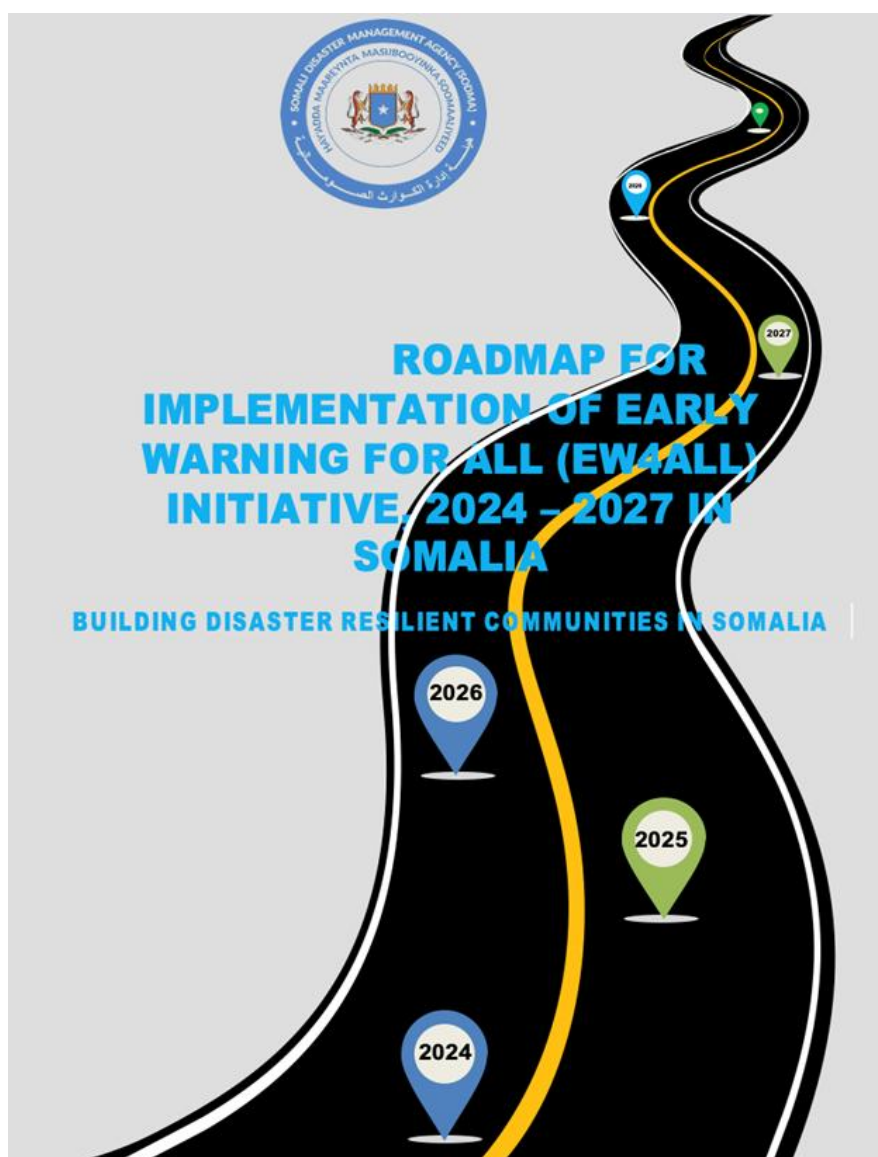# Roadmap for Implementation of Early Warning for All (EW4ALL) Initiative 2024-2027/2030

Building Disaster Resilient Communities in Somalia

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Contents

Acronym

AA	Anticipatory Action
AM	Amplitude Modulation
AMM	Africa Media Monitor
APIs	Application programming interfaces
ARC	African Risk Capacity
AWD	Acute Watery Diarrhea
AWS	automated weather station
BCPs	Business Continuity Plans
CAP	Common Alerting Protocol
CB	Cell-Broadcast
CBDRM	Community-Based Disaster Risk Management
CBO	Community-based organization
CBS	Central Bank of Somalia
CCA	Climate Change Adaptation
CCM	Convention on Cluster Munitions
CIMA	International Centre for Environmental Monitoring
CPC	Civil Protection Committee
CREWS	Climate Risk and Early Warning Systems
CRVA	climate risk and vulnerability assessments
CSO	Civil Services Organization
DDMT	Disaster Management Team
DFID	Department for International Development, Government of the United Kingdom
DINA	Drought Impact and Needs Assessment
DM	Disaster Management
DMA	Disaster Management Agency
DMC	Disaster Management Committee
DRM	Disaster Risk Management
DRMCG	Disaster Risk Management Coordination Group
DRR	Disaster Risk Reduction
DTM	Displacement Tracking Matrix
DTS	Disaster Tracking System
EOC	Emergency Operation Centre
ETT	Emergency Tracking Tools
EW	Early Warning
EW4ALL	Early warning for all
FAO	Food and Agriculture Organization
FEWSNET	Famine Early Warning Systems Network
FGS	Federal Government of Somalia
FM	Frequency Modulation
FSNAU	Food Security and Nutrition Analysis Unit
GDP	Gross domestic product
GIS	geographic information system
GMAS	Global Multi-hazard alert system
GPS	The Global Positioning System
GSM	Global System Mobile

GTOS	Global Terrestrial Observing System
HC	Humanitarian Coordinator
HCT	Humanitarian Country Team
HPC	High-performance Computer
ICPAC	IGAD Climate Prediction and Applications Centre
ICS	Incident Command System
ICT	Information and Communications Technology
IDP	Internally Displaced Person
IDRR	International Day for Disaster Reduction
IFAD	International Fund for Agricultural Development
IFRC	International Federation of Red Cross and Red Crescent Societies
IGAD	Intergovernmental Authority on Development
IGADD	Intergovernmental Authority on Drought and Development
LITK	local, indigenous and traditional knowledge
ILK	Indigenous and local knowledge
INGO	International Non Government Organization
IOM	International Organization for Migration
IPCC	Intergovernmental Panel on Climate Change
ITCZ	Inter-Tropical Convergence Zone
ITU	International Telecommunication Union
L & D	Loss and Damage
LB-SMS	Location-based SMS
LCG-DER	local coordination group on disaster emergency response
LNHAs	Local National Humanitarian Actors
LNNGOs	Local and National NGOs
MoEWR	Ministry of Energy & Water Resources
MoHADM	Ministry of Humanitarian Affairs and Disaster Management
MTR	Midterm Review
NAPA	National Adaptation Plan of Action
NCA	National Community Authority
NDMF	National Disaster Management Fund
NDMO	National Disaster Management Agency
NDRMC	National Disaster Risk Management Council
NDVI	Normalized Difference Vegetation Index
NMHEWC	National Emergency Operations Centre
NGO	Non-Government Organization
NMHEWC	National Multi-Hazard Early Warning Centre
NMHSs	National Meteorological and Hydrological Services
NSO	National Statistical Office
OCHA	Office for the Coordination of Humanitarian Affairs
OI	Officer In-charge
OPM	Office of the Prime Minister
PDNA	post-disaster loss, damage, and needs assessment
Q&A	Questions and answers
RPDNA	Rapid Post-Disaster Needs Assessment
RS	Remote Sensing
RMC	Regional Meteorological Center
RSMCs	Regional Specialist Meteorological Center

SADD	sex, age, disability disaggregated data
SDG	Sustainable Development Goals
SDRMCG	Somalia Disaster Risk Management Coordination Group
SFDRR	Sendai Framework on Disaster Risk Reduction
SMS	Short Message Service
SNDMP	Somalia National Disaster Management Policy
SNDP	Somalia National Development Plan
SODMA	Somalia Disaster Management Agency (NDMO)
SOP	Standard Operating Procedure
SRCS	Somalia Red Crescent Society
SWALIM	Somalia Water and Land Information Management
SWALIM	Somalia Water and Land Information Management
TWG	Technical Working Group
UAV	Unmanned Aerial Vehicle
UHF	Ultra-high frequency
UN	United Nations
UNCCA	United Nations Convention against Corruption
UNCDF	UN Capital Development Fund
UNDP	United Nations Development Programme
UNDRR	United Nations Office for Disaster Risk Reduction
UNFPA	United Nations Population Fund
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United nations international children's emergency fund
UNRCO	United Nations Resident Coordinator Office
UNV	UN Volunteers
VAC	Vulnerability Assessment Committee
VHF	Very high frequency
WASH	Water, sanitation and hygiene
WFP	UN World Food Programme
WHO	World Health Organization
WMO	World Meteorological Organization

Executive Summary

Early Warnings for All (EW4ALL)—a global initiative to ensure that everyone on Earth is protected by early warnings by 2027—is being fast-tracked into action on the ground. The UN Secretary-General released an action plan for this initiative in November 2022, emphasizing the urgent need to support the most vulnerable first.

The United Nations Development Program (UNDP) supported the Somalia Disaster Management Agency (SoDMA) /National Disaster Management Organization(NDMO) in facilitating the design and drafting of a Roadmap for implementing the Early Warning for All (EW4ALL) Initiative in Somalia.

While governments play a crucial role in driving action on early warning services for their citizens, adopting a "whole-of-society" approach that involves all stakeholders, including civil society and the private sector, can better strengthen and sustain early warning services.

It's equally important to recognize that disasters and climate change affect people differently based on gender, age, and other factors. Therefore, an intersectional approach is required to ensure that the early warning services are inclusive, responsive, and equitable. By involving all sectors of society and taking an intersectional approach, early warning services can be more effective in protecting vulnerable populations from the impacts of disasters and climate change.

As these events become increasingly frequent and intense, efforts to build resilience and coping capacities are crucial. Climate change is also a major driver of conflict in Somalia, for example, as declining groundwater levels drive up water prices and increase the likelihood of conflict over water and access to livelihoods. Multi-hazard early warning systems (MHEWS) linked to early actions are key to Somalia's efforts to manage risks, enhance adaptation, and build resilience.

The National Multi-Hazard Early Warning Centre (NMHEWC) was established to provide adequate and timely warnings of possible risks posed by hazards. However, the country lacks a robust early warning system infrastructure that enables policy and institutional environments for the dissemination of warnings.

In this context, the SoDMA/NDMO calls for the national Rollout of the Early Warnings for All (EW4All) initiative, finalizing the gap analysis, and agreeing on a roadmap to consolidate and extend the coverage of MHEWS, empowering and enabling early action by individuals and communities, especially those most in need.

1.0 Introduction: EW4ALL

Somalia needs to implement risk-informed tools for climate-proof planning and support disaster risk management governance with thematic forecasts, weather warnings, and public alerting to prepare the country for, respond to, and recover from extreme weather events.

Somalia is already experiencing significant losses and damage from human-induced climate change. The direct economic impacts of extreme climate events, such as droughts and floods, affect vital sectors like agriculture and livestock. Agriculture, including the livestock sector, is Somalia's largest employer and second-largest commodity export. Nearly one-fourth of the population is agropastoralist, with smallholder farming making up approximately. 80% of total crop production and 70% of the marketed produce. Over 60% of the Somali population depends on livestock, contributing 40% to the country's GDP[1]. Hydrometeorological hazards are recurrently impacting those productive sectors.

Losses and damages can result from extreme weather and climate events that occur relatively quickly, such as floods, tropical storms, heat waves, and protracted droughts**.** Direct economic loss and damage to the agriculture sector in Somalia are estimated to have totaled $5.68[2] Billion, of which about half, $2.84 billion, representing 5% of agriculture GDP on average between 2000 and 2021, could be attributable to climate change. Climate-attributable livestock and crop loss and damage of (on average) $129 million are already incurred yearly in Somalia.

From 2008 to 2011, droughts in the Horn of Africa triggered a cycle of heightened and persistent food insecurity. In combination with other factors – including conflict, low incomes, escalating global commodity prices, marginalization of certain ethnic groups, and insecurity limiting humanitarian access – the droughts are estimated to have plunged 17% of the population of southern and central Somalia into famine conditions (Majid and McDowell, 2012; Maxwell and Fitzpatrick, 2012). The cascading impacts of the droughts exacerbated poverty and other elements of vulnerability in the country.

On average, Somalia's direct economic impacts from droughts and floods amounted to 7.9% of the country's GDP between 2000 and 2021, excluding the 2010 drought events.[3]. About half (3.3% of GDP) of these total losses and damages could be attributable to climate change. Including the 2010/2011 drought, which led to economic damages of over $4 billion, this proportion of attributable loss and damage rises to 8.4% of GDP. Furthermore, between 2000 and 2021, on average, these attributable direct economic losses and damages equaled 86% of government revenues, excluding the 2010 drought event (over 200% of government revenues, including the 2010 drought event).

Somalia intended the EW4ALL system to be the center of excellence for instrumentalizing sustainable development and providing technocratic policymakers with sufficient, evidence-based tools for risk-informed planning, budgeting, and project implementation processes. Most importantly, EW4ALL would enhance the country's risk finance policy and advocacy, empowering access to the global risk finance domains.

The EW4ALL roadmap (2024-2027/2030) outlines the pathway for the effective implementation of the EW4ALL pillars over the period of 2024-2027 and beyond. The intended structure and process would enable the evolution of a Multi-hazard Early Warning System (MHEWS), including hazard forecasts and warning dissemination, to provide holistic support for Disaster Risk Management (DRM), Disaster Risk Reduction (DRR) & Climate Change Adaptation (CCA) interventions. Therefore, developing an enabling environment by establishing a simple and well-understood law or policy, or an institutional framework, along with forecasting services, is necessary. It is recommended that clear responsibilities be established to create a smoother workflow from start to finish. EWS are proven, efficient, and cost-effective DRR and CCA measures that save lives and provide a tenfold return on investment. Yet, major gaps in early warning systems remain global, especially when translating early warnings into risk-informed early action.

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[1] Government of Somalia, 2018

[2] & [3] Pastoralism and Agriculture in Recurrent and Protracted Crisis (SPARC) programme, September 2024

1.1 Vision EW4ALL

The National EW4ALL roadmap envisions that by 2027, all Somali people will be protected by a robust, government-led multi-hazard early warning system.

1.2 Principles EW4ALL

The following principles underpin Somalia's Roadmap for EW4ALL Implementation and reflect the spirit of disaster risk governance for Somalia. The core principles serve as the basis of the EW4ALL Initiative and guide the implementation of critical functions of the country's National Multi-Hazard Early Warning System (NMHEWS).

Accountability - All government and non-governmental parties should be held accountable for the early warning information and predictions they produce.

Credibility—Early warning information and analysis must come from credible sources and earn the trust and confidence of their users.

Do no harm—All parties shall endeavor not to cause damage or suffering due to their actions regarding DRM/early warning.

Ethical - DRM/early warning operations and decision-making shall always be guided by ethics and values that accept and respect the primacy of human life and human dignity.

Impartiality - Early warning information, analysis, and decisions should be based on objective data without bias, prejudice, discrimination, or a preference to benefit one group or community.

Leaving no one behind – EWS shall address the concerns, needs, and inclusion of the most vulnerable social groups, including women, youth, children, people with disability, and the elderly.

Neutrality—Early warning information, analysis, and decisions do not take sides and shall be conducted regardless of the political, faith, identities, or social background of the people or communities under the coverage of EWS.

People-centered and community-oriented—EWS should seek to preserve and include local and 'traditional' perspectives and Indigenous knowledge to strengthen community ownership. It should be developed in collaboration with the end-users, and the disaster-affected people shall communicate and understand its impacts. It needs to be more people-oriented with a focus on last-mile outreach.

Transparency—EWS should be transparent, allowing public access to early warning data and knowledge products. Both at federal and regional levels, EWS should be located within government structures and operate within a clear legal framework, with the spirit of accessing the information as a credible source for public benefit.

1.2 Goals and Objectives EW4ALL

Early Warnings for All is built on four pillars that are the cornerstones of the initiative and of effective multi-hazard early warning. The purpose of this Roadmap is to identify the current gaps in the four pillars of EW4ALL and suggest ways to overcome these gaps; more specifically, the roadmap aims to:

1. **Improve Disaster risk knowledge and management (led by UNDRR) :** Enhance risk knowledge of institutions, stakeholders, and the frontline community. Enhance institutional risk assessment capacity, risk repository development, risk data, and tools to generate impact-based early warning products and information services.
2. **Improve Detection, observation, monitoring, analysis, and forecasting (led by WMO) :** Somali access to improved weather observation data for forecasting, access to global & regional forecasting products from GPCs, RSMCs, and HMHS. Formulation of national hydrometeorological plans, strategies, and legislation in hydromet observation and acquisition of Essential climate variables (ECV) , data calibration, collation, and data attribution

for meteorological forecasting. Enhance the National Multi-hazard Early Warning Center (NMHEWC) in innovative forecasting, nowcasting, and prediction capability.

3. **Improve Warning dissemination and communication (led by ITU) :** Enhance national institutional, stakeholders, and frontline capacity in the risk communication value chain, translating forecasts into localized early warning, common alerting, weather warning, and NMHS, SoDMA , local stakeholders', and community capacity in the people-centered warning system.

4. **Better Preparedness and response capabilities (led by IFRC/FAO/SRCS):** Enhance the capacity of SoDMA, Local government, local nonstate actors/stakeholders, and community capacity in disaster preparedness and response capacity. Improve instructional capacity in Disaster Risk Management (DRM), Disaster Risk Reduction (DRR), and resilience-building capacity.
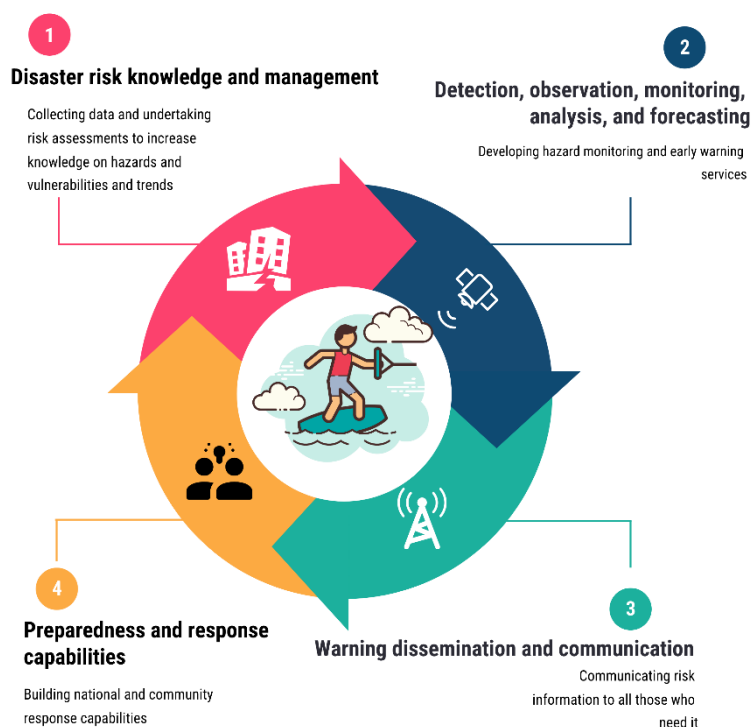

1 Disaster risk knowledge and management

Collecting data and undertaking risk assessments to increase knowledge on hazards and vulnerabilities and trends

2 Detection, observation, monitoring, analysis, and forecasting

Developing hazard monitoring and early warning services

3 Warning dissemination and communication

Communicating risk information to all those who need it

4 Preparedness and response capabilities

Building national and community response capabilities

Figure 1: Early Warning for All (EW4ALL) objective

1.4 Rationale of National Multi-hazard Early Warning Center (NMHEWC) installation

The National Multi-hazard Early Warning Center (NMHEWC) was established in 2019 following an executive order by the _**Office of the Prime Minister (OPM)**_ and is led by a joint inter-ministerial Committee of the OPM and MoHADM. The main purpose of NMHEWC is to coordinate and lead significant Emergency Responses and provide a coordinated, timely, and efficient response in case of future disasters and emergencies. The NMHEWC aims to enhance the institutional capacity of all governments for holistic disaster risk management.

SoDMA/NDMO is entrusted with executing the operational modality of NMHEWC and is governed by the honorable Prime Minister. Having NMHEWC under the auspices of the Office of the Prime Minister is expected to enhance its leadership among all government ministries and agencies involved in DRM in the country, as well as with FMS, UN Agencies, and development partners.

The NMHEWC has central roles and responsibilities in synchronizing and synergizing all state institutions that run ad-hoc emergency responses and non-state DRM and humanitarian actions currently undertaken by UN Agencies, INGOs, and CSOs nationwide. The SoDMA/NDMO plays a pivotal role in networking key representatives from federal and member state level institutions, donor communities, UN agencies, INGOs, NGOs, private sector multinationals, and financial institutions, establishing a model for effective emergency management.

1.5 SoDMA/NDMO EW4ALL initiative

On October 15, 2023, H.E., the President of the Federal Republic of Somalia, nominated the Somalia Disaster Management Agency (SoDMA) as the right national focal institution to lead the EW4All initiative at the national level.

In collaboration with the UNDP Somalia country office, the EW4ALL initiative is now **operationalized under the leadership of SoDMA. The National Multi-Hazard Early Warning Center (NMHEWC) is already operational under SoDMA, positioning the institution as the most effective way to continue coordinating** the scaling-up of the EW4All Initiative into action at the national level.

On November 15 – 16, 2023, SoDMA held a national consultation to launch Early Warnings for All (EW4All) in partnership with the United Nations Resident Coordinator Office (UNRCO) and the United Nations Country Team (UNCT) and in technical cooperation with UNDRR, World Meteorological Office (WMO), and International Telecommunication Union (ITU) as global co-leads for the Secretary-General's EW4All initiative.

Affirming Somalia's commitment to the objectives and spirit of EW4All, national government stakeholders, in partnership with UN country teams led by UNDP, came forward to articulate priorities and gaps to be addressed across the four EWS pillars.

On June 9–10, 2024, a workshop was held in Mogadishu to finalize the gap analysis and develop a national roadmap for implementing the Early Warning for All (EW4ALL) Initiative in Somalia, marking the rollout of the initiative.

The Roadmap for Early Warning for All (EW4ALL) builds on the country's existing National Multi-Hazard Early Warning System (NMHEWS) and is concurrent with Somalia's commitment to the Sendai Framework for Disaster Risk Reduction (2015–2030).

Critically, the Roadmap development process has been accompanied by a systematic reform initiative to align it with Article 3, paragraph 6, and Article 7, paragraph 2, of Law 17/2016, which establishes the Somali Disaster Management Agency (SoDMA). These Articles state the clear responsibility of SODMA to gather information and report on disasters and the risks facing the country, and to send out early warnings in collaboration with organizations inside and outside the country working on these activities. This is a positive step towards elevating the portfolio of SODMA, strengthening the Agency's role by creating a functioning National Multi-Hazard Early Warning System. It will also provide the agency with an extended mandate to effectively coordinate DRM endeavors with multiple stakeholders, including regional and Federal Member State (FMS) government bodies, representatives of civil society organizations, and National Red Crescent Societies. The arrangement of this Roadmap also expects to promote local community participation and raise public awareness about disaster risk reduction and management. It is hoped that this Roadmap will foster the development of robust collaborations among key early warning stakeholders and establish a coordination mechanism that brings together the EW4ALL Pillar leads and relevant stakeholders.

The roadmap is also expected to facilitate the implementation of the EW4ALL Initiative in Somalia and enhance coordination, accountability, and enforcement of inter-jurisdictional and regional early warning systems and initiatives.

The critical undertaking here is for the Government of Somalia to develop a national EW4All Roadmap 2024-2027, with support from the UN agencies and global EW4All Pillar leads.

2.0 Somalian multi-hazard, disaster phenomena & climate change trend

Background of the Somalian risk and vulnerabilities: Somalia's natural and human geography is shaped by its harsh climate. Somalia is in the midst of a prolonged and complex hydrometeorological disaster, and Climate impacts are inextricably linked to Somalia's poverty.   Somalia lies at the eastern extremity of the Sahel and has an arid to semi-arid climate. Average annual rainfall is under 200 millimeters (mm) in much of the country but is significantly higher in the northern highlands and in the south, where it ranges from 400 mm to 600 mm[4]. Mean daily maximum temperatures exceed 30°C in most areas. However, they fall much lower in the northern highlands and are tempered by cool offshore currents along the eastern seaboard. The eastern seaboard map shows Somalia's rainfall and temperature distribution.
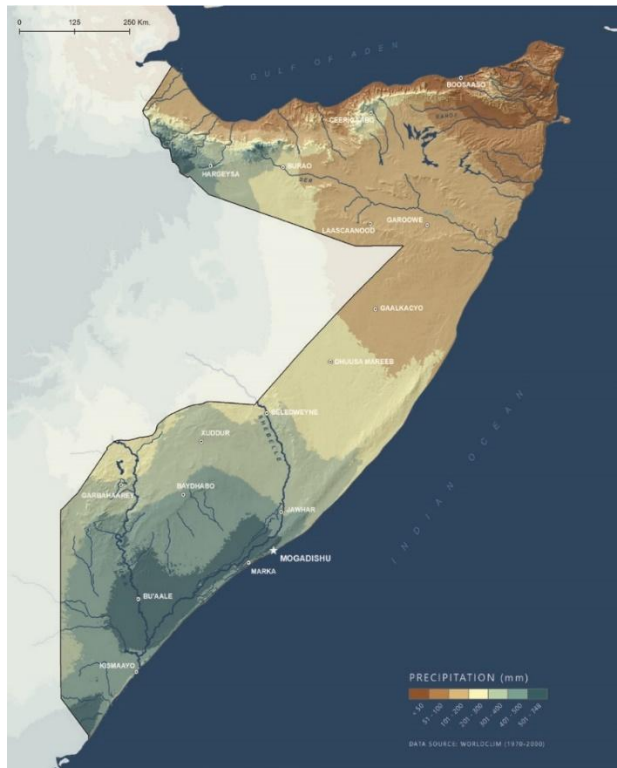
Figure 2: Total annual rainfall
Source: Original calculations based on TerraClimate

Figure 3: Average temperature
Source: Original calculations based on TerraClimate

Cyclone vulnerability: Somalia has the longest coastline in mainland Africa, at 3,333 kilometers (km), and is exposed to Indian Ocean cyclones. The map below shows the recurrence of cyclone disasters over the last 40 years. Any given category of tropical storm and surges hither is likely to do colossal damage the high-density settlements and other high-value elements.

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[4] Somalia climate risk review, World Bank 2023

Figure 4 : Track record of cyclonic landfall over the Somalian coast from 1984-2020,   Source: Wikipedia 2024

The country's riverine communities are particularly at risk of flooding. They could face a potential loss of property and livestock, destruction of WASH facilities, and damage to crops. Around 1.5 million hectares of land along the Juba and Shabelle rivers are at high risk of being inundated by flood waters, as shown on maps.

Figure 5 : Map: Juba–Shabelle river basin average annual rainfall, Source: UNEP 2010.

Figure 6 :   Map : Juba–Shabelle river basin modeled available runoff, Source: UNEP 2010.

Table 1: Summary of Somalia's climate risks with magnitude and trend measures for the sectors

Sector	Risk	Frequency
Climate disaster	Drought	Frequent
	Fluvial floods	Frequent
	Coastal flooding	Occasional
	Tropical Storm	Frequent
Agriculture and livestock	Locusts	Rare
	Crop stress	Chronic

Sector	Risk	Frequency
	Agricultural pests and diseases	Occasional
	Heat stress on livestock	Chronic
	Fodder crisis	Chronic
	Livestock and pest and diseases	Chronic
Natural resources	Heat stress	Chronic
	Vector-borne disease	Chronic
	Gastrointestinal disease	Chronic
Infrastructure and services	Degradation of infrastructures	Chronic
	Disruption of energy supply	Chronic
	Disruption of water supply	Chronic

Source Somalia climate risk review, World Bank 2023

Figure 7: Somalia Disaster events (1975-2024) : Source EM-DAT   Apr 2024 (48 years Disaster incidence dataset for Somalia)
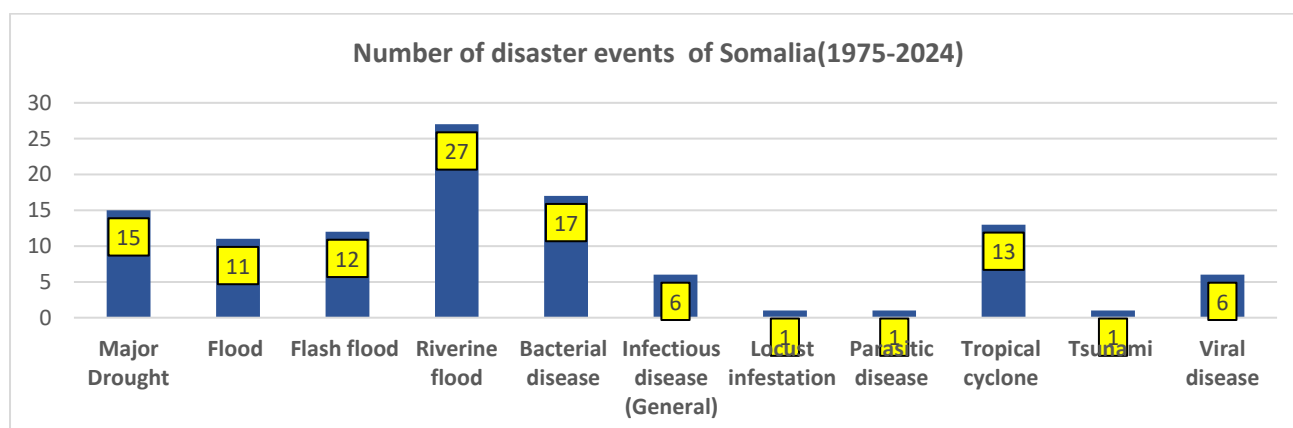
Over the past 48 years, statistics of disaster events show that most of the disaster events are rapid and sudden onset (floods, cyclones, diseases, outbreaks), and simultaneously slow, protracted droughts are also severe and recurrent, occurring as hydrometeorological and agricultural droughts every single year. These essentially contributed to the loss and damage of livelihood and productive sectors. Fundamentally, the above graph signifies the essentiality of a functional early warning system put in place. Climate change-induced internal and external displacement intensifies demographic and socioeconomic risk factors.

Hydro-meteorological data gathering, monitoring, and forecasting in real-time tracking, exchange of information, and forecasting are limited due to an insufficient number of automatic hydro-meteorological stations on the ground, manual data reading and data transmission difficulties, regular operation and maintenance support, and the limited capacity of its systems in hydrological forecasting. For Somalia to have robust weather forecasting and impact-based EWS, real-time monitoring systems for meteorological and hydrological conditions must be strengthened by automating existing stations and installing new automated stations. This includes but is not limited to the development of real-time transmission of data for flood monitoring through expanding the spatial coverage of hydro-meteorological stations and upgrading the current quality and timeliness of the information.

WMO has conducted an Early Warnings Rapid Assessment for all 30 priority countries, including Somalia. The assessment highlighted the capacity and gaps across Pillar II, encompassing governance and institutional setting, observation infrastructure, warning services, MHEWS operations, and financial and technological enablers. The main preliminary conclusion was the acute lack of observation, forecasting, and warning capacity.

Somalia's current disaster risk monitoring and forecasting practice is carried out mainly by SWALIM, NMHEWC, and the Ministry of Energy & Water Resource (MoEWR), leading organizations in forecasting climatic and hydro-meteorological conditions. These Institutions are reportedly part of the agencies responsible for providing weather observation, monitoring, and forecasting for EW purposes.

In addition, it is encouraging to note that Somalia has reasonably cooperated with ICPAC as the Regional Center of Excellence for Climate Services to help enhance its capacity to detect, monitor, and forecast disasters.

2.1 Somalian current climate projection:

Somalia's average and extreme surface air temperatures across all regions are slightly higher, and increases occur in the northern (above figure)and inland areas of the country. Nationwide, annual average temperatures are projected to increase by almost 1°C by the early century and by 1.5°C to 2°C by mid-century, with February and March exhibiting the highest potential increases. Annual maximum temperatures are also projected to increase across Somalia through mid-century, with the highest increases occurring in the country's northwestern region. Similarly, nationwide averages show that annual maximum temperatures could increase by almost 1°C by the 2030s and nearly 2°C by mid-century.

Projections indicate small increases in precipitation totals across Somalia, with slightly higher increases occurring during October, November, and December. Nationwide, annual precipitation totals are projected to increase by approximately 15 mm by the early century and by approximately 50 mm by mid-century. However, models show potential for both increases and decreases at both time horizons. Climate change is projected to drive increasing interannual variability in precipitation patterns, thereby intensifying the extremes of wetter and drier years.

Climate projections indicate expected increases in annual average temperature between 2040-2060, yielding an increase in average air temperature, very hot days, drought frequency, and drought intensity.[5]. Flood intensity and frequency are also expected to increase in Somalia, and rising sea level is expected to affect Somalia's coastal communities through coastal erosion, seawater intrusion into freshwater systems, and changes in marine habitat health[6]. Resilience and food security investments in these locations must consider and adapt to changing conditions to reduce potential risks posed by climate change.

2.2 Climate trends, impacts, and Stressors

Somalia is arid and semi-arid, with two seasonal rainfall seasons, as shown in the figure below. The climate in Somalia is influenced by several factors, including the Inter-Tropical Convergence Zone (ITCZ), monsoonal winds and ocean currents, jet streams, such as the Somali Jetstream or Somali Current, tropical cyclones, and conditions in the neighboring Indian Ocean and Red Sea (UN, 2020).

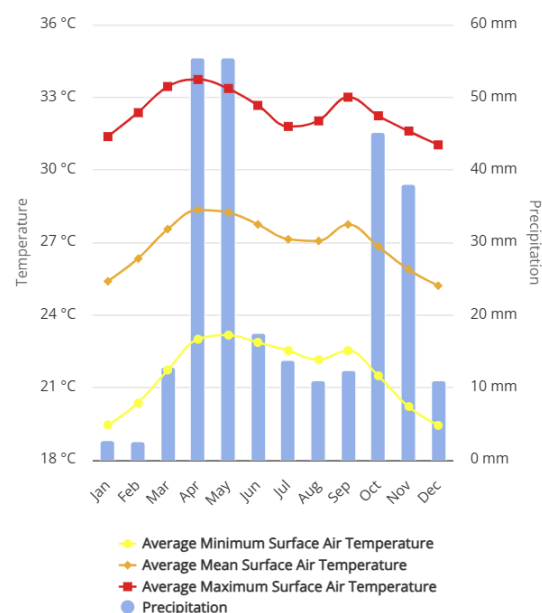*Figure 8: Monthly climatology of average minimum surface air temperature, average mean surface temperature, average maximum surface temperature & precipitation 1991-2022 Somalia[7]*

Temperature. The annual mean temperature is close to 30°C throughout the country. Average monthly temperatures reach their maximum during April through June. June to September are the hottest months in the north, while

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December to March marks the hottest weather for the south. Since the 1960s, a warming trend has been observed in Sub-Saharan Africa. The mean annual temperature is 26.91°C (1901-2016).

Precipitation. Precipitation is generally low nationwide, with high spatial and temporal variability. The average annual rainfall is about 200 mm in most of the country. The northern maritime plains are extremely hot and arid, with an average annual rainfall of less than 200 mm. Rainfall in the south is higher at approximately 400 mm and highest in the southwest, with around 700 mm annually (FAO, 1995). The mean annual precipitation is 265.44mm (1901-2016).

Seasons. Somalia is generally arid and semi-arid with bimodal rainfall. The rainfall is influenced by the Inter-Tropical Convergence Zone (ITCZ), the north-south movement, monsoonal winds and ocean currents, and tropical cyclones, which result in two rainy seasons and two dry seasons in a year:

a. The "**Gu**" rainy season starts as early as the second half of March. Precipitation intensifies in April across the country, except for the northeastern coastline, which receives the least rainfall during this season. Relatively wet and hot conditions prevail, Gu being considered the rainiest season in the country. Occasionally, the Gu season extends into June or July because of the Haggai rains, which are produced by the onset of moist onshore winds.
b. The dry "**Hagaa**" dry season runs from July to September and is associated with cool sea breezes from the Indian Ocean, which result in light coastal rains in July and August. The Southwest monsoon dominates, bringing relatively cool conditions, with showers along the coast but dry inland.
c. A shorter duration and fewer amounts of precipitation from October to the end of November characterize the "Deyr" light rainy season.

d. January to March is the most extended dry season, known as "**Jilaal**". This season results from ITCZ emerging from the dry Arabian Peninsula.

Observed change. With regard to precipitation, despite inconsistent trends for the Sub-Saharan region as a whole, East Africa has been experiencing precipitation increases in the northern part. There is a decrease in rainfall in the southern region.

3.0 Pillar Specific Goal, Outcome, and Workplan

Global climate change perturbation exerts tremendous anomalies on weather and climate systems in any given country on Earth. Somalia's multi-hazard risks and vulnerability dynamics are mounting due to the area's hydrometeorological and geographical settings, as the country is poised for multiple risk factors. Considering the El Niño Southern Oscillation-induced rainfall and flooding, prolonged droughts by La Niña, and exposure to vast, elongated coastlines and   Indian Ocean tropical storms, robust level tracking, monitoring, and forecasting are needed.

Under the auspicious of the honorable Prime Minister, the SoDMA/NDMO was entrusted with the full-scale implementation of all the pillars of EW4ALL for Somalia.

3.1 Pillar 1: Disaster Risk Knowledge

Somalia is tangled by multiple risk factors: protracted poverty, extreme weather and climate change, conflict-induced risk, and vulnerability poised to profound livelihood challenges. The vulnerability to natural hazards is exacerbated by the escalating climate crisis with its unpredictable weather patterns.

Given this precarious context and closing the risk knowledge gaps of frontline vulnerable communities and stakeholders, the UN Agency is working for the most prioritized strides in institutionalizing EW4ALL governance in Somalia. Contemplating the Sendai Framework for Disaster Risk Reduction, the UN Secretary-General has called for every person on Earth to be protected by early warning systems within five years by 2027; the SoDMA is entrusted as the nodal agency for full-scale implementation of the EW4ALL framework of actions and keeping the frontline informed about extreme and hazardous weather events.

3.1.1 Pillar 1 Gap Identification on Disaster Risk Knowledge

Gaps identified through the previously organized Early Warnings for ALL inception workshops, National workshops, and stakeholder meetings in Somalia.

Indicative Gaps in Disaster Risk Knowledge Management Governance:

A multi-hazard risk repository and risk knowledge bank are precursors to instrumentalizing the EW4ALL systemic functionality, in which Somalia needs to make significant progress.

a) **Inadequate Risk Repository:** SoDMA and MoHAMD Somalia need to establish a national vulnerability assessment committee (VAC)/Taskforce team represented by sectoral technical experts/stakeholders. Inadequate consensus and agreement between state actors, humanitarian actors, stakeholders, UN agencies, INGOs, local NGOs, and CSO engagement over risk assessment, as well as collecting locally sourced climate data. Inadequate structure and process of the national statistical data clearinghouse for conducting census survey, collection of sex, age, and disability disaggregated data (SADD) from the community and household level. The roadmap intended to establish and mandate accountability of institutional/stakeholders for the collection of climate risk and vulnerability disaggregated datasets on agriculture, water, livestock, fisheries, agroforestry, WASH, physical infrastructures & communication, municipalities & urban centers, commercial hubs, human settlements, and housing sectors to support climate and multi-hazard risk mapping, risk and vulnerability profiling, and repository development. The UN Cluster system is still not harmonized with the government disaster risk management and development framework, state actor-driven humanitarian action, and national risk management coordination framework.

b) **Inadequate stakeholder Partnership and coordination:** The roadmap is intended to foster the Policy actions, mandates, and harmonization of internal & external resources for supporting institutional ICT strengthening and

enabling capacity in disaster risk assessment and risk knowledge management. Establish adequate consensus and agreement between state actors, humanitarian actors, stakeholders, UN agencies, INGO consortium, local NGO consortium, and CSO engagement over risk assessment, as well as collecting locally sourced climate data. Coordinating other external, state, and non-state actors with a coordinated framework, methodology, tools, and guidelines for climate risk and vulnerability assessment and post-disaster loss, damage, and needs assessment (PDNA) at the national and sub-national levels.

c) **Inadequate Disaster Risk Management Governance Structure:** SoDMA (MoHADM) still needs to be decentralized at the regional, state, and district levels to govern disaster emergency risk, communication, risk information dissemination, and the delivery of a community-based early warning system.

d) **Inadequate institutional capacity in developing GIS-based risk atlas &**

Figure 9 : Indicative gaps of Pillar 1

Database: Sector-level data collection started in 2007; beforehand, it was paper-based, and some historical disaster L & D datasets still need to be included. SoDMA and sector department level geospatial database, GIS Base map, District-level inadequate GIS base map, and risk atlas for analyzing the GIS-based multi-hazard risk and vulnerability, inadequate informed tools for disaster preparedness and humanitarian response planning. Inadequate SoDMA capacity in acquiring satellite remote sensing data & meteorological data for modeling climate risk. Inadequate data center, high processing power hardware and software for GIS data analysis, weather data processing, data calibration and collation, meteorological data analysis, and climate modeling capability. Inadequate and untimely dissemination of early warning messages to communities by leaders or local officials through text messages or word of mouth, usually in a very ad-hoc, uncoordinated manner. Inadequate structure and process of Disaster Risk Management Coordination Group (DRMCG).

e) **Inadequate MIS & GIS application at the government department level:** Sector-level data collection started in 2007; beforehand, it was paper-based, and some historical disaster L & D datasets are missing. The roadmap is intended to install and upgrade the MIS & GIS systems at the SoDMA and sector department levels. Geospatial database, GIS Base map, District-level inadequate GIS base map, and risk atlas for analyzing the GIS-based multi-hazard risk and vulnerability, inadequately informed tools for disaster preparedness and humanitarian response planning. Inadequate SoDMA capacity in acquiring satellite remote sensing data & meteorological data for modeling climate risk. Inadequate data center, high processing power hardware and software for GIS data analysis, weather data processing, data calibration and collation, meteorological data analysis, and climate modeling capability. Inadequate and untimely dissemination of early warning messages to communities by leaders or local officials through text messages or word of mouth, usually in a very ad-hoc, uncoordinated manner. Inadequate structure and process of Disaster Risk Management Coordination Group (DRMCG).
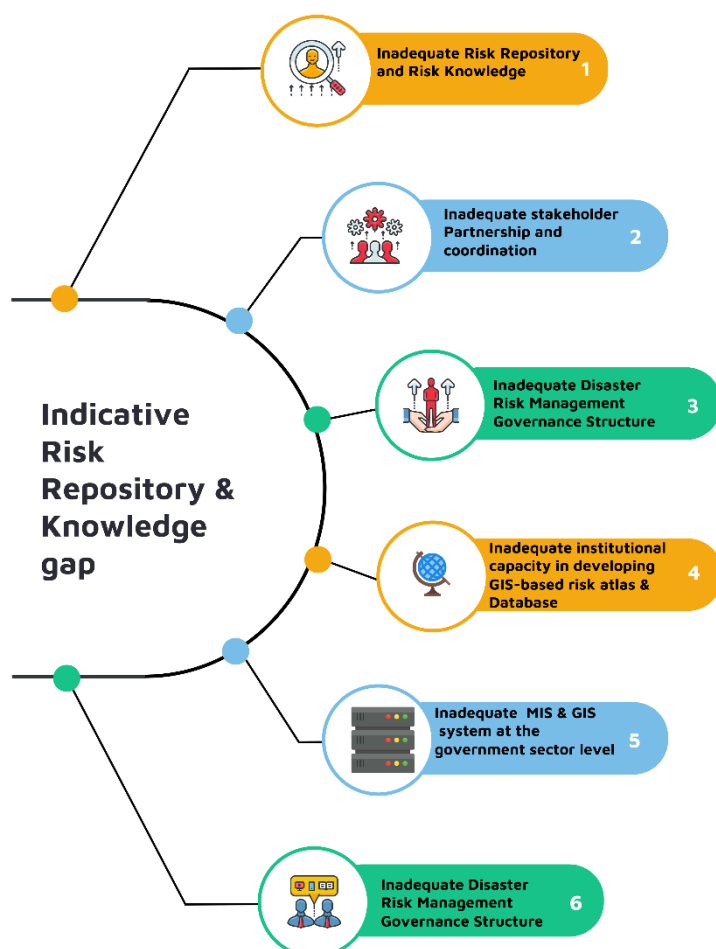
3.1.2 Step forward to close the gap of Pillar 1 Disaster Risk Knowledge

Addressing the gaps above, SoDMA and other relevant stakeholders intend to step forward to the installation and activation of a robust weather observation system, monitoring system, forecast & meteorological data analysis, and enhancing the capacity of SoDMA-NMHEWC for demand-driven forecasting in Somalia, the following interrelated core actions were identified and intended to be implemented by 2027/2030:

Indicative Gaps in Disaster Risk Knowledge Management Governance:

A multi-hazard risk repository and risk knowledge bank are precursors to instrumentalizing the EW4ALL systemic functionality, in which Somalia needs to make significant progress.

3.1.3 Proposed key actions for closing the indicated gaps : Disaster Risk Knowledge

Proposed Activities	Enablers/Actors/stakeholders
1.1 Improve multi-hazard/Disaster L & D database management system	
1.1.1 Develop a data collection template (approved by the UNDRR-DesInventar technical team) to inventory all past priority hazard events, attribute the loss and damage statistics, and insert L & D datasets and attributes to the DesInventar online system.	**Government Lead Agency :** • SoDMA **EW4ALL Pillar Lead :** • UNDRR, WMO **Technical Support:** CREWS Initiative
1.1.2 Establish a multi-hazard early warning situation room at the National Multi-Hazard Early Warning Centre (NMHEWC) with an ICT system, tools(hardware/software) for improving disaster risk knowledge, impact forecasting facility, and supporting EW4ALL portfolios of Somalia.	**Government Lead Agency :** • SoDMA **EW4ALL Pillar Lead :** • UNDRR, WMO Technical Support: CREWS Initiative
1.1.3 Enhance SoDMA capacity in systematically maintaining/updating the Disaster Risk Management Information System (DRMIS) from collected sector-level risk data and periodically updating the DesInventer database (L & D). 1.1.4 Establish MIS and GIS Unit in sector department(climate vulnerable) for systemically inventory and track recording disaster L & D dataset(georeferenced) for impact analysis	**Government Lead Agency :** • SoDMA **EW4ALL Pillar 1 Lead :** • UNDRR, WMO Technical Support: CREWS Initiative •**UN Agency:** OCHA, UN Clusters (CCM, Early Recovery, Education, Emergency Telecommunication, Food Security, Health, Logistics, Nutrition, Protection, Shelter, and WASH clusters) •HCT/Individual UN Agency (UNDRR, UNDP, IOM, UNICEF, UNHCR, WFP, FAO, UN Women, UNFPA, WHO, IFAD, ITU, UN Volunteers, UNCDF etc.) **CSOs:** • National NGOs Consortium • **International NGOs** Consortium • CSOs (Local charities, trust, clubs, non-profit organization etc.) • **Regional Actor:** IGAD-ICPAC, African Risk Capacity (ARC)
1.1.5 Institutional strengthening programme on disaster risk information management. 1.1.6 Sign MOU/agreement SoDMA/MoHADM with other stakeholders UN Agencies/INGOS, FAO-SWALIM, IOM-DTM (Displacement Tracking matrix), UNHCR(Operational data portal), WFP(Food Security), WFP Logistic network/telecommunication system, WASH Cluster database, CREWS Initiative, CIMA Research Foundation myDEWETRA, ICPAC forecast/outlook, Education Cluster Database, UNICEF-MICS, World Bank (GFDRR, Databank), UNOCHA -INFORM, Food Security and Analysis Unit (FSNAU) & IDEA of FAO, IFRC-Anticipatory Hub, USAID-	**Government Lead Agency :** 2) SoDMA **EW4ALL Pillar Lead :** 3) UNDRR, WMO

Proposed Activities	Enablers/Actors/stakeholders
FEWSNET etc., for anchoring those tools/facilities for proactively informing impact forecasting support.	
1.1.7 MOU with UN Agencies for anchoring UN Clusters (11 clusters) supports with SoDMA for improving risk information governance (Conducting joint PDNA, CRVA, L & D assessment)	**Government Lead Agency :** 2) SoDMA **EW4ALL Pillar Lead :** 3) UNDRR, WMO
1.2 The Institutional Strengthening programme on multi-hazard and Climate Risk and Vulnerability Assessment (CRVA) at the Local Level	
1.2.1 Establish the new structure of the vulnerability assessment committee (VAC)/Technical Taskforce at national, subnational, local, and community levels for comprehensive vulnerability assessment. Establish stakeholder coordination and engagement structure	**As above**
1.2.2 Institutional strengthening program for sector department and vulnerability assessment committee (VAC)/Technical Taskforce to utilize ICT tools, GIS base map, UAV/Drone, Mobile apps, Survey apps, GPS tools, etc., for gathering georeferenced multi-hazard incidence data, disaster hotspot data, Disaster L & datasets from the community/local level, conducting RPDNA, CRVA, and sector-level risk assessment.	**Government Lead Agency :** • SoDMA **EW4ALL Pillar Lead :** • UNDRR, WMO Technical Support: CREWS Initiative **UN Agency:** OCHA, UN Clusters (CCM, Early Recovery, Education, Emergency Telecommunication, Food Security, Health, Logistics, Nutrition, Protection, Shelter, and WASH clusters). HCT/Individual UN Agency (UNDRR, UNDP, IOM, UNICEF, UNHCR, WFP, FAO, UN Women, UNFPA, WHO, IFAD, ITU, UN Volunteers, UNCDF etc.) • **CSOs:** National NGOs Consortium, I**nternational NGOs** Consortium • **Regional Actor:** IGAD-ICPAC, African Risk Capacity (ARC)
1.2.3 Comprehensive capacity building program for VAC or vulnerability assessment task force, sector department-level TWG, Community volunteers, Mosque-based committee, local NGOs, Community leaders, local stakeholders, local service providers, value chain operators, private sectors, etc., in gathering L&D information in the first hour/6hrs /12hrs/24 hours of disasters strikes and sending L&D data to National Multi-Hazard Early Warning Centre (NMHEWC) /Situation room.	**As above**
1.2.4 Capacity development of stakeholders for conducting sector-level climate and multi-hazard exposure risk and vulnerability assessment (Productive sector, e.g., agriculture, livestock, fisheries, agroforest, environment, WASH, Water, infrastructure and basic service, housing and settlement, food security, livelihood, entrepreneurship, etc.)	**As above**
1.2.5 Enhancing CPC/DMC and Community-level disaster risk knowledge on the inclusive, participatory vulnerability assessment process, e.g., transact walk, FGD, community meetings, religious gatherings, etc.	**As above**
1.2.6 Establish community climate knowledge networks through Radio, TV, News outlets, web portals, mobile apps/web portals, national media outlets, academic/institutions, practitioners, professional associations, and NMHEWC: local community hazard, vulnerability, and risk assessment engagement and vulnerability assessment strategy.	**As above**
1.2.7 Local-level VAC/Community capacity to regularly review and update risk (hazard, vulnerability, exposure, and capacity) data is established, maintained, and sent to NMHEWC.	**As above**
1.2.8 Capacity building of nonstate actors on EW4ALL initiatives for operational support	**As above**
1.3 Enhance institutional capacity in the use of ICT tools (UAV, Mobile apps, Survey tools, GPS tools), Geospatial tools (GIS maps, Database, tailored multi-hazard map, risk atlas), Remote sensing data for risk interpretation, and tailored and data-driven tools for decision-making support.	

Proposed Activities	Enablers/Actors/stakeholders
1.3.1 Enhance the capacity of the Technical Working Group (TWG), Sector technical expert in the utilization of Geographic Information System (GIS), Remote Sensing (RS), and Global Positioning System (GPS) in sector & sub-sector level risk and vulnerability assessment (Agriculture, Water, livestock, Fisheries, Food Security, WASH, Public health, Infrastructure and Communication, Rural Development, Planning, etc.)	**As above**
1.3.2 Enhance stakeholder capacity in Apps, GIS/GPS survey tools based on primary data collection, big data analysis tools and platforms, GIS mapping, open-source mapping, drones, and satellite mapping, which are used to collect and analyze all risk data elements.	**As above**
1.3.3 Building the sector department's capacity in the GIS /MIS database and developing significant multi-hazard distribution maps and risk attributes.	**As above**
1.3.4 Develop an online system (geospatial). Locally sourced data and information about disaster risk must be readily available and accessible to the public through online GIS platforms. Engagement of sectoral ministries/departments to improve the type and quantity of data collection, regular updates, subsequent analysis, and publicly accessible.	**As above**
1.3.5 The types and numbers of **early warning indicators need to be revisited**, considering disaster mitigation plans, emergency response plans, and early action plans.	**As above**
1.4 Strengthening institutional/stakeholder capacity in data acquisition of critical hazards the country is exposed to (e.g., geographical extent, magnitude, intensity, frequency, probability), including community socioeconomic vulnerability, SADD data collection	
1.4.1 Methodology, tools, and guidelines on SADD data collection	**As above**
1.4.2 Stakeholder engagement plan, SoP for SADD data collection	
1.4.3 Conduct community vulnerability assessments(socioeconomic) with systematic collection of gendered climate risk data, gender-disaggregated attributes, and the vulnerability of gender groups (women, girls, boys, children, elderly, disabled population) separately.	
1.4.4 Enhance institutional and stakeholder capacity in Hazard assessments based on historical data, scientific models, and Indigenous and local knowledge (ILK) is conducted for the five major hazards	**As above**
1.4.5 Develop Climate risk and vulnerability-related repositories on hazards, vulnerabilities, coping capacity, and risk at all levels, including state and non-state actors, government and public offices, CSOs, CBOs, NGOs, and communities.	**As above**
1.4.6 Develop SADD monitoring tools and networks to ensure the SADD and sectoral disaggregated data collection	**As above**
1.4.7 Develop data collection methodology, ICT tools, Apps, guidelines, and processes for the collection and analysis of the data created and adhered to, ensuring comparative analysis, improved predictability, and sustained impact.	**As above**
1.4.8 Develop and availability of hazard, vulnerabilities, capacity, and risk datasets at all levels, including state and non-state actors, government and public offices, and communities.	**As above**
1.4.9 Establish, maintain, and modernize centralized and decentralized knowledge and information management government databases.	**As above**
1.4.10 Develop a repository of historical data sets on all past priority hazards (e.g., geographical extent, magnitude, intensity, disease transmissibility, frequency, probability, return periods).	**As above**
1.4.11 Develop risk knowledge products with multiple local languages to comprehensively understand hazards and cascading hazardous events.	**As above**

Proposed Activities	Enablers/Actors/stakeholders
1.4.12 Develop Hazard maps (dynamic and layered when possible) to identify the geographic areas (e.g., land cover, places, population characteristics) that could be affected by priority hazards. Analyze impacts on critical infrastructure and secondary risks associated with these impacts, evaluated for all priority hazards.	**As above**
1.4.13 Conduct an assessment of vulnerabilities of critical economic sectors at the national level for all priority hazards.	**As above**
1.4.14 Integration of indigenous knowledge in risk assessment for all priority hazards. Results of risk assessments are integrated into local risk management plans in a clear and easy-to-understand language.	**As above**
1.4.15 Develop data architecture and repository (including but not limited to a GIS) established and operational to store all event/disaster and risk information.	**As above**
1.4.16 Inventorying all past priority hazard events and attributing the loss and damage statistics. For example, from sources like DesInventar, post-disaster needs assessment (PDNA), etc.	**As above**
1.5 Improve multi-hazard/Disaster Risk formation management Governance system	
1.5.1 Develop historical climate data (30 years), analyze Climate norms and projections of Somalia to define the meteorological mean and support forecast (parameters, e.g., temperature and precipitation distribution, relative humidity, sunshine hours, wind patterns), sea level change, and a meteorological map and sectoral climate impact analysis.	**As above**
1.5.2 Develop tailormade climate datasets (total sunny days, solar irradiance datasets, wind velocity, relative humidity, precipitation) for NDC interventions support, e.g., wind power, Solar PV system, solar thermal system, rainwater harvesting system installation.	**As above**
1.6 Develop a Sectoral disaggregated data hub to support DRR, NAP, NbS (Nature-based), locally led solutions, WASH, Health, Food Security, Livelihood Security, etc.	
1.6.1 Develop tailormade sectoral disaggregated datasets on crop agriculture, land use map & attribution information, agricultural activity, crop, livestock population distribution data, pasture, biomass resource, waterbody, water point, soil moisture, soil fertility, irrigation data repository development form supporting NAP localization and adaptive interventions e.g., Biogas/Bio-digester, IFM, FYM, INM, rainwater harvesting, windmill/wind power, Solar PV system, biomass energy, organic farming, extension services of productive sectors). Develop climate norms for Somalia (meteorology).	**As above**
1.6.2 Develop community-level DRM/DRR/CCA plans based on community-level climate risk and livelihood vulnerabilities, along with the vulnerabilities of the community landscape context, and finally integrate all those issues in community-based impact weather forecasting.	**As above**
1.6.3 **Impact forecasting:** Develop GIS Shapefile of Districts, develop attribute information of element and repository, overlay hazard distribution layer, and conduct GIS analysis to quantify exposed people, services, and critical infrastructure conducted and mapped for all relevant hazards, as well as any compounding risks, at the local level in both rural and urban areas and vulnerable sectors.	**As above**
1.6.4 Integration of local and Indigenous knowledge (ILK) for coping strategies	**As above**
1.7 Enhance the capacity of the sector departments & stakeholders (NGO, CSO, CBO, local religious institute) for collecting sector-level disaggregated attribute information and SADD.	
1.7.1 Capacity building of stakeholders in developing tools, methodology for conducting SADD information collection, database development, and informed tools development	**As above**

Proposed Activities	Enablers/Actors/stakeholders
1.7.2 Enhance institutional capacity strengthening program for the National Statistical Agency, SoDMA, NMHEWC, Vulnerability Assessment Committee (VAC), climate-vulnerable sector department, etc., to conduct assessments of SADD, socioeconomic, and sectoral disaggregated climate risk and vulnerability data supporting gendered DRM, DRR, and climate actions from the local level.	**As above**
1.8 Establish the Sector Department-level MIS/GIS system for sector-level operational data analysis and informed tools development	
1.8.1 SoDMA technical support for sector department/government duty bearer for GIS software installation, configuration, development, maintenance, update, and management of the climate and multi-hazard information system	**As above**
1.8.2 Installing a SoDMA-level online geospatial portal and online DRMIS system will give the sector department access to risk information data updates.	**As above**
1.9 Harmonize data/information coordination, partnership, and exchange mechanism signing agreements with partners	
1.9.1 Enhance SoDMA's roles in improving stakeholder coordination and exchange mechanisms in climate data and information exchange at the institution level for risk knowledge sharing, sector and sector-level elements specific forecast impact analysis, and anticipatory action planning.	**As above**
1.9.2 Sign an MOU between SoDMA-MoHADM and transboundary countries (Ethiopia, Kenya) for data exchange on observed weather parameters, forecasts/outlook, river basin/catchment flow/river level data, climate norms data of those countries, climate projects, and multi-hazard atlas and elements attribute information.	**As above**
1.9.3 Sign MOU between SoDMA-MoHADM with regional multi-hazard early warning tools/network/risk knowledge hub and synchronizing with Somalia EW4ALL System.	**As above**
1.9.4 SoDMA-MoHADM MoU with the Government sector department for risk information sharing	**As above**
1.10 Improve early warning information exchange and interoperability among institutions	
1.10.1 Data on hazards, vulnerabilities, capacity, and risk are available at all levels, including state and non-state actors, government and public offices, and communities.	**As above**
1.10.2 Establish, maintain, and update knowledge and information management government databases.	**As above**
1.10.3 Develop hazard maps (dynamic and layered when possible) to identify the geographic areas (e.g., land cover, places, population characteristics) that could be affected by priority hazards.	**As above**
1.11 Systemically promote DesInventar for and track, maintain, and update disaster impact data/losses and damages records	
1.11.1 Enhance SoDMA capacity to roll out the improvements of the DesInvetar repository—to ensure data quality, enrich quantity, utilize a new prototype, explore data needs, authenticate sources, improve data governance, engage sector ministry public information platform, and coordinate data platform for improving Loss and Damage Tracking System for Somalia.	**As above**
1.11.2 Establish a new tracking system with governments, development partners, and users. The system aims to strengthen understanding of losses and damages, related cascading hazards and events, and the analysis and use of data for policy and decision-making.	**As above**
1.11.3 Establish a tracking system for hazardous events, disaster losses, and damages, with data disaggregated by sex, age, disability, sector, and geography. Historical disaster impact data for all priority hazards by	**As above**

Proposed Activities	Enablers/Actors/stakeholders
industry (e.g., geographical extent, magnitude, intensity, frequency, etc.) are to be inventoried.	
1.12 Installation of the Early Warning effectiveness & efficacy related community feedback mechanism	
1.12.1 Installation of online apps for community feeds on early warning effectiveness and efficiency	**As above**
1.13 Initiate mass awareness and knowledge raised about impending multi-hazards; promote climate education at all levels (academic, community level, formal and informal education)	
1.13.1 Undertake comprehensive mass education, inclusivity of risk knowledge in Primary/Secondary School curriculum, awareness campaign, and distance learning about raising the risk knowledge of impending multi-hazards, extreme weather events, and disasters onset.	**As above**

3.1.4 The Roadmap Ahead for Pillar 1: Improved Disaster Risk Knowledge Management System

By 2027/2030, the development of institutional and stakeholders' enhanced capacity in risk repositories. Comprehensive multi-hazard and climate risk repository, risk atlas, tailored tools for informed decision-making, and improved household and community capacity to better prepare for impending multi-hazards. Extensive and automated disaster risk information and knowledge base are intended to be made available and conducted for all dimensions of disaster risk, including hazards, exposure, vulnerability, and enhanced capacity of household, community, and stakeholder levels.

Pillar 1 outcomes: By 2027/2030, comprehensive risk knowledge and stakeholders' capacity in multi-hazard exploration, risk, and vulnerability assessment capacity.

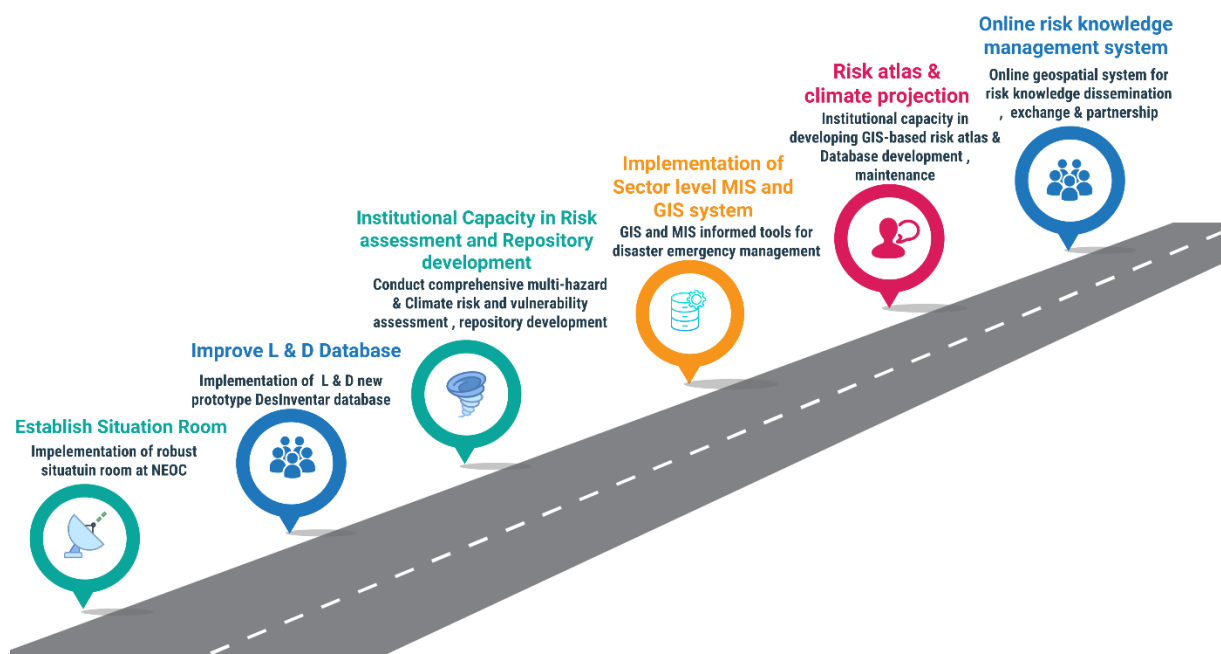*Figure 10 : Proposed Roadmap of Pillar 1*

1.1. **The characteristics of key hazards the country is exposed (e.g., geographical extent, magnitude, intensity, frequency, probability), including possible cascading hazardous events, are analyzed, historical data evaluated, and potential future risks assessed.**

1.1.1 Situation room established at National Multi-Hazard Early Warning Centre (NMHEWC)

1.1.2   Hazard assessments based on historical data, scientific models, and ILK are conducted for the top 5 hazards (or hazards responsible for 90% of past L&D), no less than 5 years old.

1.1.3   New Methodology, ICT tools, Guidelines developed, risk & Vulnerability assessments (CRVA) conducted for the top 5 hazards (or hazards responsible for 90% of past L&D).

1.1.4   Mobile-based data collection and big data analysis tools and platforms, GIS mapping, open-source mapping, drones, and satellite mapping are used to collect and analyze all risk data elements.

1.1.5   Risk repositories developed on hazards, vulnerabilities, coping capacity, and risk are available at all levels, including state and non-state actors, government and public offices, CSOs, CBOs, NGOs, and communities.

1.1.6   Monitoring tools and networks are established to ensure the tracking of all national priority hazards.

1.1.7   Data collection methodology, ICT tools, Apps, guidelines, and processes are developed for the collection and analysis of the data produced and adhered to, ensuring comparative analysis, improved predictability, and sustained impact.

1.1.8   Enhanced capacity of Technical Taskforce, Technical Working Group (TWG), and Vulnerability Assessment Committee (VAC) for conducting CRVA, collection of disaggregated sectoral data, socioeconomic data, and Disaster loss and damages sectoral data

1.1.9   Data on hazards, vulnerabilities, capacity, and risk are available at all levels, including state and non-state actors, government and public offices, and communities.

1.2.   National multi-hazard and climate risk repository data-based (CRVA repository database, risk atlas of District GIS base map, CRVA tailor-made informed tools (dynamic and multi-hazard, when possible) are developed.

1.2.1   Risk repository data-based (CRVA repository database, risk atlas of District GIS base map, CRVA tailor-made informed tools (dynamic and multi-hazard, when possible) are developed.

1.2.2   Multi-hazard exposure, risk, and vulnerability distribution. District GIS base maps are developed.

1.2.3   Detailed database elements, specific exposure, risk, and vulnerabilities, coping capacity, etc., are developed and linked with the geospatial map for forecast impact analysis.

1.2.4   Locally sourced data and information about disaster risk are readily available and accessible to the public through online GIS platforms.

1.2.5   Mandated responsibilities of sectoral ministries/departments to improve the type and quantity of data collection, regular updates, subsequent analysis, and publicly accessible. Historical data is evaluated to characterize all priority hazards, e.g., geographical extent, magnitude, intensity, disease transmissibility, frequency, probability, and return periods.

1.3.   Historical climate data is analyzed, and Climate norms (climatology) are developed.

1.3.1   Historical climate data archived, processed, calibrated, and developed climate norms (30 years of climatology) for Somalia. Baseline climatology was designed to compare forecast anomalies and impact forecasting.

1.3.2   Weather and Climate anomalies on Socioeconomic and environmental impact analyzed with climate projections. Essential climate variables (ECV): Temperature, precipitation, wind patterns, and sea-level change are developed at the national and local level and updated every 5 years, e.g., have implications on health services, agri-food systems, displacement, etc. (aligned with UNFCCC reporting, NDCs, NAPs)

1.3.3   The interaction of hazards and vulnerabilities is evaluated and shared on a timely basis to determine the risks each region or community faces and verify their integration into EWS and DRR plans.

1.4   The DesInventar database rolled out at the sector level. Disaster impact data/losses and damages are systematically tracked and recorded, aligned with Sendai and SDG targets and indicators.

1.4.1   A New prototype of the online DesInventar was rolled out at SoDMA. A new tracking system for hazardous events, disaster losses, and damages has been established, with the capability to track data disaggregated by sex, age, disability, sector, and geography.

1.4.2   Risk Knowledge Enhanced in Somalia

1.4.3   Availability of historical disaster impact data for all priority hazards by sector (e.g., geographical extent, magnitude, intensity, frequency, etc.)

1.4.4   All priority hazardous events are recurrently recorded and connected, and loss and damage reports are regularly produced.

1.4.5   Established, maintained, and modernized centralized and decentralized knowledge and information management databases, both offline and online.

1.5   Improved multi-hazard/Disaster L&D database management system.

1.5.1   Established a multi-hazard early warning situation room at the National Multi-Hazard Early Warning Centre (NMHEWC), with an ICT system, tools(hardware/software) for improving disaster risk knowledge, an impact forecasting facility, and supporting EW4ALL portfolios of Somalia.

1.5.2   Enhanced SoDMA's capacity to systematically maintain/update the Disaster Risk Management Information System (DRMIS) from collected sector-level risk data and periodically update the DesInventer database (L & D).

1.5.3   Established MIS and GIS Unit in the sector department (climate vulnerable) for systematic inventory and track recording of disaster L&D dataset(georeferenced) for impact analysis

1.5.4   Strengthened   Institutional capability on disaster risk information management.

1.5.5   Anchored UNOCHA, UN Clusters (11 clusters) support with SoDMA for improving risk information governance (Conducting joint PDNA, CRVA, L&D assessment)

1.6   Strengthened Institutional capability on multi-hazard & Climate Risk and Vulnerability Assessment (CRVA) at the Local Level

1.6.1   Established the new structure of the vulnerability assessment committee (VAC)/Technical Taskforce at national, subnational, local, and community levels for comprehensive vulnerability assessment. Established stakeholder coordination and engagement structure and conducted risk assessment. Conducted survey with mobile apps, Survey apps, GPS tools, etc., for gathering georeferenced multi-hazard incidence data, disaster hotspot data, Disaster L & datasets from the community/local level, conducted RPDNA, CRVA, and sector-level

1.6.2   Enhanced capacity of VAC, Technical task force, sector department-level TWG, Community volunteers, Mosque-based committee, local NGOs, Community leaders, local stakeholders, local service providers, value chain operators, private sectors, etc., in gathering L&D information in the first hour/6hrs /12hrs/24 hours after disaster strikes and sending L&D data to the Situation room at the National Multi-Hazard Early Warning Centre (NMHEWC).

1.6.3   Enhanced CPC/DMC and Community-level disaster risk knowledge on the inclusive, participatory vulnerability assessment process, e.g., transact walk, FGD, community meetings, religious gatherings, etc.

1.6.4   Established community climate knowledge networks through Radio, TV, News outlets, web portals, mobile apps/web portals, national media outlets, academic/institutions, practitioners, professional associations, and NMHEWC: local community hazard, vulnerability, and risk assessment engagement and vulnerability assessment strategy.

1.6.5   Enabled local-level VAC/community capacity to regularly review and update risk (hazard, vulnerability, exposure, and capacity) data, which is established, maintained, and sent to NMHEWC.

1.7   Enhanced capability of nonstate actors/stakeholders on EW4ALL initiatives for operational support

1.8   Enhanced institutional capacity using ICT tools for risk interpretation and tailormade and data-driven tools for decision-making support.

1.8.1   Enhanced the capacity of the Technical Working Group (TWG), Sector technical expert in the utilization of Geographic Information System (GIS), Remote Sensing (RS), and Global Positioning System (GPS) in productive sector & sub-sector level risk and vulnerability assessment (Agriculture, Water, livestock, Fisheries, Food Security, WASH, Public health, Infrastructure and Communication, Rural Development, Planning, etc.)

1.8.2 Enhanced stakeholder capacity in Apps, GIS/GPS survey tools based on primary data collection, big data analysis tools and platforms, GIS mapping, open-source mapping, drones, and satellite mapping, which collect and analyze all risk data elements.

1.8.3 Enhanced the sector department's capacity in the GIS /MIS database and developed distribution maps and risk attributes of significant multi-hazards.

1.8.4 Developed an online system (geospatial). Locally sourced data and information about disaster risk are readily available and accessible to the public through online GIS platforms.

1.8.5 Strengthened Partnership and engagement of sectoral ministries/departments in the quantity of data collection, regular updates, subsequent analysis, and public accessibility.

1.8.6 The types and numbers of early warning indicators need to be revisited, considering disaster mitigation plans, emergency response plans, and early action plans.

1.9 Strengthened institutional/stakeholder capacity in data acquisition of critical hazards, including community socioeconomic vulnerability, SADD, and sector-level disaggregated data collection.

1.9.1 Methodology, tools, and guidelines, Stakeholder engagement plan, SoP on SADD data collection on demographic population, sector-level disaggregated dataset

1.9.2 Enhanced institutional and stakeholder capacity in Hazard assessments based on historical data, scientific models, and Indigenous and local knowledge (ILK) is conducted for the five significant hazards.

1.9.3 Developed Climate risk and vulnerability-related repositories on hazards, vulnerabilities, coping capacity, and risk at all levels, including state and non-state actors, government & public offices, CSOs, CBOs, NGOs, and communities.

1.9.4 Developed SADD monitoring tools and networks to ensure the SADD and sectoral disaggregated data collection

1.9.5 Established, maintained, and modernized centralized and decentralized knowledge and information management government databases, historical data set on all past priority hazards (e.g., geographical extent, magnitude, intensity, disease transmissibility, frequency, probability, return periods).

1.9.6 Developed risk knowledge products with multiple local languages to help the community understand hazards and cascading hazardous events.

1.9.7 Developed Hazard maps (dynamic and layered when possible) to identify the geographic areas (e.g., land cover, places, population characteristics) that could be affected by priority hazards. Analyze impacts on critical infrastructure and secondary risks associated with these impacts, evaluated for all priority hazards.

1.9.8 Conduct an assessment of vulnerabilities of critical economic sectors at the national level for all priority hazards.

1.9.9 Integration of indigenous knowledge in risk assessment for all priority hazards. Results of risk assessments are integrated into local risk management plans in a clear and easy-to-understand language.

1.9.10 Develop a data architecture and repository (including, but not limited to, a GIS) that is established and operational to store all event/disaster and risk information.

1.9.11 Inventorying all past priority hazard events and attributing the loss and damage statistics. For example, from sources like DesInventar, post-disaster needs assessment (PDNA), etc.

1.10 Improved multi-hazard/Disaster Risk formation management Governance system

1.10.1 Developed historical climate data (30 years), analyzed Climate norms and projections of Somalia to define the meteorological mean and support forecast (parameters, e.g., temperature and precipitation distribution, relative humidity, sunshine hours, wind patterns), and sea level change, were analyzed, and a meteorological map development and sectoral climate impact analysis

1.10.2 Developed tailormade climate datasets (total sunny days, solar irradiance datasets, wind velocity, relative humidity, precipitation) for NDC interventions support, e.g., wind power, Solar PV system, solar thermal system, rainwater harvesting system installation.

1.10.3 Developed Sectoral disaggregated data hub to support DRR, NAP, NbS (Nature-based), locally led solutions, WASH, Health, Food Security, Livelihood Security, etc.

1.10.4 Developed tailormade sectoral disaggregated datasets on crop agriculture, land use map & attribution information, agricultural activity, crop, livestock population distribution data, pasture, biomass resource,

waterbody, water point, soil moisture, soil fertility, irrigation data repository development form supporting NAP localization and adaptive interventions e.g., Biogas/Bio-digester, IFM, FYM, INM, rainwater harvesting, windmill/wind power, Solar PV system, biomass energy, organic farming, extension services of productive sectors).

1.10.5   Develop climate norms for Somalia (meteorology).

1.10.6   Developed community-level DRM/DRR/CCA plans based on community-level climate risk and livelihood vulnerabilities, along with the vulnerabilities of the community landscape context, and finally integrated all those issues in community-based impact weather forecasting.

1.10.7   NMHS capability in Impact forecasting for sectors and vulnerable communities

1.10.8   Database developed local and Indigenous knowledge (ILK) for coping strategies.

1.11 Strengthened the Sector Department-level MIS/GIS system for sector-level operational data analysis and informed tools development

1.11.1   Harmonized data/information coordination, partnership, and exchange mechanism signing agreements with partners

1.11.2   Improved early warning information exchange and interoperability among institutions

1.12 Systemically promoted disaster L & D DesInventar online system, and L&Ds events are tracked, information updated, and maintained disaster impact data/losses statistics

1.13 Community feedback mechanism established, online feedback apps installed, and the community accessed for giving their feedback on Early Warning effectiveness & efficacy

1.13.1   Enhanced Community risk understandability capacity and risk knowledge enhanced, the community able to provide disaster event situation updates by using cell phone apps

1.14 Initiated mass awareness and knowledge raised about impending multi-hazards; promoted climate education at all levels (academic, community level, formal and informal education)

1.15 Developed inventories at one local level in rural, urban, and coastline areas, risk vulnerability, and disaggregated data

1.15.1   Enhanced stakeholder capacity in conducting disaggregated data collection survey data on all elements are being exposed to, vulnerable and elements at risks e.g., socioeconomic elements, people, household Inventories & databases of exposed infrastructure, exposed crop agriculture, livestock, water point, waterbody, fisheries, marketplace, physical installations, communication infrastructures, basic utility services, WASH structures, etc

1.15.2   The methodology was developed, the impact assessed, rural/urban infrastructure and basic service delivery structures, community and socioeconomic systems, and sectoral elements specific to persistent and residual cascading vulnerability and coping capacity were valued.

1.15.3   Analyzed potential impacts and stress-testing of critical infrastructure

1.15.4   Inventoried Compound risks (e.g. urbanization and land use) identified and evaluated (Advanced capability, to be considered if relevant)

1.15.5   A risk knowledge online portal was launched to disseminate information on risk drivers at the national level, such as urbanization, food production, infrastructure, demographics, and land use patterns.

1.16 Local and Indigenous knowledge (ILK) integrated into risk assessments

3.1.5   Work Plan for Pillar 1

SL	Milestone	Timeline (Note: Q - Quarter of 3 months) 2024 Q4	2025 Q1	Q2	Q3	Q4	2026 Q1	Q2	Q3	Q4	2027 Q1	Q2	Q3	Q4	2028 Q1	Q2	Q3	Q4	2029 Q1	Q2	Q3	Q4	2030 Q1	Q2	Q3	Q4	Responsibility — Lead	Support	Budget USD / LCU	Budget Source
1)	The situation room is established and functional Situation room at the National Multi-Hazard Early Warning Centre (NMHEWC) .	X	X	X	X	X	X	X	X	X	X	X	X	X													MoHADM SoDMA/ UDNRR	Sector ministry & Department, UN-Cluster, I-NGO Consortium, National NGO Consortium, IFRC/SRCS, IGAD-ICPAC, ARC		UNDRR, UNDP, GCF, SIDA, ECHO, DIFD, USAID
2)	UNDRR-DesInventar online L&D tracking system as the national L&D repository rolled out as a national L&D repository	X	X	X	X	X	X	X	X	X	X	X	X	X													SoDMA/ UDNRR	Sector ministry & Department, UN-Cluster, I-NGO Consortium, National NGO Consortium, IFRC/SRCS, IGAD-ICPAC, ARC		UNDRR, UNDP, GCF, SIDA, ECHO, DIFD, USAID EU
3)	Strengthened institutional capacity in vulnerability assessment (VAC)	X	X	X	X	X	X	X	X	X	X	X	X	X													MoHADM / SoDMA	As above		
4)	CRVA, muti-hazard risk assessment, was conducted at the Urban center, District, Village, and community levels, and at the frontline, etc., a risk repository was developed, and risk knowledge was enhanced	X	X	X	X	X	X	X	X	X	X	X	X	X														As above		
5)	Enhanced institutional capacity in ICT /Geospatial tools-based data analysis and tailormade risk integration in the decision-making process						X	X	X	X	X	X	X	X														As above		
6)	Improved multi-hazard/Disaster Risk formation management Governance system at SoDMA and other sector-level		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				As above		
7)	Strengthened sector-level capacity in multi-hazard risk knowledge management, risk repository, and tailormade informed tools development		X	X	X	X	X	X	X	X																		As above		
8)	Strengthened the capacity of state and non-state actors for sector-level operational data analysis and informed tools development capacity		X	X	X	X	X	X	X	X																		As above		
9)	Established decentralized SADD and disaggregated data collection mechanism and enhanced risk knowledge repository		X	X	X	X	X	X	X																			As above		

SL	Milestone	Timeline (Note: Q - Quarter of 3 months)																									Responsibility		Budget USD / LCU	Budget Source
		2024	2025				2026				2027				2028				2029				2030				Lead	Support		
		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
10)	Strengthened stakeholder partnership in risk data & information coordination and exchange mechanism		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓														As above		
11)	Improved early warning information exchange and interoperability among institutions		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓		As above		
12)	Vulnerable communities and stakeholders have access to the online geospatial risk portal and attribute database management system in Somalia		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓		As above		
13)	Established a tailored risk repository data hub for informing decisions, strategy, planning & implementation of DRR, NAP, NbS (Nature-based solution), locally led solutions, WASH, Health, Food Security, and Livelihood Security projects.		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓														As above		
14)	Developed inventories at the local level in rural, urban, and coastline areas, risk vulnerability, and disaggregated data		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓														As above		
15)	Local and Indigenous knowledge (ILK) integrated into risk assessments		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓														As above		
16)	Strengthened the Sector Department-level MIS/GIS system for sector-level operational data analysis and informed tools development		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓														As above		
17)	Harmonized data/information coordination, partnership, and exchange mechanism signing agreements with partners		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓														As above		
18)	Improved early warning information exchange and interoperability among institutions		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓														As above		
19)	Systemically promoted disaster L&D DesInventar online system and L&Ds events are tracked, information updated, and maintained disaster impact data/losses statistics		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓														As above		
20)	Community feedback mechanism established, online feedback apps were installed, and the community accessed for giving their feedback on Early Warning effectiveness & efficacy		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓														As above		

3.2 Roadmap Pillar 2: Observation, monitoring, analysis, and forecasting,

Due to inadequate institutional capacity, Somalia has limited hydro-meteorological data gathering, monitoring, real-time tracking, and forecasting. The GBON-compliant limited extent of hydrometeorological observation capacity due to an insufficient number of automatic hydro-meteorological stations on the ground, manual data reading and data transmission difficulties, and regular operation and maintenance support. Some (around 140) manual weather stations are being installed. Those stations are not transmitting weather parameters for multiple reasons, e.g., lack of regular salaried technicians, data readers to track data every hour, and sending to SWALIM hydromet offices for some level of resource gap in operations and maintenance, and power access in the remote areas.

Hydrometeorological data gathering, monitoring, and forecasting in real-time tracking, exchange of information, and forecasting are limited due to insufficient automatic hydrometeorological stations on the ground and the limited capacity of its systems in hydrometeorological forecasting. However, it is worth noting that UNDP supported the MoEWR in installing the automated weather stations.

Somalia needs to upgrade all manual stations and install GBON-compliant high-density one-stop observation solutions of automated weather stations (AWS) and automated hydrological river level gauging stations with Iridium satellite data connectivity (out of mobile networked areas) and off-grid locations, considering initial assessment on points of failure of early installed manual stations. That system was found to be redundant and round-the-clock operational.

On the other hand, Somalia requires an installed facility for acquiring satellite-based real-time atmospheric weather data and a meteorological monitoring mechanism for processing various ranges of weather forecasts, operational forecasts, and impact-based weather forecasts for vulnerable elements and sectors.

Somalia still needs to catch up in terms of a full-fledged institutional forecasting capability. A technical working group of national hydromet services is undertaking some ad-hoc tasks in flood-level forecasting, which remains a limited effort, as the country requires standardized hydrogeological information gathering, forecasting processes, and meteorological predictions. A much-needed situation room is to be implemented under UNDRR Pillar 2 support to improve forecasting capabilities and the surface observation network. The figure below shows the tools and components for improving observation, monitoring, and forecasting capabilities.
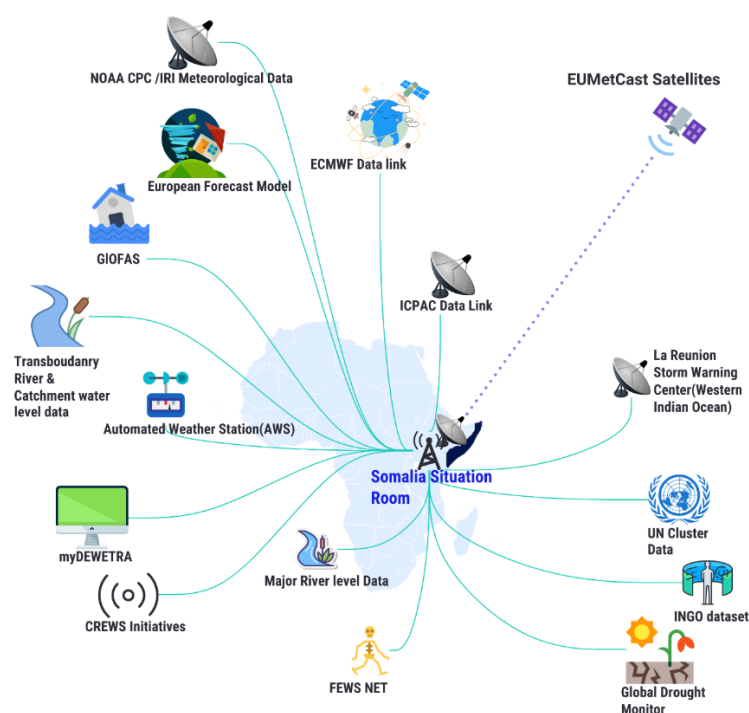

Figure 11: Proposed weather observation and monitoring network

Impact-based forecasting requires a structured approach for combining hazard, exposure, and vulnerability data to identify risk and support informed decision-making. Determining potential impacts can involve using quantitative hazard impact models to quantify the processes that combine to cause an impact. It can also include determining effects based on past experiences of emergency management stakeholders on the ground.

Various reports indicate that Somalia's current disaster risk monitoring and forecasting practice has been dominated by hydrometeorological data delivered by different institutions, such as SWALIM, NMHEWC, and the Ministry of Energy & Water Resource (MoEWR), as the lead organizations in forecasting climatic and hydrometeorological conditions. These Institutions are reportedly part of the agencies responsible for providing weather observation, monitoring, and forecasting for EW purposes.

In addition, it is encouraging to note that Somalia has reasonably cooperated with ICPAC as the Regional Center for Climate Services to enhance its capacity to detect, monitor, and forecast disasters. For Somalia to have robust weather forecasting and impact-based EWS, real-time monitoring systems for meteorological and hydrological conditions must be strengthened by automating existing stations and installing new automated stations. This includes, but is not limited to:

- The development of real-time data transmission for flood monitoring through expanding the spatial coverage of hydrometeorological stations and upgrading the current quality and timeliness of the information.
- Strengthen institutional collaboration, harmonization, and integration of the MoEWR, SoDMA's NMHEWC, and FAO SWALIM datasets with global and regional datasets by maintaining solid cooperation among and with Regional Climate Services and broadening prospects by embracing the EW4ALL initiative by the Global Framework for Climate Services.
- Develop a standard and protocol for data exchange procedures among different organizations at multiple levels. This includes developing a network of weather stations and maintaining accurate data records to enhance real-time monitoring of meteorological and hydrological hazards.
- Capacity enhancement of hydro-meteorological services to boost early warning services so they reach the last mile based on existing weather and climate forecasts. This may include downscaling and customizing estimates , improving forecasting accuracy, and historical records of past events.
- Explore the opportunity to capitalize on legal reform work and establish norms for improving disaster monitoring, analysis, forecasting, and impact prediction tools and methods.

3.2.1 Pillar 2 Gap Identification: Observation, monitoring, analysis, and forecasting

Gaps have been identified through the previously organized Early Warnings for ALL inception workshops, national workshops, and stakeholder meetings. The following are the key indicate gaps being identified:

1) **Institutional, Systemic and operational capacity gaps in climate risk governance**
- Lack of legal framework, institutional mechanisms, and inadequate observation, monitoring, analysis, and forecasting.
- There is no full-fledged functional national meteorological agency (NMA); parallel functionality is currently undertaken ad hoc by a hydrometer technical working group (TWG) with limited capacity.
- Inadequate interministerial and sectoral efforts to mainstream, adapt, and anchor donor-supported intervention beyond the tenure period in climate monitoring, risk assessment, and community resilience building.
- The national hydromet services are run by the TWG on an ad hoc basis, and there is a lack of coordination and technical and operational support for running weather stations and collecting observation parameter readings, as well as a lack of NMHS organization and staff institutional capability.
- The Water Resources Ministry provides limited but inadequate warnings. However, these warnings do not meet the minimum standard for the EW4All initiative in Somalia.

2) **Inadequate weather observation over the land, surface, atmosphere, and ocean.**
- Lack of financial and technological capabilities to establish designated national meteorological and hydrological Services (NMHS) entities and general mandates to monitor the meteorological and hydrological events, forecast, and produce warnings for the hydrometeorological hazards at downscale resolution.

- Insufficient automation of the observation network; Insufficient tools and processes for acquiring real-time observation data; Lack of remote sensing data; insufficient data quality control; and lack of monitoring capacity.

3) **Inadequate capacity gap in surface and atmosphere observation and monitoring:**
- Inadequate pool of technical experts, e.g., forecasters, meteorologists, synoptic engineers, NWP experts, short-range, medium-range, and long-range forecasters, weather observation data analysts, GIS and remote sensing programmers, software engineers, data scientists, hydrologists, flood modelers, etc.
- Inadequate technical expertise/weather observation technician for weather parameter reading, eye observation, operation, and maintenance of surface observation instruments, climate monitoring, and hydrological runoff monitoring networks. Outnumbered, dysfunctional surface and terrestrial observation stations need upgradation and maintenance.
- There is a lack of coordination, collaboration, harmonized approach, and ICT network for capturing interventions/output from the interventions implemented by International NGOs, National NGOs, external R&D organizations, Academia, researchers, etc.
- Lack of ICT-enabled Management Information System (MIS), Geographic Information System tools, CRVA assessment tools (GIS Base map, lowest administrative level, UAV/Drone, Mobile apps, Survey tools, GPS tools, crowdsource data gathering tools) for improving climate risk governance at the government sector department, and all spheres of local government level for enabling climate risk governance.
- Inadequate capacity (SoDMA, other relevant actors, and local government) in gathering disaster incidence data/information and situation update statistical quantitative information on the level of impacts, L & Ds of sectoral elements, extent of areas, and type/number of elements being exposed and impacted.
- Inadequate point-based weather parameter observation of high-value and sensitive elements (settlements, township urban centers, municipalities, functional marketplace, cropland, utility services, etc., point-based forecast.

4) **Inadequate river level observation and hydro-meteorological data acquisition from the transboundary hydtomet network and flood forecasting and early warning:**
- Inadequate functional agreement between transboundary countries (Ethiopia and Kenya) for weather parameters, meteorological data, and hydrological basin data for developing real-time flood forecasting and early warning systems of Shabelle, Juba, and another river basin. The 2019 floods along the Shabelle River displaced 500,000 people and destroyed thousands of hectares of crops.
- Inadequate hazard monitoring capacity and infrastructure. Lack of a monitoring network for transboundary multi-hazards—Floods, Cyclones, landslides, droughts, epidemics/pandemics, and other geological hazards.

5) **Lack of data gathering on public health, diseases, and outbreaks:** There is a Lack of coordination in data exchange regarding extreme weather event-induced public health fatalities, which are on the rise in waterborne and vector-borne diseases such as cholera and malaria. The sector data/information sharing network for acquiring datasets from health service providers is led by state and non-state actors (Sector departments, I-NGOs/CSOs, private sector, etc.).

6) **Hybrid weather observation gap for providing nowcasting and event situation updates for rapid onset hazards**

7) **Inadequate Observation & Monitoring of the Environmental sector:**
- Lack of accessibility to terrestrial-monitoring networks, e.g., degradation of built environmental & natural resources and impact monitoring, degradation of aquatic and marine biodiversity monitoring, agroecology, and surface hydrological impact monitoring network.

8) **Inadequate Observation & Monitoring of the Agricultural sector:**
- Inadequate use of remote-sensing data, Inadequate surface observation on crop monitoring, degradation of soil health, agroecology, agroforestry, land and agroecology, transformation of land cover pattern, desertification, agriculture droughts, flash droughts, protracted & persistent droughts, water stress, extreme temporary spell of heatwaves, dry spell, shrinkage & drying of perennial waterbody, etc.
- Agriculture crop monitoring, pest manifestation, hydrological and meteorological drought, water stress, dry spells, drying up water bodies, depletion of groundwater table, inoperable borehole, heatwaves, high winds, windstorms, sandstorms, hailstorms, rapidly developing thunderstorms and heavy rainfall, soil degradation, etc.

9) **Inadequate Observation & Monitoring of the Livestock sector:**

- Inadequate hybrid observation and monitoring capacity of Somalian livestock. 80% GDP growth contributes to a huge livestock sector (total *livestock population around 56.9million[8], out of which 1M camels, 5.3M cattle, 30.9M goats, and 13.6M sheep*) being constantly impacted (significant death tolls of lovelocks) by the change in climate and extreme weather events at the local level. Inadequate animal health monitoring of extreme weather events, such as heat waves, dry spells, dust storms, droughts, and flooding.
- Inadequate ICT tools (GIS-based monitoring, Kobo toolbox, GPS data collection, herder and herds georeferenced database) driven monitoring of pasture and rangelands, pasture health, pasture carrying capacity for the livestock feeding, grazing information, production of forage crops, crop agricultural residues, pasture yield loss, etc., for developing and disseminating through live livestock sector early warning.
- Inadequate level of utilization and management of Livestock Disease Surveillance and Information Systems (FAO GEWS), Animal Disease Information System (ADIS), and World Animal Health Information System (WAHIS) for alerting the livestock sector
- Inadequate climate risk-informed and climate-proofing livestock value chain process at the local level for boosting rural livelihood.

10) **Inadequate disaster risk governance system:**

- Lack of Various legislative frameworks to mandate organizations (NMHSs) to monitor, forecast, and produce warnings for the hydrometeorological hazards affecting their countries. However, many fail to establish clear roles and responsibilities for all institutions involved in the national MHEWS, and most fail to implement systematic data exchange protocols across agencies, such as the existence of legislation, governance mechanisms, and financial and technological capabilities.
- Inadequate disaster risk governance management system, e.g., hazard and disaster monitoring, warning, alerting, hotspot tracking, and incident reporting) at the local level.
- Lack of standard operating procedures
- Inadequate SoDMA and institutional setup due to a lack of multi-hazard and disaster incident reporting, hotspot tracking network, and event situation reporting.
- Lack of a national budget allocated for funding disaster risk management actions.
- Inadequate information and limited use of data
- Inadequate integration and coordination
- Local community empowerment.
- Lack of clear roles and responsibilities

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[8] The International Livestock Research Institute (ILRI), August 2023

3.2.2 Step forward to close the inactive gaps on Pillar 2 : Observation, monitoring, analysis, and forecasting

Addressing the gaps as mentioned earlier to step forward to an installation and activation of a robust weather observation system, monitoring system, forecast & meteorological data analysis, and enhancing SoDMA -NMHEWC capacity for demand-driven forecasting in Somalia, the following interrelated core actions were identified and intended to be implemented by 2027/2030:
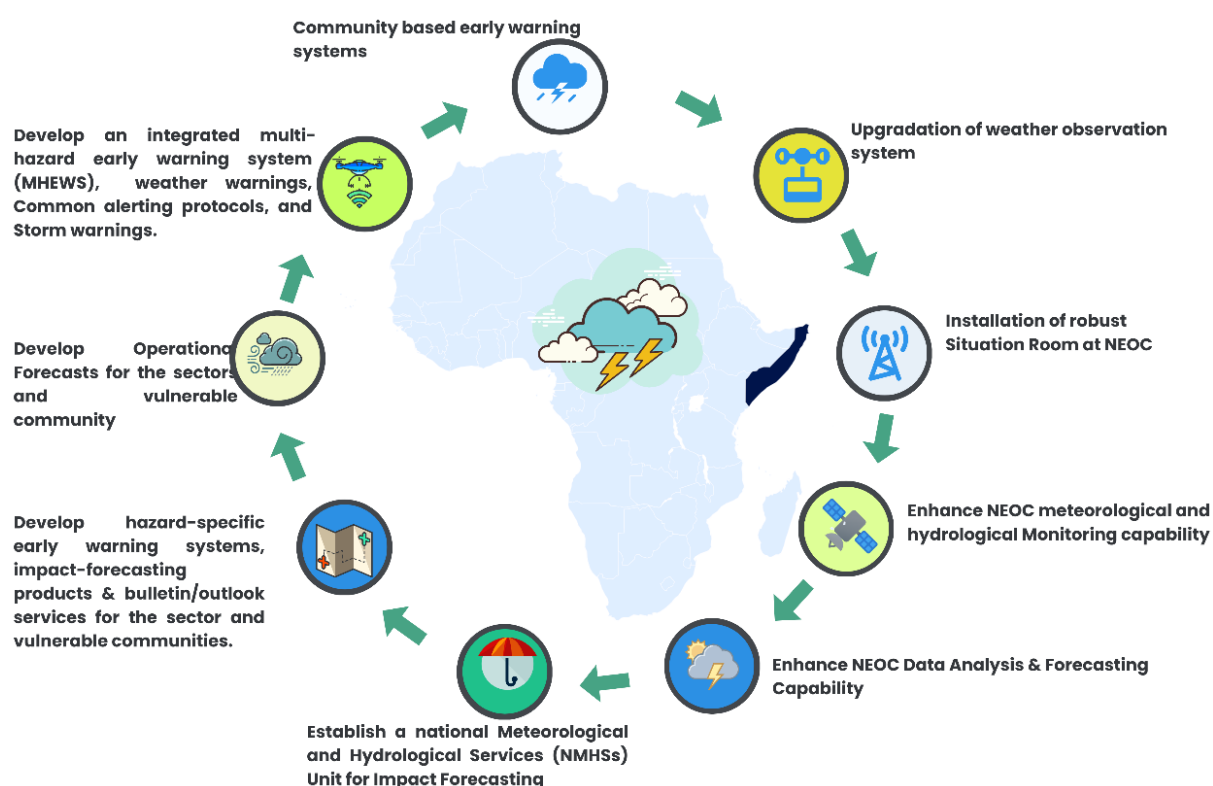
Figure 12: Step forward to close the inactive gaps on Pillar 2

1.1 Upgradation of the weather observation system

1.1.1 Conduct Country Hydromet Diagnostics (CHD) assessments, determine the geographically positioned number of basic surface observation stations and automatic weather stations (synoptic capability) for acquiring Essential Climate Variables (ECVs) and atmospheric observation, telemetry, river level monitoring, and sea-surface observation and strategy development for system upgradation.

1.1.2 Upgrading existing manual observation stations and installing basic Global Basic Observing Network (GBON) quality observation infrastructure for quality and Iridium satellite data transmission facilities for redundant data acquisition.

1.1.3 WMO needs to conduct an assessment of the operational status of all installed Hydromet observation stations in Somalia and identify GBON (Global Basic Observing Network) standard, operational capacity, and type of instruments installed for the kinds of weather parameters data acquisition, review the sitting classification for the surface observations on stations on land, procedure for updating the guide to instruments and methods of observation, etc., and provide the necessary technical assistance and diagnostic reports for upgrading stations to GBON standards.

1.1.4 Develop a GBON compliance National observation network development plan with budgets based on the Somalian landscape, arid climatology, landcover types, and elongated vast sea proximity context, determine

to identify and address type of observation, forecast model, impact-based forecasting, climate and hydrometeorological outlooks are being required for Somalia and close the service delivery capacity gaps for priority hazards, such as heatwaves, floods, tropical cyclones, persistent and flash droughts etc.,

1.1.5 Review FAO-SWALIM installed 140(some of the Ministry of Agriculture of MoEWR) out of some of the manual met stations, and most of them did not send met data. UNDP 40 stations belong to MoEWR / FAO-SWALIM for maintenance, relying on the UNDP installed by Nigerian Met Agency

1.1.6 Upgrade all manual weather stations (140) to automatic weather stations (AWS) with GBON standards.

1.1.7 Establish linkage with the WMO regional specialized meteorological centers (RMC).

1.1.8 Establish linkage with regional and transboundary NMHS organizations/networks.

1.1.9 Provisioning long-term operational budgets of the National Meteorological and Hydrological Services (NMHSs)

1.1.10 Installation of real-time satellite-based atmosphere observation systems, Preparation for the Use of Meteosat in Africa (PUMA) 2025 satellite links (EUMETCast, ECMWF, European Met services, NOAA, Indian Ocean network, The Regional Basic Climatological Network (RBCN), Global Terrestrial Network – Rivers (GTN-R), etc. for the acquisition of Basic Hydro-Meteorological Data (BMD).

2.1 Installation of robust Situation Room at NMHEWC/MHEWC:

2.1.1 Enhance the capacity of the land, surface, satellite-based atmospheric observation, and ocean surface network with a situation room for weather observation, monitoring, and improving the multi-hazard early warning whole value chain deliverability capability.

2.1.2 Linking Preparation for the Use of Meteosat in Africa (PUMA) 2025 satellite links (EUMETCast, ECMWF, European Met services, NOAA CPC/IRI/netCDF data , Indian Ocean La Reunion TWC network, The Regional Basic Climatological Network (RBCN), Global Terrestrial Network – Rivers (GTN-R). etc., for the acquisition of Basic Hydro-Meteorological Data (BMD).

2.1.3 Anchor CREWS Initiatives forecasting facility with the Situation Room

2.1.4 Anchor CIMA Research Foundation Developed myDEWETRA for forecast preparation and impact forecast analysis.

2.1.5 Anchor RIMES forecasting services with situation room

2.2 Anchor FEWSNET, Global Drought Monitor

2.3 Anchor UNOCHA INFORM tools FAO-SWALIM, IOM-DTM (Displacement Tracking matrix), UNHCR(Operational data portal), WFP(Food Security), WFP Logistic network/telecommunication system, WASH Cluster database, CREWS Initiative, ICPAC forecast/outlook, UNICEF Education Cluster Database, UNICEF-MICS, World Bank (GFDRR, Databank), UNOCHA -INFORM, Food Security and Analysis Unit (FSNAU) & IDEA of FAO, IFRC-Anticipatory Hub, USAID-FEWSNET, etc., for input device for impact forecast production support.
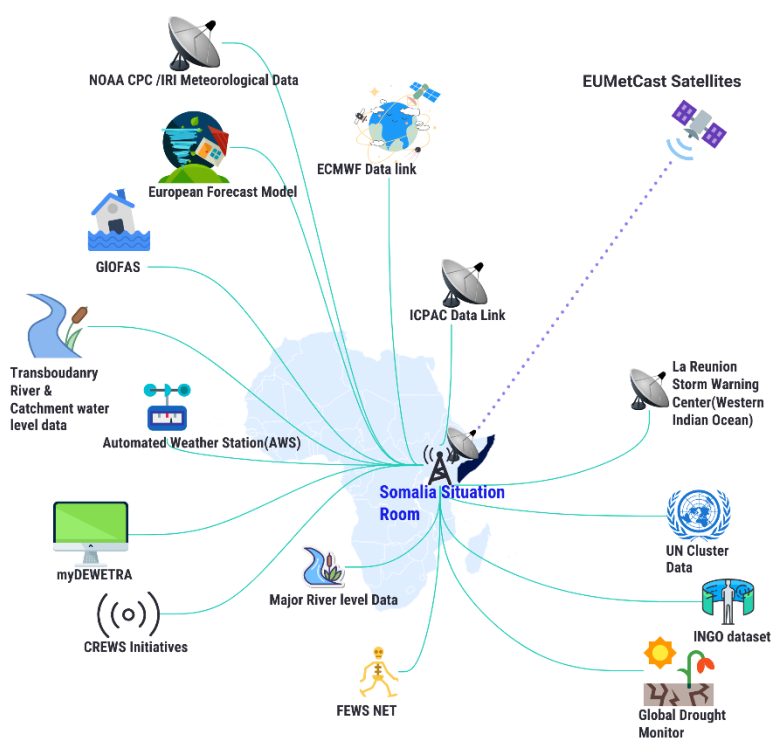
2.4 Enhance NMHEWC meteorological and hydrological Monitoring capability:

2.4.1 Installation of high-performance computing (HPC) for data calibration, collation, and analysis. The creation and maintenance of climate data repositories, short-range forecast model running, need-based data customization, operational forecasting, etc.

2.4.2 MoU with regional early warning network, data and technology exchange, transboundary advocacy and action, tripartite agreements for data exchange, etc.

2.4.3 Enhanced NMHEWC/NMHS capacity and expanded climate monitoring network.

2.4.4 Enhance NMHEWC capacity in Climate System Monitoring, Climate Change Detection and Attribution, Climate Research, Operational Climate Prediction, Impacts, Vulnerability and Adaptation, Climate Applications and Services,

2.4.5 Installation of thematic Divisions at NMHEWC to improve the Forecasting System and Institutional Capacity.

2.5 Enhance NMHEWC Data Analysis & Thematic Division for Forecasting Capability

2.5.1 Establish Environmental Monitoring Division: Vegetation, land cover, land use, land degradation.

2.5.2 **Establish Agro-climatology Division.** Develop an operational forecast for agroclimatic and weather impacts on standing crops/yield, etc.

2.5.3 **Establish forecasting division:** Establish a forecasting team and develop capacity in forecast product development. Development of hourly forecast, daily forecast, 3-day, 4-day, 5-day, and 7-day forecast, developing sector-specific operational forecasts, developing weather warning and nowcasting service, developing standard alerting protocol (CAP), developing forecast-based early action protocol (EAP), developing forecast-based anticipatory action.

2.5.4 **Establish Numerical Weather Prediction (NWP) & Climate Division:** Develop a meteorological model and climate norms for 30 years.

2.5.5 Establish impact forecasting Division: Develop impact forecasts for the sector (Agriculture, livestock, water resource, crop and yield, agroforestry, rangeland and pasture, water stress, environment, and natural resources, food security and famine, WASH, health, diseases and outbreaks, human settlements).

2.5.6 Develop a forecast-based financing (FbF) protocol for the sector to mobilize ex-ante and ex-post finance for climate adaptation and resilience building.

2.5.7 **Establish Flood Forecasting and Warning Center (FFWC) :** Data linkage with transboundary basin database system

2.5.8 **Establish storm monitoring and warning center:** Establish data linkage with the National Storm Warning Center (SWC), enhance storm monitoring capacity, and link with the La Reunion storm warning center.

2.5.9 **Establish Famine Early Warning Division:** Anchor FEWS NET at NMHEWC

2.5.10 **Establish a drought monitoring system: Anchor global and regional drought monitoring systems**.

2.5.11 **Establish Livestock monitoring division:** Link headers/nomads with mobile apps to enable them to fetch information on livestock updates/disease and outbreaks, fodder/pasture crises, water crises, animal health, etc. Anchor Livestock Disease Surveillance and Information Systems (FAO GEWS), Animal Disease Information System (ADIS), and World Animal Health Information System (WAHIS) for alerting the livestock sector.

2.5.12 **Develop and access global forecasting dataset models for forecast preparation:** Weather Research and Forecasting (WRF), Global Forecast System (GFS), European Centre for Medium-Range Weather Forecasts (ECMWF) , Meteo France, NOAA CPC, Other European forecast models

2.5.13 Accessing ECMWF real-time forecast data, ECMWF Reanalysis v5 (ERA5) data sets, weather charts, synoptic charts, and short & extended-range forecast data for forecast preparation.

2.5.14 **Establish data linkage with WMO programs** and initiatives (such as the Tropical Cyclone Programme, Severe Weather Forecasting Programme, and Flood Forecasting Guidance System), RSMCs to access advisories on severe weather and specific hazards affecting the countries and territories in their region.

2.5.15 **Enhancing NMHS capacity for RSMC hazard advisories** and guidance bolsters the need to expand these programs' geographical coverage and the range of hazard products provided to foster EWS capacity of priority hazards.

2.5.16 **Deploying FAO SWALIM's Flood Risk and Response Management Information System (FRRMIS)** for flood monitoring, information sharing and dissemination in NMHEWC. Flood monitoring in the basin has been improved through SWALIM's FRRMIS for flood monitoring, information sharing, and dissemination.

2.6 Establish a national Meteorological and Hydrological Services (NMHSs) Unit at NMHEWC and develop impact-forecasting and bulletin/outlook services:

2.6.1 **Establish NMHS Division at NMHEWC:** Establish TWGs with hydrological, water resource engineer, geographer, geologist, hydrologist, meteorologist, flood modeler, synoptic engineer, etc., for hydrological and meteorological forecast model development.

2.6.2 Develop a forecast-based financing (FbF) protocol for the sector to mobilize ex-ante and ex-post finance for climate adaptation and resilience building.

2.6.3 Review the data collation, calibration, process capacity, and capacity gaps and develop recommendations on improving capacity, technology, tools, processes, forecasting product development, bulletin, and outlook development.

2.6.4 Installation of GBON-compliant integrated hydrological, river level data, weather observation stations, and the real-time monitoring of meteorological and hydrological hazards.

2.6.5 Strengthening data sharing functional linkage through an agreed MoU with IGAD -ICPAC

2.6.6 Upgrading/transforming SWALIM coordinated the hydrometer technical working group(TWG) to an independent NMHS division at SoDMA-NMHEWC.

2.6.7 Enhance the capacity of technical experts of climate-vulnerable sector departments (Agriculture, livestock, Fisheries, Marine Resources, water, WASH, Transport, Health, Education, settlements, transport, and communication, etc.) on GIS-based impact analysis of forecasted impending extreme weather and analysis of the anticipatory impacts of multi-hazards that are likely to be impending.

2.6.8 Develop a standard and protocol for data exchange procedures among different organizations at multiple levels. Harmonize and integrate with the Global Framework for Climate Services.

2.6.9 Enhance NMHEWC weather and climate forecasting and hydrometeorological services and boost early warning and early action services based on existing weather and climate forecasts. This includes downscaling and customizing estimates , improving forecasting accuracy, and historical records of past events—linkages between climate forecasting information services and emergency coordination centers.

2.6.10 Establishment of a national disaster database and information-sharing mechanisms.

2.6.11 The systematization of cross-boundary data-sharing mechanisms and monitoring services, including a closer link to the Intergovernmental Authority on Development (IGAD) and the African Union (AU).

2.6.12 Establish End-to-end coordination and collaboration on the warning, data monitoring, sharing, and forecasting process.

2.6.13 Capacity-building training for hydrologists and engineers to build the necessary human resources capacity to develop and operate future forecasting systems.

2.7 Develop a hazard-specific (major hazards) early warning system, impact-forecasting products, and bulletin/outlook services for the sector and vulnerable communities.

2.7.1 Develop a Daily, hourly, daily 3-days, 4-day, 5-days, and 7-days forecast

2.7.2 Develop sector-specific operational forecasts (productive *sectors e.g., Agriculture, livestock, Fisheries and Marine Resources, water, WASH, Transport, Health, Education, settlements, transport, and communication, etc.*)

2.7.3 Develop weather warning and nowcasting service, developing common alerting protocol (CAP), developing forecast-based early action protocol (EAP), and developing forecast-based anticipatory action.

2.7.4 Develop impact forecasts for the sector (Agriculture, livestock, water resources, crop and yield, agroforestry, rangeland and pasture, water stress, environment and natural resources, food security and famine, WASH, health, diseases and outbreaks, human settlements).

2.7.5 Develop a forecast-based financing (FbF) protocol for the sector to mobilize ex-ante and ex-post finance for climate adaptation and resilience building.

2.7.6 Develop flood forecasting and warnings for vulnerable sectors, communities, and elements.

2.7.7 Develop cyclone and storm surge early warning.

2.7.8 Develop the Famine early warning and anticipatory action protocol.

2.7.9 Develop drought, water stress, heatwave, early warning, and anticipatory action protocol.

2.7.10 Develop an impact forecast/operational forecast for Livestock (diseases/outbreak)

2.8 Develop Operational Forecasts for the sectors.

2.8.1 Develop much-needed operational forecasts for the livestock, Crop, and Agriculture sectors, the fisheries (Marine and inland) sector, the food security sector, the infrastructure and basic service delivery sector, the housing and settlement sectors, the livelihood sector, and the water sector, among others.

2.9 Develop an integrated multi-hazard early warning system (MHEWS) for rapid-onset multi-hazards, such as weather warnings, Common alerting protocols, and Storm warnings.

2.9.1 Develop an integrated multi-hazard early warning system (MHEWS) protocol for rapid-onset multi-hazards, such as weather warnings, Common alerting protocols, and Storm prediction from the hybrid observation.

2.9.2 Anchoring FAO-SWALIM, IOM-DTM (Displacement Tracking matrix), UNHCR Operational data portal, WFP(Food Security), WFP Logistic network/telecommunication system, WASH Cluster database, CREWS Initiative, CIMA Research Foundation myDEWETRA, ICPAC forecast/outlook, Education Cluster Database, UNICEF-MICS, World Bank (GFDRR, Databank), UNOCHA -INFROM, Food Security and Analysis Unit (FSNAU) & IDEA of FAO, IFRC-Anticipatory Hub, USAID-FEWSNET, Greater Horn of Africa Climate Outlook Forum (GHACOF)etc., for feeding information in integrated multi-hazard early warning system (MHEWS & impact forecasting support.

2.9.3 Enhance SWALIM's Flood Risk and Response Management Information System (FRRMIS) for flood monitoring, information sharing, and dissemination.

2.9.4 Develop a standard and protocol for data exchange procedures among organizations at multiple levels. This includes developing a network of weather stations and maintaining accurate data records to enhance real-time monitoring of meteorological and hydrological hazards.

2.9.5 Enhancing the capacity of hydrometeorological services to boost early warning services so they reach the last mile based on existing weather and climate forecasts. This may include downscaling and customizing forecasts, as well as improving the accuracy of forecasting, by leveraging historical records of past events.

2.9.6 Formulate methodological framework and establish SoP for improving disaster monitoring, analysis, forecasting, and impact prediction tools and methods.

2.9.7 Interface design with Geospatial portal to anchor UN-Agency & INGO running MIS/GIS repository/attribute datasets, disaggregated datasets for impact forecasting, and tailor-made climate risk-informed tools development to support sectoral planning.

2.9.8 Enhance the Situation Room of Situation room at National Multi-Hazard Early Warning Centre (NMHEWC).

2.9.9 to develop integrated impact forecasting, weather warning, alerting, and a dashboard of the integrated multi-hazard early warning system (MHEWS) as a center of excellence for robust NMHEWC round-the-clock operational mundi.

2.9.10 Enhance the capacity of the impact-forecasting division to develop impact forecasts for the climate-vulnerable sectors, develop climate risk-informed tailored tools to support local-level climate sectoral planning, provide thematic planning support for NAP, NDC, and NbS localization, and support sector/livelihood in risk-informed DRR, CCA, and NbS scheme design and implementation.

3.2.3 Proposed Roadmap for Pillar 2 : Observation, monitoring, analysis, and forecasting

Goal: By 2027/2030, the capacity for weather observation, climate monitoring, impact forecasting of prioritized hazards, and analysis of their potential impacts enhanced and optimized, upgrading existing hydromet observations and deploying robust technologies, tools, and global weather information systems.

Policy Goal: Policy setting for improving institutional capacity in observation, monitoring, analysis, and forecasting, as well as improving sectoral coordination for climate monitoring and early warning governance.

Programmatic Goal: Strengthened institutional programmatic capacity in installing high-density weather observation, hazard, and climate monitoring and prediction, numerical weather prediction (NWP), short-range forecast modeling, and weather impact forecasting for the sector and community level.
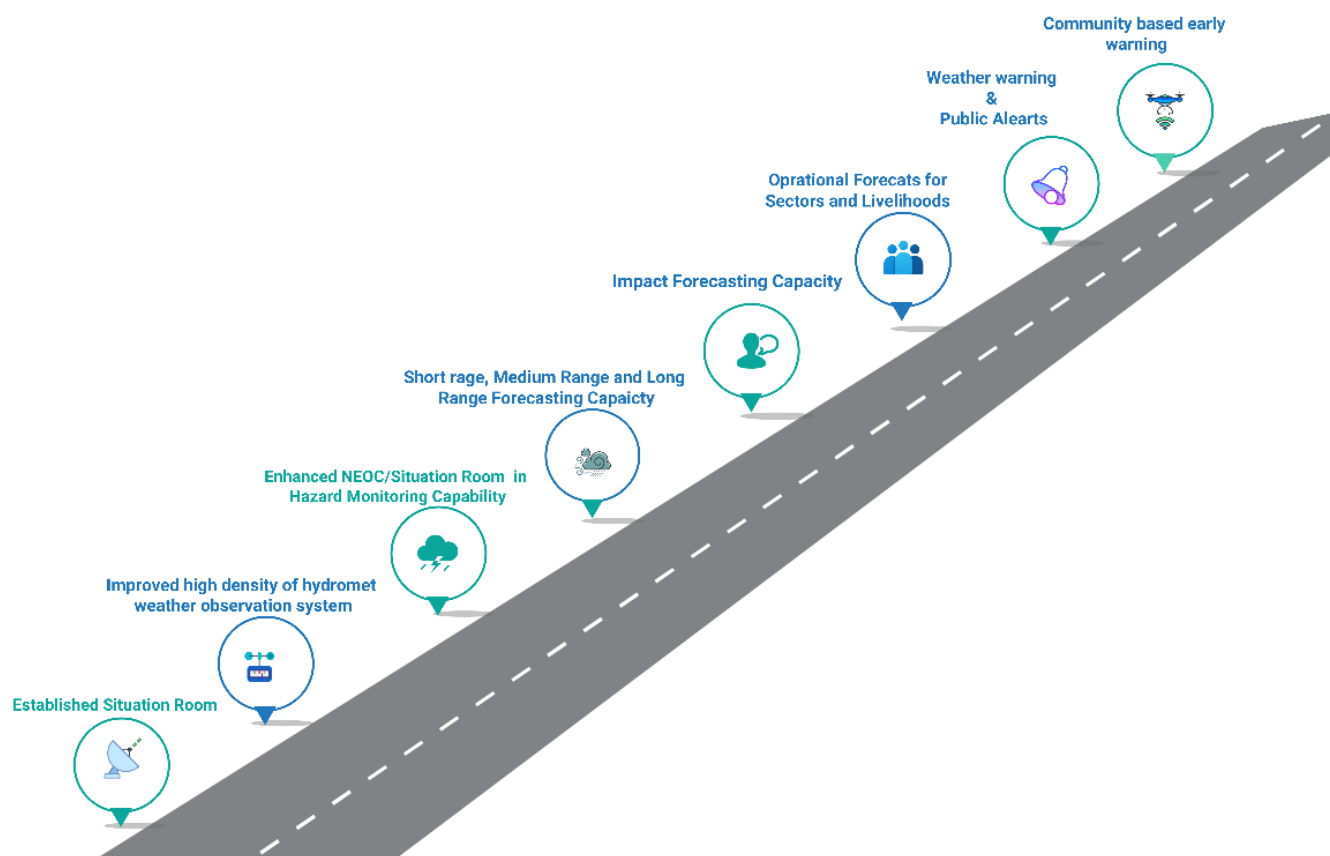
Figure 13: Proposed Roadmap for Pillar 2

Roadmap & Outcome

1.2   Improved high-density of hydromet weather observation system

1.2.1 Upgraded existing manual observation stations and installed of basic Global Basic Observing Network (GBON) quality observation infrastructure for quality and Iridium satellite data transmission facilities for redundant data acquisition.

1.2.2 Established data linkage with the WMO regional specialized meteorological centers (RSMC).

1.2.3 Established data with regional and transboundary NMHS organizations/networks.

1.2.4 Established real-time satellite-based atmospheric observation systems, installations of PUMA (Preparation for the Use of Meteosat in Africa) 2025 satellite links (EUMETCast, ECMWF, European Met services, NOAA, Indian Ocean network, The Regional Basic Climatological Network (RBCN), Global Terrestrial Network – Rivers (GTN-R), etc., for the acquisition of Basic Hydro-Meteorological Data (BMD).

1.2.5 Strengthened institutional capacity in harmonizing long-term operational budgets of the National Meteorological and Hydrological Services (NMHSs)

1.2 Robust Situation Room at NMHEWC installed and operational:

1.2.1   Enhanced SoDMA institutional capacity in the land surface, satellite-based atmospheric observation, and ocean surface) network with a situation room for weather observation, monitoring, and improving the multi-hazard early warning whole value chain deliverability capability. Developing a forecast-based early action protocol (EAP), developing a forecast-based anticipatory action.

1.3   Enhanced NMHEWC /NMHEWC/Situation Room capacity in meteorological, hydrological Monitoring and forecasting

1.3.1 Installed high-performance computing (HPC) for data calibration collation and analysis.

1.3.2 Enhanced capacity of forecasting division in weather parameter climate data repositories, short-range forecast model running, need-based data customization, operational forecasting, etc.

1.3.3 Agreed consensus with climate monitoring network, regional early warning network, data and technology exchange protocol, transboundary river level and catchment data, tripartite agreements for data exchange, etc.

1.3.4 Enhanced NMHEWC capacity in Climate System Monitoring, Climate Change Detection and Attribution, Climate Research, Operational Climate Prediction, Impacts, Vulnerability and Adaptation, Climate Applications and Services,

1.3.5 Installed thematic Divisions at **NMHEWC** to improve the Forecasting System and Institutional Capacity. Establish impact forecasting Division: Establish Flood Forecasting and Warning Center (FFWC): Data linkage with the transboundary basin database system, Establish storm monitoring and warning center, Establish Famine Early Warning division, Anchored FEWS NET at **NMHEWC** , Established drought monitoring system, Anchored global and regional drought monitoring system, Established Livestock monitoring division

1.3.6 Established a functional forecasting division and enhanced national forecasting capacity in short, and medium-range forecasts, developing sector-specific operational forecasts, developing weather warning and nowcasting service, developing common alerting protocol (CAP), Establish Numerical Weather Prediction (NWP) & Climate Division: Developed a meteorological model and climate norms for 30 years.

1.3.7 Develop and access global forecasting dataset models for forecast preparation: Weather Research and Forecasting (WRF), Global Forecast System (GFS), European Centre for Medium-Range Weather Forecasts (ECMWF) , Meteo France, NOAA CPC, Other European forecast models

1.3.8 ECMWF real-time forecast data - ECMWF Reanalysis v5 (ERA5) data sets, weather charts, synoptic charts, and short & extended-range forecast data for forecast accessed for forecast manufacturing.

1.4 Enhanced NMHEWC in Hazard Monitoring Capability

1.4.1 **Established data linkage with WMO programs** and initiatives (such as the Tropical Cyclone Programme, Severe Weather Forecasting Programme, and Flood Forecasting Guidance System), RSMCs to access advisories on severe weather and specific hazards affecting the countries and territories in their region.

1.4.2 **Established data linkage with the Western Indian Ocean Storm Warning Center** at La Reunion, enhanced storm monitoring capacity and warning.

1.4.3 **Anchored RSMC hazard advisories** and guidance bolsters the need to expand these programs' geographical coverage and the range of hazard products to foster EWS capacity of priority hazards.

1.4.4 **FAO SWALIM's Flood Risk and Response Management Information System (FRRMIS) was deployed for flood monitoring, information sharing,** and dissemination in **NMHEWC** . Flood monitoring in the basin has been improved through SWALIM's FRRMIS for flood monitoring, information sharing, and dissemination.

1.4.5 **Established Environmental Monitoring Division:** Vegetation, land cover, land use, land degradation.

1.4.6 **Established Agro-climatology Division and** operational forecast for agroclimatic and weather impacts on standing crops/yield, etc.

1.5 Established a national Meteorological and Hydrological Services (NMHSs) Unit at NMHEWC and impact forecasting and bulletin/outlook services supported risk-informed anticipatory action:

1.5.1 Established NMHS Division at **NMHEWC**

1.5.2 Develop an integrated multi-hazard early warning system (MHEWS) for rapid-onset multi-hazards, such as weather warnings, Common alerting protocols, and Storm warnings.

1.5.3 Enhanced capacity in early action protocol development

1.5.4 Enhanced capacity in forecast-based anticipatory action planning.

1.5.5 Enhanced capacity in forecast-based financing (FbF) protocol developed for the sector, ex-ante and ex-post finance mobilized for climate adaptation and resilience building.

1.5.6   Enhanced NMHEWC capacity and Developed hazard-specific (significant hazard) early warning system, impact-forecasting products, and bulletin/outlook services for the sector and vulnerable communities.

1.5.7   Develop an integrated multi-hazard early warning system (MHEWS) protocol for rapid-onset multi-hazards, such as weather warnings, Common alerting protocols, and Storm prediction from the hybrid observation.

1.6   Strengthened institutional capacity in early warning data collection, analysis, and exchange modalities among federal line ministries/ sectorial offices and regional bodies have been harmonized.

1.6.1   Key agencies' capacities for detection, monitoring, analysis, and forecasting were mapped, data sharing was completed, and the enhanced capacity of actors and the forecast value chain improved.

1.6.2   The GIS maps and risk atlases developed by the UN Agency, INGOs, and sector departments are linked with situation room geospatial platforms through the application programming interface (API).

1.6.3   EUMETCast satellite consortium weather forecast domain PUMA installed, weather and meteorological Detection, Monitoring, Analysis, and Forecasting of the robust and comprehensive legal framework is established.

1.6.4   Data-sharing strategies and protocols with the regional meteorological center, NMHS organizations, and Forecasting forum are established.

1.6.5   The Existing federal hydro met EWS technical working group was strengthened (federal inter-ministerial EWS, disaster management council, and regional governments' early warning platforms were guaranteed to be reconstituted).

1.6.6   Enhanced capacity building for all subjects involved in forecasting and monitoring issues is guaranteed.

1.6.7   Monitoring standardized tools and networks reviewed and enhanced, improving tracking of all national priority hazards.

1.6.8   WMO tools and standards are adopted for data /information coordination, an exchange mechanism consensus is established, and an online system is designed to ensure data transmission and distribution facilities.

1.6.9   NMHEWC/Situation room is linked with a transboundary observation network for real-time hydrometeorological data acquisition.

1.6.10 The Interactive Voice Response (IVR) system is strengthened,

1.6.11 Automation and customizing the message for sectors involving conflict data are in place. Available global datasets for monitoring are utilized, and they assist in modeling/identifying hotspots.

1.7   Early warning data automation, modeling, and forecasting among sectoral offices were harmonized and improved.

1.7.1   Technology-based hydrometeorological data services, including grassroots meteorological services, are established/improved and made available to the public.

1.7.2   Hydro-metrological data and metadata are available for validation, research, and other purposes.

1.7.3   Existing hydro-meteorological monitoring/forecast tools (including real-time stations) with a better resolution are in place and made available for users.

1.7.4   Model outputs are calibrated and validated, and data analysis and processing, modeling, prediction, warning generation, and dissemination are all based on accepted scientific and technical methodologies and protocols.

1.7.5   A Forecast-based model for riverine/flash flood monitoring and forecasting is available and accessible.

1.7.6   The Interactive Voice Response (IVR) system is strengthened, and the central digital platform is linked through the application programming interface (API) from sectoral offices.

1.7.7   Automation and customizing the message for sectors involving conflict data are in place. Available global datasets for monitoring are utilized, and they assist in modeling/identifying hotspots.

1.7.8   An agreed threshold is in place for analyzing the occurrence of hazards, such as composite/overlay analysis.

1.8   Early warning information exchange and interoperability among early warning sectors improved.

1.8.1   Systems for warning and forecast archiving are in place for all priority hazards.

1.8.2   Two-way communication mechanisms for early warning data producers and inter- and intra-sectoral information exchange improved.

1.8.3   Early warning data collection and analysis are gender sensitive and inclusive of socially vulnerable groups (children, people with disability, and older people).

1.8.4   Early warning information and guidance are easily accessible and understandable to all community members, including those with low literacy or limited digital access.

1.8.5   Establish robust data-sharing protocols and communication channels between agencies and countries to facilitate swift response coordination.

1.8.6   Simulation exercises and drills are regularly conducted to test the effectiveness of early warning systems and response plans.

1.8.7   Enhance public awareness and education campaigns to empower communities with the knowledge and skills to prepare for and mitigate emergencies.

1.8.8   Sustainable financing mechanisms are in place to support the long-term operation and maintenance of early warning systems.

1.8.9   Foster collaboration and knowledge exchange between scientific institutions, government agencies, private sectors, and stakeholders.

1.8.10   Early warning systems incorporate traditional and indigenous knowledge, practices, and communication channels.

1.8.11   Develop specialized training programs for personnel responsible for monitoring, analyzing, and acting on early warning signals.

1.8.12   Ensure redundancy and resilience in critical communication and infrastructure networks to maintain operability during crises.

1.8.13   Early warning systems are supported by comprehensive monitoring, evaluation, and learning (MEL) frameworks support early warning systems.

1.8.14   Early warning systems are aligned with and contribute to regional and global early warning initiatives and frameworks.

1.8.15   Early warning systems are underpinned by robust and regularly updated risk assessments and hazard mapping.

1.8.16   Development and implementation of standardized protocols for data sharing and interoperability.

1.8.17   Early warning systems are designed to be equitable, inclusive, and responsive to the diverse needs of the population

3.2.4 Work Plan for Pillar 2 : Observation, monitoring, analysis, and forecasting

SL	Milestone	Timeline																									Responsibility		Budget USD / LCU	Budget Source
		2024	2025				2026				2027				2028				2029				2030				Lead	Support		
		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
	Installed & operational robust Automatic Weather System (AWS) complying with Global Basic Observing Network (GBON) standards																										SoDMA, UDNRR WMO,	MoEWR , FAO-SWALIM, ICPAC, Sector ministry & Department, TWG hdyromet service, Civil Aviation		UNDRR, UNDP, GCF, SIDA, ECHO, DIFD, USAID
	Established & functional Situation Room at NMHEWC																										SoDMA UDNRR WMO ICPAC	As above		
	AWS instrumentalized quality Forecasting data acquisition on Essential Climate Variables (ECVs)																										SoDMA UDNRR WMO ICPAC	As above		
	Established linkage with the regional specialized meteorological center.																										SoDMA UDNRR WMO ICPAC	As above		
	Established accessibility to real-time satellite-based atmosphere observation systems																										SoDMA UDNRR WMO ICPAC	As above		
	Installed and operational robust Situation Room at NMHEWC																										SoDMA UDNRR WMO ICPAC	As above		
	Enhanced NMHEWC meteorological and hydrological Monitoring capability																										SoDMA UDNRR WMO ICPAC	As above		
	Enhanced NMHEWC Data Analysis & Forecasting capability																										SoDMA UDNRR WMO ICPAC	As above		

SL	Milestone	Timeline																									Responsibility		Budget USD / LCU	Budget Source
		2024	2025				2026				2027				2028				2029				2030				Lead	Support		
		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
	Established & Functional Environmental Monitoring Division		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓													SoDMA UDNRR WMO ICPAC	As above		
	Established & functional forecasting Division		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	SoDMA UDNRR WMO ICPAC	As above		
	Established & functional forecasting Division		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	SoDMA UDNRR WMO ICPAC	As above		
	Established & Functional Agro-climatology Division		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	SoDMA UDNRR WMO ICPAC	As above		
	Numerical Weather Prediction (NWP) & Climate Division		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	SoDMA UDNRR WMO ICPAC	As above		
	Established & Functional Establish impact forecasting Division		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	SoDMA UDNRR WMO ICPAC	As above		
	Established a functional Flood forecasting and warning center (FFWC)		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	SoDMA UDNRR WMO ICPAC	As above		
	Established a functional storm monitoring and warning center		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	SoDMA UDNRR WMO ICPAC	As above		
	Established a Functional Famine early warning division:		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	SoDMA UDNRR WMO ICPAC	As above		

SL	Milestone	Timeline																									Responsibility		Budget USD / LCU	Budget Source
		2024	2025				2026				2027				2028				2029				2030				Lead	Support		
		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
	Established a functional drought monitoring system																										SoDMA UDNRR WMO ICPAC	As above		
	Established a functional Livestock monitoring division																										SoDMA UDNRR WMO ICPAC	As above		
	Enhanced capacity in integrated multi-hazard early warning system (MHEWS) for rapid onset multi-hazards -weather warning Common alerting protocol, Storm warning																										SoDMA UDNRR WMO ICPAC	As above		
	Established a Functional National Meteorological and Hydrological Services (NMHSs) Unit & capability of impact-forecasting products and bulletin/outlook services for the sectors																										SoDMA UDNRR WMO ICPAC	As above		
	Established a Functional National Meteorological and Hydrological Services (NMHSs) Unit at NMHEWC and developed impact-forecasting products and bulletin/outlook services:																										SoDMA UDNRR WMO ICPAC	As above		
	Strengthened intuitional programmatic capacity in installing high-density weather observation, hazard and climate monitoring and prediction, numerical weather prediction (NWP), short-range forecast modeling, and weather impact forecasting for the sector and community level.																										SoDMA UDNRR WMO ICPAC	As above		
	Enhanced NMHEWC capacity in demand-driven weather forecasts, outlook, and bulletin for the sectors and community.																										SoDMA UDNRR WMO ICPAC	As above		
	Early Warning data collection, analysis, and exchange modalities among federal line ministries/ sectorial offices and regional bodies have been harmonized and strengthened.																										SoDMA UDNRR WMO ICPAC	As above		

SL	Milestone	Timeline																								Responsibility		Budget USD / LCU	Budget Source
		2024	2025				2026				2027				2028				2029				2030				Lead	Support		
		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
	Early warning data automation, modeling, and forecasting among sectorial offices harmonized and improved.																										SoDMA UDNRR WMO ICPAC	As above		
	Early warning information exchange and interoperability among early warning sectors improved																										SoDMA UDNRR WMO ICPAC	As above		

3.3 Roadmap Pillar 3: Warning dissemination and communication

Risk communication and dissemination are the most critical components of the EW4ALL value chain process, which needs to be instrumental and functional at a robust level to keep the frontline timely and sufficiently informed about the impending extreme weather events and induced multi-hazards that are highly likely to interact with the ground. It is imperative that Somalia's cell phone penetration rate is significant, at 73 % of the Population.[9] has cell phones (comprising 83% in urban areas, 72% in IDP camps, and 55% in rural areas), which is being factored mainly by the Mobile money embodies financial opportunity in Somalia that enables foreign and local remitters with a convenient, affordable, and fast mobile money service, which has been widely used. These imperatives and opportunities can be harmonized with policy and programmatic actions to create communication & dissemination strategies for early warning information to the public. The currently running SMS/IVR/cell broadcast services cover a limited extent, are not even user-friendly, and do not target multi-lingual audiences. The telecommunications regulator in Somalia (the NCA) is in a unique position to foster collaboration between warning dissemination organizations and information providers; since the NCA regulates the telecommunications sector, ICT sector, and broadcasting sector, it can manage and develop guidelines and regulations to support timely alert dissemination and communications.

Implementing the EW4ALL pillar three, which focuses on hazard warning information dissemination and communication, requires a firm policy and institutional framework. The necessary policy and programmatic supports are to be attached to NMHEWC(NMHEWC) to strengthen the effective delivery of EW services to the end user. Therefore, designing a conducive environment and a smooth corridor for an effective system is a prerequisite for developing regulations, strategies, and policies to guide the roadmap's pathway.

Currently, UN Agencies, INGOs, and National NGOs have tailor-made risk repositories, GIS-based maps, attribute datasets, and disaggregated sectoral datasets obtained from the systematic primary survey conducted at the household/community level.

The government SoDMA **NMHEWC** needs to establish a data exchange protocol to harmonize all the multi-stakeholder information in EW4ALL due to the lack of an online data-sharing interface and the imposed policies/mandates that need to be put in place for fostering risk communication. The intended robust, open-ended ICT online system architecture, interactive data workflow, digital data coordination & exchange interface (online) be able to support functional information coordination and exchange mechanisms and mandates for source organizations to transmit information to the NMHEWC regarding SADD, sector-level GIS maps, and disaggregated attribute datasets on climate and multi-hazard risk and vulnerability repositories. The NMHEWC will disseminate risk communication through mobile SMS services, television, radio, social media, and other electronic channels to users, including ministries, federal states, districts, development organizations, NGOs, and communities. There is an urgency for an agreed MoU between SoDMA and other relevant actors, such as the National Communications Authority, and for SoP to be developed on data coordination and exchange mechanisms.

The desire for a robust institutional and policy ecosystem to support the implementation of the EW4ALL initiative in Somalia is essential for developing a policy for MHEWS to ensure the effective dissemination of EW information to end-users. SoDMA established partnerships between NMHEWC and ministries, development organizations, and the private sector that are expected to support the effective implementation of MHEWS.

Ensuring that IT systems, data storage, and sharing mechanisms are secured, resilient, and functional is expected to enhance NMHEWC's capabilities to send alert warnings during the' onset of hazards. Accessing hazard and forecast information from various source organizations would allow NMHEWC to disseminate warnings through different communication channels (TV, radio, SMS, and social media), anticipating impending risk. Capacity strengthening and risk communication are essential for developing effective risk awareness materials, and the implementation of federal, district, and community notification systems will enhance risk communication in Somalia.

Conducting training on MHEWS for NMHEWC staff, relevant agencies, and the community will enhance the knowledge base and assist in taking appropriate actions during emergencies. Engagement with communities is of

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[9] MOBILE M ONEY E COSYSTEM IN S OMALIA SUMMARY, Altai Consulting for the World Bank, June 2017

the utmost importance in raising public awareness, tailoring warnings to ensure appropriate interpretation of critical messages, and adequately resourcing preparedness, response plans, and evacuation procedures.

Some indicative gaps are being identified from the last inception workshop, national workshop, stakeholder consultation, etc., and are the following in pillar 3;

3.3.1 Pillar 3 Indicative gaps : Warning dissemination and communication

- Inadequate mandates, policy actions, and reinforcement to hold telecom service providers, broadcasters, and news agencies accountable for dissemination and communication, involving key actors such as national telecommunications and disaster management agencies, scientific and technical agencies, military and civil authorities, media organizations, businesses in vulnerable sectors, community-based organizations, and international agencies.
- The Ministry of Information and NCA lack essential support to adequately regulate mobile and telephone operators, broadcasters, and news agencies, and coordinate national risk communication and dissemination actions.
- Currently, there is a lack of SoP on risk communication and dissemination, a dissemination system of community radio in large urban-centric areas, and other methods such as social networks, people-to-people warning dissemination, etc., which have some time delays and inefficiency factors for keeping informed of the frontline actual situation timely for lifesaving.
- Due to the slower pace of power transmission and distribution to the last mile, Cell phone BTS expansion is still being hindered by power access over the scattered settlements in hard-to-reach areas; therefore, dispersed settlements are out of instant messaging services.
- On the supply side, there is a lack of NMHS-developed & administered forecast-based EAP, Common altering protocol, communication and dissemination strategy, and stakeholder engagement policy in risk communication.
- Inadequate partnership between information providers, warning dissemination organizations, and users
- The gap analysis encompasses an inclusive and people-centered approach, incorporating existing local networks, infrastructure networks, and services. It also evaluates the quality and trust in adopting the Common Alerting Protocol (CAP) and assesses the impact-based early warning messages. Furthermore, it examines the public's and other stakeholders' awareness of the authority's issuing warnings and the level of trust in their messages.
- Lack of an agreed MoU with the transboundary risk communication hub/situation room/EOC
- Lack of a risk communication hub at the NMHEWC /SoDMA level
- Inadequate warning dissemination mandates and coordination structures for national broadcasters, media outlets, news agencies, etc., on timely and accurate
- Lack of a mobile app-based community-based early warning dissemination, risk communication, and feedback system.
- Lack of precise functions, roles, and responsibilities of each actor in the warning dissemination process, enforced through government policy or legislation at all levels.
- Inadequate governance structure, enforcement of policies and legislation, and mandates for risk communication.
- Absence of warning communication systems reaching the entire population.
- The non-existence of Cell-Broadcast (CB) and location-based SMS (LB-SMS), agreements with the private sector, and standardized alerting protocols such as CAP.
- Lack of coordination between the warning issuers, the media, and other stakeholders
- Absence of professional CPC/DMC at the village and community level, and inadequate volunteer networks to relay the alerts to communities.
- Lack of impact-based early warning messages and automated systems for anticipatory humanitarian action.
- Lack of feedback mechanisms highlights the urgent need for the implementation of communication strategies to enhance effectiveness.
- Lack of automated systems to mitigate impacts in events with a short timeframe to react.
- Partial public awareness necessitating support for the dissemination process.

3.3.2 Proposed essential action for closing Pillar 3 gaps.

To step forward to effective warning dissemination and communication in Somalia, the following interrelated core actions were identified and intended to be implemented by 2027/2030:

1.1 Establish early warning communication and dissemination strategies, actionable policy and strategies, and SoP

Proposed action	Enabler /stakeholders
1.1.1 Conduct baseline assessment on relevant stakeholders e.g., national communication authority, government information ministry/department, , Cell phone Company national broadcasters(Radio, TV), Private broadcasters(Private TV, Community Radio), News agency (online, offline), foreign news agency, INGOs, NGOs and other CSO level risk communication enabler at the different level, identify gaps, and finally develop early warning communication and dissemination strategies, actionable policy and strategies and SOP.	• Office of Prime Minister (OPM)
1.1.2 Review existing ICT strategies, policies, and legislation related to the national broadcasting system, risk communication, and dissemination channels to keep the last-mile community informed and alerted.	• National Communications Authority (NCA), Somalia • ITU • IGAD-ICPAC • WMO Africa • WFP
1.1.3 Establish an agile national and local early warning communication system structure, process, dissemination strategies, and forecast-based and early warning-based anticipatory action (AA) communication strategy at every administrative /local level.	• NMHEWC/Situation Room of SoDMA • SoDMA offices at national and other administrative level • ICS -Defense
1.1.4 Establish comprehensive functional infrastructure networks and early warning dissemination services, and propose a communication network to bridge the last-mile communication gap.	• Police network • GSM Cell phone companies • National Telecom Operator • government control National/State
1.1.5 Establish community-level real-time risk communication & dissemination channel(Cell phone-SMS/IVR/Cell Broadcast, Radio/TV broadcasts, Siren, Drone Radio) for reaching out to end users, capturing feedback (to Local SoDMA/NMHEWC-Situation room)	Broadcasters (radio, TV) • Private broadcasters (TV, Community Radio , social network group operators) • National News outlets (offline, online
1.1.6 Strategy, SoP development on mass communication, community education, awareness raising about extreme weather events' frequency, intensity, and antipolarity, L&D level of the types of impending hazards, preparedness (emergency evacuation), disaster response, and how to save lives and properties, local service providers, and local coordination group on disaster emergency response (LCG-DER).	• UN Agencies – Implementing interventions (IOM -DTM, FAO SWALIM etc.) • IFRC(Anticipation hub) • Somalian Red Cross Society • FAO-GTOS • Sector departments
1.1.1 Establish and promote knowledge-sharing platforms among industry practitioners, students, academics, and others for early warning learning.	
1.1.2 MOU with transboundary Ethiopian and Kenyan EOC, NMHS, and Met Agency for feeding a real-time early warning and risk communication system	
1.1.3 MOU with global and African regional Multi-hazard alert systems (GloFAS, FEWS NET, Drought Monitor, La Reunion Tropical Storm Warning Center, CREWS Initiative, RIMES, Food insecurity EWS, EUMETCast, etc.) to keep NMHEWC updated about transboundary and Horn of Africa (HoA) forecast and warnings.	
1.1.4 Developed administrative level functional Risk communication system - Develop key stakeholder map for all administrative levels and levels, develop standing orders of (5W matrix who will do what, when, where, how) for disaster over risk communication, and SOP with operational aspects of disaster disaster-specific risk communication strategy	
1.1.5 Develop online web portal and mobile apps based on a 5W matrix-driven risk governance system for all stakeholders/actors/DRM committees with digital Mobile Apps based on Community engagement at multi-hazard incidents, L&D reporting.	
1.1.6 Established Common alerting protocol (CAP) with anticipatory impacts (for productive sectors, e.g., agriculture, standing crops, livestock, fisheries, agroforestry, drinking water crisis & availability, WASH, food security, Market value chain update, and food supply, famine and hunger, public health epidemics, disease, and outbreaks, etc.	
1.1.7 Develop a forecast-based risk communication strategy under the CAP/weather warning protocol by IFRC/SRCS.	
1.1.8 Develop a communication network, portfolio, tools, and mobile apps for the first responder group (IFRC/SRC) of reporting primary L&Ds/impacts for triggering emergency humanitarian response with georeferenced location of incidents and attribute L&Ds/Impact information sending via mobile apps to NMHEWC & District level EOC.	

Proposed action	Enabler /stakeholders
1.1.9 Building a national Risk communication stakeholders' network at the district and community level for giving feedback, incident reports, and event situation updates to District EOC/NMHEWC	
1.1.10 Identify the risk communication gap at the district and community level; develop a GIS-based map on cell phone coverage areas and not-covered areas with settlements; identify households/settlements in hard-to-reach areas; and create a thematic GIS map on spoken languages.	• National Communications Authority (NCA), Somalia • ITU • GIS/IT Unit/sector of Ministry-level sector departments • FAO-GTOS • SoDMA • INGO ICT team/GIS Section • Somalia Journalist Association • UN Agency Cluster system • OCHA-IT/GIS Team • UN Agency IT/GIS Section • HCT Country (UN Agency)
1.1.11 Develop risk communication and development strategies for people leaving hard-to-reach areas with zonation of multilingual settlement distribution.	• SoDMA • ITU • NCA-Somalia • ICS -Defense • Police network • Cell phone companies • National Telecom Operator • government control of National/State Broadcasters (radio, TV) • Private broadcasters (TV, Community Radio, social network group operators) • National News outlets(offline, online) • Somalia Journalist Association • UN Agencies – FAO GCOS & GTOS • IFRC/Somalian Red Cross Society • GIS/IT Unit/sector of Ministry-level sector departments • FAO-SWALIM • SoDMA • INGO ICT team/GIS Section • UN Agency Cluster system • OCHA-IT/GIS Team • UN Agency IT/GIS Section • HCT Country (UN Agency)

1.2 Installation of early warning (EW) sirens and loudspeaker systems at villages and the community level for automatically alarming
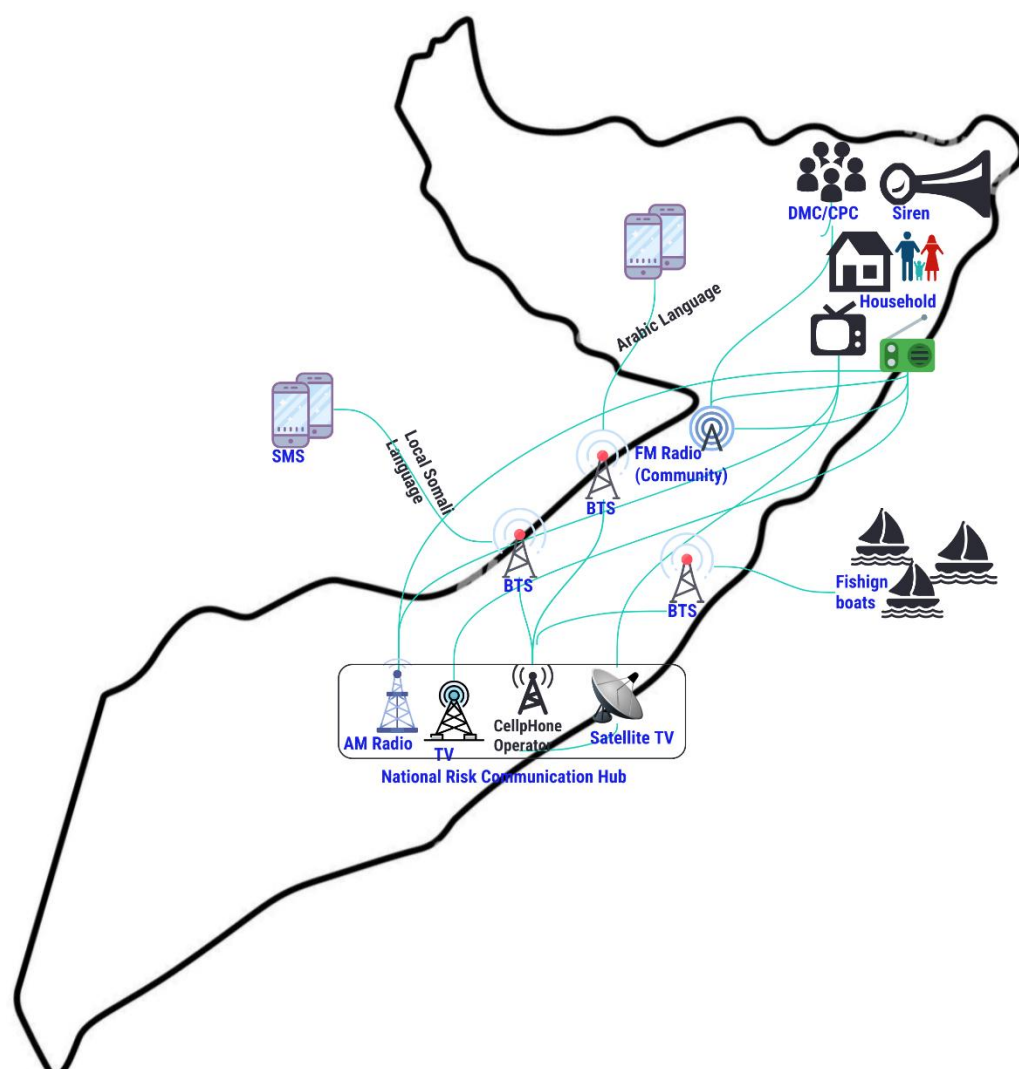
Figure 14: Last-mile community alerting system & process

1.3 Develop national early warning dissemination & Common alerting protocol (CAP) protocol.

1.3.1 Develop CAP on rapid-onset multi-hazards that are likely to be impeding in a short period (Tropical storm, flood, Flash flood, landslide, mudslide, heavy rainfall, rapidly developing thunderstorm, tornadoes, hailstorm, etc.).

1.3.2 Developing Mobile apps for the dissemination of CAP

1.3.3 Develop mobile apps to capture community/DRM committee feedback about emergency preparedness and response gaps.

1.4 Develop an Early Action Protocol (EAP) hub for immediately planning forecast-based early action and contingency mobilization to support emergency humanitarian actions.

1.4.1 Developing Early Action Protocol (EAP) on rapid onset hazardous events, e.g., Tropical storms, floods, Flash floods, landslides, mudslides, heavy rainfall, rapidly developing thunderstorms, tornadoes, hailstorms, etc.)

1.4.2 Develop a national media monitoring team at the NMHEWC level for events situation capture and dissemination of CAP.

1.4.3 Anchoring the Global Multi-hazard Alert System (GMAS), Pacific Disaster Center -Disaster Alert, Jakarta-based Indian Ocean Tsunami alerts, and developing CAP on geological hazards, e.g., earthquakes in the Indian Ocean and Tsunami impacts over the vast, elongated Somali coast.

1.4.4 Anchoring Africa Media Monitor (AMM) for gathering multi-hazard incidence reports, accurate information tracking to support the development of Impact forecasting, and common alerting about transboundary floods, landslides, and IGAD region spells of droughts insert.

1.4.5 Develop national and district-level CPP committees for cyclone disaster preparedness, early warning campaigning, emergency evacuation, and response support.

1.4.6 Enhanced capacity of NMHS experts, NMHEWC, Forecasters, impact forecasts for developing EAP, EWEA, AA at the district level

1.4.7 Cyclone Preparedness Plan (CPP), at every district level and community level

1.4.8 Develop national and district-level CPP committees for cyclone disaster preparedness, early warning campaigning, emergency evacuation, and response support.

1.5 Establish and functional, comprehensive Early warning dissemination hub and mechanism:

1.5.1 Consensus building/MoU between the Ministry of Communication, Somalia News Network, such as the National Communications Authority, National AM Radio, National TV, licensed MNOs, licensed private broadcasters (Community radio/Private TV), etc., for mandating disaster emergency bulletin broadcasting every 15/30/60 minutes during cyclone and flood disaster onset.

1.5.2 Enhance the EOC dissemination hub by developing every weather warning bulletin for broadcasting through a hybrid dissemination channel.

1.5.3 Enhance the capacity of the national EOC to develop forecast-based CAP by analyzing the transboundary catchment area rainfall accumulation amount, hourly/daily precipitation amount, and runoff data of river channels, and develop CAP for flood warnings, CAP for cyclone warnings, Flash floods, and landslides.

1.5.4 Enhance National Storm Early Warning System Capacity – develop storm capacity – data linkage with La -- Reunion Storm Warning Center (Western Indian Ocean)

1.5.5 Promote the Common Alerting Protocol (CAP) and establish an Alert Hub under NMHEWC with SOP and protocol with IFRC, SRC, INGOs/CSO, etc.

1.6 Installation and customization of Communication systems and equipment

1.6.1 Building an uninterrupted national emergency communication network Loop (UHF, VHF, Iridium Phone) for sustaining on the onset of a cyclone disaster

1.6.2 Communicate and disseminate all priority hazards according to the specific needs of specific groups and provide warning services to all diverse groups of the population at risk (including women, the elderly, and people with disabilities living in cities or rural areas).

1.6.3 All priority hazards with relevant behaviors/characteristics are subjected to regular system-wide tests, evaluations, and exercises for the warning system(s).

1.6.4 The needs of MHEWS users, including needs influenced by levels of vulnerability, are researched and understood for all priority hazards.

1.7 Impact-based early warnings communicated effectively to prompt action.

1.7.1 Impact-based warning messages indicate risks and provide actions (including last-mile connectivity). They are easily understood by outlining the phases and the level of actions by the responsible groups or bodies.

1.7.2 Enhance and support state-of-the-art communication and dissemination systems, public awareness,

1.7.3 Warning communication strategies ensure coordination across warning issuers and national, subnational, and local dissemination channels.

1.8 Develop national early warning dissemination & standard alerting protocol (CAP) protocol.

Proposed action	Enabler /stakeholders
1.8.1 Develop a nationwide warning dissemination protocol—develop policy, mandate, strategies, and SoP on who will do what and how, 1.8.2 - which delivery channel, and how and when to disseminate real-time/instant early warning messages to the end users in every remote corner of Somalia.	•Office of the Prime Minister •Ministry of Information /Department •ITU •NMHEWC •National Communications Authority (NCA), Somalia •National Contingency Planning Committee •Regional/County Disaster Preparedness Committees •Coordination Structures at the Federal Level •Disaster Risk Management Coordination Group (DRMCG) •SoDMA at national and other administrative level •ICS -Defense •Police network

Proposed action	Enabler /stakeholders
	• Cell phone companies • government control National/State Broadcasters (radio, TV) • Private broadcasters (TV, Community Radio, social network group operators) • National News outlets (offline, online • UN Agencies – Implementing interventions (IOM - DTM, FAO SWALIM etc.) • IFRC(Anticipation hub) • Somalian Red Cross Society
1.7.2 Develop a Technical Working Group (TWG) to develop a weather warning and common alerting protocol (CAP) for public alerts and being approved by the Office of the Prime Minister and SoDMA	• Office of the Prime Minister • SoDMA • Cell phone companies • Government control of National/State Broadcasters (radio, TV) • Private broadcasters (TV, Community Radio, social network group operators) • National News outlets (offline, online) • UN Agencies – interventions (IOM -DTM, FAO SWALIM etc.) • IFRC(Anticipation hub) • Somalian Red Cross Society • IFRC (Anticipation hub) • Somalian Red Cross Society • National Meteorological & Hydrological Services Organization (NMHS) • National TWG on hydromet (MoEWR) • FAO-SWALIM • ICS -Defense • Police network • INGO ICT team/GIS Section • UN Agency Cluster system • OCHA-IT/GIS Team • UN Agency IT/GIS Section • HCT Country (UN Agency) • Local National Humanitarian Actors (LNHAs) • Local and National NGOs (LNNGOs) • Somali NGO Consortium
1.7.3 Develop risk communication and dissemination strategies for people in hard-to-reach (out-of-cell phone network) areas with multilingual settlement distribution. Cell Phone companies must develop a BTS IP map/BTS-HLR Map and cluster those with local language-based geographic zonation. They should also develop multilingual SMS services to disseminate messaging across each language zone for broader reach. 1.7.4 Develop Phone IVR/Cell broadcast message for respective language zones as push-based common alerting protocol.	• Cell phone companies • SoDMA • ITU • NCA-Somalia • ICS -Defense • Police network • National Telecom Operator • government control of National/State Broadcasters (radio, TV) • Private broadcasters (TV, Community Radio, social network group operators) • National News outlets (offline, online • UN Agencies – FAO GCOS and GTOS • IFRC/Somalian Red Cross Society • GIS/IT Unit/sector of Ministry-level sector departments • FAO-SWALIM • SoDMA • INGO ICT team/GIS Section • UN Agency Cluster system • OCHA-IT/GIS Team • UN Agency IT/GIS Section • HCT Country (UN Agency)

Proposed action	Enabler /stakeholders	
1.7.3 Installation of Early Warning effectiveness & efficacy related community feedback mechanism online apps for community feeds on early warning effectiveness and efficiency	2	SoDMA
	3	NCA-Somalia

3.3.3 The roadmap for Pillar 3 : Enhancing effective dissemination and communication

The roadmap Pillar 3 aims to close the gaps and overcome challenges by promoting more effective communication and dissemination systems by 2027/2030 (including the development of last-mile risk communication connectivity), where communities and people at risk have access to instant warnings messages, public alerts through communication devices and stakeholder level strong coordination of information exchange mechanism are in place at national, regional, and local levels.
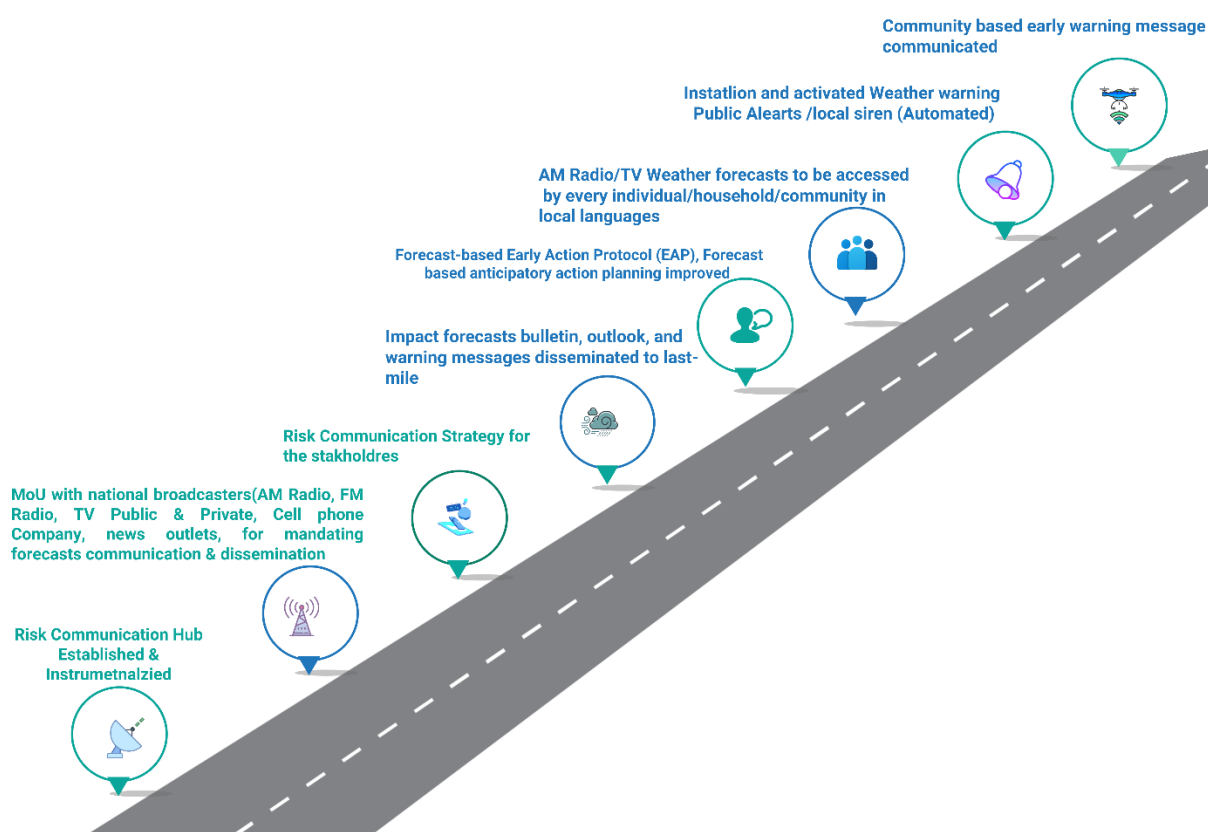
Figure 15: The roadmap for Pillar 3

To improve effective dissemination and communication services, the following goals and milestones are proposed to be implemented by 2027/2030.

3.1 Governance, functions, roles, and responsibilities of each actor in the warning dissemination process are enforced through government policy or legislation at all levels and included in the warning communication strategies and standard operating procedures.

3.1a Formulated ICT strategies, policies, and legislation related to the national broadcasting system, risk communication, and dissemination channels to inform and alert the last-mile community.

3.1b. Implemented that each actor's functions, roles, and responsibilities in the warning dissemination process are enforced through government policy or legislation at all levels and included in the warning communication strategies and standard operating procedures.

3.1c. Risk communication governance improved - regular coordination, planning, and review meetings between the warning issuers, the media, and other stakeholders

3.1d. Established coordination across warning issuers and national, subnational, and local dissemination channels.

3.1e. A holistic early warning communication strategy (including social media engagement, communication guidelines, etc.) was developed and strengthened.

3.1f. Indigenous EW community practices are embedded in 'modern' communication and dissemination channels. 3.1g. The MoU agreed to strengthen collaboration with the National Communications Authority to establish ICT business continuity plans to ensure the rapid recovery of telecommunication services in times of disaster.

3.1h. The National Communications Authority reviewed the MNO's business continuity plans.

3.1i. The Legal, policy, and institutional frameworks for DRM and DRR, as well as Telecom/ICT regulation for disaster risk management, are in place.

3.1j. Somalia signed and ratified the Tampere Convention, and coordinated and collaborated with international agencies

3.1k. The National Emergency Telecommunications Plan has been updated by 2027.

3.1.   Inclusion and people-centered approach, including through existing local networks.

3.2a. Professional and volunteer networks established to ensure the last-mile dissemination of early warnings widely

3.2b. Face-to-face EWS learning and other knowledge-sharing platforms are established and promoted among industry practitioners, students, academics, and other stakeholders.

3.2c. Strengthened human capacity, performance management, and operational efficiency within MHEWC to improve performance and foster innovation

3.2d. Enhanced capacity of technical personnel and quality inputs for EW4ALL. Training and support are provided for the staff of MHEWC and other relevant ministries responsible for warnings to enhance the effectiveness of warning dissemination and communication services.

3.2e. Communication strategies are evaluated, and feedback mechanisms are in place to verify that warnings have been received in a timely and at the precision level

3.2f. Formulated and mandated regulations, guidelines, and tools for digital inclusion and accessibility in emergency communications and alert dissemination. The National Communications Authority developed and adopted.

3.2.   Infrastructure networks, EW dissemination services, and equipment are in place and functional.

3.3a. Early Warning (EW) sirens and loudspeaker systems are installed in villages and communities, and they are automatically alarmed and alerted.

3.3b. National Communications Authority to Assess last-mile connectivity coverage to know which population groups can be reached by different services, including mobile-cellular, satellite, and radio services

3.3c. Warning messages are disseminated to the entire population, including seasonal populations and those in remote locations, through multiple communication channels (satellite and mobile-cellular networks, social media, flags, sirens, public address systems, etc.)

3.3d. Mobile operators activate SMS, IVR, and Cell broadcasts. Every language zone mobile user can access local language-based services.

3.3e Networked, partnered with all service providers (e.g., mobile-cellular, satellite television broadcasters, radio broadcasters, amateur radio broadcasters, social media actors, etc.) to disseminate warnings to the last mile.

3.3f. Early warning infrastructure and systems are tested, maintained, and upgraded to ensure resilience, redundancy, and functionality, with backup systems and processes in place.

3.3g. The geospatial web platform offers integrated impact forecasting, weather warnings, and weather alerts for visualization and dissemination of warnings.

3.3h. Types of required early warning information dissemination systems identified by the National Communications Authority (including cell broadcast, CAP, radio, TV, mobile, electronic signs, etc) in collaboration with SoDMA.

3.3i. The budget requirement for early warning information dissemination systems is calculated and assigned.

3.3j. The public emergency communication system is to be identified by the National Communications Authority.

3.3k. The operational budget for the public emergency communication system is provisioned.

3.3l. Enhanced capacity of cell phone companies, risk communication hubs, MNOs, radio/TV broadcasters, and other stakeholders, and improved dissemination of impending multi-hazards in the local language.

3.3m. A vulnerability analysis of DRM's critical telecom/ICT infrastructure has been developed.

3.3n. A business continuity plan (BCP) is in place for risk communication during a disaster emergency.

3.3.   Improved Access to Quality and Trusted Multi-Hazard Early Warning Information

3.4a. The Common Alerting Protocol (CAP) for public alerts is implemented and adopted for warning messages to ensure that alerts sent by alerting agencies to MHEWC and across various channels are standardized and consistent, thereby avoiding confusion and reinforcing the message in the local language.

3.4b. Past hazard and multi-hazard risk thresholds tracked, benchmarked, and calibrated for impact forecasting of impending multi-hazards

3.4c. Established a partnership collaboration between the National Communications Authority, SoDMA, and telecommunication service providers for operationalizing the bulk SMS, wider and cell broadcasting of early warning information

3.4.   Inclusion and people-centered EW4ALL approach, including through existing local networks.

3.5a. Impact-based early warning messages should communicate risk clearly and provide advice on actions that can be taken to reduce risks

3.5b. Enhanced capacity of the risk communication hub in developing emergency weather bulletins (e.g., flood, mudslide, convective rainfall, flash floods, fire, and tropical cyclone).

3.5c. A national risk communication protocol was developed to support emergency preparedness and response actions (e.g., preemptive evacuation of people and assets, activation of AA in target locations, mapping higher ground, deploying rescue boats, and opening fire-truck gates, etc.).

3.5d. The public and other stakeholders are aware of which authorities issue the warnings and trust their message (e.g. Imams and faith groups).

3.5 Establish early warning communication and dissemination strategies, actionable policy and strategies, and SoP

3.5a. Establish an agile national and local early warning communication system structure, process, dissemination strategies, and forecast-based and early warning-based anticipatory action (AA) communication strategy at every administrative /local level

3.6 Develop an Early Action Protocol (EAP) hub for immediately planning forecast-based early action and contingency mobilization to support emergency humanitarian actions.

3.7 Mobile apps-driven Impact-based early warnings communicated.

3.8 National early warning dissemination & standard alerting protocol (CAP) protocol. Developed and communicated with the frontline community through mobile apps.

3.3.4 Workplan Pillar 3 : Warning dissemination and communication

SL	Milestone	Timeline																									Responsibility		Budget USD / LCU	Budget Source
		2024	2025				2026				2027				2028				2029				2030				Lead	Support		
		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
1)	Risk communication systems and equipment are in place and become functional		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	SoDMA ITU IFRC UNDP WMO	NCA, Cell Phone operators		ITU , UNDP, GCF, SIDA, ECHO, DIFD, USAID EU
2)	Each actor's governance, functions, roles, and responsibilities in the warning dissemination process are enforced through government policy or legislation at all levels and included in the warning communication strategies and standard operating procedures.	▓	▓	▓	▓	▓	▓	▓	▓	▓																	SoDMA/ NCA ITU IFRC UNDP WMO	NCA, Cell Phone operators, , National Telecom Operator, government control National/State Broadcasters (radio, TV), Private broadcasters (TV, Community Radio , social network group operators), National News outlets (offline, online		
3)	Established Infrastructure networks and EW dissemination services and equipment are in place and functional		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	SoDMA ITU IFRC UNDP WMO	As above		
4)	Established early warning communication and dissemination strategies, actionable policy and strategies, and SoP		▓	▓	▓	▓	▓	▓	▓	▓	▓																SoDMA ITU IFRC UNDP WMO	As above		
5)	Formulated Effective EW Information Communication and Dissemination implementation plan		▓	▓	▓																						SoDMA ITU IFRC UNDP WMO	As above		
6)	Activated national early warning dissemination & common alerting protocol (CAP) protocol for the public alerts		▓	▓	▓																						SoDMA ITU IFRC UNDP WMO	As above		

SL	Milestone	2024 Q4	2025 Q1	Q2	Q3	Q4	2026 Q1	Q2	Q3	Q4	2027 Q1	Q2	Q3	Q4	2028 Q1	Q2	Q3	Q4	2029 Q1	Q2	Q3	Q4	2030 Q1	Q2	Q3	Q4	Lead	Support	Budget USD / LCU	Budget Source
7)	Installed and activated Early Warning (EW) sirens and loudspeaker systems in villages and communities being automatically alarmed		X	X	X	X	X	X	X	X	X	X	X	X													SoDMA ITU IFRC UNDP WMO	As above		
8)	Enhanced understandability of alerting messages reaches all those at risk, allowing them to take the necessary actions to save lives and livelihoods and to support longer-term resilience		X	X	X	X	X	X	X	X	X	X	X	X													SoDMA ITU IFRC UNDP WMO	As above		
9)	MHEWC has access to the Rapid Alert Notification System for rapid-onset disasters in the local language		X	X	X	X	X	X	X	X	X	X	X	X													SoDMA ITU IFRC UNDP WMO	As above		
10)	Improved Access to Quality and trusted Multi-Hazard Early Warning Information		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			SoDMA ITU IFRC UNDP WMO	As above		
11)	Developed an Early Action Protocol (EAP) hub at SoDMA to immediately plan forecast-based early action and contingency mobilization to support emergency humanitarian actions.		X	X	X																						SoDMA ITU IFRC UNDP WMO	As above		
12)	Established and functioned country-early warning dissemination hub and mechanism		X	X	X	X	X	X	X	X	X	X	X	X													SoDMA ITU IFRC UNDP WMO	As above		
13)	State-of-the-art communication and dissemination systems enhance and support public awareness, mindset, and understanding of warning messages and early actions.		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X			SoDMA ITU IFRC UNDP WMO	As above		
14)	Early Warning communication strategies and standard operating procedures (SOPs) established for governance, functions, roles, and responsibilities for early warning information, communication, and dissemination		X	X	X	X	X	X	X	X	X	X	X	X													SoDMA ITU IFRC UNDP WMO	As above		

S L	Milestone	Timeline																									Responsibility		Budget USD / LCU	Budget Source
		2024	2025				2026				2027				2028				2029				2030				Lead	Support		
		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
15)	Established comprehensive functional infrastructure networks and early warning dissemination services and equipment		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓													SoDMA ITU IFRC UNDP WMO	As above		
16)	People-centered EW4ALL through local networks in place		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓													SoDMA ITU IFRC UNDP WMO	As above		
17)	Multi-lingual Push warning messages system developed, customized, and being disseminated to each language zones via SMS, Cell broadcast, IVR, Radio/TV		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	SoDMA ITU IFRC UNDP WMO	As above		
18)	Agreed Census building/MoU between the Ministry of Communication, broadcasters, Somalia News Network, National Communications Authority, National AM Radio, National TV, licensed MNOs, licensed private broadcasters (Community radio/Private TV), etc., for mandating disaster emergency bulletin broadcasting at every 15/30/60 minute during the cyclone and flood disaster onset.	✓	✓	✓																							SoDMA ITU IFRC UNDP WMO	As above		
19)	Enhanced capacity of NMHEWC- dissemination hub in developing every weather warning bulletin for broadcasting through a hybrid dissemination channel		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	SoDMA ITU IFRC UNDP WMO	As above		
20)	An agreed-upon MoU between the National Communications Authority and Cellphone, PSTN, and other private channels mandates the development of a BTS/HLR zonation-based local language-based push SMS, classified IVR, and Cell broadcast benignly accessed by cell phone users.	✓	✓	✓																							SoDMA ITU IFRC UNDP WMO	As above		
21)	Enhanced SoDMA capacity in developing Impact-based early warnings and being communicated effectively to trigger anticipatory action.		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓													SoDMA ITU IFRC UNDP WMO	As above		
22)	Risk communication Strategy developed and functional		✓	✓	✓	✓																					SoDMA	As above		

SL	Milestone	Timeline																									Responsibility		Budget USD / LCU	Budget Source
		2024	2025				2026				2027				2028				2029				2030				Lead	Support		
		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
			▓	▓	▓	▓																					ITU IFRC UNDP WMO			
23)	All priority hazards are communicated and disseminated according to the specific needs of specific groups, and all diverse groups of the population at risk (including women, the elderly, and people with disabilities living in cities or rural areas) are provided with warning services		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓			SoDMA ITU IFRC UNDP WMO	As above		
24)	Increased national capabilities for effective, authoritative emergency alerting for all media and all hazards.																										SoDMA ITU IFRC UNDP WMO	As above		
25)																														
26)																														

3.4 Roadmap Pillar 4: Preparedness and response capabilities.

Somalia is working to speed up the decentralization of SoDMA institutional extension for disaster risk management at the local level. The country suffers from multiple crises induced by hydrometeorological and other non-climate change factors. El-Nino (storms and flooding) and La-Nino factors (droughts) induce Somalia's climatic hazards to bring heavy rains. In October / December 2023, over 1.24 million people were affected, and more than 456,800 people were displaced; according to the Somali authorities, at least 32 people died.

SoDMA endeavors to grow with solid institutional presence and timely implementation of hazard preparedness measures and anticipatory actions for minimizing loss and damages as the country is exposed to the El Niño Southern Oscillation-induced rainfall and flooding and prolonged droughts by La Niña and exposed to Indian Ocean tropical storms both of them are impending as recurrent and rapid onset phenomena. Concurrently, the SoDMA needs to be instrumentalized with tailormade and hazard-informed humanitarian response mechanism, which often arrives too late to save lives and restore livelihoods. Therefore, the linkages between early warning & alerts and anticipatory actions should be interactive. The foremost priority is establishing a risk-informed decentralized preparedness and response delivery system by engaging the community, stakeholders, and actors to save lives and properties from extreme weather events.

Somalia's current disaster risk management policy supports addressing risks' underlying factors and root causes by taking early actions, including development-oriented programs, before a disaster occurs.

The urgency of forecast-based allocation of disaster risk finance, forecast-based financing (FBF) instruments, anticipatory preparedness, and response actions for saving lives and properties is being demanded by the frontline community and humanitarian actors at the last mile. In this respect, the government's human resource allocations are minimal. There is an urgency for forecast-based risk finance allocations and influence the government to mainstream risk finances in national and subnational planning and budgeting cycles to meet life-saving humanitarian needs and priorities.

3.4.1 Indicative Gaps on Pillar 4 -Preparedness and response capabilities.

Other than the last inception workshop, national works, stakeholder consultation, etc., some gaps have been identified, including the following indicative gaps in pillar 4.

1) **Lack of Disaster Risk Management (DRM) Framework and mandates:**

    Somalia has a national disaster risk management policy (2020) and a Recovery and Resilience Framework (RRF) but still does not have a stakeholders' mandate actionable plan to translate policy into actions for effective DRM at the local level. Lack of standard operating procedures (SoP) , Lack of national budget allocated for funding disaster risk management actions, Inadequate hazard risk-informed DRM plans, Inadequate integration and coordination, the Local community empowerment is limited and Lack of clear roles and responsibilities of state actors and SoDMA as well.

2) **Lack of coherent sector-level actionable policy framework:** There is a Lack of mandates and policy actions for state actors to endeavor disaster preparedness and emergency response management. Coordination gap between central sector ministry & department and local level actors. Inadequate disaster risk reduction governance system that effectively translates its priorities into concrete steps and practical action, focusing on prevention, preparedness, and mitigation. Inadequate disaster risk reduction is prioritized in other government policies and programs. Lack of stakeholder coordination and partnership framework mandates for devising emergency response mechanisms. International organizations, local and international NGOs, religious organizations, foreign government agencies /donors, and UN agencies carry out most emergency disaster preparedness and response. However, local government entities do plan peripheral roles. Inadequate government sectoral coordination framework and policy advocacy capacity to develop Government-UN

coordination mechanism in disaster risk management, anchoring UN HCT and UN Cluster system with SoDMA for coordinated emergency response management and bridging the emergency preparedness and response gap at the local level.

3) Lack of Disaster Emergency Preparedness Framework, actionable plan and mandates:

Inadequately established disaster management committee (DMC) at the administrative layer. Lack of good government leadership (Federal, State, and District levels) to significantly enhance the effectiveness of disaster response by multiple agencies by providing a coherent and coordinated framework that facilitates faster and more efficient delivery of response based on local needs. Lack of emergency preparedness action plan at the community, village, district, and municipality levels. Lack of flood and cyclone and other multi-hazard preparedness plan, designing contingency plans at district, provincial, and central levels of governance; Development of evacuation, rescue plans, manuals, and simulation exercises.

4) Inadequate SoDMA and Local government-led DRM, DRR, and CCA coordination framework:

SoDMA, a local government sector department, has limited coordination among government and other actors at different levels, which exerts daunting challenges to effective DRR implementation in Somalia. Despite having already formulated a policy framework for climate preparedness, there are hurdles in the local level DRM, DRR, and CCA planning and intervention process due to a lack of actionable policy and stakeholders' mandates.

5) Inadequate multi-hazard preparedness Capacity:

Somalia needs a huge paradigm shift from a non-state actors-driven (INGO, NGO, UN Agency, CSO) crisis response management system to state-actors and multi-stakeholder-driven emergency crisis response management system effectively managed by SoDMA and Local government actors, which is urgent for enhancing institutional capacity.

There is a lack of community-level emergency preparedness plans, contingency plans, evacuation plans, shelter management plans, and pre-positioning relief items to save lives and properties.

The heavily decentralized SoDMA and Local government extension to the district level can play pivotal roles in enhancing community-led preparedness for the fastest-onset multi-hazards (cyclones, flash floods, landslides, mudslides, etc.). The full-scale implementation of pillar 4 depends on effectively implementing other pillars and interactively supporting DRM intervention.

6) Inadequate Disaster Response Capacity:

The local government and SoDMA do not have an emergency evacuation plan or disaster shelter to save lives from impeding cyclonic hazards. There is also a lack of coordination measures between SoDMA and local government for anchoring INGO and UN Agencies in emergency response.

7) Inadequate Disaster Recovery and Prevention Framework:

Somalia has the highest number of IDPs, primarily induced by the multi-hazards and conflicts. The displaced community's livelihoods depend heavily on nature-based solutions (subsistence agriculture, livestock, and fisheries). Still, due to poor DRM governance at the local level, the government actors are insignificantly involved in the local-level disaster recovery efforts. Due to a lack of local Disaster Recovery and Prevention Framework, the SoDMA and local government actors cannot mainstream the non-state actors driven post-disaster and recovery practices with the local government planning system. Somalia needs a multi-stakeholder coordinated disaster recovery and prevention framework for the effectiveness of resource mobilization, identifying intervention gaps and strategies for avoiding overarching interventions, and extending interventions to the hard-to-reach areas.

8) Lack of disaster risk financing framework:

Lack of national annual fiscal budgetary allocation for funding disaster risk management actions at the local level. Federal government regional member states are faced with a Lack of budgetary allocation from the national budget to implement disaster risk management activities. The government agencies at the national and state levels have inadequate technical capacity due to poor funding.

9) Lack of Sector level DRR/CCA/NbS/NbA/LLA plan :

Somalia has inadequate disaster risk reduction and climate change adaptation plans at the local level for community resilience building. The local government SoDMA effectively needs to improve DRR plans at the community, village, and district levels. The protracted poverty & climate crisis, recurrent multi-hazard phenomena, and internal conflicts dragged the population to IDP status, which persistently made their livelihood dependent on agriculture, livestock, and fisheries. Due to El Nino and La-Nino climate crises, the livelihood sectoral elements (standing crops, livestock, agroforestry, fisheries) are losing productivity due to a lack of timely warning series. However, risk-informed tools do not instrumentalize the inevitable sector department running service deliveries and value chain services. Sector departments need to develop community, village, and district level Disaster Risk Reduction(DRR), Climate change adaption(CCA), nature-based solution(NbS), nature-based adaptation(NbA), ecology-based adaptation (EbA), and locally led adaption(LLA) solution for community resilience building. Somalia needs to assess those sectors' comprehensive risks and vulnerabilities, devise risk reduction interventions, and develop community-based DRR ,CCA, NbS, NbA, and LLA planning and budgeting systems.

3.4.2 Roadmap outlined actions for closing the Gaps on Pillar 4 by 2027 and beyond

Proposed action	Enabler /Actors/stakeholders
1.1 Improving Crisis response management governance system	
1.1.1 Conduct capacity and technology needs assessment in order to capacitate in Disaster Risk Management (DRM) Planning system. 1.1.2 Conduct assessment of stakeholder (state, nonstate actors) mapping for multi-hazard risk management plan (Flood, flash flood, landslide, drought, tropical storm, pandemic/diseases/outbreaks) 1.1.3 Develop a disaster emergency management framework action plan (stakeholder roles and responsibilities) 1.1.4 Develop Disaster Management Plan (Federal Ministry level/**Federal member state level**/Sector Ministry level/ Sector department level, Local Government level /Sector Extension Department (at Region, Province, District level), etc., roles and responsibilities during crisis response, mandated, resource allocation, etc.) 1.1.5 Develop standing orders on disasters, clearly defining the roles and responsibilities of stakeholders /actors. 1.1.6 Developing standard operating Procedures (SoP) of SoDMA at the local level	**1) State:** • Office of Prime Minister (PMO) • MoHADM, SoDMA, DMA • Federal Government's Sector Ministries, Federal member state, **2) Local Government (Region/Province, District)** **UN Agency:** 2) CSOs (Local charities, trust, clubs, non-profit organization etc.) 3) **UN Agency:** OCHA, UN Clusters (CCM, Early Recovery, Education, Emergency Telecommunication, Food Security, Health, Logistics, Nutrition, Protection, Shelter, and WASH clusters) 4) HCT/Individual UN Agency (UNDRR, UNDP, IOM, UNICEF, UNHCR, WFP, FAO, UN Women, UNFPA, WHO, IFAD, ITU, UN Volunteers, UNCDF etc.) **CSOs:** 5) National NGOs Consortium 6) **International NGOs** Consortium 7) **Regional Actor:** IGAD-ICPAC, African Risk Capacity (ARC)
1.2 Improving Multi-hazard/Disaster Crisis response capacity	
1.2.1 Develop Institutional and stakeholder capacity in Disaster emergency preparedness, response, and recovery planning. 1.2.2 Develop Institutional and stakeholder capacity in Disaster. 1.2.3 Improving Institutional Capacity in Developing Forecast-based Early Action Protocol (EAP) Development	**Government:** 1) MoHADM, SoDMA, DMA 2) Federal Government's Sector Ministries, Federal member states, 3) Local Government (Region/Province, District)

Proposed action	Enabler /Actors/stakeholders
1.2.4 Improving stakeholder capacity in undertaking forecast-based anticipatory action (AA) planning and implementation capacity (Flash drought, hydrological, meteorological, Fluvial flood, flash flood, transboundary catchment overflow flooding, landslide, cyclone, convective heavy rainfall, tornadoes, thunderstorm, diseases/outbreaks, Earthquake-induced coastal Tsunami, etc.)	**NGOs:** 4) National NGOs Consortium 5) **International NGOs** Consortium **CSOs:** ▪ National NGOs Consortium ▪ **International NGOs** Consortium ▪ CSOs (Local charities, trusts, clubs, non-profit organizations, etc.) ▪ Private sector ▪ Local service providers ▪ Utility service providers ▪ Extension officers/Technician ▪ Value chain operators ▪ Commercial entrepreneurs ▪ Smallholder farmers ▪ Agrobusiness value chain operators **UN Agency:** ▪ **UN Agency:** OCHA, UN Clusters (CCM, Early Recovery, Education, Emergency Telecommunication, Food Security, Health, Logistics, Nutrition, Protection, Shelter, and WASH clusters) ▪ HCT/Individual UN Agency (UNDRR, UNDP, IOM, UNICEF, UNHCR, WFP, FAO, UN Women, UNFPA, WHO, IFAD, ITU, UN Volunteers, UNCDF etc.) **Regional Actor:** IGAD-ICPAC, African Risk Capacity
1.3 Improving last-mile Disaster Preparedness Capacity	
1.3.1 Establish civil protection committee (CPC)/ Disaster Management Committee (DMC) at City, Municipality, Urban Center, Town, Village, and Community level committees (Represented by Different age groups, professional groups, sector-level extension officers, youth, elderly, disabled population, women, students, etc.)	▪ Local Government (Region/Province, District) ▪ National NGOs Consortium ▪ **International NGOs** Consortium ▪ CSOs (Local charities, trusts, clubs, non-profit organizations, etc.) ▪ **UN Agency:** OCHA, UN Clusters (CCM, Early Recovery, Education, Emergency Telecommunication, Food Security, Health, Logistics, Nutrition, Protection, Shelter, and WASH clusters) ▪ HCT/Individual UN Agency (UNDRR, UNDP, IOM, UNICEF, UNHCR, WFP, FAO, UN Women, UNFPA, WHO, IFAD, ITU, UN Volunteers, UNCDF, etc.).
1.3.2 Develop CPC/DMC level Plan for every sphere of the communities (with 5 W responsibilities, who will do what, where, when, and how) 1.3.3 Establish an emergency shelter group/committee.	
1.3.4 Capacity development of CPC/DMC in forecast-based emergency preparedness and response, and conducting multi-stakeholder-led humanitarian action at the community and household level, such as evacuation drills, first aid, etc.	
1.3.5 Improving Institutional Capacity in Developing Forecast-based Early Action Protocol (EAP) Development 1.3.6 Improving stakeholder capacity in undertaking forecast-based anticipatory action planning (Flash drought, hydrological, meteorological, Fluvial flood, flash flood, transboundary catchment overflow flooding, landslide, cyclone, convective heavy rainfall, tornadoes, thunderstorm, diseases/outbreaks, Earthquake-induced coastal Tsunami, etc.) 1.3.7 Capacity development of local CSO/stakeholder, CPC/DMC, vulnerable community in major disasters (fluvial flood, flash flood, landslide, drought, tropical storm & storm surge) management at the local level	
1.4 Enhance SoDMA and Local Government sectoral DRM/DRR capacity at the local level	Above mentioned actors
1.4.1 Improving SoDMA -Stakeholder/CSO Coordination for Recovery and Resilience Framework 1.4.2 Establish a cross-sectoral governance structure involving key institutions. 1.4.3 Develop an early recovery framework for the community.	• The above-mentioned actors

Proposed action	Enabler /Actors/stakeholders
1.4.4 Enhance SoDMA capacity in: Enhancing disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation, and reconstruction. 1.4.5 Establish Public and private partnerships in local-level preparedness and response intervention. 1.4.6 Enhance SoDMA capacity to develop and implement standardized response protocols, train emergency response teams, coordinate with partners, and cooperate inter-agency. 1.4.7 Establishing a River Basin Committee (RBC) will ensure the involvement of communities in the development and implementation of an EWS. 1.4.8 Establish a national implementation committee. 1.4.9 Establish Provincial implementation committees. 1.4.10 Establish River basin committees. 1.4.11 Risk-informed integrated rural development planning. 1.4.12 Strengthening Gendered Risk Finance Framework 1.4.13 Improving district-level disaster risk governance functionaries (District executive council, sector clusters, Technical Working groups, Civil protection Committee) for DRM /DRR-related service deliveries 1.4.14 Capacity development of state actors/sector departments, local revenue mobilization, fiscal decentralization, and budgetary allocations for the district level 1.4.15 Improving Gender Responsive Disaster Preparedness and Response Plan 1.4.16 Improving stakeholder coordination for developing collective accountability to the affected population (AAP) and initiating gendered humanitarian action (GiHA) and DRR at the local level. **1.4.17** SoDMA capacity enhancing the Risk-informed Early Action Partnership	
1.5 Improving Community-based Early Warning Capacity	
1.5.1 Develop community-level risk communication and dissemination strategy/Mandate (engaging local CPC/DMC and local broadcasters (Community Radio, central AM Radio, TV) for local awareness. Organize live shows/live broadcasts and interactive discussions with CPC/DRMC and community/households with event situation updates, assessments of primary L&D, humanitarian needs and priorities, etc., and report back to NMHEWC. 1.5.2 Enhance community risk knowledge, preparedness, and response capacity, utilize human and social capital for risk mitigation, save productive assets based on weather alerts, and raise awareness about impending multi-hazards and disasters. 1.5.3 Develop Cyclone Preparedness Plan (CPP) to raise awareness at every coastal district and community level about the impending cyclones and storms that are being forecasted. 1.5.4 Develop a Flood/flash flood/landslide/heavy rainfall Preparedness Plan to raise awareness among vulnerable communities about impending floods, heavy rainfall, and flash floods that are forecasted.	**CPC/DMC at village and community level** **CSOs:** • National NGOs Consortium • **International NGOs** Consortium • CSOs (Local charities, trusts, clubs, non-profit organizations, etc.) • Private sector • Local service providers • Utility service providers • Extension officers/Technician • Value chain operators • Commercial entrepreneurs • Smallholder farmers • Agribusiness value chain operators **UN Agency:** • **UN Agency:** OCHA, UN Clusters (CCM, Early Recovery, Education, Emergency Telecommunication, Food Security, Health, Logistics, Nutrition, Protection, Shelter, and WASH clusters) • HCT/Individual UN Agency (UNDRR, UNDP, IOM, UNICEF, UNHCR, WFP, FAO, UN Women, UNFPA, WHO, IFAD, ITU, UN Volunteers, UNCDF etc.) **Regional Actor:** IGAD-ICPAC, African Risk Capacity
1.6 Improving community-level volunteering network for emergency preparedness and Response mechanism	
1.6.1 Coordination structure of SoDMA, Somalian Red Cross Society (SRCS), and INGOs to establish a local community-level volunteering network for emergency preparedness and response mechanism. 1.6.2 Capacity building for improving volunteering service delivery.	• SRCS • Above mentioned actors

Proposed action	Enabler /Actors/stakeholders
1.6.3 Mandate CSOs to work with the 5W matrix for effective disaster preparedness and response service deliveries, develop DRM strategies, and link NS response operations with recovery and community resilience work.	
1.7 Improving SoDMA /Local Government technical and operational disaster repose capacity	
1.7.1 Establish a local community-level volunteering network for emergency preparedness and response mechanisms. **1.7.2** Capacity building for improving volunteering service delivery.	• The above-mentioned actors
1.8 Improving Lack of Government Coordination Structure of crisis response	Above mentioned actors
1.8.1 Improving SoDMA -Stakeholder/CSO coordination for Recovery and Resilience Framework (RRF) for actions	• The above-mentioned actors
1.9 Improve risk-informed local level (District/Village/Community) DRR ,CCA, NbS, NbA, LLA inclusive planning and budgeting capacity	
1.9.1 Enhance SoDMA and Local Government capacity in risk-informed DRR , CCA, NbS, NbA, LLA community inclusive participatory planning and budgeting system and interventions process.	
1.10 Improving community-level volunteering network for emergency preparedness and response mechanism	Above mentioned actors
1.10.1 Establish a local community-level volunteering network for emergency preparedness and response mechanisms. **1.10.2** Capacity building for improving volunteering service delivery.	• The above-mentioned actors
1.11 Improve community capacity to DRR ,CCA, NbS, NbA, LLA	Above mentioned actors
1.11.1 Develop a stakeholder coordination strategy to avoid overlapping local-level DRR,CCA, NbS, and climate resilience-building initiatives. 1.11.2 Develop DRR,CCA, NbS coordination structure for local level(District, Village, Community) coordination in interventions 1.11.3 Enhance stakeholder capacity in risk-informed and evidence-based DRR, CCA, and NbS interventions at the community level. 1.11.4 Enhance local-level humanitarian and DRR interventions by INGOs, NGOs, CSOs, and local governments. 1.11.5 Enhance community capacity in DRR, CCA, and NbS 1.11.6 Enhance local government /SoDMA engagement in Humanitarian Response Planning and intervention process.	• The actors mentioned above
1.12 Develop disaster risk finance framework for national and subnational level	The actors mentioned above
1.12.1 Develop an intended action plan over the next 5 years for closing the indicative preparedness and response gaps at the local level 1.12.2 Develop coordination structure, SP, and capacity building of CSOs for implementing cash-for-work interventions at the community level	The actors mentioned above

3.4.3 Roadmap ahead for Pillar 4 by 2027 and beyond

Pillar 4: Areas of Action for Effective Preparedness, Timely Response, and Early Action

The roadmap Pillar 4 aimed to close the indicative gaps and overcome challenges by promoting more effective engagement of the community, local shareholders, actors, state, and other non-state actors to develop a new paradigm of Effective Preparedness, Timely Response, and Early Action mechanisms to be established by 2027 and beyond for frontline communities, building better disaster aftermath and post-disaster resilience.
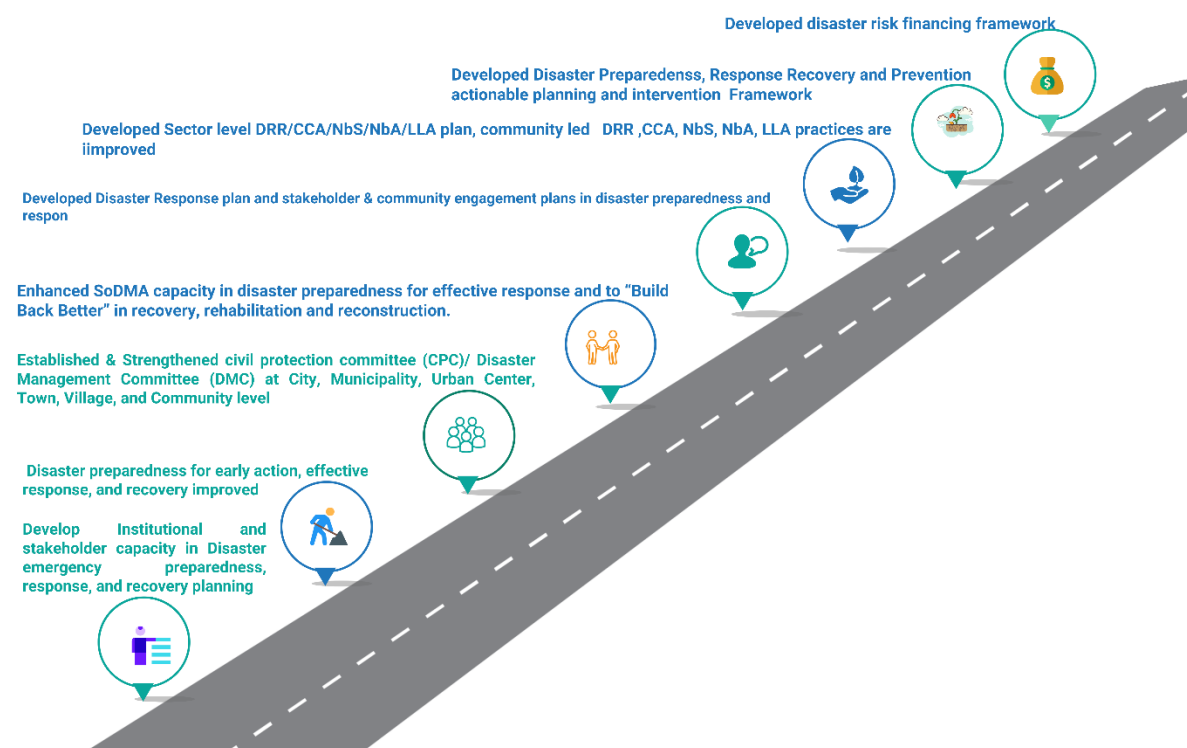
Figure 16: The roadmap for Pillar 4

Goal-specific Outcome: To achieve the defined pillar 4 goal-centric areas of Action for Effective Preparedness, Timely Response, and Early Action, the following milestones are intended ;

1.1 Disaster preparedness for early action, effective response, and recovery improved

- 1.1.1   Disaster preparedness measures, including response plans, developed in a participatory and gender-responsive manner
- 1.1.2   Disaster preparedness measures, including response plans practiced.
- 1.1.3   Disaster preparedness measures, including response plans, account for the needs of people with vulnerabilities.
- 1.1.4   Multi-hazard risk assessments utilized to develop and design evacuation and recovery strategies.
- 1.1.5   Communities' ability to respond effectively to early warnings assessed and enhanced, particularly women and people in vulnerable conditions.
- 1.1.6   Capacity to prepare, understand warning messages, and take early action is enhanced.
- 1.1.7   Contingency planning is developed scenario-based following forecasts or likely scenarios across timescales.
- 1.1.8   Early action and response options across time and geographical scales are linked to the provision of funding to support them for all priority hazards.
- 1.1.9   Community-based organizations, including youth groups and women's organizations, lead public awareness and education campaigns for all priority hazards.
- 1.1.10 Percentage of women correctly identifying what actions should be taken for all priority hazards.

1.1.11 Previous emergency and disaster events and responses were analyzed, and lessons learned were incorporated into preparedness and response plans.

1.1.12 Previous emergency and disaster events and responses analyzed, and lessons learned incorporated into capacity-building strategies.

1.1.13 Public awareness strategies and programs are evaluated regularly and updated as required.

1.1.14 Drills and exercises conducted with first responders and the community.

1.1.15 Population at risk acted as a priority hazard when an alert was received.

1.1.16 Early warnings align with risk information, particularly with the WDRP and other Urban Initiatives.

1.1.17 After-action reviews of preparedness, response, and early action practices fostered and strengthened at community, regional, and national levels.

1.2 Improved Crisis Response Management Governance System

1.3 Improved Multi-hazard/Disaster Crisis Response Capacity

1.4 Improved last-mile disaster preparedness capacity

1.5 Develop Institutional and stakeholder capacity in Disaster preparedness, response, and recovery planning.

1.6 Enhanced SoDMA and Local Government sectoral DRM/DRR capacity at the local level

1.7 Improved Institutional Capacity in Developing Forecast-based Early Action Protocol (EAP) Development

1.8 Established civil protection committee (CPC)/ Disaster Management Committee (DMC) at City, Municipality, Urban Center, Town, Village, and Community level committees (Represented by Different age groups, professional groups, sector-level extension officers, youth, elderly, disabled population, women, students, etc.)

1.9 Developed Cyclone Preparedness Plan (CPP), raised awareness at every coastal district and community level about the impending cyclone and storm surge being forecasted.

1.10 Developed Flood/flash flood/landslide/heavy rainfall Preparedness Plan, raised awareness for vulnerable communities about the impending flood, heavy rainfall, and flash floods are being forecasted.

1.11 Enhanced SoDMA capacity in disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation, and reconstruction.

1.12 Improved Community-based early warning capacity and community-led DRR ,CCA, NbS, NbA, LLA practices are improved

1.13 The community-level volunteering network for emergency preparedness and Response mechanisms and the frontline community's post-disaster livelihood are being improved.

1.14 Improved SoDMA /Local Government technical and operational disaster repose framework of action and interventions at the local level

1.15 Disaster risk finance framework for national and subnational level Developed and disaster risk finance mobilization efforts being facilitated.

1.16 Developed and mandated actionable Disaster Risk Management (DRM) Framework and sector-level plan for better stakeholder coordination and community-based DRM services

1.17 Developed and mandated an actionable coherent sector level actionable disaster preparedness, response, and recovery framework and sector department are well coordinated to Disaster

1.18 SoDMA has a disaster Emergency Preparedness Framework, actionable plan, and mandates:

1.19 SoDMA and Local government led DRR/CCA/NbS/NbA/LLA coordination framework.

1.20 Strengthened stakeholder, CPC/DMC/Taskforce and community multi-hazard preparedness Capacity:

1.21 Developed Disaster Response plan and stakeholder & community engagement plans in disaster preparedness and response

1.22 Developed Disaster Recovery and Prevention Framework and action plan

1.23 Developed disaster risk financing framework :

1.24 Developed Sector-level DRR/CCA/NbS/NbA/LLA plan :

3.4.4 Work Plan for Pillar 4 (Preparedness, timely responses and early actions)

SL	Milestone	Timeline																									Responsibility		Budget USD / LCU	Budget Source
		2024	2025				2026				2027				2028				2029				2030				Lead	Support		
		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
1.	**Improved Crisis response management governance system at national, federal state, state, district and village level**		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓		IFRC, REAP OCHA, FAO, WFP	OPM, MoHADM, SoDMA, DMA UN Agency, HCT, UN Clusters, CSOs -National NGOs Consortium, International NGOs Consortium, IGAD-ICPAC, African Risk Capacity (ARC)		UNDP, GCF, SIDA, ECHO, DIFD, USAID EU GCA,
2.	Disaster preparedness for early action, effective response, and recovery actions are improved	▓	▓	▓																							As above	As above		
3.	Actionable Disaster Risk Management Policy, Laws, mandates, and Strategies are in place, stakeholde coordination improved	▓	▓	▓	▓																						As above	As above		
4.	Governance structure established for coherent coordination between national, Federal, State and District and local levels		▓	▓	▓	▓																					As above	As above		
5.	Established a cross-sectoral DRM g key institutions are engaged in DRM process		▓	▓	▓	▓	▓																				As above	As above		
6.	Strengthened sector ministry and duty bearer capacity in multi-hazard risk informed preparedness and response, recovery, prevention and rehabilitation planning, intervention design and implementation process.		▓	▓	▓	▓	▓	▓	▓	▓																	As above	SoDMA, DMA UN Agency, HCT, UN Clusters, CSOs -National NGOs Consortium , International NGOs Consortium, IGAD-ICPAC, African Risk Capacity (ARC)		
7.	Disaster Preparedness for Early Action, effective response, and recovery improved		▓	▓	▓	▓	▓	▓	▓	▓																	As above	As above		
8.	Enhanced SoDMA capacity in forecast-based early action planning and response management at the local level		▓	▓	▓	▓	▓	▓	▓	▓																	As above	As above		
9.	Disaster preparedness measures, including response plans, developed in a participatory and gender-responsive manner.		▓	▓	▓	▓	▓	▓	▓	▓	▓																As above	As above		
10.	Established civil protection committee (CPC)/ Disaster Management Committee (DMC) at City, Municipality, Urban Center, Town, Village, and Community level committees (Represented by Different age groups, professional groups, sector-level extension officers,		▓	▓	▓	▓	▓	▓	▓	▓	▓																			

SL	Milestone	Timeline																									Responsibility		Budget USD / LCU	Budget Source
		2024	2025				2026				2027				2028				2029				2030				Lead	Support		
		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
	youth, elderly, disabled population, women, students, etc.)		█	█	█	█	█	█	█	█																				
11.	**Strengthen the last-mile disaster preparedness capacity of stakeholders and community**		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	As above	As above		
12.	Improved Government DRM preparedness and response, multi-stakeholder coordination, Structure, and process for crisis response management at the local level strengthened		█	█	█	█	█	█	█	█	█																As above	As above		
13.	Enhanced SoDMA capacity in gender responsive disaster preparedness for effective response and to "Build Back Better" in recovery, rehabilitation, and reconstruction.		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█					As above	As above		
14.	Disaster preparedness measures, including preparedness, response, and forecast-based contingency plans, were developed in a participatory and gender-responsive mannered		█	█	█	█	█	█	█	█																	As above	As above		
15.	Improved community-level volunteering network for emergency preparedness and response mechanism (gender participatory)		█	█	█	█	█	█	█	█																	As above	As above		
16.	Enhanced SoDMA and Local Government sectoral DRM/DRR capacity at the local level		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█					As above	As above		
17.	Emergency preparedness plan informed by Impact Based Forecasting & Warning Services (IBFWS)		█	█	█	█	█	█	█	█																	As above	As above		
18.	Community access to Impact-Based Forecasting & Warning Services (IBFWS) for emergency preparedness		█	█	█	█	█	█	█	█																	As above	As above		
19.	Improved Community-based early warning capacity and community understandability of impending multi-hazards		█	█	█	█	█	█	█	█																	As above	As above		
20.	The capacity to prepare, and understand warning messages and take early action is enhanced		█	█	█	█	█	█	█	█																	As above	As above		
21.	**Improved last-mile disaster preparedness capacity**		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	As above	As above		
22.	Improved SoDMA /Local Government technical and operational disaster repose framework		█	█	█	█	█	█	█	█																	As above	As above		
23.	Improved community-level volunteering network for emergency preparedness and response mechanism		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	As above	As above		
24.	Strengthened public-private partnerships for enhancing technical and financial capacities of forecast-based community preparedness to impending multi-hazards & disaster		█	█	█	█	█	█	█	█	█																As above	As above		

SL	Milestone	2024 Q4	2025 Q1	Q2	Q3	Q4	2026 Q1	Q2	Q3	Q4	2027 Q1	Q2	Q3	Q4	2028 Q1	Q2	Q3	Q4	2029 Q1	Q2	Q3	Q4	2030 Q1	Q2	Q3	Q4	Lead	Support	Budget USD / LCU	Budget Source
25.	Prepared Cyclone Preparedness Plan (CPP), raised awareness at every coastal district and community level about cyclone & storm surge		█	█	█	█	█	█	█	█																	As above	As above		
26.	Increased community awareness and capacity to respond to early warnings through simulations, drills, and educational campaigns		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	As above	As above		
27.	Improved community-level volunteering network for emergency preparedness and Response mechanism, and the frontline communities' post-disaster livelihood is being built better.		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█				
28.	Improved access for women to Gender in Humanitarian Action(GiHA)		█	█	█	█	█	█	█	█																	As above	As above		
29.	Improved stakeholder Coordination and partnership in Preparedness and Response management		█	█	█	█	█	█	█	█																	As above	As above		
30.	Disaster Preparedness for Early Action, effective response and recovery improved		█	█	█	█	█	█	█	█																	As above	As above		
31.	Improved community-based early warning capacity and community led DRR ,CCA, NbS, NbA, LLA practices are improved		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	As above	As above		
32.	Develop a disaster risk finance framework for the national and subnational level		█	█	█	█	█	█	█	█																	As above	As above		
33.	Improved risk-informed local level (District/Village/Community) DRR/CCA/NbS planning and budgeting capacity		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	As above	As above		
34.	**Improved last-mile disaster response capacity**		█	█	█	█	█	█	█	█																	As above	As above		
35.	Standardized planning and response protocols were developed.		█	█	█	█	█	█	█	█																	As above	As above		
36.	Activated Standardized response protocols, trained emergency response teams, and coordinated with partners		█	█	█	█	█	█	█	█																	As above	As above		
37.	Develop disaster risk finance framework for national and subnational level		█	█	█	█	█	█	█	█																	As above	As above		
38.	**Enhance last-mile community resilience to disaster**		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	As above	As above		
39.	**Improved Community based early warning capacity**		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█				
40.	Enhanced community/household-based to DRR/CCA/NbS scheme implementation capacity		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	As above	As above		
41.	**Established disaster risk finance farmwork for DRR**		█	█	█	█		█																			As above	As above		
42.	Enhanced disaster preparedness and humanitarian action capacity (Methodology tools and guidelines on		█	█	█	█	█	█	█	█																	As above	As above		

SL	Milestone	Timeline																									Responsibility		Budget USD / LCU	Budget Source
		2024	2025				2026				2027				2028				2029				2030				Lead	Support		
		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4				
	Early Action Protocol (EAP) , Forecast early action /Humanitarian Action, Forecast-based financing (FBF) at sector level, national and local level (Gender inclusive)		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓																
43.	**Established climate risk finance gender-responsive farmwork for DRR ,CCA, NbS, NbA, LLA practices**		▓	▓	▓	▓	▓	▓																			As above	As above		
44.	**Developed and mandated actionable coherent sector-level disaster preparedness, response and recovery framework and the sector departments are well coordinated to disasters**		▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓	▓																

4.0 Monitoring & Evaluation Plan of EW4ALL Pillars

Pilar	Goal	Milestone (2024-2030)	Baseline	Target Value	Means of Verification	Frequency	Responsible entities	Reporting (where will be reported
Pillar1	**By 2027, a comprehensive and automated disaster risk information and knowledge base will be available and constructed for all dimensions of disaster risk, including hazards, exposure, vulnerability, and capacity at household, community, and organizational levels.**							
Pillar1		Rolled out UNDRR-DesInventar online L & D tracking system as the national repository		100% Sector interactively accessing and providing L & D dataset to DesInventar of the L & D statistics/attributes	% of authorized actors/stakeholders utilizing the new prototype of the online DesInventar database	Quarterly	SoDMA, UNDRR	SoDMA
Pillar1		Strengthened institutional capacity in vulnerability assessment (VAC)		100% of stakeholders having Vulnerability assessment capacity	a) % of stakeholders, entities, and actors received VAC training b) % of stakeholders, entities, and actors conducted vulnerability assessment (VA)	Quarterly		
Pillar1		VAC was conducted at the Urban center, District, Village, and community levels, and a risk repository was developed; frontline risk knowledge was enhanced & analyzed, historical data was evaluated, and potential future risks were assessed		100% entities/Local Govt. units targeted by 207/2030	VA conducted % of local entities	Quarterly		
Pillar1		Enhanced institutional capacity in ICT/MIS /Geospatial tools-based data analysis and tailormade risk integration in decision-making. Hazard maps (dynamic and multi-hazard, when possible) are developed that identify the geographical areas/people that could be affected by hazards		GIS/MIS/ICT tools installed above 100% entities by 207/2030	• % entities having GIS//MIS/ICT setup • Types of tools being developed	Quarterly		
Pillar1		Improved multi-hazard/Disaster Risk information management Governance system at SoDMA and other sector-level		100% of sector departments having a Disaster risk information system/database by 207/2030	% sector department having Disaster risk information system/database	Quarterly		
Pillar1		Strengthened sector-level capacity in multi-hazard risk knowledge management, and Climate impact projections are developed		100% of the sector, departments developed a Disaster risk Atlas	% sector department having Disaster risk atlas	Quarterly		
Pillar1		Strengthened the capacity of state and non-state actors for sector-level operational data analysis and informed tools development capacity		100% sector department /stockholders capturing hazard risk data and developing informed tools for monitoring of sectoral elements	% sector department /stockholders capturing hazard risk data and developing informed tools for monitoring of sectoral elements	Quarterly		
Pillar1		Established decentralized SADD and disaggregated data collection mechanism and enhanced risk knowledge repository		Enhanced capacity above 100% sector department /stockholders on SADD & disaggregated data	% sector department /stockholders capturing SADD & disaggregated	Quarterly		

Pilar	Goal	Milestone (2024-2030)	Baseline	Target Value	Means of Verification	Frequency	Responsible entities	Reporting (where will be reported)
				collection and enhanced risk knowledge repository	data and capability on developing risk-repository			
Pillar1		Strengthened stakeholder partnership in risk data & information coordination and exchange mechanism and Improved early warning information exchange and interoperability among institutions		100% sector department /stockholders networked and partnered for risk-information coordination and exchange mechanism of the vulnerable sectors e.g., agri-food sector- crops, livestock, forestry, fisheries, aquaculture for top 5 hazards (hazards responsible for 90% of past L&D in the sector)	% sector department /stockholders networked and partnered for risk-information coordination and exchange mechanism	Quarterly		
Pillar1		Vulnerable communities and stakeholders have access to the online geospatial risk atlas portal and attribute database management system in Somalia		100% of sector departments/stockholders utilize the NMHEWC-developed online geospatial risk atlas portal and attribute database management system, with contents on local, indigenous, and traditional knowledge (LITK) integrated for Somalia	% sector department /stockholders utilizing online geospatial risk atlas portal and attribute database management system for Somalia	Quarterly		
Pillar1		Established a tailored risk repository data hub for informing decisions, strategy, planning & implementation of DRR, NAP, NbS (Nature-based solution), locally led solutions, WASH, Health, Food Security, and Livelihood Security related projects		100% of sector departments/stockholders accessing risk repository data hubs	% sector department /stockholders accessing risk repository data hubs	Quarterly		
Pillar2	**By 2027 capacity for weather observation, detection, monitoring and forecasting of major hazards and analysis of their potential impacts enhanced and optimized**							
Pillar2		Installed & operational robust Automatic Weather System (AWS) complying with Global Basic Observing Network (GBON) standards		High-density GBON standards AWS installed over the high-value elements for point forecasting and warning	% high value elements covered under AWS, observed and provided point forecasting and warning for saving lives and assets	Quarterly		
Pillar2		Installed the Situation Room at NMHEWC, Operational for robust service delivery		Full-scale implementation of the Situation Room at NMHEWC and supported observation, hazard tracking, monitoring, and forecasting	% sector department /stockholders / vulnerable community being warned by the situation room developed impact forecasts	Quarterly		
Pillar2		Forecasting data acquisition of Essential Climate Variables (ECVs) from AWS instrumentalized		High-density AWS is able to capture ECVs	% geographic extent of areas being buffered by the AWS surveillance	Quarterly		
Pillar2		Established a linkage with the regional specialized meteorological center.		The NMHEWC Situation Room/EOC has access to all WMO regional specialized meteorological centers.	The number of WMO regional RSMC/RCC are linked with the Situation Room/EOC.	Quarterly		

Pilar	Goal	Milestone (2024-2030)	Baseline	Target Value	Means of Verification	Frequency	Responsible entities	Reporting (where will be reported
Pillar2		Established accessibility to real-time satellite-based atmosphere observation systems by installation of PUMA 2025, MeteoSat and Enhanced NMHEWC meteorological and hydrological Monitoring capability		Situation room/NMHEWC has a satellite linkage with EUMETCast satellites	Number of regional satellite links, weather images, and dataset are being accessed by the Situation room/NMHEWC /EOC	Quarterly		
Pillar2		Enhanced NMHEWC Data Analysis & Forecasting capability		Capacity of NMHEWC Data Analysis & Forecasting capability	Products and services being produced by EOC/Situation Room	Quarterly		
Pillar2		Established & Functional Environmental Monitoring Division		Capacity of NMHEWC in Environmental Monitoring	Types and number of forecast products for Environmental Monitoring	Quarterly		
Pillar2		Established & functional forecasting Division		Capacity of NMHEWC in the different range forecasting	Types and number of range forecasting products bulletin, outlook produced	Quarterly		
Pillar2		Established & Functional Agro-climatology Division		Capacity of NMHEWC in Environmental Monitoring	Types and number of forecast products for Environmental Monitoring	Quarterly		
Pillar2		Established & Functional Numerical Weather Prediction (NWP) & Climate Division		Capacity of NMHEWC in Numerical Weather Prediction(NWP) & Climate Monitoring	Types and number of Numerical Weather Prediction(NWP) products bulletin, outlook produced	Quarterly		
Pillar2		Established & Functional: Establish impact forecasting Division		Capacity of NMHEWC in impact forecasting	Types and number of impact forecasting products bulletin, outlook produced	Quarterly		
Pillar2		Established a functional Flood Forecasting and Warning Center (FFWC)		Capacity of NMHEWC in FFWC activation	Performance report on FFWC	Quarterly		
Pillar2		Established a functional storm monitoring and warning center		Capacity of NMHEWC in storm monitoring and warning	Performance report on Effectiveness, efficacy and performance of storm monitoring and warning services	Quarterly		
Pillar2		Established & Functional Famine Early Warning Division:		Capacity of NMHEWC in Famine early warning	Performance report on the Effectiveness, efficacy, and performance of the Famine Early Warning	Quarterly		
Pillar2		Established & Functional drought monitoring system		Capacity of NMHEWC in Environmental Monitoring	Performance report on Effectiveness, efficacy and performance of the Famine early warning	Quarterly		
Pillar2		Established a functional Livestock monitoring division		Capacity of NMHEWC in Livestock Monitoring & Forecasting	Performance report on Effectiveness, efficacy and performance of Famine early warning	Quarterly		
Pillar2		Early Warning data collection, analysis, and exchange modalities among federal line		Capacity of NMHEWC in forecast coordination	Performance report on Effectiveness, efficacy and	Quarterly		

Pilar	Goal	Milestone (2024-2030)	Baseline	Target Value	Means of Verification	Frequency	Responsible entities	Reporting (where will be reported
		ministries/ sectorial offices and regional bodies harmonized &strengthened.			performance of the Famine Early Warning			
Pillar2		Enhanced capacity in integrated multi-hazard early warning system (MHEWS) for rapid onset multi-hazards -weather warning Common alerting protocol, Storm warning		The capacity of NMHEWC in the development of integrated multi-hazard early warning system (MHEWS) for rapid onset multi-hazard -weather warning Common alerting protocol, Storm warning	Performance report on Effectiveness, efficacy and performance of integrated multi-hazard early warning system (MHEWS) for rapid onset multi-hazards -weather warning Common alerting protocol, Storm warning	Quarterly		
Pillar2		Established & Functional National Meteorological and Hydrological Services (NMHSs) Unit & capability of impact-forecasting products and bulletin/outlook services for the sectors		Full-scale engagement of all sectoral experts in NMHSs in impact forecasting	Performance report on the Effectiveness, efficacy and performance of NMHSs' developed products and services	Quarterly		
Pillar2		Established & Functional National Meteorological and Hydrological Services (NMHSs) Unit at NMHEWC and developed impact-forecasting products and bulletin/outlook services:		Capacity of NMHEWC in NMHSs in impact forecasting	Performance report on the Effectiveness, efficacy and performance of NMHSs' developed products and services	Quarterly		
Pillar2		Strengthened institutional programmatic capacity in the installation of high-density weather observation, hazard, and climate monitoring and prediction, numerical weather prediction (NWP), short-range forecast modeling, and weather impact forecasting for the sector and community level.		Capacity of NMHEWC in Forecast Value Chain Development	Performance report on the Effectiveness, efficacy, and performance of forecast value chain being developed	Quarterly		
Pillar2		Enhanced NMHEWC capacity in demand-driven weather forecasts, outlook, and bulletin for the sectors and community.		NOEC produced Sufficient demand-driven weather forecasts, outlooks, and bulletins for the sectors and community.	Type and number of demand-driven weather forecasts, outlooks, and bulletins for the sectors and community.	Quarterly		
Pillar2		Early warning data automation, modeling, and forecasting among sectorial offices harmonized and improved.		Capacity of NMHEWC in the development of the meteorological model	Performance report on Effectiveness, efficacy, and performance of storm monitoring and warning services	Quarterly		
Pillar2		Early warning information exchange and interoperability among early warning sectors improved		Capacity of NMHEWC in Early warning information exchange and interoperability	Performance report on Effectiveness, efficacy, and performance of Early warning information exchange and interoperability	Quarterly		
Pillar3	**By 2027, effective communication and dissemination systems (including the development of last mile/end user connectivity) improved, deployment of MHEWS, people exposed to risk receive advance warnings through information dissemination channels made at national, regional, and/or District levels.**							

Pilar	Goal	Milestone (2024-2030)	Baseline	Target Value	Means of Verification	Frequency	Responsible entities	Reporting (where will be reported
Pillar3		Governance, functions, roles, and responsibilities of each actor in the warning dissemination process are enforced through government policy or legislation at all levels and included in the warning communication strategies and standard operating procedures.		Actionable policies and strategies are being implemented and utilized for effective warning communication and standard operating procedures.	Number of stakeholders who adopted SOP	Quarterly		
Pillar3		Infrastructure GBON standard observation networks and EW dissemination services, and equipment are in place and functional		Robust surface observations are operational	The number of Robust surface observations is operational	Quarterly		
Pillar3		Established early warning communication and dissemination strategies, actionable policy and strategies and SOP		The risk communication and dissemination system is being standardized by SoP	Performance of SoP	Quarterly		
Pillar3		Formulated an Effective EW Information Communication and Dissemination implementation plan		Successfully implemented the Effective EW Information Communication and Dissemination implementation plan for facilitating risk communication	% of local stakeholders having access to risk communication	Quarterly		
Pillar3		Activation of the national early warning dissemination & common alerting protocol (CAP) protocol.		Full-scale implementation of CAP for public alerts is being accessed by 100% of the population	% population having access to CAP	Quarterly		
Pillar3		Activated Early Warning (EW) sirens and loudspeaker systems are installed at villages and communities, and are automatically alarmed		Full-scale implemented Early Warning (EW) sirens and loudspeaker systems in villages and communities are alarmed automatically, and more than 80 % get warned by the siren	% population having access to sirens and loudspeaker systems	Quarterly		
Pillar3		Established National Media Monitor at NMHEWC		Functional Media Monitor at NMHEWC	Media Monitor at NMHEWC performance report	Quarterly		
Pillar3		MHEWC has access to the Rapid Alert Notification System for rapid-onset disasters		Full-scale implementation of MHEWC for accessibility to the Rapid Alert Notification System for rapid onset disasters	MHEWC performance report	Quarterly		
Pillar3		Developed an Early Action Protocol (EAP) hub at the Situation Room of SoDMA to immediately plan forecast-based early action and contingency mobilization to support emergency humanitarian actions.		Full-scale implementation of the Early Action Protocol (EAP) hub at the Situation Room.	Number of Early Action Protocols (EAP)	Quarterly		
Pillar3		State-of-the-art communication and dissemination systems enhance and support public awareness, mindset, and understanding of warning messages and early actions.		100% of the Population has awareness, mindset, and understanding of warning messages in the local language	% Population having awareness, mindset, and understanding of warning messages in the local language	Quarterly		

Pilar	Goal	Milestone (2024-2030)	Baseline	Target Value	Means of Verification	Frequency	Responsible entities	Reporting (where will be reported
Pillar3		Early Warning communication strategies and standard operating procedures (SOPs) established for governance, functions, roles, and responsibilities for early warning information, communication, and dissemination		Full-scale implemented Early Warning communication strategies and standard operating procedures (SOPs)	Warning communication strategies and standard operating procedures (SOPs)	Quarterly		
Pillar3		Installed comprehensive functional infrastructure networks and early warning dissemination services and equipment		Functional early warning dissemination services and equipment	Performance review monitoring report	Quarterly		
Pillar3		People-centered EW4ALL through local networks.		100% of the population has access to EW4ALL through local networks.	% population having access to EW4ALL through local networks.	Quarterly		
Pillar3		Multi-lingual warning messages customized and disseminated to target language-specific zones via SMS, Cell broadcast, IVR, Radio/TV		100 % of the population has access to EW messages in their own languages	% population having access to EW messages in their own languages	Quarterly		
Pillar3		Agreed consensus /MoU between the Ministry of Communication, broadcasters, Somalia News Network, National Communications Authority, National AM Radio, National TV, licensed MNOs, licensed private broadcasters (Community radio/Private TV), etc., for mandating disaster emergency bulletin broadcasting every 15/30/60 minutes during the onset of cyclones and floods.		Agreed consensus /MoU between the Ministry of Communication, broadcasters, Somalia News Network, National Communications Authority, National AM Radio, National TV, licensed MNOs, licensed private broadcasters (Community radio/Private TV), etc., for bridging the last-mile dissemination gap	Agreed consensus /MoU	Quarterly		
Pillar3		Early warning, dissemination of multi-lingual alerting, use of existing global networks, and increased capacities for emergency alerting		Early warning is being developed in all local languages	Number of local language messages	Quarterly		
Pillar3		Enhanced capacity of NMHEWC-dissemination hub in developing every weather warning bulletin for broadcasting through hybrid dissemination channel		Full scale NMHEWC/Situation room capacity in the development of every weather warning bulletin for broadcasting through hybrid dissemination channel	Type of weather warning bulletin for broadcasting through hybrid dissemination channel	Quarterly		
Pillar3		MoU between National Communications Authority to Mandate Cellphone, PSTN, and other private channels to develop a BTS/HLR zonation-based local language-based push SMS, classified IVR, and Cell broadcast benignly accessed by cell phone users.		Agreed consensus /MoU between National Communications Authority to Mandate Cellphone, PSTN, and other private channels to develop a BTS/HLR zonation-based local language-based push SMS, classified IVR, and Cell broadcast benign accessed by cell phone users.	Types of Consensus/MoU	Quarterly		
Pillar3		Enhanced SoDMA capacity in developing Impact-based early warnings and being		NMHEWC full capacity in Impact-based forecast products and being	Types and numbers of Impact-based forecast products and being	Quarterly		

Pilar	Goal	Milestone (2024-2030)	Baseline	Target Value	Means of Verification	Frequency	Responsible entities	Reporting (where will be reported
		communicated effectively to trigger anticipatory action.		communicated effectively to trigger anticipatory action.	communicated effectively to trigger anticipatory action.			
Pillar3		Risk communication Strategy developed and is functional		Types and number of Robust strategies on Risk communication products, bulletin, outlook, and Strategy developed	Types and number of Robust strategies on Risk communication products, bulletin, outlook, and Strategy developed	Quarterly		
Pillar3		All priority hazards are communicated and disseminated according to the specific needs of specific groups, and all diverse groups of the population at risk (including women, the elderly, and people with disabilities living in cities or rural areas) are provided with warning services		Types and number of demand-driven forecasting products developed by NMHEWC	Types and number of demand-driven forecasting products developed by NMHEWC	Quarterly		
Pillar3		Increased national capabilities for effective emergency alerting for all media and all hazards.		All news broadcasters and news agencies effectively communicated/disseminated warnings to the masses	Types and number of broadcasters and news agencies effectively communicated/disseminated warnings to the masses	Quarterly		
Pillar 4	**By 2030, the roadmap visualizes enhanced and stronger institutional capabilities for forecast-based emergency preparedness and response mechanisms in place**							
Pillar 4		**Improved Crisis response management governance system at the national and sub-national level**		• SoDMA extended to 60% Districts • 100% District administration having capacity in DRM/DRR • 100% Districts having the capacity to develop disaster preparedness and response plan	• DRM/DRR/CCA Plan • Number of districts having disaster preparedness and response plan	Quarterly	SoDMA Sector Department at the District level	MoHADM
Pillar 4		Signed draft MoU with key national stakeholders		90% stakeholder/local development actors / humanitarian actors having the capability to develop forecast disaster preparedness and response, DRR/CCA action	% stakeholder/local development actors / humanitarian actors having the capability to develop forecast disaster preparedness and response, DRR/CCA action	Quarterly		
Pillar 4		Actionable Disaster Risk Management Policy, Laws, mandates, and Strategies are in place, stakeholder's coordination improved		100% stakeholder/local development actors / humanitarian being mandated and accountable to emergency preparedness and response mechanism	% stakeholder/local development actors / humanitarian being mandated and accountable to the emergency preparedness and response mechanism	Quarterly		
Pillar 4		Risk Management governance structure established for coherent coordination between national, regional, and local levels for the implementation of DRM/DRR/CCA/ NbS interventions at the local level		100% stakeholder/local development actors / humanitarian being mandated and accountable to implement DRM/DRR/CCA/ NbS interventions at local level	% stakeholder/local development actors / humanitarian being mandated and accountable to implement DRM/DRR/CCA/ NbS interventions at local level	Quarterly		

Pilar	Goal	Milestone (2024-2030)	Baseline	Target Value	Means of Verification	Frequency	Responsible entities	Reporting (where will be reported
Pillar 4		Established a cross-sectoral DRM governance structure key institutions are engaged in DRM process		100% sector department in coordination loop	Above 100% sector department in coordination loop	Quarterly		
		Developed and mandated actionable coherent sector level actionable disaster preparedness, response and recovery framework and sector department are well coordinated to Disaster		100% actionable disaster preparedness, response and recovery framework and sector department are well coordinated to Disaster	Above 100% sector department in coordination loop	Quarterly		
Pillar 4		Improved capacity of actors/stakeholders in developing local risk regimes and landscape context-specific preparedness and response plans to encompass pre-, during, and post-disaster phases from prevention to recovery and rehabilitation.		100% organization /stakeholder /actors having capacity in developing local risk regime & landscape context-specific preparedness and response plans to encompass pre-, during, and post-disaster phases from prevention to recovery and rehabilitation.	% organization /stakeholder /actors having capacity in developing local risk regime & landscape context-specific preparedness and response plans to encompass pre-, during, and post-disaster phases from prevention to recovery and rehabilitation.	Quarterly		
		Strengthened sector ministry and duty bearer capacity in multi-hazard risk informed preparedness and response, recovery, prevention and rehabilitation planning, intervention design and implementation process.		100% sector ministry and duty bearer capacity in multi-hazard risk-informed preparedness and response, recovery, prevention, and rehabilitation planning, intervention design, and implementation process is increased.	% sector ministry and duty bearer capacity in multi-hazard risk-informed preparedness and response, recovery, prevention, and rehabilitation planning, intervention design, and implementation process is increased.	Quarterly		
Pillar 4		Enhanced capacity of stakeholders/actors in developing Forecast based Disaster Preparedness, planning anticipatory Early Action, effective response, and recovery improved		100% organization /stakeholder /actors' capacity in developing Forecast Disaster Preparedness, Planning anticipatory Early Action, effective response and recovery	% organization /stakeholder /actors' capacity in developing Forecast Disaster Preparedness, Planning, anticipatory Early Action, effective response, and recovery	Quarterly		
Pillar 4		Enhanced SoDMA capacity in forecast-based early action planning and response management at the local level		Full-scale SoDMA forecast deliverability capacity	Full-scale SoDMA forecast deliverability capacity	Quarterly		
Pillar 4		Disaster preparedness measures, including response plans, developed in a participatory and gender-responsive manner.		100% sector-level DRM/DRR/CCA plans are being developed in an inclusive participatory way and gender-responsive	% sector-level DRM/DRR/CCA plans are being developed in an inclusive participatory way, and gender-responsive	Quarterly		
Pillar 4		**Strengthen last-mile disaster preparedness capacity of stakeholder and community**		100% local actors/stakeholders/CPC/DMC/ CSOs last-mile able to develop support local emergency preparedness and response	% local actors/stakeholders/CPC/DMC/ CSOs last-mile able to develop support local emergency preparedness and response	Quarterly		

Pilar	Goal	Milestone (2024-2030)	Baseline	Target Value	Means of Verification	Frequency	Responsible entities	Reporting (where will be reported
Pillar 4		Improved Government Coordination Structure of crisis response		% government sector departments are well coordinated with NMHEWC and Situation room for interactive risk communication	% government sector departments are well coordinated with NMHEWC and Situation room for interactive risk communication.	Quarterly		
Pillar 4		Improved community level volunteering network for **last-mile disaster preparedness capacity** and response mechanism (gender participatory)		% 100 villages and communities are being supported by community volunteering services to get them prepared for tackling impending hazards in a timely manner.	% villages and communities are being supported by community volunteering services to get them prepared for tackling impending hazards in a timely manner.	Quarterly		
Pillar 4		Improved SoDMA, Local Government, Local level DMC/CPC capacity on Multi-hazard/Disaster Crisis response		% 100 villages and communities are being supported DMC/CPC for managing disaster crisis response	% villages and communities are being supported by DMC/CPC for managing disaster crisis response	Quarterly		
Pillar 4		Enhanced SoDMA and Local Government sectoral Risk-informed DRM/DRR service delivery capacity at the local level		100% Local Government and Sector Department, SoDMA having Risk-informed DRM/DRR service delivery capacity at the local level	% Local Government and Sector Department, SoDMA having Risk-informed DRM/DRR service delivery capacity at the local level	Quarterly		
Pillar 4		Emergency preparedness plan informed by Impact Based Forecasting & Warning Services (IBFWS)		100% Local Governments and Sector Department, SoDMA having Risk-informed Emergency preparedness planning capacity at the local level	% Local Government and Sector Department, SoDMA has a Risk-informed Emergency preparedness planning capacity at the local level	Quarterly		
Pillar 4		Community access to Impact Based Forecasting & Warning Services (IBFWS) for emergency preparedness		100% frontline community and having access to IBFWS for emergency preparedness planning and response services	% frontline community and having access to IBFWS for emergency preparedness planning and response services	Quarterly		
Pillar 4		Improved Community-based early warning capacity and community understandability of impending multi-hazards and enhanced Capacity to prepare and understand warning messages and take early action are enhanced		100% frontline community having an understanding of impending multi-hazards	% frontline community having an understanding of impending multi-hazards	Quarterly		
Pillar 4		Improved community-level volunteering network for emergency preparedness and response mechanism		100% frontline community having an understanding of impending multi-hazards	% frontline community having an understanding of impending multi-hazards	Quarterly		
Pillar 4		Strengthened public-private partnerships for enhancing technical and financial capacities of forecast-based community preparedness for impending multi-hazards & disaster		100% local private sectors/entrepreneurs/service providers/value operators being partnered with other stakeholders/actors for enhancing the technical and financial capacities of forecast-based community preparedness to impending multi-hazards & disaster	% local private sectors/entrepreneurs/service providers/value operators being partnered with other stakeholders/actors for enhancing technical and financial capacities of forecast-based community preparedness to impending multi-hazards & disaster	Quarterly		

Pilar	Goal	Milestone (2024-2030)	Baseline	Target Value	Means of Verification	Frequency	Responsible entities	Reporting (where will be reported
Pillar 4		Prepared Cyclone preparedness Plan (CPP), raised awareness at every coastal district and community level about cyclone & storm surge		SoDMA /local stakeholder established CPP volunteers for supporting cyclone preparedness and response	SoDMA /local stakeholder established CPP volunteers for supporting cyclone preparedness and response	Quarterly		
Pillar 4		Increased community awareness and capacity to respond to early warnings through simulations, drills, and educational campaigns		Enhanced capacity , awareness of %100 of households having emergency evacuation and preparedness drill	Enhanced capacity , awareness of %of households having emergency evacuation and preparedness drill	Quarterly		
Pillar 4		Improved access women to Gender in Humanitarian Action(GiHA)		100% women led organization inclusivity with GiHA	% women-led organization inclusivity with GiHA	Quarterly		
Pillar 4		Established climate risk finance gender responsive farmwork for DRR ,CCA, NbS, NbA, LLA practices		100% frontline community having an understanding of household-level implementation of subsistent DRR ,CCA, NbS, NbA, LLA schemes.	% frontline community having understanding of household-level implementation of subsistent DRR ,CCA, NbS, NbA, LLA schemes.	Quarterly		
Pillar 4		Develop disaster risk finance framework for district and village level (SMEs, Green banking, credit facility, cash for work, cash grants etc.)		Persistent disaster risk finance framework and inclusive risk finance mechanism for BBB and community resilience	Persistent disaster risk finance framework and inclusive risk finance mechanism for BBB and community resilience	Quarterly		
Pillar 4		Improved risk-informed local level (District/Village/Community) DRR/CCA/NbS planning and budgeting capacity		100 % local stakeholders, CSOs having capacity in Risk-informed community-based DRR/CCA/NbS planning and budgeting and enhanced capacity to disaster	% local stakeholders, CSOs having capacity in Risk-informed community based DRR/CCA/NbS planning and budgeting and enhanced capacity to disaster	Quarterly		
Pillar 4		Standardized planning and response protocols were developed.		100 % local stakeholders, CSOs having capacity in Risk-informed community-based Standardized planning and response protocols were developed.	% local stakeholders, CSOs having capacity in Risked informed community based Standardized planning and response protocols were developed.	Quarterly		
Pillar 4		Activated Standardized response protocols, trained emergency response teams, and coordinated with partners		100 % local stakeholders, CSOs having capacity in developing Standardized response protocols, emergency response teaming, coordinated response to disaster	% local stakeholders, CSOs having capacity in developing Standardized response protocols, emergency response teaming, coordinated response to disaster	Quarterly		
Pillar 4		Enhanced disaster preparedness and humanitarian action capacity (Methodology tools and guidelines on Early Action Protocol (EAP) , Forecast based early action /Humanitarian Action,		100 % local stakeholders, CSOs having the capacity for humanitarian action capacity	% local stakeholders, CSOs having capacity humanitarian action capacity	Quarterly		
Pillar 4		Enhanced SoDMA, stakeholders/actors' capacity on mobilizing the Forecast-based financing (FBF) instrumenting at the sector level, national and local level		100 % local stakeholders, CSOs having capacity on mobilizing the Forecast-based financing (FBF) instrumenting at the sector level, national and local level	% local stakeholders, CSOs having capacity on mobilizing the Forecast-based financing (FBF) instrumenting at sector level, national and local level	Quarterly		

Pilar	Goal	Milestone (2024-2030)	Baseline	Target Value	Means of Verification	Frequency	Responsible entities	Reporting (where will be reported

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