk education into school curricula. Facilitating youth participation in community-based DRR initiatives. Facilitating youth-based volunteer group at local level.

	3.3 GUIDING PRINCIPLES FOR IMPLEMENTATION The implementation of the EW4All roadmap in Bangladesh is underpinned by the following guiding principles:
Community Engagement and Empowerment	Empowering communities to actively participate in early warning processes enhances effectiveness. This includes: - Conducting community drills and simulations. - Establishing local early warning committees. - Providing training on interpreting and responding to warnings. - Establishment of easy and understandable communication channels from National level to Local Level.
Data-Driven Decision Making	Utilizing accurate, timely, and disaggregated data informs targeted interventions. The roadmap emphasizes: - Strengthening data collection and analysis capacities. - Integrating traditional knowledge with scientific data. - Ensuring data transparency and accessibility. - Decentralization of data driven approach
Multi-Hazard Approach	Given Bangladesh’s exposure to various hazards, the roadmap adopts a comprehensive approach that addresses multiple risks, including floods, cyclones, landslides, heatwaves and cold waves.
Sustainability and Resilience	Building resilient communities requires long-term commitment. The roadmap promotes: - Investing in capacity development and infrastructure. - Fostering partnerships among government, private sector, and civil society. - Encouraging innovation and the use of technology in EWSs.

04 IMPLEMENTATION STRUCTURE AND APPROACH

4.1 Coordination Mandate

MoDMR serves as the national lead for the EW4All initiative in Bangladesh. Coordination is facilitated through the UN RCO, which supports alignment with global EW4All pillars and ensures coherence across government agencies and development partners. WFP have been designated by the UN RCO as the focal point for EW4All activities in Bangladesh, collaborating closely with National Focal Point, the Forecast-based Financing/Action (FbF/A) Task Force, the Anticipatory Action Technical Working Group (AATWG), and the national pillar leads—MoDMR BMD, FFWC, BTRC, DDM, CPP, BDRCS and the global pillar leads—UNDRR, WMO, ITU, and IFRC.



IMPLEMENTING ENTITIES

Implementation of EW4All in Bangladesh involves a multi-stakeholder approach:

- **Government Agencies:** MoDMR leads national coordination; DDM oversees disaster response and early warning dissemination channels; FFWC under the Ministry of Water Resources provides hydrological forecasts; BMD provides weather forecast, cyclone, landslide, heatwave, cold wave forecast, and the Bangladesh Computer Council (BCC) supports ICT infrastructure for data dissemination. BTRC supports mobile communication from national level to community level.
- **UN Agencies and International Organizations:** UNDRR, WMO, ITU, and IFRC lead the four EW4All pillars; WFP and IFRC coordinates EW4All activities at country level; the UN Development Programme (UNDP) collaborates on risk assessments and early warning enhancements; and the Food and Agricultural Organization of the UN (FAO), United Nations Children Fund (UNICEF), and Save the Children contribute to anticipatory action frameworks.
- **I/NGOs:** Bangladesh Red Crescent Society (BDRCS) with its bilateral and multilateral project and DREF funding, is implementing activities directly linked with the roadmap activities, contributing to strengthen the AA secretariat and supporting FbF/A Taskforce. Other AA Actors e.g., CARE Bangladesh lead the Sustainable Forests and Livelihoods (SUFAL) II project, focusing on forecast-based actions in flood-prone areas, in partnership with Concern Worldwide and local NGOs. Other AA Actors e.g., FAO, Save the Children, Caritas, CDD are also implementing activities contributing to the EW4All roadmap.
- **Technical Partners:** The Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES) provides technical support for EWSs; the Norwegian Geotechnical Institute (NGI) collaborates with UNDP to strengthen landslide early warning and rainfall monitoring systems in Cox's Bazar amongst many others.

04 IMPLEMENTATION STRUCTURE AND APPROACH



4.2 Investment & Funding Arrangements

Bangladesh's EW4All implementation is supported through a combination of national and international funding mechanisms:

- Disaster Risk Reduction Financing Strategy (DRRFS): Developed by the Ministry of Finance with UN support, DRRFS aims to allocate financial resources effectively to enhance resilience before hazard events.
- Multilateral Development Banks (MDBs): Institutions such as the World Bank, Asian Development Bank (ADB), and others have pledged support for EW4All, recognizing the initiative and role in protecting lives and livelihoods amid escalating climate risks.
- Bangladesh Climate and Development Platform (BCDP): Launched in collaboration with international partners, BCDP aims to leverage adaptation and mitigation investments, enhancing the nation's capacity to address climate change impacts.
- Anticipatory Action Funding: In 2024, WFP and MoDMR mobilized US\$10.4 million for anticipatory action activities, covering 20 districts and reaching nearly 430,000 people. However, a significant funding shortfall of US\$42 million persists for 2025, highlighting the need for expanded coverage and sustainable financing.
- To address these challenges, the government and partners are exploring innovative financing mechanisms, including risk pooling, anticipatory action insurance, and multi-year funding commitments, to ensure long-term sustainability and resilience.

05 MONITORING AND EVALUATION

5.1 Institutional Oversight & Governance

A dedicated EW4All Monitoring Committee will be established, comprising representatives from key government agencies like MoDMR, Ministry of Water Resources, Ministry of Agriculture, Ministry of Fisheries, DDM, BTRC and BMD, FFWC, UN entities (e.g, WMO, UNDRR, ITU, WFO), IFRC, NGOs, and academic institutions. This committee will oversee the implementation progress, provide strategic guidance, and facilitate inter-agency coordination.

Key performance indicators (KPIs) will be developed for each pillar, incorporating both quantitative and qualitative metrics. These KPIs will be aligned with national development goals and international frameworks, such as the SDG and the Sendai Framework targets.

5.2 MONITORING FRAMEWORK AND INDICATORS



1. Disaster Risk Knowledge: Assessment of hazard, exposure, and vulnerability data collection and analysis.



3 Warning Dissemination and Communication: Measurement of the reach, timeliness, and clarity of early warning messages disseminated to at-risk populations.

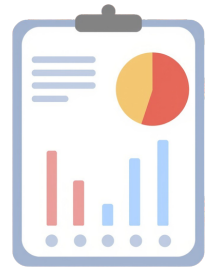


2 Detection, Observation, Monitoring, Analysis and Forecasting: Evaluation of the effectiveness and accuracy of hazard monitoring systems and forecasting models.



4 Preparedness and Response Capabilities: Assessment of community preparedness initiatives, response plans, and the effectiveness of anticipatory actions and EWSs.

05 MONITORING AND EVALUATION



5.3 Data Collection & Reporting Mechanisms

Data will be collected through a combination of methods:

- Administrative Data: Routine reports from government agencies and implementing partners.
- Surveys and Assessments: Periodic surveys to assess community awareness, preparedness levels, and satisfaction with early warning services
- Field Monitoring: On-site visits and evaluations to verify the implementation of activities and gather qualitative insights.
- Technology-Based Monitoring: Utilization of remote sensing, GIS, and mobile-based applications for real-time data collection and analysis.

An annual EW4All Progress Report will be published, summarizing the achievements, challenges, and lessons learned. These reports will be disseminated to stakeholders and made publicly available to ensure transparency and accountability.

05 MONITORING AND EVALUATION

5.4 EVALUATION AND LEARNING

Mid-term and end-term evaluations will be conducted to assess the overall effectiveness, efficiency, relevance, and sustainability of the EW4All roadmap implementation. These evaluations will be carried out by independent evaluators in collaboration with IMED and the EW4All Monitoring Committee. Findings from evaluations will inform policy revisions, strategic planning, and resource allocation. Additionally, knowledge-sharing workshops and learning events will be organized to disseminate best practices and foster continuous improvement.

5.5 COMMUNITY ENGAGEMENT AND FEEDBACK MECHANISMS

Community feedback will be integral to the M&E process. Mechanisms such as community scorecards, feedback hotlines, and participatory monitoring will be employed to capture the perspectives of beneficiaries. This inclusive approach ensures that the EW4All initiative remains responsive to the needs and priorities of vulnerable populations.



06 PROCESS FOR REVIEWING AND UPDATING THE ROADMAP

1. Establish Review Cycle

A comprehensive review will be conducted every 2–3 years, with annual progress updates. Reviews will be synchronized with national disaster risk reduction (DRR) planning cycles and international reporting requirements.

2. Data Collection & Monitoring

Progress will be tracked against key targets (coverage, accessibility, inclusivity, timeliness). New risk assessments, climate projections, and technological innovations will be integrated to update hazard information. Feedback mechanisms will be established to collect inputs from communities through surveys, workshops, and pilot projects.

3. Validation & Approval

Updates will be shared with stakeholders for feedback. Approval will be secured from the Ministry of Disaster Management and Relief (MoDMR). Relevant policies, regulations, or frameworks will be updated to institutionalize the changes.

4. Dissemination & Capacity Building

The updated roadmap will be published widely through online portals, workshops, meetings, and media. Capacity will be systematically built among local authorities and communities to implement new measures. Partnerships and collaboration with the private sector and international donors will be strengthened.

5. Continuous Improvement

The roadmap, as a living document, will remain responsive and adaptable to emerging risks. Lessons learned from disasters, drills, and evaluations will be incorporated into future updates. Experiences will be shared with other countries implementing EW4All to refine best practices.

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08 ANNEXES

AA – Anticipatory Action
BMD – Bangladesh Meteorological Department
BWDB – Bangladesh Water Development Board
BBS - Bangladesh Bureau of Statistics
BDRCS - Bangladesh Red Crescent Society
CPP – Cyclone Preparedness Programme
CRA - Community Risk Assessment
DDM – Department of Disaster Management
DAE - Department of Agriculture Extension
DOF - Department of Fisheries
DLS - Department of Livestock Service
DOE - Department of Environment
DRR - Disaster Risk Reduction
EWS – Early Warning System(s)
EW4All – Early Warnings for All
FAO – Food and Agricultural Organization of the United Nations
FBF/A – Forecast-based Financing / Action
FFWC – Flood Forecasting and Warning Centre
IFRC – International Federation of Red Cross and Red Crescent Societies
ITU - International Telecommunication Union
IMED – Implementation Monitoring and Evaluation Division
LDMC – Local Disaster Management Committee



08 ANNEXES

MoDMR – Ministry of Disaster Management and Relief

MoEFCC - Ministry of Environment, Forest and Climate Change

MoPTIT - Ministry of Posts, Telecommunications and Information Technology

NPDM – National Plan for Disaster Management

RIMES – Regional Integrated Multi-Hazard Early Warning System

SDG – Sustainable Development Goal

SOD – Standing Orders on Disaster

SUFAL – Scaling up Flood Forecast-based Action and Learning in Bangladesh

UN – United Nations

UNDP – United Nations Development Programme

UNDRR – United Nations Office for Disaster Risk Reduction

URA - Urban Risk Assessment

UNICEF – United Nations Children’s Fund

WFP – World Food Programme

WMO - World Meteorological Organization



With support:



With Coordination:

