DIAGNOSIS OF CAPACITIES TO MANAGE CLIMATE AND DISASTER RISK

2022

THE REPUBLIC OF





The CADRI Partnership is a global UN led partnership that works towards strengthening countries' capacities to pursue integrated and coherent solutions to reduce disaster and climate risks across the Sustainable Development Goals (SDGs).

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This report presents the findings and recommendations of the Diagnosis of National and Local Capacities to manage Disaster and Climate Risk in Ghana conducted in 2022. The analysis was subsequently complemented with additional technical inputs and updates collected until early 2024.

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Design: Caren Achieng

This report presents the findings and recommendations of the Diagnosis of National and Local Capacities to manage Climate and Disaster Risks in Ghana conducted in 2022 under the leadership of the Government represented by the National Disaster Management Organisation (NADMO), in close collaboration with the Office of the United Nations Resident Coordinator, with the support of the United Nations system in Ghana and the CADRI Partnership.

The recommendations presented in this document are the result of a triangulation of input from more than a hundred stakeholders from government, local authorities, civil society and the private sector during the diagnostic mission in October 2022.

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ABBREVIATIONS

Abbreviation	Full Form
AF	Adaptation Fund
AGI	Association of Ghana Industries
ΑΤΙ	Access to Information
CADRI	Capacity for Disaster Reduction Initiative
CCA	Climate change adaptation
CCU	Climate Change Unit
CDC	Centers for Disease Control and Prevention
CERSGIS	Centre for Remote Sensing and Geographic Information Services
CFSVA	Comprehensive Food Security and Vulnerability Analysis
CHRAJ	Commission on Human Rights and Administrative Justice
COVID-19	Coronavirus Disease 2019
CREW	Community Resilience through Early Warning
CSO	Civil Society Organization
CTCN	Climate Technology Centre and Network
CWSA	Community Water and Sanitation Agency
DA	District Assembly
DiSeC	District Security Council
DMC	Disaster Management Committees
DRF	Disaster Risk Funding
DRM	Disaster risk management
DRR	Disaster risk reduction
DVGs	Disaster Volunteer Groups
EbA	Eco-system Based Adaptation
ECOWAS	Economic Community of West African States
EIA	Environment impact assessment
EMU	Environmental Management Unit
ENRAC	Environmental and Natural Resources Advisory Council
ENRM	Environment and Natural Resources Management
EOC	Emergency Operation Centre
EPA	Environmental Protection Agency
EPR	Emergency preparedness and response
EPRP	Emergency Preparedness and Response Plan
EWS	Early Warning System
FAO	Food and Agriculture Organization
FASDEP II	Food and Agriculture sector development policy II

Abbreviation	Full Form
FSNMS	Food Security and Nutrition Monitoring System
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GFELTP	Ghana Field Epidemiology and Laboratory Training Programme
GHA	Ghana Highways Authority
GHG	Greenhouse Gas
GHS	Ghana Health Service
GIS	Geographic Information System
GOTA	Global Open Tracking Architecture
GMet	Ghana Meteorological Agency
GNFS	Ghana National Fire Service
GNHR	Ghana National Household Registry
GNPAP	Ghana National Plastic Action Partnership
GSS	Ghana Statistical Service
GWCL	Ghana Water Company Limited
HDI	Human development Index
HEDRM	Health Emergency and Disaster Risk Management
IAWGE	Interagency Working Group on Emergency
ICOUR	Irrigation Company of Upper East Region
ІСТ	Information and Communication Technology
IDSR	Integrated Disease Surveillance and Response
IHR	International Health Regulations
ILO	International Labour Organization
IMCC	Inter-Ministerial Coordinating Committee
INGO	International Non-Governmental Organization
INFORM	Index for Risk Management
ISD	Information Services Department
IWRM	Integrated Water Resource Management
JEE	Joint External Evaluation
KOICA	Korea International Cooperation Agency
LEAP	Livelihood Empowerment against Poverty
LUSPA	Land Use and Spatial Planning Authority
MDAs	Ministries, departments and agencies
MESTI	Ministry of Environment, Science, Technology, and Innovation
MiDA	Millennium Development Authority
MLGDRD	Ministry of Local Government, Decentralization & Rural Development
MMDAs	Metropolitan, Municipal and District Assemblies
ΜοΕ	Ministry of Education

Abbreviation	Full Form
MoFA	Ministry of Food and Agriculture
MoFEP	Ministry of Finance and Economic Planning
MoGCSP	Ministry of Gender, Children, and Social Protection
МоН	Ministry of Health
MoU	Memorandum of Understanding
MRH	Ministry of Road and Highways
MSWR	Ministry of Sanitation and Water Resources
MTEF	Mid Term Expenditure Framework
NADMO	National Disaster Management Organisation
NAP	National Adaptation Plan
NAPHS	National Action Plan for Health Security
NAS	National Ambulance Service
NCCAS	National Climate Change Adaptation Strategy
NCCP	National Climate Change Policy
NDC	Nationally Determined Contribution
NDF	National Disaster Fund
NDMC	National Disaster Management Committee
NDMP	National Disaster Management Plan
NDPC	National Development Planning Commission
NGO	Non-Governmental Organization
NHIS	National Health Insurance Scheme
NIC	National Insurance Commission
NNRERP	National Nuclear and Radiological Emergency Response Plan
NREG	Natural Resources and Environmental Governance
NSOP	National Standard Operating Procedures for Emergency Response
PEF	Private Enterprises Federation
PHEMCs	Public Health Emergency Management Committees
PHEOCs	Public Health Emergency Operations Centers
PSIA	Poverty and Social Impact Assessment
PWDs	People With Disabilities
RCO	Resident Coordinator's Office
RCPA	Réseau de Prévention et de Gestion des Crises Alimentaires (Food Crisis
	Prevention and Management Network)
RRT	Rapid Response Team
SDGs	Sustainable Development Goals
SGBV	Sexual and Gender Based Violence
SIMEX	Simulation exercise
SOPs	Standard operating procedures
SRID	Statistics, Research, and Information Directorate
SSNIT	Social security and national insurance trust

Abbreviation	Full Form
SWIMS	Social Welfare Information Management System
UGRS	Unified Grievance Redress System
UN	United Nations
UNCCA	United Nations Common Country Assessment
UNCCD	United Nations Convention to Combat Desertification
UNCDF	United Nations Capital Development Fund
UNCT	United Nations Country Team
UNDAC	United Nations Disaster Assessment and Coordination
UNDCAF	United Nations Development Cooperation Assistance Framework
UNDP	United Nations Development Fund
UNDRR	United Nations Office for Disaster Risk Reduction
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
UNFPA	United Nations Population Fund
UNHRD	United Nations Humanitarian Response Depot
UNICEF	United Nations Children's Fund
UNSDCF	United Nations Sustainable Development Cooperation Framework
US	United States
USAID	United States Agency for International Development
VRAM	Vulnerability and Risk Analyses and Mapping
WASH	Water, Sanitation and Hygiene
WFP	World Food Programme
WHO	World Health Organization
WinE TWG	WASH in Emergencies Technical Working Group
WRC	Water Resources Commission
WVI	World Vision International

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Photo: UNDP/Ghana

FOREWORD

This assessment report presents the outcomes of the capacity assessment carried out for Ghana in 2022. It provides a comprehensive overview of the national capacity for disaster risk reduction and resilience enhancement in Ghana.

In recent times, Ghana has faced a variety of disasters, with floods, fires, disease outbreaks, and other incidents being prevalent. The National Disaster Management Organization (NADMO), in collaboration with stakeholders, particularly from the United Nations Country Team (UNCT), is taking measures to establish a suitable framework for the Disaster Risk Reduction (DRR) strategy, leading to the commencement of this assessment process. This latest evaluation is conducted I2 years after the initial assessment in 2010. The report provides crucial insights regarding the challenges, obstacles and recommendations to enhance the country's DRR endeavors.

Broadening the scope of sectors under review, the analysis concentrated on agriculture, energy, environment, spatial planning and infrastructure, water sanitation and hygiene, health, social protection, with particular attention given to overall readiness measures for response and recovery. The assessment brought together United Nations agencies and local experts, predominantly from state institutions, to facilitate an integrated analysis, planning, and programming, thus enhancing the expertise available within the country. The country-led exercise sets a precedent for taking ownership of the assessment process, relying on the knowledge of the Humanitarian Country Team and Government sector leads to steer the country's diagnosis.

Strengthening coordination, the leadership of NADMO seizes the opportunity of collaborating during the joint assessment to reinforce the Inter-Agency Working Group on Emergencies (UN-IAWGE), establishing a renewed partnership to facilitate the joint provision of capacity and resources for effective disaster risk management in Ghana. Furthermore, this partnership enhances intra-governmental engagement to enable the coordination and utilization of government expertise from key institutions such as the National Development Planning Commission, Land Use and Spatial Planning, Ministry of Food and Agriculture, Ministry of Gender Children and Social Protection, among others.

The findings from this current assessment will support NADMO in tackling the challenges of coordinating disaster risk reduction efforts by harnessing the expertise, innovation, and dedication of stakeholders involved to ensure an integrated approach to mitigate disaster and climate risks in Ghana.

Eric Nana Agyemang Prempeh, Director General, National Disaster Management Organization (NADMO)



EXECUTIVE SUMMARY

Section I – Introduction: Prevalence of hazard and exposure/ vulnerability

The Ghana risk profile is characterized by exposure to multiple hazards including hydrogeological (flood, drought and storm), biological (endemics/ pandemics of infectious diseases), as well as technological (infrastructure failure, industrial failure) and geophysical (earthquakes) hazards.

The projections from 2050 to the end of the century imply an increase in the occurrence and severity of climate risks such as floods, drought, storms, coastal erosion, and landslides that will provoke huge economic and environmental losses. The increase in temperature, coupled with the intensification of disasters, will augment the vulnerability of the country to an epidemic and cause undernutrition of children and women, particularly in the rural areas and slums.

The exposure of the country is exacerbated by rapid urbanization. Ghana's urban population has grown from under 4 million in 1990 to nearly 17 million, and is expected to reach 37.5 million by 2050. About 40% of the country's urban population live in informal settlements, without access to basic services such as housing, mobility,

and sanitation. In rural and slum communities, economic inequalities exacerbate the level of poverty among vulnerable households and the challenges posed by inadequate infrastructure systems.

Ghana successfully met the Millennium Development Goals, achieving a substantial reduction in poverty from 52% in 1992 to 24% in 2013. Building on this accomplishment, the nation is actively committed to pursuing and attaining the targets outlined in the Sustainable Development Goals (SDGs). The National Development Plan of Ghana (2018-2057) articulates the country's vision, emphasizing economic growth and equality in alignment with the SDGs. Achieving these goals necessitates investments to reduce disaster risks in key sectors such as infrastructure systems, agriculture, mining, health, among others. There is also the need to strengthen the capacities of national institutions and agencies to effectively plan and implement disaster risk reduction measures across social and economic sectors at both national and local levels.

Section II – Rationale for CADRI services in the country

Following discussions with NADMO and the Resident Coordinator's Office (RCO), NADMO sent a request to the UN Resident Coordinator to mobilize the CADRI Partnership in June 2022. Through this request, the government called for support to carry out a diagnosis of the Disaster Risk Management (DRM) system, Disaster Risk Reduction (DRR), and Climate Change Adaptation (CCA) capacities that will inform the development of a DRR strategy, a capacity building plan and a multi-hazard contingency plan. As a result of the scoping mission in July 2022, two main issues were prioritized: Governance and coordination for DRR as well as six socio-economic sectors:

- Environment (including energy, waste, mining)
- Social protection
- Land-use planning and infrastructure (including transport and logistics)
- WASH
- Agriculture, nutrition and food security
- Health

The capacity diagnosis recommendations are expected to inform the development of a new national DRR strategy, a multi-hazard and multisectoral contingency plan. The capacity diagnosis will also be instrumental for the implementation of the UN Common Country Assessment (UNCCA) and the United Nations Development Cooperation Assistance Framework (UNSDCF 2023-2025).

Section III - Main findings and recommendations

Over the past decades, the Republic of Ghana has made notable advancements in enhancing the DRM system at both the national and local levels. Primarily, within the institutional framework, Ghana relies on NADMO, mandated to reduce disaster risks and coordinate risk reduction across the country. This mandate is outlined in an Act published in 2016. This agency, under the Ministry of Interior, is the secretariat of the National Disaster Committee under the vice presidency and regroups all the key ministries involved in disaster management. NADMO has representation from the national to the district level. The Big Data Unit of NADMO, in collaboration with other institutions, produces data on disaster and climate risks, puts in place early warning systems and prepares to respond to disasters (contingency plans and SIMEX). It also manages emergency response.

The government has also taken measures to mitigate disaster risks across various socioeconomic sectors. These initiatives are substantiated through the adoption of policies, Standard Operating Procedures (SOPs), and the integration of DRR principles into diverse programmes. The Food and Agriculture Sector Development Policy (FASDEPII) advocates for the mainstreaming of disaster reduction and CCA in all the interventions in the sector while strengthening Early Warning Systems (EWS), and putting in place emergency preparedness and disaster management schemes to respond to food crises. Specific information is produced for the sector by the Statistics, Research, and Information Directorate (SRID) of the Ministry of Food and Agriculture (MoFA), in collaboration with the Ghana Meteorological Agency (GMet). Based on available information, MoFA allocates a

budget for reducing disaster risks, albeit modest and channeled indirectly. Notably, technical partners play a crucial role in supporting capacity reinforcement and implementing mitigation actions. However, there is currently no strategy or plan at the regional and district levels. The budget is predominantly focused on EWS and the emergency preparedness and response, rather than comprehensive DRR. Additionally, there is not enough software and materials for effective data collection and analysis. The main DRR and CCA activities are supported by development projects implemented by partners.

The government established the spatial planning and infrastructure framework, underpinned by requisite laws and regulations that guide the functions of the national institutions in the sector. The laws assign the responsibilities for formulating policies, providing guidance, and overseeing the implementation, even though DRR and CCA appear only in regulations on spatial planning. The Land Use and Spatial Planning Authority (LUSPA), an agency dedicated to spatial planning, produces plans that delineate areas of common use and the public right-of-way, taking into account existing disaster risks. Regarding infrastructure, the Environmental Management Unit (EMU) within the Ghana Highways Authority (GHA) is mandated to generate information on road-related disaster risks, spanning from project design through implementation. However, it is difficult to gather information from diverse stakeholders (technical partners, universities, etc.) on other critical infrastructure (hospital facilities, school establishment, etc.). The exposure of critical infrastructure to climate change effects and disaster risk is an undeniable reality that will potentially result in substantial damages.

Projections for 2050 show that damages will cost around 4 billion euros, but the country does not yet have dedicated funds for the maintenance and emergency repairs required to address these imminent challenges.

The institutional architecture within the environmental sector is supported by a legislative framework. However, there is the notable absence of details on the specific roles of state institutions in DRR and CCA in this sector. In addition, the country currently lacks an EWS for environmental risks, exacerbating the vulnerability of populations exposed to hazards. In cases where certain institutions do disseminate information on environmental risks, they do so sporadically. Aside from information, investment in environmental risk reduction is not linked to a dedicated fund in the state budget. As a result, implementation of projects aimed at reducing risks in this sector is predominantly reliant on technical and financial partners.

In the WASH (Water, Sanitation and Hygiene) sector, regulations include policies and laws that specify the roles of ministries and agencies from national to local level. While line ministries and publicly funded universities produce evidencebased information on WASH-related disaster risks, the funds available for research are insufficient. This gap is typically addressed through projectbased funding, but it often confines research to a geographical – rather than thematic – scope. Available information supports preparedness and response activities where resources are available, and where arrangements allow for the use of additional resources in the event of a disaster. However, this sector encounters several challenges. For instance:

- 1. Implementation of policies and laws is hindered by specific weaknesses in resource allocation, capacity and enforcement.
- 2. There are challenges with the coordination mechanisms, with instances of poor functionality and duplication.

- 3. There is a lack of clear coordination at the strategic level, with sectoral plans formulated without discussions on DRM at this level.
- 4. Despite the existence of a community-based early warning system, communication between communities and national DRR institutions is not fully functional, and institutions do not take into account community knowledge.
- 5. Funding is geared more towards operations and response, with limited emphasis building resilience capacity in the sector.
- 6. There is limited capacity at the decentralized level to lead responses, and recovery considerations are not adequately integrated into sector planning.

The Government of Ghana has adopted legal instruments and put in place policies aimed at preventing, mitigating and responding to all health emergencies, including those caused by different types of risks. Accordingly, the existing health system seeks to strengthen surveillance and response systems to prevent, detect, investigate, protect against, control and provide a public health response and pre-hospital care to curb the spread of disease resulting from epidemics and disasters. The Ghana Health Service (GHS) oversees the health system, playing a pivotal role in gathering and disseminating information related to healthcare provision across all levels. While data is sourced from multiple structures, including security forces, relations with the private sector in this regard remain limited.

The One Health platform facilitates the exchange of relevant health information among the environment, animal health and human health sectors, thanks to well-established coordination between the ministries concerned. The Ministry of Health (MoH) incorporates disaster risk management into its policies and plans. However, DRR and CCA are not fully integrated, as the focus is more on preparedness and response. To facilitate response efforts, the sector has Public Health Emergency Operations Centers (PHEOCs) at national and regional levels, complemented by Public Health Emergency Management Committees (PHEMCs) at regional and district levels. Technical and financial partners support response interventions, but there is little investment in resilience, with the government allocating less than 10% of the national budget to health.

To protect poor and vulnerable people, the government elaborated in 2015 a social protection policy that aims to reduce extreme poverty; promote productive inclusion and provide decent work to sustain families and communities at risk. Even though this policy does not refer directly to DRR, the purpose to protect and support the poor in case of shock establishes the link. Assigning the Ministry of Gender, Children and Social Protection (MoGCSP) to ensure the technical and operational coordination, the policy confers the oversight to Cabinet, Parliament and the Inter-Ministerial Coordinating Committee (IMCC) on Decentralization, while the Commission on Human Rights and Administrative Justice (CHRAJ) and the National Development Planning Commission (NDPC) are tasked to provide system-wide regulation and guidance. "Prior to the [COVID-19] pandemic, the Ghana Living Standard Survey report indicated that 2.4 million Ghanaians were extremely poor. 28,2% of Ghanaian children were financially poor, while 73,4% suffered from multidimensional poverty." In addition, many social groups and communities were suffering from exclusion. For that, these groups and others can receive psychological support throughout the Orange Support Centre, on the hotline 112 and the social welfare information management system. To respond to a crisis, the government put in place a large scale of programmes such as public sector pensions (SSNIT); private contributory Social Security Allowances; scholarships, National Health Insurance Scheme (NHIS); social cash transfer (known as Livelihood Empowerment against Poverty or LEAP); and school feeding programmes. After the emergency assistance, the assisted people should then be transferred to other safety nets for longer term support as shall be required. However, the institutions involved in this sector do not respect their mandate, and that creates a real problem of coordination. At the district level, there is a lack of quantity and skilled

staff. Additionally, the majority of responses to crises are carried out by partners, which imposes constraints on sustainability and fails to facilitate the recovery phase.

In a bid to enhance its preparedness and response efforts, NADMO has established an EWS in collaboration with GMet, covering nearly all regions' efforts in order to infolrm exposed populations. This system aims to alert the most vulnerable populations about potential disastrous events, using mass media, social networks, local leaders, and volunteers. In order to optimize the efficiency of the emergency response, contingency plans have been developed at different levels, accompanied by the establishment of contingency stocks. However, the messages disseminated through the EWS are often not in the language of the targeted population. Additionally, many of the contingency plans remain outdated. The contingency stock is largely provided by partners, with some managed directly by national and international partners. Furthermore, there is a recognized deficiency in the materials available to NADMO staff at the district level, and this hinders their ability to carry out their duties effectively.

To enhance the capacities of DRR systems in the country, the following key recommendations are proposed:

• Understanding disaster risk:

- * Reinforce the relationship between NADMO and all key institutions with the expertise to undertake vulnerability analysis through a robust Memorandum of Understanding (MoU).
- * Strengthen the capabilities of institutions to standardize the collection and sharing of information among themselves.
- * Advocate for the adoption of the National Data Sharing Policy to facilitate proactive sharing of and greater access to data generated and commissioned by the ministries, departments, and agencies of the Government of Ghana.

* Advocate for the transformation of this policy into an Act, to foster data sharing among critical state and private agencies/ institutions, ultimately improving decision-making in risk preparedness, response, and recovery.

• Risk governance:

- * Develop a comprehensive National Disaster Management Framework, outlining the roles and responsibilities of each agency and national/local structure in the implementation of the Act 927.
- * Strengthen collaboration and improve communication between NADMO, NDPC, LUSPA, and the Ministry of Local Government, Decentralization and Rural Development (MLGDRD) to ensure the development and enforcement of effective land use plans by all district assemblies.
- * Popularize the National Disaster Fund (NDF) by encouraging private sector support. Consolidate all disaster-related funds into the NDF for streamlined management.

• Infrastructure:

- * Reinforce the coordination mechanism between LUSPA and the other national institutions that are relevant for its works, particularly DRR and climate change.
- * Reinforce the mechanism to monitor public and private construction according to existing policies and standards to avoid engineering issues that lead to disaster at national and local levels.
- * Reinforce the capacities of the institutions involved in spatial planning and infrastructure in DRR and climate change, enabling them to integrate these considerations into their planning and work.

- * Allocate dedicated, flexible, and predictable funding in the MoFA budget for the implementation of DRR and CCA activities in the agriculture and food sector, in order to reduce the dependance of the sector on donor support.
- * Reinforce the coordination mechanisms and institutional arrangements at the regional and district levels with NADMO and other relevant organizations, to ensure effective and efficient communication and coordination within and across sectors at all levels on DRR and CCA related to agriculture.
- * Enhance the skills of existing human resources at all levels and reinforce the quantity, particularly at the regional and district levels. This will enhance their effective contribution, whether in regional/district committees or in the implementation of government programmes.

Social protection:

- Integrate the "shock responsive" approach to social protection within DRM and CCA strategies.
- * Build the capacities of the institutions involved in social protection related to disasters, particularly MoGCSP and NADMO, at the national, regional, municipal and district levels. This will enable them to prepare and deliver services tailored to the specific needs of vulnerable persons.
- * Advocate for the Government of Ghana to ratify the African Union Convention for the Protection and Assistance of Internally Displaced Persons in Africa (also known as the Kampala Convention).

Preparedness and response:

* Integrate the international and the internal migrants and internally displaced persons into the legislative dispositions.

• Agriculture:

- * Review the existing contingency plans at regional, district and community levels. Develop contingency plans for those that do not have one yet, and create specific plans for sectors prone to disaster risks such as oil and earthquakes.
- * Implement existing insurance options in the country effectively. Explore innovative insurance solutions to support the recovery of the most vulnerable populations, especially the impoverished and those in vulnerable and exposed urban communities.

• Environment:

- * Empower the regulatory agencies like EPA to enforce the legal standards and regulations, including the conduction of EIAs where applicable. To achieve this, the agencies must work independently without any external interference.
- * Review existing policies, strategies, or plans in the environmental sector to mainstream DRR or ensure the mainstreaming of DRR in implementation plans, while waiting for the revision of the main documents and including legal requirements to finance the local governments.
- * Increase investments in nature-based adaptation to reduce environmental risks, with a particular focus on green infrastructure (mangroves) for coastal protection, as well as other infrastructure such as sea defense.
- * Initiate discussions with the private sector to integrate them into the national disaster management system, particularly the response and recovery plans for the environment sector.

• WASH:

 Conduct and mainstream sustained advocacy campaigns to cultivate political will for the planning and enforcement of existing acts and laws.

- Integrate community engagement, cocreation, and knowledge harvesting into operational guidelines for WASH DRR Managing Directorates and Authorities (MDAs), especially at the decentralized level.
- * Strengthen key capacities in emergency preparedness and response in general, and in resilience building at all levels. Leverage insights from the on-going WASH Resilience Study and establish strategic partnerships with academic/ learning institutions to optimize these efforts.

Photo: UNDP

I. INTRODUCTION

I.I Ghana vulnerability and exposure to disaster risk

According to the INFORM Risk Index 2023², Ghana is classified as a country with a "medium" risk of disasters. Exposure to hazards is low, but vulnerability and the lack of coping capacity are the main drivers of risk. Ghana is located on the Atlantic Ocean and shares borders with Togo, Côte d'Ivoire, and Burkina Faso. The country has a surface area of 239,460 km², with a coastline of 550 km and many water bodies such as Lakes Volta and Bosomtwe, 3,275 km² and other seasonally flooded lakes occupying another 23,350 km². It has two major ecological zones: the forest zone in the Southern region which covers 30%, and the Northern Savannah ecological zone which is mainly dry and covers 70%.

The population (30 million people, 2021 Ghana Statistical Service)³, with a growth rate of 2.1% over the last decade, is largely young and urbanized. About 55% of the population are under the age of 18 and 57% live in urban areas, with a large proportion (47.8%) in the Greater Accra and Ashanti regions. Projections show that this trend will continue and reach 63% in 2030 and 73% in 2050.

Prevailing hazards



Figure I. Prevailing hazards in Ghana

Hydrometeorological hazards

Ghana is one of the most flood-prone countries in West Africa. Floods have stronger impacts in the Greater Accra, Volta, Savannah, Central, Northern, Western and Eastern regions. Flood risks are amplified by underlying factors such as rapid unplanned urbanization, and weaknesses in land use planning and waste management, especially in Accra, Kumasi, Tema, Cape Coast and Sekondi Takoradi. Flood risks can also be attributed to uncoordinated floodgate releases from upstream dams (Kopienga Dam in Burkina Faso). In 2010, Ghana recorded an unprecedented flood which displaced 700,000 people and submerged 23,588 acres of farmland. In 2015, Accra also experienced an unprecedented flash flood event which claimed at least 152 lives, causing about US\$100 million in asset losses⁴. These floods limited access to social services (health care, education) and trading.

Even though the country has abundant water resources, it experienced droughts in 1982, 1990-1992 and 2004-2005, which mostly affected the agriculture sector. These situations have led to the adoption of drought impact reduction measures. At the household and community levels, migration – and even forced migration – is a strategy to react to or anticipate the effects of drought⁵. Droughts are especially recurrent in the Northern and Savannah regions, whose economy is based on agricultural practices, and in the Greater Accra, which has the highest population density.

Industrial and environmental hazards

Industrial substances/chemicals and wastewaters affect the quality of drinking and river water and air. Water bodies in the Southwestern Basin, especially in the Pra Basin, are contaminated with heavy metals from artisanal gold mining. In addition, in January 2022, an accident involving the transportation of explosives for a gold mine in Bogoso affected more than 3,300 persons. Finally, municipal and domestic waste is a source of contamination of surface waters and degradation of ecosystems and biodiversity, especially downstream of Kumasi and Accra.

Biological hazards

The population is exposed to regular outbreaks of waterborne diseases such as cholera (particularly in Greater Accra), and hemorrhagic fever such as Marburg, Lassa fever, and Ebola. The cholera outbreaks can be directly attributed to poor sanitation and unsafe drinking water. In 2020, the COVID-19 pandemic hit the country, but the population was relatively spared thanks to a variety of containment measures.

Geological hazards

The seismic risk is considered as moderate. Ghana is situated far away from any tectonic plate boundary, but the southern part of the country has two major tectonic features which

Sea-level rise and coastal erosion

Coastal areas, constituting only 7% of the territory, host about a quarter of the population, rendering them vulnerable to sea-level rise. The ocean encroaches up to 2 meters of the coastline each year, resulting in an estimated 37% loss of the coastal land between 2005-2017 due to erosion

Community conflicts

The communities in the Northern region have experienced marginalization in terms of state services, compared to the Southern region. Additionally, there have been ethnic-based conflicts and tensions between herders (Fulani viewed as migrants) and farmers (local communities) concerning access to natural resources. Two significant factors contribute to the escalating conflict between herders and farmers: the rapid urban expansions into farmlands or grazing areas, have contributed to most of the seismic activities. Between January 2018 and June 2020, Takoradi experienced more than four earth tremors, mostly with magnitudes less than four.

and flooding⁶. Coastal erosion poses a heightened risk of salinization for water sources and wells crucial for domestic consumption and agriculture, along with the threat of storm-induced ocean surges, thereby impacting both the population and their livelihoods.

resulting in a growing intensity of agricultural land use, and resource scarcity induced by climate change.

Climate change and disaster risks

Climate change projections⁷ over the last three years show a temperature rise of 2 to 3°C, which is likely to lead to heat waves, more erratic rainfall, and accelerated sea-level rise, which is already causing coastal erosion. The vulnerability to climate risks can be seen by the augmentation of the frequency of disasters (drought, floods, windstorms and heat spell) along with the high population density and the poor resilience to economic shocks. The most impacted and vulnerable sectors to climate change are:

- I. agriculture (change in precipitation and temperature, reduced yields)
- 2. health, where changes increase the risks of malnutrition, poor sanitation and diseases

- 3. water, because variation in precipitation augments water stress
- 4. infrastructure that is exposed to the impacts of floods and heats waves.

Climate change increases the exposure of the communities to disasters, not only by intensifying floods and droughts, but also by provoking water scarcity in different regions, specifically in the Northern region where the population depends on groundwater for agriculture and daily use. In the south, sea-level rise and storm surges will also increase the risk of saltwater intrusion in freshwater, especially in aquifers. Heat waves are projected to increase from 5% to 20% by the end of the century, which can cause severe health challenges especially for the poor people.

Economy exposure and vulnerability to hazards

Ghana's economic growth and development are highly vulnerable to climate change and climaterelated shocks. The country, that reached lowmedium economy status in 2010, has seen a steady Gross Domestic Product (GDP) growth over the past three decades with an average rate of 5.7%, fueled by natural resource extraction and high commodity prices, and notably driven by the mining, petroleum, agriculture, and forestry sectors. More recently, GDP growth, poverty reduction, and job creation have slowed down.

Agriculture and forestry

Agriculture serves as a source of livelihood and income, particularly through exportation. The agricultural sector is globally rainfed, with less than 1% of the national crop being irrigated. In this case, the sector is highly exposed to climate change, and this will impact directly on the production of staple crops that are important for food security. Among the cash crop products are cocoa (accounting for 11 % of total exports in 2017⁹), palm oil, groundnut, cotton and tobacco. The forest and agriculture sector employs 71% of the population particularly in the rural areas and The economy is becoming increasingly serviceoriented, as the sector constituted 49% of GDP in 2021 as a result of growth in the education, health, and Information and Communication Technology (ICT) services, among others. The industrial sector is the next largest – contributing to 30% of GDP, followed by the agricultural sector at roughly 21%. The agricultural sector employs about 45% of Ghana's workforce, mainly consisting of small landholders⁸.

supplies more than 70% of national food demand. The forests also provide a source of livelihood for more than 2.5 million people¹⁰.

Mining and petroleum

In the second quarter of 2021¹¹, the mining sector made a substantial contribution of approximately \$809.4 billion to the GDP, while the oil and gas sector contributed around \$1.83 billion during the same period. Despite the economic benefits, the regions involved in resource exploitation, such as the Western, Northern and Eastern regions, face negative environmental impacts that can lead to disasters, such as pollution of water bodies, degradation of forest resources, depletion of soil nutriments, and destruction of wildlife habitat, among others. However, mining activities, whether formally licensed or conducted illegally, face a growing threat from the effects of climate change, particularly the exacerbation of water scarcity.

Energy

Hydropower has been a significant contributor to Ghana's electricity supply, accounting for about half of the total supply (43%) since 2015. However, this energy source is notably susceptible to the effects of climate change, especially concerning its impact on river flows, as demonstrated by the consequences of the 1980–83 drought on hydroelectric power generation. Projections indicate that by 2050, the annual average output of the water and energy sector is expected to decline to a range of \$2.19 billion to \$2.26 billion from a 2050 baseline output of \$2.33 billion. This represents a decline of between 3% and 6%¹².

Infrastructure and trading

Infrastructure systems (buildings and roads including major highways) are exposed to floods, droughts and landslides. Each year, about 117 km of Ghana's roads are affected by flooding. In 2007 alone, climate-related events destroyed 1016 km of roads, led to a collapse of 13 bridges, and damaged 442 sewers in the Northern region alone. As a result, Ghana experienced a substantial decrease in freight volumes transported (81%) between 1990 and 2020¹³. About 30% of the districts, especially the rural ones, may face a high risk of economic and social isolation because the roads are threatened by climate-induced natural hazards.

Informal sector

The informal sector, representing 89% of employment in general and 83% in urban areas, is mainly dominated by women. The activities in this sector encompass various aspects, including transportation facilitated by informal tro-tros

Impact of COVID-19 on the economy

The COVID-19 pandemic negatively impacted the economy, particularly affecting the tourism, manufacturing, and trading sectors. This is believed to have resulted in a contraction of Ghana's economy by 3.2% and 1.0% in the second and third quarters of 2020, respectively, pushing the country into a recession for the first time in (minibusses), market traders, street vendors, and waste pickers. The workers in this sector lack any form of social protection, leaving them and their families without coverage for recovery in the aftermath of a disaster.

38 years¹⁴. Consequently, the poverty headcount increased from 23.85% to 25.23%, with a more pronounced impact on female-led households, where poverty increased by 58%, compared to about 54% in male-led families.

Population exposure and vulnerability to hazards

Poverty decreased in Ghana during the last 20 to 30 years or between 1990 and 2021. Ghana's HDI value changed from 0.460 to 0.632, a 37.74% change, making the country the 7th on the continent¹⁵. However, more than a third of the country's population lives in poverty, and income inequality is still high, as evidenced by a Gini index of 43.45 in 2022. In 2023, about 2.99 million people in Ghana lived in extreme poverty, with the majority residing in rural areas. Indeed, a large part of the poor people resides in highly vulnerable areas in the rural settings and informal urban neighborhoods (slums). Due to the limited access to assets, women are poorer than men both in the urban and rural areas, making them more susceptible to the impacts of disasters.

The vulnerability of the population is also linked to the concentration of the people in specific territories. According to the 2021 census, the total population is approximately 30,832,019, with a density of 141 inhabitants per km². Notably, 58% of the population lives in urban areas¹⁸, predominantly concentrated in the southern half of the country (on or near the Atlantic coast)¹⁹. Urban populations, especially those in poorly managed slums, are exposed to flash floods, while the rural population, especially in the Northern region, grapples with both floods and droughts. This vulnerability is rooted in the population's reliance on rainfall agriculture and limited access to social services. The coastal communities are expected to contend with floods, coastal erosion, sea-level rise and storm surges in this century.

Among the rural and urban populations, some social groups are more vulnerable to climate and disaster risks than others. These groups include people with disabilities, children (particularly orphans), migrants, pregnant women, and women accused of being witches. These groups normally suffer from discrimination in accessing essential services and are likely to encounter more challenges in case of disasters. People with disabilities represent about 8% of the population (2021 Population and Housing Census). Although the Persons with Disability Act passed in 2006, promoting differential treatment for persons with disabilities, the latter are still very vulnerable to disaster risks because of the persistent discrimination and exclusion from essential services. Children, especially orphans and those in the streets and the homeless, are highly vulnerable because of their exclusion

In the last two decades, the poverty rate in the country was reduced by more than half. According to Ghanaian statistics, the country has reached the Millennium Development Goals by reducing the poverty rate from 52% in 1992 to 28% in 2006 and 24% in 2013, then to 11.9% in 2017, while extreme poverty declined from 16.5% to 8.4% over the same period¹⁶. More males (13.6%) than females (7.6%) live below the international poverty line¹⁷. Although statistics show a reduction in overall poverty and extreme poverty in both rural and urban localities and across the country, poverty remains more severe in rural areas and parts of the three Northern regions than it is elsewhere in the country. Poverty is most severe in the Upper West Region (57.0%), followed by Upper East Region (39.0%), and Northern Region (38.8%).

and marginalization in society. Their situation is even worse in the rural areas. Migrants are not included in local mechanisms put in place to prepare and respond to disasters because they are considered as foreigners by the communities. This group is prone to experiencing inequality and social exclusion, and in certain cases, even by their families²⁰. Women (pregnant or accused of being witches) face different types of vulnerability: for

the first category, the interruption of services and the limited access to services increase their vulnerability in case of disaster, while those in the second category (mostly elderly women) face discrimination in society and do not have access to services.

The effects of climate change lead to internal migration across the regions²¹. The most vulnerable are areas where dominant livelihood activities include rain-fed agriculture (Northern Ghana), fishing, salt extraction and trading activities (coastal areas of the delta). In those regions, the vulnerable households choose migration as a response strategy for coping with climatic and non-climatic drivers of change. However, the development of slums due to migration induces risks and leads to the deterioration of environmental and health conditions²².

Children's disproportionate vulnerability to disaster and climatic risks translates into greater susceptibility to vector-borne diseases, undernutrition and water-related diarrheal diseases, physical danger associated with floods and landslides, deterioration of school infrastructure, and a higher risk of abuse and exploitation during crises. There is a correlation between child labor and recurrent shocks – droughts, floods.

Women are more exposed to the effects of climate change and impacts of disaster risks because:

- in the rural areas they depend heavily on natural resources as a means of subsistence, while the sociocultural and land tenure practices in Ghana deny women sufficient access to fertile lands²³
- 2. in the urban areas they are mostly selfemployed in the informal sectors (mainly trading or other service activities) which are not protected. In addition, their role in the provision of drinking water, caregiving and management of households make them more vulnerable to the impact of disasters. Girls and women are also exposed to the risks of gender-based violence that tend to increase during disasters.

1.2 The rationale for the CADRI Partnership engagement in Ghana

The Government of Ghana, specifically NADMO, requested the engagement of CADRI on 10th June 2022 through the Resident Coordinator's Office (RCO). The letter mentioned the interest of the country to conduct a diagnosis of the Disaster Risk Management (DRM) system, develop a national disaster risk reduction (DRR) strategy that will be informed by the recommendations of the diagnosis as well as a sequenced capacity development strategy, and plan to support the implementation of the strategy and a multisectoral contingency plan. The engagement of the CADRI Partnership started with a scoping mission carried out from 25th to 28th July 2022. State institutions and development partners (UN Agencies, NGOs and donors) consulted during this mission highlighted the themes and sectors that would require contextual analysis in order to strengthen DRR capacity through feasible and realistic recommendations. The conclusion led to nine priorities identified by the government and its partners: Risk Governance, Risk Understanding, Infrastructure, Agriculture, Environment, Water and Sanitation, Health, Social Protection, Preparedness for Disaster Response and Recovery. In fact, the actors emphasized the importance of analyzing national policies and regulations in order to suggest ways to prevent the redundancy in the roles and responsibilities of the various institutions involved in DRR and enhance the coordination mechanisms during the interventions. Additionally, the actors showed interest in identifying entry points for integrating DRR and CCA into the key socio-economic sectors. The stakeholders highlighted the need to reinforce the government's leadership in this regard, with active involvement from decision-makers at various levels throughout the country.

Moreover, there is a need for the sectoral ministries to better understand DRR to be able to effectively incorporate it into their budgets, while NADMO seeks to strengthen its capacities for monitoring DRR interventions undertaken by the national and international partners across the country. According to NADMO, the outcomes of the DRR programmes lack sustainability and do not comprehensively address the pertinent challenges identified by the government at both national and local levels. The actors emphasize their interest in capitalizing on the good practices in terms of risk information and vulnerability assessment and deal with new or emerging risks. The risk information system encounters challenges in collecting and disseminating information across the country, particularly in the distant regions and localities. The inconsistency of vulnerability assessment is a concern for many actors, especially in addressing emerging risks, particularly biological, environmental, and conflict risks.

This capacity diagnosis conducted by the government and supported by the CADRI Partnership produced realistic recommendations to inform the development of the National Disaster Risk Reduction Strategy and the implementation of the new UNSDCF 2022-2025, specifically the outcome 2. The recommendations issued by the diagnosis will also inform the development of an action plan and a capacity building plan to support the implementation of the DRR strategy.



Implementation of a comprehensive DRR strategy is enabled by:

Figure 2. Enablers for a comprehensive DRR strategy

I.3 Capacity diagnosis methodology and process

Definitions

Disaster risk management (DRM) refers to the systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster²⁴. DRM aims to avoid, lessen or transfer the adverse effects of hazards through activities and measures for prevention, mitigation and preparedness. It includes in a holistic manner, the response, recovery and reconstruction. In this report, the term "disaster risk management" is used interchangeably with "disaster risk reduction".

Methodology

The capacity diagnosis of the DRM system was facilitated using the CADRI Capacity Diagnosis and Planning Tool. This methodology was developed to support the assessment of existing capacities, gaps and challenges at the national and local levels, according to the four priority areas of the <u>Sendai</u> <u>Framework for Disaster Risk Reduction</u> (2015-2030) (see figure 3).





The CADRI Tool is divided into a generic questionnaire which is structured according to the four priority areas of action of the Sendai Framework (one of which is specifically focused on disaster response and preparedness) and various sector/issue specific modules developed by the CADRI partner agencies including: Agriculture and food security; Cultural heritage; Education; Environment; Health; Human mobility; Infrastructure; Nutrition; WASH. Climate services are cross cutting.



Figure 4. The CADRI capacity diagnosis and planning modules in connection with the SDGs.

I.4 CADRI team composition

The capacity diagnosis was jointly carried out by a multidisciplinary team composed of selected experts from the UN System, and UNDAC; Government representatives from NADMO and NDPC, Red Cross-National Society, and International NGOs such as Plan International, Care International and World Vision International (See Figure 5).



Figure 5. CADRI Capacity diagnosis team composition Ghana

I.5 Data collection and analysis

Based on the level of exposure of the different regions, the team visited four regions in addition to Greater Accra. The team was divided into five multidisciplinary sub-teams during the first week of the capacity diagnosis mission in order to cover the different sectors in the targeted regions. They conducted interviews with central and local authorities, institutions and specialized agencies involved in DRM. The interviews were semi-directive or in a form of a conversation where the interlocutors were free to discuss and provide insights. The team also visited vulnerable areas and critical infrastructures and engaged in discussions with the local population. Following the discussions and interviews, the team collected and analyzed the relevant documents produced by the institutions and third parties. These include reports of assessment, programme reports, policies, strategies and plans associated with DRM. The team provided an in-depth analysis of the different acts on DRR that address the institutional arrangements, the budgeting mechanisms and the coordination.





I.6 Limitations

The diagnosis mission team worked closely with the national counterpart who facilitated engagements with the ministries and national agencies while the UNCT, through the interagency working group, managed the engagements with the technical partners. However, the diagnosis faced some limitations:

- The mission coincided with the preparation of the national budget, making it difficult to engage certain institutions at the central level, such as the Ministry of Works and Housing. This situation negatively impacted the analysis in some sectors.
- The team did not have all the needed expertise for the sectors or thematic areas covered, and this weakened the analysis in those sectors. The experts deployed for WASH were not available for the entire duration of the mission. The infrastructure sector also relied solely on governmental experts, without the inclusion of UN or international experts to provide a comprehensive analysis. There was also

a notable absence of risk financing experts throughout the mission.

- The mission met a limited number of universities and civil society organizations, resulting in a low level of triangulation.
- The mission's engagement with the private sector was very weak, resulting in a dearth of the analysis of the private sector's capacity to invest in the reduction of disaster risk in the country.

FINDINGS AND RECOMMENDATIONS

The findings and recommendations contained in this report are the outcomes of consultations with national and local stakeholders, and a triangulation of information between central and local government and other stakeholders (charities, NGOs, multilateral and bilateral partners). The recommendations are derived from suggestions gathered from national and local stakeholders

NADMO

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Photo: NADMO/Ghana

2. UNDERSTANDING DISASTER RISK

PRIORITY I: UNDERSTANDING DISASTER RISK

"Policies and practices for disaster risk management should be based on an understanding of disaster risk in all its dimensions of vulnerability, capacity, exposure of persons and assets, hazard characteristics and the environment. Such knowledge can be leveraged for the purpose of pre-disaster risk assessment, for prevention and mitigation and for the development and implementation of appropriate preparedness and effective response to disasters".

Sendai Framework Priority for Action I.

The INFORM Risk Index shows an increase in the exposure of the country to disaster from 3.5 in 2021 to 4.3 in 2022 before dropping to 3.6 in 2023. The most recurrent climate risks are flooding and drought²⁵. Notwithstanding Ghana's risk index level, there is a significant number of institutions with the appropriate legal instrument/ framework to produce an important amount of disaster risk data both in its raw form and more analyzed form to enhance decision-making in DRR and preparedness. Institutions such as the GHS, the Meteorological Services, and Ministry of Food and Agriculture have very good surveillance systems with legal backing to monitor various dimensions of risk (health/epidemic rates, rainfall and weather patterns, water quality and water availability; extreme weather events through a network of observation stations; crop and livestock diseases). Further investments in the application of geographical information systems (GIS) and maps have enhanced the country's capacity to further improve on the zoning and accuracy of information on flood and coastal inundation risk.

In the area of security with specific reference to the threat of terrorism, surveillance systems both internally (police, military, the navy and other security agencies) and in collaboration with external partners (across the West Africa subregion and globally) proceed with monitoring and surveillance to gather, analyze and share a wealth of intelligence to address and reduce this risk.

Beyond the strengths, there are still some challenges that need to be addressed:

- Risk information is not available in the right format for decision makers (open access, digitalized, spatial data, at the right scale, targeted at users).
- 2. The assessment of disaster risk does not integrate the analysis of multiple hazards. Several capacity gaps need to be addressed to make progress on both fronts, particularly, the limited use and application of GIS across sectors, and the limited information sharing between sector ministries/agencies/partners internally and globally.

The establishment of a risk information system to centralize selected information on population vulnerability, hazard prevalence, land use and critical infrastructure, as well as data on disaster losses and damages, is a key requirement to improve DRR. Improved collaboration, joint monitoring and surveillance among agencies internally and externally could reduce the high risk of terrorism.

2.1 Collection and analysis of disaster risk data and information

2.1.1 Existing capacities (strengths and weaknesses)

In Ghana, there are several regulatory frameworks in place to facilitate the analysis of risks. These regulatory frameworks provide the legal backing to ensure effective collection of and analysis of disaster risk data and information in Ghana. The requirements of the regulatory framework are dependent on the type of information/data and the purpose for which it is collected and analyzed.

National Disaster Management Act, 2016 (Act 927)²⁶

Ghana formed NADMO in 1996, backed by an Act of Parliament in 2016 (Act 927) to manage disasters and emergencies. "An Act to establish

a National Disaster Management Organization to manage disasters and to provide for related matters." Related to risk information management,
the Act mandates NADMO to "identify, map up hazards and monitor the hazards." It is also mandated specifically to "collate and preserve data on disasters in the country," analyze and disseminate relevant information on disasters to the public," "ensure the effective flow of information on disasters between the national, regional and district levels of Government," and to "conduct research on matters that affect disasters and emergencies in the country." The Act further mandates the institution to request for information as and when required:

(I) The organization may request for relevant information from:

(a) a ministry, department or agency(b) a non-governmental organization

Ghana Meteorological Agency Act, 2004 (Act 682)²⁷

Under Act 682, GMet is mandated, among other things, to ensure the delivery of accurate weather and climate information to organizations in accordance with the United Nations Framework Convention on Climate Change (UNFCCC), the United Nations Convention to Combat Desertification (UNCCD), as well as its domestic obligations to aviation, industry, tourism, agriculture and hydrology sectors, and to ordinary citizens in general for the socioeconomic benefit of the country. The amended act enhances information gathering, research and sharing and fosters increased confidence in these processes.

• The act instills greater confidence in the use of Ghana's airspace by ensuring the provision of accurate and reliable information. This proactive approach aims to prevent avoidable disasters caused by weather and climate changes. This is achieved by establishing

- (c) a private institution
- (d) an individual

within a timeframe determined by the Secretariat for purposes of disaster prevention and management. And the refusal of such lawful information constitutes a punishable offense.

(2) A person who, without reasonable excuse, refuses to comply with a request for information commits an offence and is liable on summary conviction to a fine of not more than two hundred penalty units or to a term of imprisonment of not more than twelve months or to both.

NADMO therefore appears to have a wide range of legal authority to seek, request and utilize information for the purposes of DRR.

stations with equitable distribution of human resources across the entire nation, facilitating comprehensive data gathering. Additionally, the act emphasizes timely contribution of shared data to the World Meteorological Organization (WMO) and related organizations, enhancing international cooperation and collaboration.

- Additionally, the act provides for an expanded representation on the governing board. The appointing authority has the flexibility and discretion to draw from the wide array of scientists and researchers available at a university in Ghana offering courses in meteorology and climate science and other disciplines related to climate and environment.
- In the digitization drive of the agency, the automated weather stations will aid in the provision and transmission of accurate and timely data. It is also expected to check the errors in data collection and improve service delivery to clients of the agency.

Ghana Environmental Protection Agency (EPA) Act, 1994 (Act 490)²⁸

Among the mandates of the EPA, the legal framework provides for broad areas of information collection, early warning systems, environmental impact assessment/research and studies, as well as the development of databases for information

management. Specific areas of risk information mandates include the following:

- 1. "to conduct investigations into environmental issues and advise the Minister on these issues"
- "to promote studies, research, surveys and analyses for the improvement and protection of the environment and the maintenance of sound ecological systems in the Republic"
- "to initiate and pursue formal and nonformal education programs for the creation of public awareness of the environment and its importance to the economic and social life of the country"
- 4. "to develop a comprehensive database on the environment and environmental protection for the information of the public"
- 5. "to conduct seminars and training programs and gather and publish reports and information relating to the environment"

The act also makes provision for a "Hazardous Chemicals Committee," and one of its functions is "to monitor the use of hazardous chemicals by collecting information on the importation, exportation, manufacture, distribution, sale, use and disposal of those chemicals." This is clearly an EWS incorporated into the obligations of the EPA.

As part of its control and enforcement measures, the EPA Act ensures environmental impact assessment. "The Agency may, by notice in writing, require a person responsible for an undertaking which in the opinion of the Board has, or is likely to have, adverse effect on the environment to submit, within the period specified in the notice, an environmental impact assessment."

Draft National Data Sharing Policy of the Government of Ghana, 2019

Evidence-based planning to steer socioeconomic development relies on quality data. The current regime of data management does not enable sharing of government-owned data within government, nor does it expect proactive disclosure of shareable data. Such regimes could lead to duplication of efforts and the loss of efficiency in planning activities focused on national development. Efficient and open sharing of government data among data owners and with the public, calls for data standards, interoperable systems, clear and unambiguous guidelines to

Ghana Land Use and Spatial Planning Act, 2016 (Act 925)²⁹

The government has published the Land Use and Spatial Planning Act, 2016 (Act 925). This Act aims to provide vital information to avert climatic hazards and ensure judicious use of land in order to improve quality of life, and promote health and safety at all times. It prescribes information storage and accessibility measures. The act also provides for public data room:

(I) Each District Assembly (DA) shall set up a permanent physical Public Data Room at an

inform practice, and incentives and resources to ensure sustained data sharing practice in government.

The National Data Sharing Policy aims to enable proactive sharing and greater access to data generated and commissioned by the ministries, departments and agencies of the Government of Ghana. The passing of this policy into an act will enhance data sharing among critical agencies and institutions both state and privately owned.

openly accessible place and the Public Data Room shall be open to the Public during normal working hours and

(a) assist the public to have access to documents prescribed to be made available in the data room;

(b) keep records that may be prescribed by the Authority. (2) In addition to the physical Public Data Room, the Public Data Room may be set up by the DA as a virtual Public Data Room where possible.

Additionally, the act prescribes the power to obtain information:

(I) "A planning entity may, in the performance of its functions under this Act and subject to any law on right to information:

(a) by notice in writing, require a person to provide information in the form and

Right to Information Act, 2019 (Act 989)³⁰

Ghana recognized the right to public information as a human right in 1992 and made a provision for it in the 1992 Constitution in article 21. To implement this right, the government published the Act 989 in 2019 to provide access to official information held by public institutions (and relevant private institutions that receive public resources or perform public functions). Following this act, the government established the Access to Information (ATI) Division of the Information Services Department (ISD) for disseminating information on

- i) Infrastructure sector
- ii) Economic sector
- iii) Administrative sector
- iv) Public safety sector
- v) Social sector
- vi) Metropolitan, Municipal and District Assemblies (MMDAs).

This is a fundamental right to access and utilize information including critical information for the purposes of DRR. manner and within the time specified in the notice, where the planning entity considers the information necessary for the purpose of ensuring compliance with this Act or for the determination of a matter under this Act; or

(b) interview a person and request that person to provide particulars that the planning entity may require.

(2) The notice shall contain a general statement of the purpose for which the information is required.

Type of risk information	Institution responsible	Periodicity
Disease outbreak/epidemics	GHS	As and when
Terrorism	Security Institutions /National Security	As and when
Climate/weather related	Meteorological Agency	Daily
Hazard maps/data/information	Ghana Statistical Services (GSS), Centre for Remote Sensing and Geographic Information Services (CERSGIS)	On request
Vulnerability assessment	GSS, Universities/Accademia	On request
Land use and spatial planning	LUSPA	As and when
Ghana National Household Registry	MoGCSP	4 years + Rapid Assessments

Table 1: Risk information produced in the country

CORE ACTIVITIES FOR ESTABLISHING A NATIONAL DISASTER LOSS DATABASE

- Identifying key stakeholders and partners: host institution, data sources and end users.
- Developing implementation plan with timelines, as well as roles and responsibilities for all actors involved.
- Establishing recording methodology that should consider national legislation, context and existing practices. This includes deciding on the historical time frame and disaggregation level to collect data.
- Developing an official sustainability plan endorsed by the host agency and other relevant contributing agencies.
- Setting up the computational environment for the database.
- Developing and implementing an overall quality control strategy.
- Starting day-to-day collection of losses.

Source: UNISDR Words into Action Guidelines on National Disaster Risk Assessment 2017

2.2 Risk information system

There are institutions with regulatory backing to ensure the effective collection of and analysis of disaster risk data and information in Ghana in order to stock and disseminate them to the targeted institutions/agencies or population groups. The passing of the Right to Information Act, 2019 has added a regulatory advantage to accessing vital information. However, some efforts are necessary to effectively manage disaster risk data and disseminate them on time and to the right targets.

2.2.1 Existing capacities (strengths and weaknesses)

NADMO

The National Disaster Management Organisation has the mandate to undertake and coordinate various disaster risk information and data collection and sharing efforts. Regarding risk information, NADMO's Emergency Operation Centre at the national level is well-equipped and nearly meets the required standard, thanks to the support of international development partners. The operations of the BIG-DATA Spatial Unit since 2019, offering support in geographical information is very essential and indispensable in all phases of disaster, from preparedness, response to recovery. The unit is in the process of getting authorization to be part of the UN Charter to access commercial satellite data freely for emergency purposes.

The national headquarters have an EWS and, based on the situation, may declare a full or partial

GMET

Collection, managing and sharing information of weather conditions including rainfall, drought as well as general climate information, is the primary duty of the Ghana Meteorological Agency (Ghana Meteorological Agency Act, 2004 (Act 682). GMet exists to provide efficient and reliable meteorological information by collecting, processing, archiving and disseminating meteorological information to end users. However, the institution faces some difficulties related to the insufficiency of modern material such as automatic weather stations, and radar mode early warning. The mode of transmitting vital hazard information/data is basically from the national level down to the grassroot. Information transmission is supported by an Emergency Operations Centre (EOC) at the national level and in 10 regions (even though it must be indicated that not all the regional capitals have functioning EOCs at the moment).

The zonal level is supported by Disaster Volunteers who are very vital and essential in collecting grassroot and community-based data for district -to- regional-to-national level collation, storage and dissemination. This area, however, requires serious strengthening and support through capacity building and other operational support requirements (funding, logistics among others).

to cover all the regions of the country. Many of the new weather stations were provided by partners under specific projects and placed in the areas of intervention of the projects instead of the most needed localities. There are few staff on the ground and they were trained only at the beginning of their assignment. At the regional and national levels, the lack of quantity and capacity was also identified.

Ghana Statistical Service

In 2020, the Ghana Statistical Service (GSS) conducted a Comprehensive Food Security and Vulnerability Analysis (CFSVA), with the financial and technical support of WFP and FAO. The assessment, conducted in collaboration with MoFA, concluded that food insecurity has worsened in Ghana over the period under consideration³¹.

As disasters affect the poorest people more, GSS, with support from external partners, has undertaken about two poverty map assessments over the last 15 years – in 2005 and 2015 – based on the closest Ghana Living Standards Survey (GLSS6). Those reports revealed the disparity between the Northern and Southern regions. The Northern regions have a high concentration of poverty compared to Southern regions where the concentration of poverty is very low³².

Ghana health service

The broad objective of the Integrated Disease Surveillance and Response (IDSR) strategy in Ghana is to provide a rational basis for decisionmaking and implementation of public health interventions that efficiently respond to priority communicable diseases. More immediately, IDSR is based on the collection and analysis of data that is used to identify and respond effectively to outbreaks, and it is integrated because activities link communities and all programmes and levels of the health system, from individual health facilities to the district, regional and national levels.

The security agencies

Though information gathering was challenging among the security agencies due to the principle of "classified security information," there is a consensus among security institutions that a lot is being done to avert or reduce the threat of terrorism which appears to be one major security concern in the country at the moment. Nearly all of Ghana's neighboring countries have had at least one terrorist attack, yet Ghana still remains spared. However, its geographical location, i.e., the proximity to terrorism-prone countries such as Burkina Faso, Mali, Togo, Benin and Nigeria predisposes it to terrorist attacks.

GIS

Geographic Information Systems or Geospatial Information Systems (GIS) are vital tools to capture, store, manipulate, analyze, manage, and present spatial or geographic data. Ghana's capacity in GIS is gradually growing and its applicability in wide areas of national development is much more pronounced than it was a decade ago. Key institutions in Ghana providing GIS Some intelligence information gathering cuts across all the institutions engaged (Army, Navy, Police, Air Force, Immigration). Most of the institutions have security cooperation agreements with sub-regional and international counterparts to collect more data on security threats. In addition to gathering information, the security agencies develop partnership with media houses in an attempt to educate the public. They are also part of the Emergency Operation Centres with modern technologies to gather intelligence internally and externally and are able to pick early warning signals more rapidly than others.

services and support include the GSS, CERSGIS and other private entities such as Dexafrica Limited, Accu Geospatial Company Limited, Geospatial Information System, and Sambus Geospatial Limited.

Ghana Statistical Service GIS and Mapping Unit

GSS is governed by the Statistical Service Act, 2019 (Act 1003)³³, which established it as an autonomous Public Service institution with the responsibility of producing and coordinating institutions for the National Statistical System and to strengthen the production of quality, relevant, accurate and timely statistical information for the purpose of national development. The GSS has a GIS and mapping unit which is specialized in map production. The unit is currently located within the GSS in Accra and has no regional level agencies. The unit is capable of producing maps, packaging GIS data per locality, among others, upon request basis. This unit appears to have improved upon its services, but still requires various technical, human and financial support to be able to develop into a world class unit. The unit has not yet moved into the collection of data in various hazard and risk areas. There is no formalized relationship or standing MoU or protocol between NADMO and the GSS to access GIS services.

Centre for Remote Sensing and Geographic Information Services (CERSGIS)

CERSGIS was established in 1999 by the University of Ghana and EPA. As a self-supporting organization, CERSGIS was mandated to provide GIS and remote sensing services using geospatial technologies to provide decision support and planning tools for sustainable social and economic development to government, NGOs, research institutions and the private sector³⁴. Despite the existence of CERSGIS and other private entities,

Risk and vulnerability analyses

With the support of technical and financial partners, NADMO developed national and district level flood and drought disaster risk maps. The disaster risk maps provide increased knowledge and better understanding of disaster risks, and enhance the evidence base for better decisionmaking and planning. not much advantage has been taken by NADMO in this area to enhance DRR and EWS in Ghana. Although fees are charged for services delivered, as a state disaster management institution, NADMO may not incur commercial cost to access services and support. However, at this moment, there is no well-established relationship between NADMO and CERSGIS, not even a standing MoU.

The BIG-DATA unit produces information on disaster risks and vulnerability in the country. The development of these resources relies on external support and is often tied to projects that require specific information.

The existing information is not up to date for the whole country because NADMO does not conduct regular risk and vulnerability analyses.

2.2.2 Challenges

 Risk information is not available in the right format due to non-standardization of methodology for collection, storage and sharing information: Risk information is not available in the right format for decision makers (open access, digitalized, spatial data, at the right scale, targeted at users) because different institutions collect data based on their institutional requirements.

 Limited use and application of GIS and inadequate coordination and collaboration in the sector: Despite the availability of this technology by both public and private institutions, NADMO has not effectively and efficiently capitalized on this crucial area.

- Limited information sharing among sector ministries/agencies/partners and absence of legislative instruments and inadequate resources specifically for producing/ disseminating data.
- Inadequacy of NADMO grassroot data/ risk information gathering and sharing and overreliance on social applications like WhatsApp in transmission of information: Per NADMO's structure, the zonal-level operations are supported by Disaster Volunteers, primarily tasked with collecting grassroot and community-based data for collation, storage and dissemination at the district, regional, and national levels. The widespread use of WhatsApp for information and data transmission is observed at the national, regional, district, and zonal levels, yet no security measures have been put in place to ensure data privacy and to counter any data breaches. More significantly, there is a notable absence of a reliable backup system beyond WhatsApp for information sharing.
- Inadequate funding and logistical/equipment support to key NADMO units: The BIG-DATA unit of NADMO is vital, but it is sometimes underfunded and also lacks some basic modern equipment. In addition, While NADMO's EOC is equipped with basic equipment such as the Global Open Tracking Architecture (GOTA) and computers, it has been identified that these basic tools are inadequate to effectively connect all key sectors of emergency operations.
- Inadequate capacity to undertake vulnerability assessment/Limited clarity of responsibilities for conducting risk assessments across institutions: Information and data generated from various vulnerability assessment are crucial for strengthening the EVVS. Despite the advantages of using vulnerability assessment and data for DRR strategies, NADMO has not effectively collaborated with GSS and academia to leverage this advantage.

2.2.3 Recommendations



- Reinforce the relationship between NADMO and all key institutions with the expertise to undertake vulnerability analysis through an effective MoU among such institutions.
 - Include universities/academia and other allied research institutions to contribute to the disaster risk information gathering and analysis through effective institution-toinstitution arrangements.
 - Develop a better working environment with private institutions involved in disaster risk and vulnerability analysis.

- 2. Incorporate indigenous knowledge³⁵ in risk/vulnerability assessments. This implies that local communities possess critical knowledge and life skills they can rely on for their continued survival.
- 3. Assess effective use of analysis products at the sub-national level and incorporate indigenous knowledge into risk assessment.
- 4. Enhance capacity building efforts to standardize information collection and sharing among institutions.
 - Introduce a standardized framework for risk information requirement

among the key institutions, and employ a uniform methodology for data collection and analysis.

- Organize training sessions for the main institutions (public and private) to familiarize them with the new requirements.
- Establish a network between the institutions and those involved in the production of risk information to prevent duplication and misinterpretation.
- Define the common ways to access information tailored to different user needs.
- 5. Harness and leverage the existing GIS services and technology in the country and build technical capacities of the key staff in the GIS/BIG DATA unit.
 - Identify all institutions (public and private) providing GIS services in Ghana.
 - Assess the capacities of these institutions to identify relevant areas for DRR.
 - Establish effective collaboration to adopt and use relevant DRR services through a MoU, designating NADMO as the coordinating institution.
 - Leverage this collaboration to build capacity of relevant NADMO staff.
- 6. Establish a centralized risk information system to collect information on population vulnerability, hazard prevalence, land use and critical infrastructure, as well as data on disaster losses and damages.
- 7. Advocate for the adoption of the National Data Sharing Policy to enable proactive sharing and increased access to data generated and commissioned by the ministries, departments, and agencies of the Government of Ghana. Further, advocate for the passing of this policy into an Act to

enhance data sharing among critical state and private agencies/institutions, thereby enhancing decision-making processes in risk preparedness, response, and recovery.

- 8. Develop regulations governing the usage and transmission of information and data through social media platforms. Establish effective backup protocols, institutionalizing practices to secure, protect, and ensure accessibility of transmitted information/ data.
- 9. Allocate more financial resources, build staff capacities, and improve the quality and quantity of equipment for the BIG DATA unit to be able to proficiently manage risk information and provide the necessary geospatial support needed.
- 10. Ensure effective collaboration with GSS as well as with the Centre for Remote Sensing and other private entities to leverage existing information, services and expertise.
- 11. Equip zonal units with basic equipment and infrastructure to collect and consolidate critical data across the country, establishing direct linkage to the national unit.
- 12. Produce, review, and update existing hazard/risk/vulnerability assessments and maps, prioritizing high-risk areas.
- Establish a National Risk Observatory to facilitate access to information on disasters, EWS, and climate and environmental risks for decision-makers.



REPUBLIC OF GHANA

NATIONAL DISASTER MANAGEMENT ORGANISATION ACT, 2016

(ACT 927)

3.

STRENGTHENING DISASTER RISK GOVERNANCE TO MANAGE DISASTER RISK

PRIORITY II: RISK GOVERNANCE

Disaster risk governance at the national, regional and global levels is vital to the management of disaster risk reduction in all sectors and for ensuring the coherence of national and local frameworks of laws, regulations and public policies that, by defining roles and responsibilities, guide, encourage and incentivize the public and private sectors to take action and address disaster risk.

Sendai Framework Priority for Action II.

The Government of Ghana has made commendable strides in establishing robust legal policy and regulatory frameworks for DRR and DRM, notably through the enactment of the 2016 NADMO Act, alongside other significant policies for urban planning and environmental protection. While the frameworks are key for effective DDR at the national and local levels in Ghana, the enforcement and implementation of these laudable policies and laws have not met the desired expectation. Challenges such as limited technical capacities and limited financing for DRR have been the major setbacks. It is worth noting that the principal policy framework for DRR expired in 2015 and has since not been revised. It is essential that the policy is updated with a clear action plan and financing strategy and also aligns the framework with the Sendai Framework for Disaster Risk Reduction.

3.1 Legislative and policy frameworks for DRM

3.1.1 Existing capacities (strengths and weaknesses)

The legislative and regulatory framework

Until the passage of the NADMO Act 927, 2016, for over two decades, the NADMO Act 1996 (Act 517) served as the principal legal document for disaster management in Ghana. The new act now provides the legal basis for managing disasters and embarking on DRR measures in the country. The new NADMO service act puts more emphasis on risk reduction, restructures NADMO and provides for the establishment of the National Disaster Management Fund that aims to provide financial resources for the development and operation of disaster prevention, DRR, climate change risk reduction and other disaster management programmes in Ghana. Despite the proactive nature of the act, operational focus has predominantly been on response, largely due to technical and logistical/financial constraints.

The Ghana National Fire Service (GNFS) Act, 1997 (Act 537)³⁶ provides for the management of undesired fires which are some of the major hazards in the country. Similarly, the GNFS regulation 2003, Li 1725 and Li 2024 further give clarity to the operations of the service. Even though this service is generally reactive, in recent times, it has started public campaigns and awareness creation on emergency preparedness. While this is commendable, limited funding, technical deficiencies and logistical gaps have constrained their efforts in providing the necessary support to prevent fire hazards from occurring³⁷.

Similarly, the EPA Act, 1994 (Act 490) ensures the protection of the environment. The EPA is responsible for issuing environmental permits and pollution abatement notices for controlling waste discharges, emissions, deposits, or other sources of pollutants. They are also responsible for issuing directives, procedures or warnings to regulate and control noise. The EPA has the authority to require an EIA, is responsible for ensuring compliance with EIA procedures, and is the lead EIA decision-maker.

The Local Governance Act, 2016 (Act 936)³⁸ puts the responsibility of management of human settlement, environment, as well as maintenance of security and public safety on the DA. It is vested with the power to make regulations on DRR in the district.

The National Road Safety Authority Act, 2019 (Act 993)³⁹ gives the mandate for the reduction of the incidence of road crashes, fatalities and injuries⁴⁰.

For the management of the coastal zone, the Coastal Development Authority Act, 2017 (Act

961)⁴¹ was set up to accelerate economic and social development in those areas. This requires measures to reduce poverty levels and deprivation which are drivers for vulnerability. The District Assemblies (DAs) within the coastal belt have not yet developed comprehensive Coastal Zone Management Strategies in the form of single, unified documents. Parliament has not passed the Marine and Coastal Management Bill. The coastal management regulations are pockets of regulations covering some aspects of challenges within the coastal zone.

The GMet Act (amended in 2019)⁴² established the Ghana Meteorological Agency, responsible for providing weather forecasts for the activities related to agriculture, marine, civil aviation and

The policy framework

Over the past decade, the issues related to DRR and CCA have received increasing interest that has been reflected in the main national policy frameworks. First, the long-term National Development Plan 2018-2057⁴⁵, approved in 2018, establishes the extended development strategy for the country. It incorporates several provisions regarding climate and disaster management under its 3rd goal: "Build Well-Planned and Safe Communities while Protecting the Environment." In addressing disaster management, the plan outlines four strategic interventions:

- I. Develop a National Disaster Management Framework;
- 2. Enhance the resilience of vulnerable communities and infrastructure;
- 3. Strengthen public education and awareness in disaster risk reduction;
- 4. Develop and maintain early warning systems.

The National Climate Change Policy (NCCP) 2013 is Ghana's integrated response to the challenges of climate change within its socioeconomic context. The NCCP is designed to provide strategic direction and coordination on mitigation of disasters resulting from natural hazards. The GMet gives early warning forecasts of changing weather conditions e.g., imminent storm, wind, sea-level rise, etc⁴³. Ghana does not have a climate change law.

The National Migration Policy for Ghana (2016) provides in-depth analysis of the numerous ways that migration impacts Ghana's sustainable development and draws on short, medium to long term actions to address them through partnerships and collaborations, including those with civil society organizations and the private sector. The policy identifies and spells out roles for various institutions. Some of the areas the policy document outlines include migration, environment, and climate change⁴⁴.

climate change issues in Ghana, including climate adaptation. The three objectives of the NCCP are

- (i) effective adaptation;
- (ii) equitable social development; and
- (iii) mitigation⁴⁶.

The NCCP aims at integrating climate resilience, climate-compatible development and low-carbon strategies into all ministries, departments and agencies (MDAs). Ghana's National Climate Change Master Plan Action Programmes for Implementation (2015–2020) and National Climate Change Adaptation Strategy (NCCAS, 2012), which have expired and are yet to be reviewed, outline the critical measures for the realization of the medium-term climate protection outcomes. The National Adaptation Plans Framework (2018) is expected to ensure stronger collaboration and coordination among the different institutions and ministries and will be required to reduce overlaps and duplication of adaptation efforts at different ministries and institutions. In addition, the framework highlights the need to engage the private sector in the NAP process, and to ensure that it is gender-responsive.⁴⁷

Building a resilient society that can effectively withstand the effects of climate change and contribute to mitigating global emissions is the goal of the updated Nationally Determined Contribution (NDC) under the Paris Agreement (2020 - 2030)⁴⁸ (2021). The policy presented 31 adaptation and mitigation measures in the NDC under the Paris Agreement to the UNFCCC in 2016. There are important sectoral policies that contain provisions for DRR such as the National Environmental Policy (2016) or the Forest and Wildlife Policy Ghana (2012).

3.1.2 Challenges

- Overall, DRR and CCA in Ghana are backed by legal instruments.⁴⁹ However, when passed, the Act 927 was meant to be complemented by a framework of additional laws and regulations that would detail the role and responsibilities of each agency and national/local structure in the implementation of the act. Even though it was mentioned in the 2018 National Development Plan, no complementary law or regulation has been published to date, and this fragilizes the entire DRR institutional framework and interaction with other key frameworks and overall integration in the implementation of the development plan.
- There is little evidence of coordination between sectors when the legislation was being developed. Environmental legislation

appears to be administered separately from building and spatial planning regulations and also from the DRR/DRM Act.

- There is no legally gazetted framework for DRR, due to limited financial resources. This lack of a formal legal foundation hinders enforcement mechanisms and contributes to non-compliance, thereby impeding efforts to minimize disasters.
- There is an absence of District Disaster Management Plans in several instances. In most of the decentralized levels, the NDMP had not been updated. At the local level, there are gaps in the capacity of officials to develop Disaster Risk Reduction/Management plans, and they lack adequate resources to implement them.

3.1.3 Recommendations



- I. Develop a National Disaster Management Framework that will strengthen the regulations describing the role and responsibilities of each agency and national/ local structure in the implementation of the Act 927, as prioritized by the National Development Plan.
- 2. Develop a national DRR strategy and an action plan that set clear objectives and targets for all sectors and actors at all levels.
- 3. Advocate with MESTI to contribute to the development of the new Environmental

Strategy (notably to explore the possibility to revise the EIA guideline to better integrate risk assessments, especially to help in the fight against "galamsey" (illegal mining)).

- 4. Encourage MDAs to set up DRR desks to serve as liaison for DRR collaboration.
- 5. Strengthen gender responsive culture in DRR and CCA.
- 6. Integrate the private sector in the governance architecture for DRR strategy.
- 7. Organize a policy dialogue on DRR to ensure sectors like health and environment

are able to mainstream DRR and ensure synergy in DRR and CCA.

3.2 Institutional framework and coordination mechanisms for DRM

3.2.1 Existing capacities (strengths and weaknesses)

The institutional framework in Ghana was established by the above-mentioned Act 927. As prescribed in the act, the functions of NADMO are, among others, to implement:

(i) government policy on disaster prevention, disaster risk reduction and climate risk management;

(ii) the international, national, regional and district disaster management plan.⁵⁰

NADMO is governed by a council with members appointed by the President of Ghana and comprises key ministries represented by the Minister or its representative not below a rank of director. The council meets at least once every three months.

To operationalize the decisions of the council, the Act 927 establishes a NADMO Secretariat with the following responsibilities:

a) provide technical and other support to the organization of the Council

b) be responsible for implementing the decisions of the Council

c) perform the functions that are incidental to the effective operation of the organization; andd) perform any other function that the Council may specify.

Through this mandate, NADMO is also involved in the formulation of several national policies related to DRM. For example, NADMO is acting as the coordinator for the formulation of the One Health Policy, which is technically led by the MoH but involves many other agencies and structures of the government. To perform this mandate, NADMO is structured around 13 departments that represent either administrative functions, specific hazards (hydrometeorological, geological, epidemics, etc.) or operations.⁵¹

Moreover, NADMO is present at the national and local levels, with teams and representatives in all regions and districts of the country, including a strong network of volunteers at the community level. To date, in addition to the National Secretariat, NADMO's functions are implemented through 16 regional secretariats, over 261 district and municipal secretariats, and over 900 zonal offices. Per the structure of NADMO, it is expected to work very closely with other collaborative state and non-state actors in DRR and response efforts in Ghana.

The National Climate Change Committee, another coordinating body that plays a role in ensuring synergies between sector interventions in DRR under the Ministry of Environment Science and Technology, which gathers the different sectors and actors involved in the development and implementation of the climate change policy. A Climate Change Unit (CCU) exists under the EPA. Additional key ministries, departments, and organizations have CCUs, including those in the energy, forestry, finance and agricultural sectors. The EPA coordinates the development of an overarching national adaptation plan with adaptation priorities identified in key sectors such as agriculture, forestry, water, energy, gender and health.

The Ministry of Finance and Economic Planning (MoFEP) also operates a mechanism that coordinates resource mobilization efforts and releases funds directly or indirectly to support DRR measures across sectors. It has created a natural resources, environment, and CCU to oversee, coordinate and manage financing of and support to natural resources and climate change activities.⁵²

The MoFEP is working closely with the National Development Planning Commission (NDPC) which, besides its mandate to advise the government on development planning policy and strategy, has developed guidelines on how to mainstream climate change issues into development plans at all territorial levels. NDPC also ensures that the development indicators (including climate change and DRR) are mainstreamed into the national monitoring and evaluation plan to guide the implementation of the sector and districts. NDPC has a network of 49 technical experts that review the different plans and ensure they all respond to the overall development objectives, including risk-informed development.

The Parliamentary Select Committee on Defence and the Interior⁵³ also plays a role in DRR. It

3.2.2 Challenges

- While the mandates are clear, there is a duplication of duties and activities among various agencies involved in different levels of risk reduction, preparedness and emergency response, and CCA. This shows that the roles and responsibilities of institutions are not well-defined and different coordination structures impact the overall effectiveness of the response system.
- Over the years, parallel structures of ad hoc nature were established to manage disasters whenever the country was facing a major disaster. Looking at the composition of the committee of top-level professionals, it is clear that the NDMC is designated as the national operational structure for coordinating emergency preparedness and response.

provides oversight on the work of NADMO and promotes DRR budget allocation.

The National Disaster Management Organization Act 927 established the National Disaster Management Secretariat which provides technical and other support to the organization and the Council headed by the Director General. At the decentralized level, regional, district or zonal offices are established. Disaster Management Committees (DMC) have also been established at the national, regional and district levels.

The National Disaster Management Organization Act 927 established the National Disaster Management Committee (NDMC). The Committee is expected to coordinate emergency preparedness and response, and ensure early warning before and during disasters.

Within the UN System in Ghana, the United Nations Inter-Agency Working Group on Emergencies (IAWGE) coordinates development partners and CSO support with NADMO on DRR, specifically on preparedness and response.

- Moreover, the lack of Standard Operating Procedures to guide disaster response operations and their coordination at all levels of the Disaster Management Committees is adding up to the ineffectiveness of the committees. The committees tend to meet under the leadership of the political heads only on ad hoc basis when there is an emergency and not on DRR.
- The NDMC has never met since its inception in 1996. This is also reflected at the decentralized levels where the DRR Committees at the regional and district levels are chaired by the political authorities, the Regional Ministers, and District Chief Executives respectively. However, not much focus has been placed on those committees, rendering them ineffective.

- The Disaster Management Fund has not been fully operationalized.
- The Ghana Building Code⁵⁴ provides standards for addressing some construction gaps in relation to DRR, but responsibility for building code enforcement is held by the local government where insufficient capacity and resources at this level of government and a lack of a 'culture of compliance' are identified as the two capacity gaps in its implementation.
- Finally on the committees, though NADMO's NDMC structure is designed to include the participation of the MoGCSP and the Ghana Federation of the Disabled to ensure inclusivity, not much was seen of their involvement at the regional and district levels.
- Coordination challenges are even more flagrant, with the Ghana National Fire and Rescue Service (GNFS) having a mandate on the risk and response of fires and on Search and Rescue functions, a structure different from the Disaster Management Committees at the regional and district levels. The compositions of the districts and regional Fire Committees exclude NADMO. However, the regional and district disaster management committees include the Ghana National Fire Service. There is a lack of coherence and/or coordination between these two committees at both levels.
- There are also public health management committees in the regions and the districts, the composition of which includes NADMO. However, all the established committees in the regions and districts seem to work in silos.
- There are security committees at the regional and district levels that deal with security and safety. However, the committees' operations are more reactive than proactive as their meetings are driven by the availability of gathered intelligence.

- Coordination is also a challenge due to limited institutional and human capacity of NADMO and political interference. About 70% of NADMO staff are not trained due to financial constraints and the unavailability of training schools to provide the required skills for the job of coordinating DRR and ensuring synergy between DRR and CCA.
- A common result of this lack of clarity and weaknesses in coordination is that donors and international partners tend to develop their programmes and projects with their preferred partners without involving other relevant institutions such as NADMO and NDPC, which can be problematic, because there is less control over their compliance with national policies and programmes.
- The Ministry of Interior has no convening power as chair of the National Disaster Management Committee. Consequently, the committee has never met, resulting in the lack of effective horizontal collaboration across ministries.
- Capacities (technical and number) are overstretched both at national and local levels and remain limited for an effective governance of risks. There is a high level of staff turnover in NADMO due to job insecurity and unattractive service conditions. This situation has posed challenges for NADMO in recruiting, attracting, and retaining qualified professionals such as engineers, information management specialists with GIS expertise, or socio-economic recovery experts.
- Difficulty in accessing the 3% share of the Common Fund in the national contingency fund.
- Absence of DRR focal point in ministries, department, and agencies, leading to gaps in information flow.

3.2.3 Recommendations



- Increase the authority of the leadership of the NADMO by placing it as public agency under the Office of the President or the Vice President, with NDMC chaired by the Vice President.
- Strengthen collaboration and improve communication between NADMO and NDPC, and LUSPA and MLGDRD for all district assemblies to develop and enforce land use plans.
- 3. Strengthen the participation of gender and vulnerable groups including (People With Disabilities) PWDs in DRR planning.
- 4. Establish and enforce mechanisms for inspection of compliance of building codes.
- 5. Promote a career plan for NADMO staff and increase the level of protection for agents.
- 6. Despite the similarly good administrative and institutional structures at the national, regional, district and zonal or community levels, there is a need to continue to provide technical and financial support especially at the local levels to enable them to effectively prepare and respond to disasters.
- Encourage the international partners to adopt the planning cycle of the government and ensure their strategies, programmes and projects are compliant and align with the government's objectives, priorities and periodicity.
- 8. Improve the capacities of NDPC through learning exchanges with other countries and the adoption of new tools for improved

information management and planning processes.

- Integrate the informal institutions and civil society in the future DRR policies, institutional framework and related programmes by involving traditional leaders, private sector and CSOs in the implementation and enforcement of DRRrelated norms and activities.
- 10. Revitalize the NDMC through a welldefined meeting schedule involving all key actors.

3.3 Financing for DRM

3.3.1 Existing capacities

The insurance sector is framed by a set of laws and policies that emphasize inclusion, starting in 2021. The Insurance Act, 2021 (Act 1061) emphasizes financial inclusion by promoting the "proportionality principle" - the requirements for the Insurance Core Principles to be applied in a manner that considers the nature, scale and complexity of the risks inherent on the individual insurance business⁵⁵. This Act allows small scale live testing of innovations by private firms in a controlled environment under the supervision of the government. In addition to this Act, the National Insurance Commission (NIC) established two regulations to ensure inclusive insurance: Microinsurance Market Conduct Rules in 2013 and Mobile Insurance Market Conduct Rules in 2017. However, these opportunities are not fully exploited by most insurers. The last strategic plan of the NIC covered 2018 to 2021 and aims to increase insurance penetration from 2% to 10% of GDP by 2021.

The Ministry of Finance and Economic Planning is expected to increase the financial inclusion to 58% in 2023, according to the National Financial Inclusion and Development Strategy (2018– 2023)⁵⁶. Likewise, the Digital Financial Services Policy⁵⁷ published in 2022 aimed at ensuring (among other things) that all Ghanaians have access to a broad range of quality and affordable financial services that meet their needs, including insurance.

The above Acts and policies should be useful to address (prevent, mitigate and respond to) the costs of the main risks the population is exposed to. For example, firefighting costs about GHS 40 million annually; flood amounts to GHS 600 million; auto accidents cost GHS I billion annually (equivalent to 1.6% of the GDP); and drought and climate risks affect 295 000 livestock units annually (this toll is expected to rise to 899 000 livestock in a few years)⁵⁸.

Despite the existing insurance mechanisms, the country does not have any practical risk transfer solution in place. The country participated in a pilot experience with the African Risk Capacity Insurance facility related to floods, but not droughts. The main institutions in charge of managing disaster responses do not have sufficient resources. In fact, the Ministry of Interior allocates a limited budget to NADMO and the government has limited resources to deploy social assistance interventions. Hence, they turn to partners to intervene. At the local level, the District Assemblies Common Fund feeds the districts' budgets, in which an undefined percentage is required to be set aside for covering emergencies.

3.3.2 Recommendations



- Expand prior demand work and understand potential clients' risks and coping mechanisms. This could be done with the support of the Ghana Insurers Association.
- 2. Develop with NIC an insurer/NIC system to simplify formal reporting, monitoring, analysis and decision-making for inclusive insurance.
- 3. Improve historical and projection data on climate change impacts and make it available to insurers and others.
- 4. Support the Ghana Insurers Association to improve methods of data collection from low-, middle- and high-income individuals and micro-, small- and medium-sized enterprises.
- 5. Develop a scorecard for insurance products to make it easier for Ghanaians to understand products of value, and push insurers to improve these scores and make insurance products client-centric.
- 6. Leverage the efforts of NADMO's participatory assessment of flood-related disaster Prevention and Development of an Adapted Coping System (PARADeS) in Ghana to provide important inputs for these efforts
- 7. Develop a system that ensures effective coordination among key regulatory agencies.
 - Set up an inter-agency task force led by the Vice President's Office

to ensure seamlessness between regulators and policymakers.

- 8. Provide better support for NADMO to take up a leading role on Disaster Risk Funding (DRF).
 - Develop a capacity-building plan for NADMO to lead the DRF and DRM initiatives.
 - Develop and fund an effective budget structure that leverages various sources for preparation and recovery (such as the National Disaster Fund), as well as reserves.
- 9. Enhance the infrastructure for supply and distribution of valuable insurance products for smallholder farmers, with a focus on client centricity.
- Conduct a study with an academic institution that identifies the potential range of distribution channels for rural areas and their ability to distribute inclusive insurance.

SECTORAL CHAPTERS

PRIORITY III: INVESTING IN DISASTER RISK REDUCTION FOR RESILIENCE

"Public and private investment in disaster risk prevention and reduction through structural and non-structural measures are essential to enhance the economic, social, health, and cultural resilience of persons, communities, countries, and their assets, as well as the environment. These can be drivers of innovation, growth and job creation. Such measures are cost-effective and instrumental to save lives, prevent and reduce losses and ensure effective recovery and rehabilitation."

Sendai Framework Priority for Action III

Photo: NADMO/Ghana

4. SPATIAL PLANNING & INFRASTRUCTURE

The institutional structure is supported by various acts and laws that define the roles and responsibilities of each institution covering spatial planning and infrastructure. Laws, policies, and regulations outline standards for infrastructure and provide guidance for land use planning at all levels, establishing responsibilities for the issuance of building permits and the monitoring of construction activities. However, these regulations often lack the inclusion of provisions for DRR and CCA. In instances where these regulations, especially those on spatial planning, are mentioned, the reference is minimal or indirectly made to relevant national institutions. such as the NADMO. NADMO's lack of technical capacity hinders its abilities to contribute fully to the integration of DRR into land-use planning.

Furthermore, little information is produced on infrastructure-related disaster risks. The Environmental Management Unit (EMU) within the Ghana Highways Authority (GHA) is tasked with producing information on road-related disaster risks, encompassing all stages - from project design to post-implementation monitoring.

For other critical infrastructure, such as hospital facilities and school establishment, information is produced by different actors (technical partners, universities, etc.), but its compilation remains challenging. Additionally, roads and other critical infrastructure are highly exposed to the effects of climate change and disaster risk. Projections for 2050 indicate that damages could reach approximately 4 billion euros, yet dedicated funds for maintenance and emergency repairs are currently lacking.

4.1 Institutional and policy framework for DRM in spatial planning and infrastructure

4.1.1 Existing capacities

Spatial planning and infrastructure are essential to support a country's development. By incorporating disaster risk information and resilience measures, they safeguard the environment, human life and property. They also have the capacity to guarantee the continuation of economic and social activities, and support economic growth and access to basic social services. In Ghana, the government places great importance on land-use planning and infrastructure systems, creating specific institutions to work on them. Since the early 1990s, the government has enacted acts and laws to regulate this sector:

- National Development Planning Commission Act published in 1994 (Act 479)
- National Development Planning Systems Act published in 1994 (Act 480)
- Environmental Protection Act published in 1994 (Act 490)
- National Building Regulations published in 1996, (LI 1630)
- Renewable Energy Act published in 2011, (Act 832)
- Local Government Act, published in 2016, (Act 936)
- Land Use and Spatial Planning Act published in 2016, (Act 925)
- Land Use and Spatial Planning Regulation published in 2019, (LI 2384)

 Ghana Infrastructure Investment Fund Act published in 2014 (Act 877), amended in 2021 (ACT 1063)

The Ministry of Roads and Highways (MRH) established under the Civil Service Act of 1993 (Law 327) is responsible for formulating policy, coordinating sector performance, monitoring and evaluating road infrastructure development and maintenance, and financing road maintenance. The Ministry has an operational arm – the Ghana Highways Authority – established by the Act 540 in 1997, which plans, develops, maintains, and protects trunk roads and related roadworks. The Authority works to provide safe and adequate infrastructure for road transportation that aligns with the country's economic development. With authorization from the MRH and in consultation with the Local Government and Rural Development Authority, the GHA may delegate maintenance and protection of trunk roads to the district assembly.

The governing body of the authority includes, among others, a representative from the Ministry of Environment, Science and Technology. This person is responsible for ensuring that plans take environmental risks into account and prevent the creation of environmental risks by infrastructure.

The establishment of LUSPA in 2016 under Act 925 reflected the government's vision of providing the population with safer facilities within a wellmanaged territory. As such, LUSPA is mandated to ensure spatial, land use and human settlement planning; provide directives, issue regulatory notices, guidelines and manuals to ensure effective spatial and land use planning; and oversee the implementation of approved policies relating to spatial planning and physical development within the country. This authority also has the responsibility to monitor sensitive areas such as forest reserves, nature reserves, wildlife sanctuaries, green belts, coastal wetland, water bodies, water catchment areas, mining areas, etc.

LUSPA works in collaboration with the NDPC to ensure settlement planning. The authority integrates NADMO, the agency responsible for DRM, into the Regional Spatial Planning Committee and the District Spatial Planning Committee. This agency must ensure that all regional and district land use and spatial planning activities are risk informed.

The district is responsible for issuing building permits through the District Planning Authority. When it comes to hospitals and schools, LUSPA can issue regulatory notices and circulars concerning approval of construction projects for educational facilities or hospitals. However, the National Building Regulations (1996) only highlight the necessity to take account of fire hazard and evacuation exits for buildings that will bring together a large number of people.

The Renewable Energy Act (2011, Act 832) mandates the Ministry to provide policy guidance and mandates the Energy Commission to implement these policies by maintaining government-private sector collaboration, providing education and issuing exploitation licenses. The Commission has the responsibility to coordinate with various government actors such as the Forestry Commission, EPA, METSI, MoFA, among others, since renewable energy includes wind, solar, thermal, hydro and biomass.

4.1.2 Challenges

 The acts, laws and regulations do not clearly reference DRR or climate change. The acts concerning the authorities responsible for applying laws and regulations and implementing policies do not even provide any guidance on DRR or climate change. Only LUSPA integrates NADMO into committees at the decentralized levels. However, the lack of capacity of NADMO staff hinders the integration of disaster risk reduction into plans, which are therefore not fully riskinformed.

- The lack of data on climate change and DRR prevents the policies from taking full account of emerging risks. For example, the flash floods prevention policies were published in 1999. Since then, the country has not revised it to adapt it to the new challenges.
- There is a mismatch between policy and implementation due to political issues, lack of capacity (human resources) and poor logistical capabilities. As a result, the institutions responsible are not fully implementing existing laws and policies. Additionally, there is a lack of effective coordination among actors, even though the engagement of other institutions required by law does not necessitate an MoU.

4.2 Access to information on disaster risk and climate change in spatial planning and infrastructure

4.2.1 Existing capacities

The current urban planning policies and plans integrate climate change and DRR. In fact, the plans establish the areas of common use and the public right-of-way. The plans clearly set the exposed and safe areas for settlement. For Greater Accra, there is a map presenting the different places and their possible uses. The consultation of this map is open to the public. That guidance makes necessary information available to guide the infrastructure projects in this area.

At the local level, the municipalities have the responsibility to inform and prevent construction in exposed areas or baffled places. However, lands that fall under protected areas are sometimes sold without approval from planning institutions, leading to illegal encroachment. While there are processes through which developers get Development and Building Permits, compliance remains a challenge due to a lack of resources.⁵⁹

The key critical infrastructure in social and economic sectors, such as highway networks, connecting bridges, health care facilities⁶⁰, electricity and water infrastructure systems, among others, are managed by various agencies and institutions. The analyses of their risk exposure are done by different actors (state agencies, universities, technical partners, etc.). However, this information is not centralized in a specific location with well-defined consultation procedures accessible to all stakeholders. For example, three different agencies are responsible to administrate, plan, control, develop, and maintain roads and related facilities: GHA for trunk roads, the Department of Feeder Roads for feeder roads, and the Department of Urban Roads for urban roads. They all produce information on disaster risks that may impact the infrastructure.

Despite the strategic role that road infrastructure plays in the socioeconomic development such as economic benefits, social services, travel and transport, gender opportunity enhancements⁶¹, reduction of pollution, among others, they could generate adverse environmental and social impacts. An EMU has been established at GHA to manage the risk that a road can generate, such as health and safety impacts; water resources impacts; landscape alteration; impacts on soils; land acquisition and property loss; noise and vibration impacts; potential impacts on cultural resources; minor habitat disruption; waste generation and disposal impacts.⁶² This unit has the responsibility to oversee environmental and social issues of the authority's mandate. The EMU operates under the Road Safety and Environment Division. This unit provides the GHA with the necessary information on potential environmental risks of the projects and supports risk-informed decision-making in the sector.

4.2.2 Challenges

While there is a ministry and agencies responsible for providing information on risk for road infrastructure decision-making, there is a lack of information produced by recognized institutions or agencies regarding other critical social infrastructure such as health facilities and schools. Even though some studies have been conducted by universities and non-state agencies, there is no centralized location for accessing this information with clear guidance.

4.3 Investment in disaster resilience in spatial planning and infrastructure

4.3.1 Existing capacities

The infrastructure sector is heavily impacted by disasters, and projections indicate that the impacts will worsen in the coming years. Under the high-hazard scenario for 2050, in the event of a probable future flood, the projected national damages could reach up to \$3.9 billion. Many regions are exposed and might face huge damages. The Accra Metropolis within the Greater Accra region shows the highest exposure, where the estimated damage losses exceed \$130 million. Losses are also high in the Northern and Western parts of the country.

Floods can cause more than just economic damage to roads, with differentiated consequences can also be observed on gender. The mobility of women can be restricted, especially if they frequently travel using footpaths. Furthermore, their access to health care facilities can also be affected, particularly access to health services related to pregnancy and family planning, or additional care responsibilities in the family.

Even though the road and rail infrastructure are highly exposed, the sector's long and mediumterm plans do not account for the impacts of climate change on roads and rail construction, including maintenance procedures and costs. They promote strategies, targets, and budget for mitigation measures, but not for enhancing resilience. In fact, the country lacks a strong integrated planning framework for mainstreaming adaptation and resilience in the transport sector.⁶³ In addition, the Road Design Guide (1991) does not include aspects of climate resilience that will ensure long asset lifespan. Recognizing the gap, the Ghana Infrastructure Conference in 2020 convened practitioners from Ghana and abroad to deliberate the revision of road design standards. This revision emphasizes the importance of considering the management of future climate risks and uncertainties. Such considerations are crucial for transport of exports, food distribution to rural areas, access to livelihoods, and overall economic growth and development.

The country does not have adequate funds for road maintenance and emergency repairs. In 2018, only trunk roads were totally maintained in the frame of routine and periodic maintenance. Only 28% and 55% of urban and feeder roads, respectively, were maintained. Increases in precipitation, flooding and temperature can increase the rate of surface deterioration, which adds to the cost of road maintenance. High intensity rainfall and flooding result in roads being washed away, and emergency funds available for repairs remain limited.⁶⁴

4.3.2 Recommendations



- I. Engage the relevant national institutions to 8. Review and adapt the policies on conduct regular disaster risks assessment at the district level to inform the spatial planning at the district level.
- 2. Coordinate with relevant institutions to have access to recent mapping of risks in the country in order to take disaster risks into account in territorial planning.
- 3. Reinforce the capacities of the institutions involved in spatial planning and infrastructure to be able to mainstream disaster risks and climate change in their work.
- 4. Reinforce the coordination mechanism between LUSPA and the other national institutions that are relevant to its works, particularly in DRR and climate change.
- 5. Reinforce the mechanism to monitor public and private construction according to existing policies and standards to avoid engineering issues that might lead to disasters at national and local levels.
- 6. Update the Road Design Guide published in 1991 in order to include aspects of climate resilience, to ensure long asset lifespan.
- 7. Create a specific fund for road maintenance and emergency repairs. This fund should be planned in accordance with the risk analysis produced on actual and emerging risk for those infrastructures.

- construction to integrate the dimensions of disaster risks and climate change.
- 9. Create a national registry for critical infrastructure in the country and update it with the necessary information on their exposure.
- 10. Empower the dedicated agencies to fully implement the existing laws and policies and promote a well-coordinated governance in the sector according to the responsibilities of the different ministries and agencies.

Photo: UNDP/Ghana

5. AGRICULTURE

Ghana has a land area of 23,853,900 ha with a population of 31.7 million and a GDP of about \$77 billion in 2021 (a per capita GDP of \$2 445 in 2021). Thus, Ghana is a lower middle-income country. The key exports are cocoa, timber, precious minerals, horticulture produce and fish. Cocoa is the number one export commodity, generating \$2 billion to \$3 billion each year. In rural areas, agriculture is a source of livelihoods for more than 75% of the population. The fishery sub-sector alone is a direct and indirect source of livelihood for 10% of the Ghanaian population. Despite its importance in the economy of the country and the existing policies that structure these fields, the impacts of disaster on them and the farmers, as well as the consequences in terms of food insecurity are recurrent. One of the causes is the low level of investment to build the resilience of the sector, even if there is a wellstructured early warning system.

Ghana's agricultural and food security sector is exposed to environmental risks such as the degradation of agricultural land due to smallscale mining, pollution, and the use of hazardous chemicals. Environmental degradation costs the economy 7% of GDP. The agriculture and food security sector also faces climate risks such as floods, droughts, tidal waves, rainstorms, and wildfires projected to increase in frequency and intensity due to climate change. Access to agricultural land is constrained by an insecure tenure system and encroachment for residential and industrial use. According to the 2020 Ghana Comprehensive Food Security and Vulnerability Analysis (CFSVA) Report, 3.6 million people are food insecure in the country, with 2.8 million people located in rural areas. Smallholder subsistence farmers who use very little improved technology with poor links to markets constitute the large segment of the population deriving their livelihoods from agriculture, making these rural communities vulnerable to economic and environmental shocks.

5.1 Institutional and policy framework for DRM in agriculture

5.I.I Existing capacities

The Ministry of Food and Agriculture (MoFA) coordinates the agricultural development in the country through eight technical directorates: Agricultural Engineering Services, Animal Production, Directorate of Crops Services, Plant Protection and Regulatory Services, Veterinary Services, Women in Agriculture Development, Statistics, Research and Information Directorate, and Directorate of Agricultural Extension Services. The Environment and CCU within the Directorate of Crops Services is responsible for the implementation of DRR and climate action in the agricultural sector, specifically on the coordination, implementation, dissemination, and capacity development. At the national level, MoFA coordinates with NADMO, the Ministry of Environment, Science, Technology, and Innovation (MESTI), the Ministry of Finance, the Ministry of Local Government and Rural Development (MLGRD) and development cooperation providers. At the MMDAs level, MoFA coordinates with the Department of Agriculture at the local level, and with the Regional Coordination Councils (RCC) at the regional level.

MoFA is a member of the National Disaster Management Council at the national level. As the role of the National Disaster Management Council is to advise the President on matters related to DRM in Ghana, MoFA has the same responsibility on agriculture and is represented in the Council by the Agriculture Chief Director. Similarly, the heads of the Department of Agriculture at the regional and local levels are members of the Disaster Management Committees. Indeed, the decentralized governance system places the responsibility of implementing CCA and DRM in the sector on local authorities. District preparedness plans, including the priorities of the agriculture and food sector, have been developed with a budget allocation typically set at 3% for emergency response. These contingency funds are limited and contingent on the availability of funds for a particular year and on the district assembly's priority areas. At the national level, the situation is equally critical; for example, it was reported that only GHS 200,000 (about US\$ 20,000 at the current rate) was allocated in 2022 for the Environment and CCU to implement DRR and climate action at the national level.

The Food and Agriculture Sector Development Policy (FASDEPII) contains the national vision for the food and agriculture sector - a modernized agriculture culminating in a structurally transformed economy and evident in food security, employment opportunities and reduced poverty. The specific objectives are as follows:

- I. Food security and emergency preparedness
- 2. Improved growth in incomes
- 3. Increased competitiveness and enhanced integration into domestic and international markets
- 4. Sustainable management of land and environment

- 5. Science and technology applied in food and agriculture development
- 6. Improved institutional coordination

The FASDEPII intends to advocate for better governance of risks in the agricultural sector, strengthen EWS, and put in place emergency preparedness and disaster management schemes, including contingency planning to ensure the poor have access to food during disasters, and establishing strategic stocks to support emergency preparedness. MoFA has developed a National Climate-Smart Agriculture and Food Security Action Plan 2016-2020 (Climate-Smart Agriculture Plan). The plan provides the implementation framework for an effective development of climate-smart agriculture on the ground with concrete actionable climate-smart agriculture and adaptation initiatives in all agroecological zones in Ghana. This plan has been validated by stakeholders at national and district levels.

There is currently no strategy, legislation, or plan in place at the regional and local levels to guide DRR and climate action. The harmonized regional development plans, which translate national policies into local-level planning, partially mainstream CCA in accordance with the guidance of NDPC. The NDPC guidelines explicitly prioritize the mainstreaming of climate change mitigation and adaptation, including the agricultural sector, as one of the priorities in the planning process. However, DRR is not systematically mainstreamed and is only considered based on the priorities identified by the district assemblies.

5.2 Access to information on disaster risk and climate change in agriculture

5.2.1 Existing capacities (strengths and weaknesses)

The SRID of the MoFA is tasked to provide statistics and information to stakeholders. The

relevant, accurate, and timely agricultural directorate's current functions include, among

others, conducting annual crop and livestock surveys, reporting on the current food situation, conducting market surveys and preparing weekly and monthly price data on major food commodities and agricultural inputs. The directorate currently does not generate data/information on disaster risk and climate change indicators in the agricultural sector. This has resulted in a lack of access to information on disaster risk and climate change related to agriculture.

MoFA, through the SRID, collaborates with various research institutions, government ministries, and departments, and multilateral organizations, including the Crop Research Institute, Soil Research Institute, GSS, FAO and WFP, to acquire and share data related to agriculture in Ghana. This data is seldom related to DRR.

MoFA's Mid-Term Expenditure Framework (MTEF) 2022-2025 presents its programme-based budget estimates for 2022. The budget contains a section on EWS and Emergency Preparedness which has an objective to "reduce risks associated with natural hazards and disease/pests' outbreaks and ensure the availability of adequate food stocks".

There were three main output targets for the 2022 budget:

- Level of infestation of fall army worm controlled.
- Enhanced surveillance and prevention of plant pests and diseases.
- Enhance disease surveillance and control.

The budget did not seem to include elements specifically on collecting, analyzing and disseminating adequate amounts of information on agricultural activities related to DRR. This makes it challenging to access information on the status and progress in adopting relevant agricultural DRR practices across the country. Moreover, the available data did not adequately cover drought and pest infestation. The ministry emphasized the constraints of a limited budget and insufficient personnel allocation for data collection related to DRR and CCA. There is very limited capacity in remote sensing in terms of equipment.

In collaboration with GMet, MoFA provides advisory services on climate-related information for small-scale agriculture producers through various channels, including mobile phones, radios and internet-based applications, particularly through the support of the Modernizing Agriculture in Ghana (MAG) project. However, the institutional arrangements for collaboration with GMet need to be strengthened, as some districts have reported the need to pay to access the climate information products and there is no formal arrangement between MoFA and GMet (MoU or SOP) on climate information.

MoFA collects information from the districts and produces a quarterly food security report on agricultural production, diseases, pests, hazards, and market monitoring reports on price and food availability. MoFA also has a collaboration with the RCPA (Réseau de Prévention et de Gestion des Crises Alimentaires / Food Crisis Prevention and Management Network) for the Cadre Harmonise assessment, which provides an integrated classification of the food insecurity situation in the country. While MoFA has a strong capacity to collect and analyze information, including through a web-based platform, it faces limitations in terms of IT tools, especially for remote sensing and GIS. This deficiency results in critical gaps in risk mapping and informed land use planning at the local level.

The government, through the SRID of MoFA, and the Nutrition Department of GHS, has, since April 2020, been collaborating with WFP and UNICEF, to strengthen its capacity to monitor food and nutrition security at the household level, as well as food commodity prices in 32 districts across the 16 regions and at the national level. This system is called Food Security and Nutrition Monitoring System (FSNMS), which produces quarterly bulletins for key stakeholders for preparedness and response actions.

Agricultural production in Ghana is predominantly rain-fed, and changes in rainfall patterns significantly impact the country's productivity and economy. To address this challenge, the United Nations Environment Programme (UNEP-DHI) partnership, with support from Climate Technology Centre and Network (CTCN) based on a request from the Water Resources Commission in Ghana, has provided technical assistance. This assistance is focused on designing, developing, and implementing a Drought Early Warning System to enhance adaptive capacity within the agriculture and water sectors towards climate variability and change in Ghana. The Drought Early Warning System is a web-based portal that enables access to near real-time data related to drought. There is also an early warning weather forecast that predicts changes in the weather that could inform preparedness actions in order to prevent destruction to land and crops

and also to respond appropriately when disaster occurs.

A significant level of the Ministry's funding for DRR activities comes from development partners through periodic and targeted projects. This results in geographically limited data collected because the focus is on the geographic locations of interest to the donor-funded projects.

Inadequate levels of collaboration at the regional and district levels were seen to result in reduced access to context specific information on DRR activities for agriculture officers. For example, the Western Region Department of Agriculture and the Agriculture Department at the Shama District were not members of the Regional and District Disaster Management Committees, respectively. Consequently, it has resulted in poor synergies in some activities and limited opportunities for the district's agricultural officers to contribute their expertise in DRR issues related to agriculture.

5.3 Investment in disaster resilience in agriculture

5.3.1 Existing capacities (strengths and weaknesses)

Investment in DRR and CCA in Ghana is limited without any direct budgetary allocation for DRR/ DRM/CCA, hence the responsive approach to disaster management. The Medium-Term Expenditure Framework 2022-25 for Agriculture (MTEF Agriculture) includes a provision for EWS and emergency preparedness, with a budget allocation of GHS 72,294,070 cedis (\$5,184,350 in October 2022). The allocation is to build capacity to reduce risks associated with natural hazards and disease/pests' outbreaks and ensure the availability of adequate food stocks. Climate Change Resilience and Mitigation are also among the priorities of the MTEF Agriculture, with a small allocation of GHS 30,000 (\$2,151.36 in October 2022) for vulnerability risk reduction. At the national level, limited funds are allocated to MoFA to promote climate mitigation strategies

in the agriculture and food sector. However, this is not the same for the regions and districts. The regions promote CCA and mitigation as integrated into all agriculture and food sector activities. The district assemblies set the priorities in the district development plan in terms of DRR and CCA. Fund allocation for agriculture is minimal and access to the very limited funds for agriculture is nearly impossible for District Departments of Agriculture.

Investment in DRR and CCA in the agriculture and food sector in Ghana is largely dependent on projects from development partners and other donor agencies supporting the sector. The systematic mainstreaming of DRR and CCA are mostly done as part of donor-funded project requirements. There are no dedicated funds for DRR at the regional level, but limited disaster management funds are ear-marked at the district level by the district assemblies.

Projects and initiatives have supported the capacity development of staff of MoFA, especially at national level in DRR and CCA. However, the regional and district Departments of Agriculture have limited capacities in DRR and CCA.

Projects and initiatives make funds available to strengthen the resilience of the agriculture and food sector on climate change and DRR. Dependence on donor-funded projects and initiatives is not sustainable.

Investment in capacity development of agriculture and food sector staff in data collection, analysis, and communication in DRR and CCA is required to make the agricultural sector more resilient to climate change and disasters. Advances in technology, software and hardware, provide the opportunity to adequately forecast, and generate early warnings to enable early preparedness, response and action to avert and/or reduce the impact of disasters in the agriculture and food sector. There is adequate investment in technology at the national level for DRR, early warning and CCA. However, there is limited support to the regions and districts. The MAG programme and other projects and initiatives support the national level, an example being the Agriculture Early Warning System platform under development.

There is a notable disparity in investment, with more resources allocated at the national level compared to the regional level and district Departments of Agriculture, in terms of technology and logistics. The sector is unable to provide specific training in GIS and other tools for data collection, risk assessments and mapping at both national and decentralized levels.

5.4 **Preparedness for response and recovery in agriculture**

5.4.1 Existing capacities (strengths and weaknesses)

Food security is a fundamental aspect of human and social development. According to the 1999 World Food Summit⁶⁵ working definition, food security describes a situation in which "all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life". Two of the objectives of the 2020 Comprehensive Food Security and Vulnerability Analysis (CFSVA)⁸⁹ were to ensure capacity for Ghana to adequately prepare and respond to food and nutrition security as follows:

- Identify where, when, and who Ghana's food insecure are, as the basis for remedial policy action to tackle food insecurity, including targeting of Food and Nutrition Security (FNS) social protection programs, and building disaster preparedness and response capabilities.
- 2. Initiate preliminary analysis on the unprecedented dataset generated by the CFSVA⁶⁶ (Comprehensive Food Security and Vulnerability Analysis) to investigate explanations of food insecurity outcomes – nationally and regionally – as the basis for adapting preventive policy actions that address root causes, including monitoring and 'early warning systems', enhancement of food and marketing systems, livelihood promotion and infrastructure development.

The findings from the 2020 CFSVA provide data on food security, as in where the food insecure are located and actions that could be taken to reverse the situation. It also makes data available for forecasting to prevent or respond to disasters that may affect food security and agriculture. The information produced through the Food Security and Nutrition Monitoring System (FSNMS) is an important resource to support the development of preparedness and recovery plans and strategies. However, it is worth noting that, at various levels, the agricultural sector lacks preparedness and response plans to effectively respond to disasters when they occur.

On the other hand, the government has some capacity in the areas of preparedness and response to DRR, DRM and CCA. There is a mechanism in place for regular data collection, analysis, and dissemination to provide early warning triggers, early detection, early response and early action on agriculture-related disasters at the various national and regional Departments of Agriculture (RDAs). With the support of implementing partners, the agriculture departments have some technological devices such as computers, tablets, and data collection software to support DRR/ DRM/CCA digital data collection, analysis and dissemination. However, there are challenges with financial capacity to carry out regular and upto-scale data collection, analysis and dissemination in the agriculture sector. The sector is heavily dependent on donor support to carry out most of the research works to provide early warning triggers, early detection, early response and early action on agriculture related disasters.

Despite the challenges, the government is taking action in terms of mitigation and response. To mitigate the impact of climate change, the agriculture department is promoting early maturing and drought resistant crop varieties to reduce the time between crop cultivation and harvesting. This will enable farmers to harvest their produce in good time before disasters set in. In order to reduce the effects of climate change, there are systems in place at the various regional and district levels for the agriculture department to conduct farmer education on climate change adaptation and mitigation measures. However, this is not activated frequently and timely due to financial constraints.

There are Regional and Metropolitan/Municipal/ District Disaster Management Committees made up of all departments and agencies involved in disaster management, with NADMO serving as the secretariat at all levels and the Regional Minister or Metropolitan/Municipal/District Chief Executive as the Chairperson at the respective levels. These committees are in charge of planning and executing interventions to prepare and respond to disasters at the various levels. The committees are supposed to be equipped with action and contingency plans to be able to act swiftly, but these are non-existent at most of the Metropolitan/Municipal/District levels. It was evident that most of the committees which had plans in place only had the contingency plans and not the action plans. However, it was observed at the various levels that the Disaster Management Committee meets on an ad hoc basis or is inadequately coordinated at some locations in the country. In areas where the Committee is active, it faces logistical challenges, and coordination issues affect its preparedness activities, making it mostly reactive to emergencies. There are challenges related to the ineffective or unavailability of EOCs for the Metropolitan/Municipal/District Disaster Management Committees that could support the committees for effective response to emergencies, including disasters in the agriculture and food sector.

5.4.2 Recommendations



In view of the above, the following 6. recommendations are proposed:

- Allocate in the MoFA budget dedicated, flexible, and predictable funding for the implementation of DRR and CCA activities in the agriculture and food sector, to reduce the dependance of the sector on donor support.
- 2. Conduct regular DRM committee meetings in compliance with the law for quarterly meetings, to strengthen coordination with line ministries and agencies as well as development partners involved in the sector.
- 3. Reinforce the coordination mechanisms and institutional arrangement at the regional and district levels with NADMO and other relevant organizations to ensure effective and efficient communication and coordination within and across sectors at all levels on DRR and CCA related to agriculture.
- 4. Mainstream DRR/DRM/CCA into intervention plans through cross-sectors engagements and clearly defined roles and responsibilities in the agricultural sector and at sub-national levels.
- 5. Build the capacity of the existing human resources at all levels and reinforce the quantity, particularly at the regional and district levels, to ensure that they can play their role well, whether in regional/district committees or in the implementation of government programmes.

- 5. Build capacity for government institutions on people-centered EWS (identification, monitoring, and communication of risks) and early warning data collection, especially on remote sensing and GIS tools.
- 7. Expand access and harmonize web-based data platforms at local and regional levels for the agriculture and food sector and other related sectors.
- 8. Include research and data gathering on DRR, disaster management and CCA related to agriculture as a core function of the SRID of MoFA.
 - Plan an adequate funding line for research and information dissemination on DRR and CCA related to agriculture in Ghana.
 - Enhance the capacity of frontline personnel through training on data, information, awareness, and the necessary skills needed to effectively implement DRR and Climate Action on the ground.
- 9. Prepare multi-hazard preparedness plans and conduct a regular review to update the plans for the agriculture and food sector.
- 10. Establish SOPs for timely and livelihoodtailored input to support interventions based on the needs and the available resources.
- 11. Establish and equip at least one EOC at the RCC level to enable the various disaster management committees to effectively coordinate disaster response.

Photo: NADMO/Ghana
6. ENVIRONMENT

The country's institutional and policy framework to address the major environmental hazards is well-designed with well-structured institutions. However, the lack of clarity about specific roles and responsibilities assigned to each institution undermines the effectiveness of their interventions, particularly concerning DRR in the environmental sector. Implementing actions to reduce environmental risks is also affected by the lack of leadership in applying laws and the allocation of required resources (financial or material).

Vulnerable communities, especially those along the coast, take measures to minimize potential damage caused by environmental risks such as coastal erosion, marine pollution, among others. However, the lack of EWS results in underpreparedness of these communities. The lack of information or early warning is not only observed at the community level but also at the national level. Some institutions generate and disseminate information on specific environmental hazards but do so at unpredictable or sporadic intervals. Their limited capacities and the lack of coordination between them hinder the production of high quality and reliable information.

Finally, some investments have been made to protect the exposed and vulnerable populations. These investments have mostly been dominated by external fundings from international partners because the government does not have a specific fund to reduce environmental disaster risks, and in case of environmental disaster, the national institutions do not have any preparedness plans.

6.1 Institutional and policy framework for DRM in environment

6.I.I Existing capacities (strengths and weaknesses)

The country has a range of policies, acts, and institutions aimed at protecting the environment or ensuring that the population lives in a sustainable environment. Article 36 (9) of the 1992 Constitution mentions that "the State shall take appropriate steps needed to protect and safeguard the national environment for posterity; and shall seek cooperation with other states and bodies for purposes of protecting the wider international environment for mankind". Article 41(k) of the Constitution also requires that all citizens protect and safeguard the environment.

The Environmental Protection Council was created in 1974. It became the EPA through Act 490 in 1994. Even though the act does not explicitly refer to disaster management or climate change, it empowers the agency to manage the industrial waste from the collection phase to the disposal phase, while ensuring the needed coordination with other entities. It also empowers EPA to request the initiation of an EIA process, where relevant. In addition, the agency has the authority to deliver environmental permits regarding the management of hazardous waste.

The EPA Act is seconded by the Hazardous and Electronic Waste Control and Management Act, 2016 (Act 917). This act provides more precision on the management of hazardous waste and the authorities to prevent environmental damages as well as the creation of an Electrical and Electronic Waste Management Fund. In addition to these acts, the government developed a National Climate Change Policy in 2013, which focuses on adaptation, social development and mitigation. The plan highlights the impacts of climate change on the poor represented mostly by women, children, the aged, and the physically challenged. On disaster preparedness and response, this plan recognizes the interplay between climate change and disasters, specifically acknowledging the heightened intensity of such events.

The National Environmental Policy (NEP) 2012, analyzes the characteristics of various environmental hazards and issues such as biodiversity loss, water pollution, marine and coastal degradation, mining and industry, urbanization, oil and gas industry, e-waste, chemical, among others. The policy presents multiple actions that can help to reduce or mitigate the effects of environmental hazards on the population and/or on the environment. While disaster is analyzed as an environmental challenge, the policy integrates disaster prevention and preparedness in terms of coordination between the sectors that can suffer from or cause environmental damage.

The National Biodiversity Strategy, developed in 2002, analyzes the impacts of climate change on biodiversity and proposes solutions for the sustainable use of these resources. The National Wetlands Policy (1999) provides the main orientations to protect wetlands and ensure their benefit to the environment. While this policy doesn't explicitly integrate DRR or climate change, it plays a role in mitigating disaster risks related to water, floods, erosion, and storms. By guiding sustainable use of wetlands, the policy contributes to enhancing resilience in socioeconomic sectors like fishing and agriculture.

The above-mentioned acts shape the institutional arrangements in the sector to elaborate, review and implement the policies and strategies in order to protect the environment from disasters and to prevent it from causing disasters. Indeed, MESTI has the responsibility to protect the environment through policy formulation.⁶⁷ As part of the Natural Resources and Environmental Governance (NREG), the government has established an interministerial entity, the Environmental and Natural Resources Advisory Council (ENRAC) chaired by the Vice President with II members. This Council functions as an oversight and facilitates the Environment and Natural Resources Management (ENRM) policy reforms.

EPA is the implementing agency of MESTI, responsible for enforcing environmental policy and legislation, prescribing standards and guidelines (on, but not limited to, air, water, land pollution), and works to prevent disasters and reduce environmental risks by exercising control over the actors. It currently has I2 district zonal offices in Greater Accra (Accra East, Accra West), Brong Ahafo, Ashanti, Central Eastern, Upper East, Northern, Upper West, Western, Volta, and Tarkwa that liaise with MMDAs and communities.

Within the structure of MESTI is the Environment Directorate, which is directly responsible for harmonizing the coordination and implementation of the National Environmental Policy and National Climate Change Policy and, by extension, CCA plans and programmes. This directorate also coordinates and monitors the implementation of plans and programmes related to spatial development and environmental conventions to which Ghana is a signatory. MESTI is a member of the national and regional DRR platforms. At the national level, MESTI is represented on the DRR platform by the Director of the Environment Directorate.

These arrangements facilitate coherence between CCA and DRR across ministries and agencies. However, Ghana's decentralized governance system places the responsibility for implementing CCA and DRM on local authorities. The NDPC and MLGRD provide technical capacity support to local authorities in formulating their Mediumterm Development Plans to include CCA and DRM implementation at the local level.

6.1.2 Challenges

- Despite the existence of these policies, regulatory and institutional frameworks, the country is facing challenges in managing environmental issues, such as illegal gold mining. This is mainly due to the lack of effective coordination and leadership that leads to functional overlap. Some institutions do not have the legal capacity to enforce actions based on the existing laws.
- DRR is not comprehensively addressed by current policies and strategies – at best they only address profile hazards such as droughts, landslides and coastal erosion. Although climate change is frequently identified as a trigger in various documents, specific actions against its effects are not clearly outlined in any document. CCA is very weak in the different policies and strategies.
- Even if EPA has offices in most of the regions, this structure does not have the compliance system and the strong environment policies to implement activities aimed at reinforcing

the protection of the environment at regional and district levels. The coordination with the other actors, specifically with DRR actors, is limited and the budget allocated to the local level is not sufficient.

- ENRAC does not have a dedicated budget and they work in an ad hoc manner. This structure is not able to effectively fulfill its function.
- The National Climate Change Policy does not include legal requirements for integrating climate change into local governments' budgets, resulting in challenges in enforcing such budget allocations. This leaves the integration of climate and disaster risk management at the discretion of local government officials.
- All the policies and strategies in this sector were written before the Sendai framework. So not only do they not take into account the guidance of this framework, but they do not really incorporate DRR.

6.1.3 Recommendations



• Policy framework

- Empower the regulatory agencies as EPA to enforce the legal standards and regulations such as the conduction of EIAs where relevant. To achieve this, the agencies must work independently without any external interference.
- 2. Review the existing policies, strategies or plans in the environment sector to mainstream or ensure the mainstreaming of DRR in the implementation of plans, while waiting for the review of the main documents,

and include legal requirements to finance the local governments.

3. Promote the nature-base adaptation solutions in the environment strategy to address disaster risks and enhance the protection of the population.

Institution

 Conduct regular capacity building for environment actors at the national and local (MMDAs) levels on how to integrate CCA and DRR into their plans and strategies.

- 3. Reinforce the coordination between the different entities involved in implementing policies and strategies in the sector at all levels, and ensure the clearance of the different responsibilities between the lead institutions and their dependents.
- Empower the local level to make decisions in the implementation of activities aimed at reducing disaster risks and mitigate environmental risks while allocating sufficient budget on time to the local authorities.
- 5. Enhance the capacities of EPA to force the institutions to comply with its authority to avoid environmental disasters in the mining exploitations, as well as the manipulation of hazardous substances.

6.2 Access to information on disaster risk and climate change in environment

6.2.1 Existing capacities

Currently, there is no information system specifically for the environment sector. However, various actors involved in different environmental aspects do produce and share information among themselves and with other relevant parties. While there are established entities that cover many natural hazards, particularly hydrometeorological ones, there is currently no such structure for data collection and sharing regarding environmental hazards. Here are the ways information is collected in the sector:

Marine pollution

According to the Act 916 published in 2016, the Ghana Maritime Authority, in collaboration with EPA and any other relevant bodies, monitors the marine environment and produces information on any potential or imminent danger of damage due to pollution. This information is shared rapidly to the government and other states that can be affected by the pollution. The Authority also informs the regional and international organizations involved in the protection of the marine environment.

Plastic waste

The Ghana National Plastic Action Partnership (GNPAP) is the entity that collects information on marine plastic litter, in collaboration with MESTI, and informs the concerned governmental actors such as EPA, and the Ministry of Sanitation and the Ministry of Tourism, Art and Culture. They work closely to find effective ways to deal with the menace of marine plastic litter. The GNPAP, on its side, has put in place a system to gather relevant information and reduce the effects of this menace. Among other actions, it raises awareness on waste management and works to foster behavioral change regarding the reduction of single-use plastic consumption.

Coastal erosion

Over 12 years, about 37% or 138,118.239 m² of 375,229 m² land has been lost in the coastal areas due to coastal erosion. At the same time, the mangrove forest is declining at a rate of 8.1 km2 annually because of overcutting, land conversion, wildfires, pollution, overgrazing and natural death from diseases. The decrease in the mangroves is a serious trigger for coastal erosion. The EPA has the responsibility to coordinate with other entities to collect data on coastal erosion and the mangroves, in collaboration with MoFA.

Dissemination of information

The EPA undertakes various initiatives to inform the population and specific actors on protecting the environment. They conduct sessions on environmental sustainability for members of faith and community-based organizations as vectors to pass the information to their followers. They support the environmental NGOs to sensitize the population at the local level and also produce sensitization materials such as flyers, booklets,

6.2.2 Challenges

- The absence of an environmental surveillance system hinders the exchange of information among various environmental stakeholders and makes it difficult to monitor all the environmental hazards.
- Many institutions are generating information on environmental risks independently, resulting in limited and fragmented information. This situation persists unless the information is

6.2.3 Recommendations

wall-charts, and environmental education materials for public education.

The EPA has established a Climate Change Data Hub, which aims to provide a portal to disseminate information on Ghana's actions to tackle climate change and the associated benefits (e.g., a climaterelated project pipeline, actions under the NDC, GHG inventories)⁶⁸. It also contains information on relevant policy documents, such as the country's NAP Framework.

specifically produced within the framework of a project implemented by a technical or financial partner.

 The current EWS does not consider the environmental hazards. Even though some agencies share information to the public on those hazards, environmental education is irregular and limited to where the population is more accessible.



- 1. Create a network of institutions involved in environmental risks in the country under MESTI or EPA.
- 2. Establish a comprehensive database for managing data related to environmental risks and keep it updated.
- Establish a MoU with the private sector and NGOs working on the environment to share their data with the government, as well as the lessons learned in preventing or reducing environmental disaster risks.
- 4. Coordinate with NADMO to integrate the environmental dimension into the EWS.

5. Reinforce the materials available for the surveillance, anticipation, and understanding of environmental risks.

6.3 Investment in disaster resilience in environment

6.3.1 Existing capacities

The government has initiated projects to protect the population from environmental disasters in the most exposed areas. For instance, the government is investing in sea defense projects. Some are completed in areas like Keta, Sakumono; others are ongoing in New Takoradi, Adjuna, Aboadze, Ada, Axim, and Komenda, and four are at the planning stage. The sea defense projects were funded by the World Bank. While projects have made communities in Anloga and Keta feel more protected from tidal waves and coastal erosion, they do not fully cover the exposed coast.

It is difficult to have a clear estimation of the budget spent on reducing environmental risks. However, the 2022 planned budget for MESTI allocates 40%⁶⁹ to environmental protection and management, which can take into account environmental risk reduction. This allocation reflects the significant emphasis the government places on this sector.

Investment in DRR in the environment sector is not predictable. Development partners (the World Bank, UNDP, WRC, etc.) have been at the center of the ongoing investments in DRR. Even though these investments have contributed to the country's progress in the DRR space nationally, effective operationalization of the national funding mechanisms will be necessary to firm up action on the ground in DRR.

6.3.2 Challenges

- In addition to the limitation of investment in the sector, the management of environmental resources is not sensitive to the reduction of disaster risks. For example, the declassification of forest reserves and protected areas negatively impacts the environment.
- Despite the huge impact of illegal mining (galamsey) on the environment (depletion of forest reserves and pollution of water resources), there is yet to be real investment to tackle this phenomenon.

6.3.3 Recommendations



- Position Ghana to enhance its access to grant funds such as Green Climate Fund (GCF), Global Environment Facility (GEF) and Adaptation Fund (AF) to address the funding gap in CCA and DRR.
- 2. Increase investment in nature-based adaptation to reduce environmental

risks, especially in green infrastructure (mangroves) for coastal protection as well as other infrastructure such as sea defense.

 Reinforce the control of the exploitation of natural resources and mining to prevent more damage to the environment that will necessitate more investments to address the risks created.

4. Incorporate a dedicated budget line in the Ministry's or EPA's annual budget,

specifically for investment in environmental risk reduction. This will ensure more sustainable interventions compared to the development partners' funding.

6.4 Preparedness for response and recovery in environment

6.4.1 Existing capacities

For disasters induced by environmental hazards or environmental disasters caused by sudden-onset natural hazards such as tidal waves or storms, there are no preparedness plans or capacities at the national or local levels. In existing emergency plans (national and regional), environmental risks are not mentioned as disaster risks to be prepared to and to respond to. Even if, at the local level, the population has developed practices (heaping of sand and tree planting in Anloga or Keta, among others) to reduce the impacts of these risks, they do not have the capacity to anticipate them, nor to respond to the emergency they may generate. They also do not get access to information on such risks through national channels.

In addition, there is no recovery plan. Mostly, the affected people and communities take action based on their own capacities and knowledge to repair and adjust the settlements. At the district level, the district assemblies act on a case-bycase basis to resettle the affected communities. The local assembly can engage in discussions with the landowners to allocate land (with no compensation) of various communities for the resettlement of affected people. In Anloga, the affected people created a community named New Fuveme on an allocated land. This procedure is a kind of substitute for the lack of funds to support response and recovery at national and local levels.

The private sector, through the Private Enterprises Federation (PEF), Association of Ghana Industries (AGI) and the Ghana Chamber of Mines makes donations on a voluntary and philanthropic basis to support disaster response or recovery, but these actions are not formally planned with the authorities or the communities.

6.4.2 Challenges

- There is no specific preparedness plan for the environment sector and environmental risks are not considered in the existing contingency plans. Also, response and recovery operations are not the priority of the national authorities in such disasters. The local authorities, already lacking financial and material resources, are mainly the ones who act to respond in an ad hoc manner.
- When the affected people resettle on an allocated land, the needed infrastructure does not follow. For example, the dredging of the estuary at Fuveme to allow the free flow of the river and lagoons into the sea was delayed, exposing the population to floods.

6.4.3 Recommendations



- I. Elaborate response and recovery plans to 2. Integrate the environmental risks into the protect the most exposed populations.
 - Integrate the resettlement of the • affected communities into the recovery plan in a way that will not take communities away from their livelihoods.
 - Create better coordination between the institutions to ensure the construction of the necessary infrastructure in the places of resettlement.
 - Dedicate specific funds to recovery actions linked to environmental disasters.

- national contingency plan to attract the attention of the actors.
- 3. Insert the environmental risks into the existing EWS and reinforce the capacity of the local actors in the dissemination of information regarding these kinds of risks.
- 4. Initiate discussion with the private sector to integrate them into the national disaster management system, particularly to integrate them into the response and recovery plans for the environment sector.

Photo: UN-HABITAT/Ghana

1.12 2

7. WATER, SANITATION AND HYGIENE

The principal WASH disaster risks in Ghana are flooding, tidal waves, and contamination of drinking water. Slow onset risks are droughts, groundwater depletion and coastal erosion. Secondary WASH risks are water-related disease outbreaks and food security crises.

Women and children are disproportionately affected by the effects of WASH disasters. In Ghana, women maintain the primary responsibility for managing water in most households. WASH risks, which affect health or access to clean water, therefore increase time and energy spent by women. Children, on the other hand, are vulnerable to flooding and water-related diseases.

Institutionally, the WASH sector is coordinated by the Ministry of Sanitation and Water Resources (MSWR), which works in collaboration with the following ministries: Health, Local Government and Rural Development, and Education. Although policy frameworks for water resource management, public health, and waste management exist, their operationalization is hampered due to weaknesses in resource allocation, capacity, and enforcement of regulation.

7.1 Institutional and policy framework for DRM in WASH

7.1.1 Existing capacities

The MSWR is responsible for policy formulation and coordination in the WASH sector. Agencies under the MSWR include two water utilities – the Ghana Water Company Limited (GWCL), that serves urban areas and large towns; and the Community Water and Sanitation Agency (CWSA) that provides services to rural communities and small towns. The Water Resources Commission (WRC), which regulates the utilization of water resources in Ghana, also operates under the oversight of the MSWR.

The MSWR is responsible for the policy framework on environmental sanitation and waste management (both solid and liquid). Operationally, sanitation is managed by Metropolitan, Municipal and District Assemblies (MMDAs), which are coordinated by MLGRD.

Operationally, WASH DRM and response, particularly for risks like flooding, happen at the

decentralized level. Flooding risks in the long term are also linked to climate change, and for this reason, EPA also has an important role. Management of WASH disaster risks in the health and education sectors is the responsibility of sector ministries – Ministry of Education (MoE) and Ministry of Health (MoH).

The legislative and policy framework of the WASH sector is predictably complex. Below is a list of documents which define the framework for WASH strategy, governance, and operationalization, and by extension framework for DRM and EPRP in the sector:

 Water Resources Commission (1996) Act 522 – The Act mandates the WRC to coordinate the development of the country's water resources with due consideration for water use regulation, as well as quality management and pollution prevention.

- National Water Policy (revision ongoing)

 The revised National Water Policy (2022) provides an enhanced focus on climate change and environmental sustainability in the development of the country's water resources for both consumptive and non-consumptive use.
- National Climate Change Policy This policy sets out the framework for climate change mitigation and adaptation in Ghana, including key roles and strategic focus areas for the country.
- Environmental Sanitation Policy (2010) – Although the policy has no specific section on DRR, one of its major underlying principles is the precautionary principle that seeks to minimize activities that have the potential to negatively affect the integrity of all environmental resources.
- Public Health Act (2012) Act 851 The act defines country-level systems and key roles for the management of public health, including areas of relevance to the WASH sector, such as communicable diseases, water supply, and environmental sanitation.
- National Environmental Sanitation Strategy and Action Plan – The document outlines the country's strategy for ensuring environmental sustainability by adopting the

7.1.2 Challenges

 The key challenges under institutional frameworks for WASH DRM are coordination and fragmentation. Coordination platforms, where they exist, are often duplicated. For example, although public health emergencies often require WASH actions for resilience, preparedness and response, coordination platforms for WASH and Health may run concurrently and parallel to NADMO's own efforts. The WASH in Emergencies Technical Working Group (WinE – TWG), led by the Materials in Transition (MINT) approach as a major tool in the management of environmental sanitation. It also looks at the implications of climate change on the management of environmental sanitation in Ghana.

- National Drinking Water Quality Management Framework – The Framework recommends adoption of the Water Safety Plan (WSP) approach, which is a risk-based tool for water quality management to proactively avert public health risks. Component 5 of the framework also focuses on the management of incidents and emergencies.
- Riparian Buffer Zone Policy This policy is geared towards maintaining the ecosystems and carrying capacities around the country's rivers to reduce the risks of disasters, such as floods. The policy also gives some consideration to using these buffer zones to promote the development of net carbon sinks.
- Local Government Act 2016 (Act 936) – The act defines the structure and key roles of the local government in the context of the country's decentralized governance system. Part 4 of the act provides the roles of MMDAs in DRM and emergency preparedness and response across all social services at the local level.

MSWR, was established under the WASH Sector Working Group to provide technical support to the NADMO structure (ref. Appendix I). However, the linkages with the GHS, which is responsible for technical leadership in public health emergencies, and the MSWR are not optimal. Consequently, the participation of the WASH sector is not always prompt and could be improved.

- In terms of addressing resilience through development planning, there is apparently no clear coordination. Sector plans have generally been formulated without discussions on DRM at the strategic level.
- The presence of a detailed and complex institutional framework for WASH is also

hampered by weaknesses in regulation and enforcement. Surface water contamination from extractive, industrial and sanitation waste continue to be unconstrained by current enforcement models. Weak land-use management systems also exacerbate risks of flooding and disease outbreaks.

7.1.3 Recommendations



- Conduct and sustain advocacy to build political will on planning and enforcement of existing acts and laws.
- 2. Map and streamline DRR working groups across sectors, as well as roles and communication lines at all levels.
- Strengthen enforcement and regulation around land-use management (see recommendations under Section: Infrastructure planning).

7.2 Access to information on disaster risk and climate change in WASH at national and local levels

7.2.1 Existing capacities

Ghana has a strong capacity for development of knowledge and evidence on WASH risks. Research centers on public/environmental health, climate change, water supply and sanitation exist in most publicly funded universities. Lead and supporting ministries – MSWR, MoH, MoE, MLGRD and MEST – coordinate long-term projects on urban planning and WASH DRM, which include components on evidence generation and knowledge management. Available evidence on the disaster risks rank indicates that public health and hydrological hazards are ranked as the most prominent concerns in Ghana. Most public health risks – Ebola, Cholera and Pandemic Influenza – are WASH-related. This means that WASH-related risks dominate DRM in Ghana.

7.2.2 Challenges

 Funding seems to be the primary constraint for the generation of relevant evidence. Research institutes do not have enough core funding for conducting research. When funding is available, it is often from foreign sources tied to projects. This prevents research from being thematic, as it instead focuses on specific geographic areas. This factor is compounded by the multiplicity of roles and actors in the WASH sector, which means that different sectors and institutions may not have access to the full knowledge base relevant to them.

- Another challenge identified was the limitation in communication between the national DRR institutions and communities. This problem is twofold:
 - Communities, for example, put in place communication centers to share information to the communities but these are often not leveraged as part of risk communication strategies in high-risk areas. National institutions/ agencies need to engage communities more actively to improve general riskawareness and the management of WASH disaster risks, including their roles and responsibilities, and to develop an appropriate risk culture.
 - The other half of the communication challenge lies in the opposite direction. Knowledge from communities is often

disconnected/isolated from institutions. For example, indigenous knowledge and skills that are valuable for adaptation in certain areas are left overlooked, dissipated, or remain sequestered in rural communities.

EWS vary. Very well-developed systems exist for public health emergencies, along with effective means to communicate to WASH sector actors. Community engagement as part of obtaining early warning information is often limited. Community members are not clear on lines of communication for WASH risks, or are even not aware of what the risks are. This problem is also top-down communication channels from agencies such as the Ghana Meteorological Service may be timely but may not provide appropriate information (understandable, actionable, accessible). Currently, sector agencies do not have any clear, coordinated roles within EWS at the various levels and, therefore, are not actively involved in sharing risk information, except during emergency response.

7.2.3 Recommendations



- Develop and fund progressive, multisectoral risk assessment plans to cover geographical gaps.
- 2. Improve knowledge sharing and in-service DRR learning for decentralized staff.
- 3. Review and define roles for all key actors in EWS and risk communication.
- Integrate community engagement, cocreation and knowledge harvesting into operational guidelines for WASH DRR MDAs, especially at the decentralized level.

7.3 Investment in disaster resilience in WASH

7.3.1 Existing capacities

The WASH sector, through the MSWR and MMDAs, invests in WASH disaster resilience through operational activities. These are primarily through risk-based programming around sanitation and hygiene at the decentralized level, as well as integrated water resource management (IWRM) activities carried out by WRC.

The enabling environment for investment in disaster resilience is defined in various policy documents such as the Revised Water Policy and other sector strategic documents (including the National Environmental Sanitation Policy). The MSWR, with support from UNICEF, also initiated a Resilience Study in November 2022 to further review the responsiveness of the policy and institutional frameworks to resilience/riskbased programming. Practically, this may be

7.3.2 Challenges

- Due to the relatively low-risk context, investments in resilience building are still not a top priority. In the face of limited funding, other operational priorities include disaster response and crowd out funding for disaster resilience activities. The problem is further compounded by the limited and untimely release of budgets, especially in terms of recurrent funds.
- Information on low-cost hydrological resilience models such as Ecosystem-based Adaptation (EbA) exist, but with limited research investment, dissemination is only project-driven.
- Resilience is also constrained by limitations in the existing knowledge base for effective planning and budgeting. Institutional capacity and knowledge on topics such as climate resilience are high at central government and

challenged unless medium term development plans and centralized budgets clearly identify and prioritize disaster resilience. Currently, clear budgetary provisions do not exist for DRM. For decentralized-level resilience activities, MMDAs are expected to make budgetary allocations for both disaster preparedness and response.

With specific reference to drinking water supply, the GWCL has operational guidelines on DRM, which include strategic actions to improve the resilience. Since this plan is funded by the operational budget of the company, with some central government support, the priority is for capital maintenance expenditure as against capital enhancement. The CWSA, as part of strategic actions to improve services, also integrates some climate resilient technologies.

agency headquarters but diminish significantly at the decentralized level. This may explain part of the disparity between policy and operationalization.

7.3.3 Recommendations



- I. Develop and fund context-relevant emergency financing, including reserve funds and DRR insurance.
- Strengthen evidence-based advocacy from key partners to government on the prioritization of investments in resilience building and financing resilient WASH services.
- 3. Develop and operationalize SOPs for costed DRM planning as part of guidance for consolidated budget preparation.
- 4. Improve the knowledge base and in-service DRR learning for decentralized staff.
- 5. Review and strengthen coordination framework and mechanisms for agencies which have a role in resilience building within the WASH sector.

7.4 Preparedness for response and recovery in WASH

7.4.1 Existing capacities

There is an enabling environment for disaster response, and it is well documented. All MMDA budgets are obliged to include plans and budgets for disaster preparedness and response. Outside of these frameworks, national laws allow for spending beyond budget thresholds in times of disaster.

The political will for investment in WASH response during hydrological or public health emergencies is high. As mentioned in the previous section, plans for WASH disaster response also

exist in various WASH governmental agencies. An example would be the GWCL whose plans include contingencies for continuing drinking water services in emergencies (see appendix I).

Human resources are present at both the national and decentralized levels to plan for and respond to emergencies. Again, as referenced under the WASH institutional framework section, platforms exist for cross-sectoral and inter-agency response at national and decentralized levels.

7.4.2 Challenges

- Prioritization and planning for WASH response is high, but it often ends with limited investment into recovery.
- Capacities for appropriate response considerations and actions vary across agencies and levels, with the greatest gaps existing at the decentralized (MMDA) levels.

Additionally, preparedness, response and recovery for WASH may go beyond national or sub-national administrative boundaries. Decentralized planning is therefore hampered. For example, downstream efforts to improve enforcement of water quality or reduce flooding has limited effectiveness without similar actions upstream.

7.4.3 Recommendations



- Leverage existing cross border platforms (such as river basin authorities) for DRM and improve mechanisms for preparedness and response coordination across administrative and ecological zones, especially at the decentralized level.
- 2. Strengthen key capacities in emergency preparedness and response in general, and in resilience building at all levels. This

could benefit significantly from the ongoing WASH Resilience Study, as well as strategic partnership with academic/ learning institutions.

3. Prioritize emergency preparedness, including coordination, and key riskbased programming interventions through deliberate budgeting or adjustment of the budgeting framework.

Photo: NADMO/Ghana

8. HEALTH

Given that the country is exposed to biological hazards such as diseases spread by aerosols (viral disease), water-borne (cholera), vectorborne (malaria, marburg), food-borne outbreaks, zoonotic diseases (rabies), the Government of Ghana has adopted legal instruments and put in place policies to prevent, mitigate and respond to any health emergencies including those caused by different kinds of hazards.

The institution responsible for the health system is the MoH whose primary objective is "to strengthen the healthcare delivery system to be resilient," according to the health policy. By following this objective, the health system will seek to strengthen surveillance and response systems to prevent, detect, investigate, protect against, control and provide a public health response to the spread of diseases resulting from epidemics and disasters. In addition to the policy, the National Health Sector Medium Plan (2022-2025) specifies the goal of the MoH as providing pre-hospital care during accidents, emergencies, and disasters.

Although NADMO is responsible for coordinating disaster response in the country, the health sector has PHEOCs at national and regional levels and PHEMCs at regional and district levels. A national PHEOC under the Disease Surveillance Department serves as a coordination hub for response to public health/epidemic-related events. The above notwithstanding, there is a lack of timely and accurate information sharing between the different actors during response to public health emergencies, that delays interventions in some remote localities.

GHS is the health service delivery entity and it has presence at all levels (national to district) that contribute to the collection and dissemination of information regarding health care delivery. Data is also collected from other structures, such as the security forces, but the relationship with the private sector is weak in this regard. Wellfunctioning coordination with other ministries through the One Health Platform allows the sharing of relevant health-related information across environment, animal, and human health sectors. The information helps protect the population against some diseases and organize the response.

Interventions regarding DRR or even disaster response receive the support of technical and financial partners. The government's investment in health is less than 10% of the national budget. Regional and District Health Directorates highlight a lack of resources and delays faced before receiving the allocated budget that is not even sufficient. However, the health sector is among the social sectors that receive most of the financial support from the government to invest in DRR.

The policies and the development plans in the sector take into account DRM, though this is not fully mainstreamed. In DRR, the focus is mainly on emergency preparedness and response. The country is implementing the Integrated Disease Surveillance and Response Strategy (IDSR) and periodically updates the strategy and operational plans, which integrates Health Emergency and Disaster Risk Management (HEDRM) activities.

8.1 Institutional and policy framework for DRM in health

8.1.1 Existing capacities

Ghana's revised National Health Policy prioritizes the promotion, restoration, and maintenance of the health of all people living in Ghana and proposes a policy approach that is hinged on the principles of multi-sectoral collaboration, strategic partnerships, decentralization, equity and social accountability.

Various acts provide the structure of the sector and detail the roles and responsibilities of each entity and its relationships with the other national institutions in general, but specifically in terms of prevention and response to disaster. Based on the Public Health Act 851 of 2012, the Ministry of Health and the Ghana Health Service are mandated to manage disasters relative to public health. This act requires various national agencies engaged in emergency response to collaborate in addressing health emergencies using an all-hazards approach, in accordance with the International Health Regulations (IHR, 2005). Public health issues addressed in the act include communicable diseases, vaccinations, guarantine, vector control, environmental sanitation, tobacco control, food and drugs administration, clinical trials, miscellaneous provisions covering the patients charter, IHR, emergency powers in respect of health emergencies, and health information management. The above notwithstanding, none of the nine sections of this act explicitly contains provisions on DRM.

In addition to the Public Health Act, Act 851, the government passed Act 525 in 1996 to provide health service across the country by establishing the Ghana Health Service and Teaching Hospital. The EPA Act 490, enacted in 1994, aims to protect water, land and air from pollutants and contaminants as well as noise pollution. It also seeks to address the management of production/ importation, transportation, usage and disposal of chemicals. The Mental Health Act 845 of 2012 outlines the rights and quality treatment of persons with mental disorders. It also specifies changes to the organization, provision, and funding of mental health services, which are crucial in assisting affected people after a disaster.

The MoH has also developed the Health Sector Medium Plan Development strategy (2022-2025) which describes six functions of the Ministry. The sixth function is "to provide pre-hospital care during accidents, emergencies, and disasters" which again, does not address the role of MoH during the various phases of DRM such as mitigation, preparedness and recovery, especially for hazards other than biological or infectious diseases.

The Joint External Evaluation (JEE) of IHR capacities conducted in 2017 analyzed the strengths and weaknesses in preparedness and response capacities for health emergencies in an all-hazards approach. The results of this assessment led to the development of the National Action Plan for Health Security (NAPHS) in 2018. This plan provides a stepwise approach to improving capacities across all technical areas. In 2019 an IHR Steering Committee was inaugurated to oversee the implementation of the NAPHS and to monitor progress of IHR capacity strengthening efforts in the country.

The implementation of acts and policies in the health sector passes through the Ministry of Health, which is primarily responsible for the oversight of health-related needs, aspirations and service provision of the people of Ghana. While the MoH provides policy-level direction for health, the GHS is responsible for the provision of healthcare services. The GHS is functionally and operationally decentralized to all 16 regions and 261 districts across the country. Vital to the delivery of health services, including DRM at the district levels, the local government system is responsible for providing a framework for the integration of health-related activities in the governance structure at the lower levels. The MMDAs are responsible for the provision of coordination structures at the lower levels, including for mitigation, preparedness, response and recovery for disasters that occur within their jurisdiction.

All the district-level units are typically coordinated administratively by the MMDAs which have additional structures such as the District Security Council (DiSeC) and the District/Municipal Disaster Committee which provide tactical and political backing for the activities of the various coordinating structures. In the context of a public health emergency of national concern such as the COVID-19 pandemic, the government activated the Inter-Ministerial Coordinating Committee (IMCC) which was chaired by the President of the Republic and received technical input from the National Technical Coordinating Committee (chaired by the Minister of Health). These structures elevated the interest and authority for the management of the threats and also galvanized the needed technical, political and financial commitments to effectively respond to the threats. There is, however, the need to institutionalize these arrangements and clearly set out protocols for their activation, membership, mandate and deactivation in normal times.

8.1.2 Challenges

- The National Health Policy defines five policy objectives for the MoH. The first policy objective of the MoH is "to strengthen the healthcare delivery system to be resilient." The health policy further explains that the objective consists of, among others, "seeking to strengthen surveillance and response systems to prevent, detect, investigate, protect against, control and provide a public health response to the spread of diseases resulting from epidemics and disasters." As such, the policy does not explicitly outline the role of MoH before, during and after disasters, or roles and responsibilities through the DRM cycle (mitigation, preparedness, and recovery).
- Funding for the activities of the coordination structures is provided by the government but is described as inadequate. Periodic coordination and planning meetings have not been held, in some cases, for more than a year due to funding constraints. Some districts, particularly in the northern part of the country have received support from nongovernmental organizations and international NGOs such as the Red Cross to implement disaster mitigation and resilience projects.
- The mandates, roles, and responsibilities between the different institutions are not clear in the health sector in terms of risk reduction or DRM. Additionally, there are concerns about the lack of leadership recognized by all stakeholders and the absence of a single coordination mechanism for disaster prevention and response. Consultation, communication, and collaboration remain very limited between institutions playing a complementary – and sometimes similar – role in this area.
- DRR approaches are integrated into the health system, but are limited to disasters related to disease epidemics or the health ramifications of the disasters in question.
- There is a lack of interconnection between health policies and other DRR/CCA policies.

8.2 Access to information on disaster risk and climate change in health at national and local levels

8.2.1 Existing capacities

In March 2008, the MoH published the legal and policy framework for health information and health data reporting. The aim is to help manage epidemics by collecting timely data and ensuring rapid response to outbreaks. The policy does not refer directly to data related to disasters. However, information for disaster risks is mainly disseminated by the MoH through GHS by way of alerts to the Regional and Districts Health Directorates, health facilities, and the general public. During the COVID-19 pandemic, health information was amplified through the Information Services Department of the Ministry of Information. Channels used to disseminate key messages included radio, television, social media, and information vans.

Ghana implements the World Health Organization (WHO) Integrated Disease Surveillance and Response Strategy (IDSR). Surveillance of priority diseases, such as diseases of epidemic potential, is ongoing throughout the country through indicator and event-based surveillance mechanisms. Data on disease occurrence is collected routinely from the community levels through the subdistricts, districts, and regions and aggregated at the national level. Continuous analysis and monitoring of the information are conducted and outbreaks immediately noticed through existing channels. Ghana employs the Surveillance Outbreak Response Management and Analysis System (SORMAS) as an electronic platform for surveillance data collection and transmission. The utilization of the electronic platform enhances disease and event surveillance in real-time.

In tandem with the International Health Regulations (IHR, 2005), Ghana receives information on events of public health importance from other countries and regions and shares the same with the global network of IHR National Focal Points (NFPs). Ghana shares borders with three countries: Côte d'Ivoire, Burkina Faso, and Togo and has ground crossing for traffic to and from neighboring countries. At each ground crossing, a Border Security Council exists, which has cross-border relationships with counterparts in neighboring countries. Information on security and health risks across borders are shared as part of intelligence gathering and preparedness for disasters through the cross-border collaborations.

In 2022, WHO supported the government of Ghana to conduct a strategic risk assessment for public health emergencies (IHR STAR). The assessment, which was conducted by a multisectoral team, identified hazards at the national scale that could cause disasters, the country's capacities to cope/ respond and the potential impact of an emergency from a specific hazard. The output of the risk assessment process was a risk calendar, which detailed times of the year when specific risks were most likely to crystallize. This provided additional information for preparedness and risk mitigation. The collection of hazards identified by the STAR is expected to guide the development of a multi-hazard preparedness and response plan for emergencies/disasters in Ghana.

8.2.2 Challenges

- Private health facilities are not fully integrated into the existing surveillance system.
- SORMAS implementation is limited by inadequate electronic devices for data entry at the district levels, inadequate training of

staff on SORMAS utility, and weak monitoring and supervision at the lower levels.

challenges such as increased workload, poor staff involvement and training, and absence of logistical support to keep the system running.

 The current Health Management Information System (HMIS) faced significant implementation

8.3 Investment in disaster resilience in health

8.3.1 Existing capacities

Ghana has a three-tier health system with an emphasis on Universal Health Coverage (UHC), thus ensuring that a wide range of quality health services are accessible to people across the country, as reflected in the MoH's Mid-Term Development Plan (2022-2025). The government's commitment to the Abuja Declaration in 2001 implies a spending of 15% of the government's budget on health. In relation to the UHC, the government has structured a network of health facilities from the sub-district, district, regional and national levels with different cadres of health staff and comprehensive services across the various levels. Being responsible for funding and delivering health services in Ghana, MoH spent 8.1% of the budget of the government in 2019. While the forecast is for an increase from 7.6% of the budget in 2022, to 8.0% in 2023, it is set to fall back to 6.4% in 2025. By considering health spending as a percentage of GDP, there is a decrease in each year from a high of 2.3% of GDP in 2022, to just 1.8% of GDP in 2025.⁷⁰

The health sector is among the main fields where the government allocated more budget for DRR. The social sector holds the highest share of the significant marked DRR budget (70.6%), with only the MoH undertaking mainly regional and district health service programmes.⁷¹

8.3.2 Challenges

- The government does not allocate sufficient
 funds to the health sectors to equalize the LMIC and meet the obligation of the Abuja Declaration
- The focus is more on disaster response than risk reduction.

8.4 Preparedness for response and recovery in health

8.4.1 Existing capacities

The One Health Technical Working Group (OH TWG) has been established for the institutionalization and implementation of 'One Health' in Ghana. Through the OH TWG, human, environment and animal health actors interact, coordinate, and create awareness of integrated approaches to preparing and responding to disasters across the human, environment and animal sectors. The different institutions find it difficult sharing epidemiological information between human and animal health sectors.

The Ghana Field Epidemiology and Laboratory Training Programme (GFELTP) at the University of Ghana has led in-service capacity building programmes for the human health workforce in field epidemiology and outbreak investigation and response. The frontline, intermediate and advanced programmes have produced vital human resources needed for mitigating and responding to health emergencies across the various levels of the health system.

Ghana's IDSR is implemented across all districts and regions in the country with weekly reports submitted through the hierarchy in a systematic fashion. Disease surveillance data is continuously monitored, and outbreaks duly notified and responded to promptly. Regarding disasters, the impacts on health are often related to outbreaks and re-emergence of infectious diseases, malnutrition and associated complications, loss of follow-up and break in continuum of care for non-communicable diseases, disruption of the health system, and unavailable/limited access to health services.⁷²

The GHS has organized simulation exercises in the past years to test the functionality of the health system to respond to various types and scenarios of emergencies. The regional and district structures of the GHS have various plans and Standard Operating Procedures (SOPs) which are tested periodically and updated/revised to maintain their relevance and efficiency of application.

To ensure effective response to epidemic, along the EOCs operated by NADMO, the GHS also runs a PHEOC which monitors and coordinates health-related emergencies at the national level. The same structure exists at the regional level where it focuses on responding to public health emergencies across the respective regions and supporting the district structures to respond adequately to health emergencies. At the district level, there is a PHEMC which is activated during health-related disasters/ emergencies to provide coordinated response to the disaster/emergency. The PHEMC is a multisectoral establishment with membership from a broad range of stakeholders and may be expanded depending on the type of hazard and scale of the emergency. The PHEMC acts as the coordination hub for emergency response with political and resource backing from the representative of the Head of State in the concerned jurisdiction. On the technical front, each MMDA has a Rapid Response Team (RRT) whose composition is variable based on the hazard, but typically employs a 'One Health' approach to its operations. The RRT investigates the hazard at hand, conducts risk assessments and provides technical and tactical information to the PHEMC for response. The RRTs may also initiate response actions with recourse to the existing coordination mechanisms. The functions and operations of the PHEMC and the RRTs are directed by the Integrated Disease Surveillance and Response (IDSR) strategy for Ghana.

When necessary, national and regional RRTs are promptly deployed to support outbreak investigation and response efforts at the district and lower levels. Introduction of simulation exercises, and intra-action and after-action reviews have strengthened both preparedness and response capacities across board. Implementing the 7-1-7 principle for public health emergency response, which requires the detection of health emergencies/outbreaks within seven days of onset, notification to the health system within a day, and the initiation of emergency response within seven days of notification, will enhance the efficiency of the health system to respond to health emergencies.

The health care system integrates a National Ambulance Service (NAS) to provide timely and comprehensive pre-hospital care in cases of emergency. In 2021 alone, 41,901 emergencies were responded to by the NAS, representing a 10% increase over what was recorded the previous year. All districts in Ghana have at least one ambulance station with a total fleet size of

functional 273 ambulances in 2023. This is due to the government's "one constituency, one ambulance" initiative.

The MoH and the GHS work with other agencies and departments, including private entities to provide the needed healthcare services to the populace in case of emergency. When it comes to disaster response, NADMO, under the Ministry of the Interior, is the lead and the MoH and its agencies work closely with NADMO and other line ministries to organize the response. The preparedness and response activities in health benefit from the financial and technical assistance of various agencies such as the WHO, FAO, Centers for Disease Control and Prevention (CDC), United States Agency for International Development (USAID), and Korea International Cooperation Agency (KOICA) aimed at supporting the Government of Ghana to strengthen its capacities in emergency preparedness and response. The support provided goes beyond the GHS in accordance with the IHR and the NAPHS to building and reinforcing capacities of other national agencies.

8.4.2 Challenges

- The current information flow between the different stakeholders during an emergency does not allow the sharing of accurate and timely information. Hence, emergency response is not totally predictable.
- Deficit in human resources: There is a great attrition of qualified emergency human resources who leave for greener pastures after training. The entire Bono East region has only one epidemiologist for the 12 districts. There is an insufficient number of emergency nurses and no emergency physician.
- Inadequate infrastructure: The absence of quarantine structures became starkly apparent during the COVID-19 response. Only a few holding structures exist.
- There is no platform for information sharing among sectors during emergencies. This contributes to delays in communicating health emergencies in some areas, thereby limiting the effectiveness of response actions.
- The 'One Health' platform is not clearly formalized at all levels, specifically at regional or district level. The OH TWG currently exists only at the national level with limited structures in place to scale up to regions and districts.

Difficulty accessing funds in the municipal health services to implement annual plans and reinforce the preparedness and response capacities: The Chief Executive Officer does not always feel responsible for fund allocation to the municipal health services, considering that funds will be allocated by the region. When funds are allocated, they are insufficient and often delayed.

8.4.3 Recommendations



- Integrate DRR into the health policies to ensure that the directives are wellknown by all actors, taking into account all the phases of DRR in their planning and programmes, not only disaster response.
- 2. Revitalize the coordination and planning meetings in the health sector to enhance the effective involvement of the different actors in the implementation of the existing plans and strategies relative to DRR in the sector.
- 3. Provide more financial resources to the different coordination structures at national and regional levels to ensure they function normally.
- 4. Specify the roles and responsibilities of all the institutions involved in DRR throughout the health sector to ensure better coordination during the planning and the implementation of the plans and strategies.
- 5. Ensure coherence between DRR and health policies.
- 6. Facilitate the full integration of the private health facilities in the surveillance system to guarantee the reception of their data on any health issues.
- 7. Reinforce the health management information system with more skilled human resources and equipment in order to maintain full operationalization.
- 8. Increase the budget of the health sector to meet the requirements of the Abidjan Declaration and reach the same level as the

LMIC with dedicated funds for DRR, not only disaster preparedness and response.

- 9. Provide the District Health Directorates with adequate funds and clarify the responsibilities in the allocation of the funds between the national and regional levels to ensure accountability.
- Reinforce the health infrastructure to make it better positioned to respond to major health crises.
- Review the organization of the human resources management to ensure the retention of the necessary human resources for DRM at all levels in the health system.
- 12. Create and render a functional information sharing platform which is interoperable by all line ministries to facilitate sharing of timely and accurate information during emergencies.
- 13. Conduct a strategic risk assessment at the regional level. This activity should be followed by the development of a multihazard plan.
- 14. Carry out a full-scale simulation exercise to test developed plans and strengthen collaboration among the sectors.
- 15. Review and adapt the communication system during emergencies for more accurate and timely sharing of information.

Photo: UNICEF

9. SOCIAL PROTECTION

9.1 Institutional and policy framework for DRM in social protection

9.1.1 Existing capacities (strengths and weaknesses)

The government has a **Social Protection Policy** (Ghana Social Protection Policy, 2015) that seeks to provide effective and efficient social assistance. It aims to reduce extreme poverty, and promote productive inclusion and provide decent work to sustain families and communities at risk. It also aims to increase access to formal social security and social insurance for all Ghanaians. The policy is focused on poverty reduction and not on DRM and response.

The Social Protection Policy assigns oversight to Cabinet, Parliament, and the Inter-Ministerial Coordinating Committee (IMCC) on Decentralization. The constitutionally mandated commissions, namely CHRAJ (Commission on Human Rights and Administrative Justice) and NDPC are tasked with providing system-wide regulation and guidance. The policy assigns overall technical and operational coordination to the MoGCSP — essentially to provide operating standards and instruments, mobilize, collate, and disseminate pertinent information and identify social protection priorities and trends.

The MoGCSP is mandated to lead the development of a national policy on social protection and to work closely with the MoF to ensure consistency in the flow of funds to social protection programmes and for the progressive implementation of a national social protection floor. For the government, social protection is defined as "a range of actions carried out by the state and other parties in response to vulnerability and poverty, which seek to guarantee relief for those sections of the population who for any reason are not able to provide for themselves.⁷³" On the other hand, the International Labour Organization (ILO) defines social protection floors as nationally

agreed sets of basic social security guarantees which ensure protection and aim at preventing or alleviating poverty, vulnerability and social exclusion over the life cycle.

Similar to the functions of social protection to prevent, promote and transform, DRM⁷⁴ activities encompass all processes that aim to reduce the likelihood of a disaster, to lessen the impact of hazards, and to improve people's abilities to cope if a disaster occurs. Shock-responsive social protection encompasses how social protection programmes, systems, and capacity can be leveraged, adapted and used for preparing and responding to covariate risks/shocks – ideally in advance.

An ongoing assessment of Ghana's social protection programmes to be shock-responsive has the potential to significantly alter the existing institutional framework. Government and development partners have recognized the need to strengthen the preparedness of the social protection system to respond timely to diverse shocks and to better coordinate with the data collection and response activities of the MoGCSP and NADMO. To develop a national social protection shock response strategy, the MoGCSP is working with the World Bank and UNICEF to review the social protection systems and current ad hoc responsiveness to shocks. As part of this, two research studies have been commissioned: the first seeks to document past shock responses for lessons stock-taking and examine these responses with a gender lens; and the second will focus on assessing the social protection systems in enhancing understanding of the limitations, challenges and opportunities in the use of the existing programmes and systems for shock response, before, during and after shocks.

Final reports from the studies are expected within the first quarter of 2023.

9.1.2 Challenges

- The capacitation of social protection staff at the regional and district levels was identified as a key gap through the joint field missions. For example, the Department of Children often has only one staff member responsible for Gender and Children at district levels, as the Department of Gender is only represented at the regional level and social welfare represents/coordinates at district level.
- The lack of a legal framework for social protection is a key issue. The Social Protection Bill was submitted to Parliament early in 2023.
- Despite the transition of Ghana to a middleincome country status, the country has lowincome characteristics (revenue to GDP ratio is below the sub-Saharan African average) and has a low level of investment in social protection activities. While the emphasis has shifted to technical assistance as opposed to direct programming, there remain challenges related to transfer of expertise and adaptation to the new dispensation.

9.2 Access to information on disaster risk and climate change in social protection

9.2.1 Existing capacities (strengths and weaknesses)

The 2015 National Social Protection Policy (NSPP) addressed vulnerability solely in terms of categories of populations that need to be targeted by social protection programmes. In contrast, the Poverty and Social Impact Assessment (PSIA) (2004) and the Growth and Poverty Reduction Strategy (GPRS II) (2006–2009) viewed vulnerability as a manifestation of poverty and exclusion from rights and entitlements. Both phenomena occur in multiple spheres – social, economic, political and environmental – and Ghana lacked an overarching framework of common and fundamental drivers.

According to a Vulnerability and Exclusion (V&E) Assessment study on Ghana (2021)⁷⁵, drivers of vulnerability are social and physical identities (gender, age, disability, ethnicity, and refugee status, etc.), income poverty, and political drivers (linkages to political networks and ethnic affiliations, and the key role of government). The study further classifies drivers of exclusion

as income poverty, lack of political and wealthy connection, gendered social roles, lack of access to key public services (water, drainage, health facilities, electricity, and schooling), location (rural and remote area or excluded neighborhood within an area), and social norms (community and national).

According to the V&E study, exclusion is conceptualized at the *group/individual level* and at the *community level* and as occurring across different dimensions – social, economic, political, and sometimes environmental. In terms of *excluded groups*, they identified the following: women (especially older women), pastoralists (the Fulani), external and internal migrants (people of Nigerian descent, *kayayei*⁷⁶, and *galamsey*⁷⁷ migrants), people living with disabilities (mental and physical), the poor, alcoholics, drug users, and children who are orphans. Exclusion of communities was linked to geographic location and the distribution of public infrastructure and services and was seen to have political and economic dimensions.

There is an established and well-developed Public Information Architecture to support communications and information sharing on social protection issues in disaster management contexts. There are a number of systems which facilitate feedback from affected populations:

- The Orange Support Centre enables exchange on issues related to sexual and gender-based violence. The Orange Support Centre is a landmark innovation in the Ghanaian Gender/ SGBV milieu, leveraging technology to put in place an integrated support system for SGBV victims and survivors through a mobile app, a toll-free call center, 0800 III 222 and a volunteer platform, the Boame App technology, that harnesses the strength of certified professionals to facilitate psychosocial, legal, medical, and physical support among others.
- The National Emergency Hotline 112 enables contact with a national coordination center that has the potential to connect callers with key emergency supports including the National Police, the Health Service, and the Fire Service. 112 replaced the previously multiple emergency numbers for the various emergency service providers in the country.
- Social Welfare Information Management System (SWIMS) - developed by the Government of Ghana to document and report on the provision of social welfare services (child protection, social protection, and gender-based violence) based on standard national data collection forms, workflows, referral pathways and standard operating procedures (SOPs). SWIMS has been developed for use across four areas -Case Management, Family Reunification and Alternative Care, Incident Monitoring and Reporting. The primary users of the system will be MMDA staff responsible for the provision of social protection, child protection, justice for children and gender-based violence related

services. Other service providers like NGOs/ CSOs, Residential Care Facilities, etc. will also be part of the prospective user groups.

- The Helpline of Hope Call Centre is an integral component of the Single Window Citizen Engagement Service (SWCES), currently being implemented by the Ministry of Gender, Children, and Social Protection (MoGCSP). The SWCES aims to enhance and support mechanisms across the five flagship Social Protection Programmes, fostering transparency, accountability, and effectiveness in grievance resolution. This service utilizes the Unified Grievance Redress System (UGRS), which is built upon the Grievance Redress Mechanism approach. This approach empowers stakeholders to report cases and express concerns for resolution. The UGRS provides a unified platform for citizens to submit, monitor, and escalate grievances, as well as to receive information on behalf of the five flagship Social Protection Programmes.
- The Helpline of Hope Call Centre operates toll-free numbers (0800800800/080090090), enabling citizens to lodge complaints in English, Akan, Ga, Ewe, and Hausa languages, with dedicated and trained Call Agents. These Call Agents utilize the UGRS to register cases, which are then categorized and directed to the appropriate Social Protection programmes and organizations for expedited resolution. It is anticipated that the UGRS, serving as the Single Window Citizens database, will be utilized by all five flagship Social Protection Programmes for case registration, classification, resolution, and feedback

Some recent initiatives such as the establishment of the Ghana National Household Registry (GNHR), indicate an awareness of the importance of data on vulnerability for DRR/DRM. Funded by the World Bank, this has been partially rolled out in five out of the 16 regions and is due to be fully rolled out in the coming years under current planning. The registry is equipped with the capability to conduct rapid assessments, following natural disasters and other shocks. This ensures the swift availability of high-quality statistics and information regarding the impact on affected populations. These insights are valuable for informing response activities, gaining support from UN agencies, funds and programmes⁷⁸ and NGOs.

9.2.2 Challenges

 Communication with the communities does not allow vulnerable populations to internalize the risks they face and adapt accordingly. Furthermore, they need to include clear alternatives that can be decided upon in advance of or following a disaster or shock.

9.3 Investment in disaster resilience in social protection

9.3.1 Existing capacities (strengths and weaknesses)

Disasters have multiple impacts on the population, exacerbating and contributing to their vulnerabilities. Displacement is a key driver of vulnerability in Ghana, and is at the same time provoked by disasters. While the factors are many and often chronic, or long-term, the displaced population suffer from the impacts of disasters – often in heightened contexts of vulnerability.

Ghana has a large portfolio of social protection programmes to protect populations during all disaster phases, but they are not yet fully adaptive. The programmes include public sector pensions (SSNIT), private contributory Social Security Allowances (tier 2 and 3 pensions schemes), scholarships, NHIS, social cash transfer (LEAP), school feeding programmes, free senior high school and public works, and they are implemented by a variety of institutions. The NHIS accounts for the largest programme, which provides health insurance coverage to over 16.7 million individuals comprising children under 18 years, adults in the informal sector, pregnant women, the aged and indigents (including LEAP and persons with mental disorders).

The SSNIT programme provides transfers to over 232,928 pensioners who are mostly senior citizens. The LEAP programme covers over 344 thousand households comprising over 1.8 million individuals. Overall, the government does not allocate substantial resources to these programmes⁷⁹ that are mostly categorical/overarching in nature and are not specifically designed to build resilience of the poor and vulnerable households or respond to shocks.

9.4 Preparedness for response and recovery in social protection

The National Social Protection Policy aims at reducing inequalities and poverty in the society by emphasizing the preparedness to assist the people in need, in case of shocks like disasters and going beyond the required immediate relief to the transitory phase. The assisted people should then be transferred to other safety nets for longer term support as needed. The MoGCSP has the responsibility to coordinate with NADMO and other key partners to ensure the risk financing. This policy supports linkages between preparedness, climate resilience, and anticipatory interventions. In fact, the country is still waiting for a contingency or response plan in this sector. However, this lack does not prevent the government from assisting the people in need after a shock. In some cases, affected populations are able to shelter for short periods in schools, churches and mosques. This can only be a temporary solution for the very short term.

On the other hand, the government and its partners carry out cash-based transfer interventions to assist the people after recent disasters and during other crises like food insecurity or economic crises. Those interventions are funded at a high level by the partners. The partners also get involved in the identification of the beneficiaries because the government does not have enough staff to cover all the regions' districts, even the most vulnerable. In some districts, the government only has one staff working on social protection.

Finally, national responses specific to gender related inequalities such as Sexual and Gender Based Violence (SGBV) and other harmful practices which can increase during disasters and crises are inadequate. Safe havens, shelters, and other integrated services such as medical and counseling services are non-existent and the Domestic Violence Fund, outlined as a major response support for victims/survivors in the Domestic Violence Act for Ghana is still not operational.

9.4.1 Recommendations

- I. Integrate the 'shock responsive' approach to social protection within DRM and adaptation approaches to climate change.
- 2. Effectively and comprehensively include gender-responsive social protection activities in DRM policy and associated guidance.
- Consider inclusion and diversity as a must in all social protection approaches to truly address the disproportionate effects of disasters on women and girls, and also move beyond to consider disability, age, as well as location and other social indicators.
- 4. Enhance coordination, monitoring and reporting of skills for a better implementation of social protection activities in relation to disaster.
- 5. Build the capacities of the institutions involved in social protection related to disaster, particularly MoGCSP and

NADMO, at the national, regional, municipal and district levels to be able to prepare and deliver a service based on the specific needs of the vulnerable persons.

- 6. Integrate the social protection actors into Emergency Operations Centers to ensure that vulnerability-related issues are appropriately addressed in coordination with key security and emergency response actors, as the current structure has only Regional Directors of Social Welfare as members, albeit not holistically integrated in disaster response as they are called only based on the kind of disaster that occurs.
- 7. Conduct advocacy to encourage the Government of Ghana to ratify the African Union Convention for the Protection and Assistance of Internally Displaced Persons in Africa (also known as the Kampala Convention).

- 8. Pre-position key supplies in schools, mosques, and health centers and put in place appropriate management structures to enable targeted distribution. This should include, but not be limited to, hygiene and dignity kits, security lighting and shelter materials.
 - Plan transit centers in the case that temporary displacement extends beyond the short term. This type of facility could support other vulnerable populations in addition to those affected by disasters.
 - Facilitate a sustainable and impactful provision of relevant support to displaced populations who cannot return to their home, focusing on durable solutions. This includes the allocation of land/housing and provision of social services to ensure permanent relocation solutions are sustainable and dignified.
- 9. Ensure adequate capacity in psychological first aid, trauma counseling, and referral to assist people with profound and long-term impacts on mental health in the aftermath of a disaster.
- Strengthen wider migration management approaches to ensure that they consider pendular/seasonal displacement related to disasters in the social protection preparedness plans.
- Increase investment in the existing programmes to build the resilience of poor and vulnerable people even before disasters strike.
- 12. Elaborate and keep an up-to-date response plan for the social protection sector and establish good coordination with the national, regional and district contingency plans.

13. Mainstream DRR into the social protection policies with a focus on resilience building..



I0. PREPAREDNESS FOR DISASTER RESPONSE AND RECOVERY

PRIORITY IV:

ENHANCING DISASTER PREPAREDNESS FOR EFFECTIVE RESPONSE AND TO "BUILD BACK BETTER" IN RECOVERY, REHABILITATION AND RECONSTRUCTION

"The steady growth of disaster risk, including the increase of people and assets exposure, combined with the lessons learned from past disasters, indicate the need to further strengthen disaster preparedness for response, take action in anticipation of events, integrate disaster risk reduction in response and preparedness and to ensure that capacities are in place for effective response and recovery at all levels. Empowering women and persons with disabilities to publicly lead and promote gender equitable and universally accessible response, recovery rehabilitation, and reconstruction approaches are key. Disasters have demonstrated that the recovery, rehabilitation and reconstruction phase, which needs to be prepared ahead of the disaster, is a critical opportunity to build back better, including through integrating disaster risk reduction into development measures, making nations and communities resilient to disasters."

Sendai Framework Priority for Action IV.

The Government of Ghana established NADMO as the main agency in charge of managing disasters (Act 927, 2016). Under this act, NADMO, with representation at the national, regional and district levels, has the responsibility to coordinate and prepare actors involved in disaster management to respond to and recover from disasters. For that, NADMO can count on the National Disaster Committee, which has the ability to mobilize and coordinate resources for preparedness and response from the national institutions (ministries and agencies) and non-governmental agencies.

In collaboration with GMet, NADMO puts in place EWS to disseminate messages related to meteorological hazards to the population with a focus on the most vulnerable people. This system integrates traditional and modern channels such as television, radio, social media, and local leaders. However, the language used for the message may not resonate with some populations, hindering their understanding, particularly in remote areas. To facilitate a quick response at the community level, NADMO, with the support of the various partners, carries out activities aimed at reinforcing the capacities of community-based organizations. Those structures play a role not only in response, but also in preparedness, including early warning and collecting and sharing of information on the hazards observed and the impacts of disasters. This system functions quite well, but it only makes use of the national telephone system without any alternative.

In terms of preparedness, the country has contingency plans at different levels, not in all the regions and districts. Those plans are not up to date, and the majority of them are focused on one hazard. Some sectors develop specific preparedness plans, with NADMO having limited involvement in some cases, either in the development or the implementation. To finalize the contingency plans, the country establishes predisposal stocks in highly vulnerable areas and at the central level.

10.1 Early Warning

Existing capacities (strengths and weaknesses)

At the national level, the country has several institutions who are involved in the production of information regarding disaster risks. The surveillance system in place covers various hazards like water quality and availability, level of rivers, monitoring of dams (in the country and in Burkina Faso), weather events or phenomena through the meteorological stations, epidemics, as well as crop and livestock diseases. Effort is also made to monitor flash floods in the urban areas and coastal erosion in the country. More information on this topic is available in the chapter on Risk Understanding.

Based on the information produced and the monitoring systems existing in the country, it is obvious to conclude that there is a relatively strong EWS. The Ghana Meteorological Services Department is the main institution in charge of providing climate and weather information to all key stakeholders and the public on the weather, and issuing meteorological warning, specifically on rainfalls and floods, among others. For that, the institution uses 22 manual stations (set up since the creation of the agency in 2004) where data is collected by staff assigned by the agency and the 21 automatic stations that send data directly to the center in Accra. Those stations capture data on temperature in the air, humidity, barometric pressure, wind speed, direction of the wind, precipitation, humidity of floor, among others.

The agency produces seasonal bulletins specifically for the Ministries of Food and Agriculture and Energy. The GMet also publishes a bulletin every six hours which is available on digital platforms such as Facebook, WhatsApp, email and the GMet website. In fact, the GMet generates information, which is shared with NADMO, whenever an adverse weather condition is forecasted. The GMet also directly engages in the public weather service by informing the public about adverse weather conditions through radio and television stations, among other platforms. The Ghana National Fire Service, also educates the public on prevention and extinguishing of fire outbreaks. In addition to the three institutions, local authorities are also responsible for coordinating with the relevant agencies in their localities to directly provide early warnings and disaster relief in settlements.⁸⁰

On food security early warning, the government, through the SRID of MoFA, and the Nutrition Department of GHS, collaborates with the WFP and UNICEF to monitor the food and nutrition security at the household level, as well as food commodity prices across the 16 regions and at the central level. This has since been carried out to produce a series of quarterly bulletins (monthly bulletins for the Northern region) and shared with key stakeholders across the globe. The Food Security and Nutrition Monitoring System (FSNMS)⁸¹ plays an important role in identifying, analyzing, and addressing the conditions that give rise to food insecurity and undernourishment. More information is provided in the chapter on Agriculture and Food Security.

On the other hand, the District and Regional Peace Advisory Councils also report to the National Peace Council on possible causes of conflicts, such as land disputes. Small arms trafficking is monitored and reported through periodical meetings and workshops held by the National Small Arms Commission.

The current flood and drought EWS in the country was designed and implemented during the Community Resilience through Early Warning (CREW) project. This project has been implemented in 10 regions by taking into account their particularities and integrating the indigenous knowledge.⁸² This system was put in place in 2016 and based on the previous initiatives existing in the country.

For the health sector, the data received from the healthcare centers are analyzed at the central level. In case of epidemic or potential epidemic, the MoH, with the support of NADMO, disseminates preventive messages on mass media, social media, and the websites of the government. At the community level, they rely on volunteers to reach out to the population.

As mentioned earlier, NADMO plays a key role in disseminating early warning by regularly preparing press releases for the media at the national level. Discussions are ongoing with Vodafone to secure real-time data collection to include on flood alert (early warning) messages on their existing information portal. At the local level, volunteers from Ghana Red Cross ensure the dissemination of early warnings within communities. Ghana Red Cross also supports the communities to review and valorize the indigenous knowledge in terms of defining triggers for potential disaster.

IO.I.I Challenges

 Insufficient community public education and awareness campaigns on disaster risks, climate change and early warning/early actions. These activities are time-limited, do not reach all the localities, are conducted sporadically, and are hindered by language barriers (notably the absence of translated and tailored training materials in local languages)⁸³. As a result, the communities lack essential information to understand their vulnerability and the necessary actions to be taken. Additionally, the outreach neglects religious groups, missing an opportunity to leverage their platforms to reach some parts of the population.

 The weather stations that collect the data do not cover all the regions. Although most disasters in Ghana are related to hydrological
events, the regions and the districts do not • have the capacity to monitor the weather. They are unable to follow procedures that will help monitor inputs over a long period of time in order to obtain adequate data on trends related to climate change.

- The regional meteorological services do not have efficient multi-hazard EWS because of the lack of a monitoring system for the weather, river flow, environmental hazards, and locust outbreaks.
- The radar situated at the GMET headquarters is unable to effectively monitor the various zones or regions of the country. The absence of a comprehensive rainfall radar system at national level hampers close monitoring of flood forecasts. The country relies on the data produced by neighboring countries in spite of absence of an MoU between the various institutions.
- There are few seismographs for monitoring earthquakes, but this expertise is not available in sensitive areas, in particular where the oil extraction is on-going.

10.1.2 Recommendations



- Conduct climate and disaster risk assessments on a regular basis, in order to adapt the key messages that will be disseminated to the partners and the communities regarding the actions to be taken.
- 2. Support the local communities to improve or build adapted EWS based on the existing or specific climate and disaster risks in their communities.
- 3. Build the capacity of NADMO representatives at the district level as well as staff from other decentralized institutions through hands-on training in climate and disaster risk assessments.
- 4. Design a multi-hazard EWS, emphasizing key focus areas and fostering collaboration with institutions and initiatives, especially the police and armed forces.
 - Conduct an inventory of the existing EWS across all levels and on all hazards

in the country and analyze their strengths and weaknesses. Given the presence of multiple EWS managed by various institutions, gaining a comprehensive understanding of the big picture is crucial for developing and implementing a more holistic and inclusive system.

- Conduct a study on the indigenous and traditional knowledge for early warning and integrate them into the multi-hazard EWS.
- Establish MoUs or protocols with specialized agencies in the neighboring countries and at the regional level for integrating, where possible, regional, and cross border warning systems.
- 5. Improve the capacities of dedicated agencies (GMet, NADMO, etc.) to facilitate exchanges on risk information by providing the necessary equipment or materials to collect, analyze, and disseminate the information in a timely manner.

- 6. Strengthen the integration of a DRM culture, particularly risk information, into the educational system (school and university) to encourage behavior change among students/young people and enhance their participation in the dissemination of early warning messages to their families and neighborhoods.
- 7. Engage in discussions with the traditional media (radio, television) and the

telecommunication companies throughout the National Information and Technology Agency to establish a MoU with them to support the dissemination of the early warnings in order to ensure that communities at district levels are well informed and able to take early actions.

8. Allocate resources in the national budget for financing the EWS as part of the preparedness and response or separately.

10.2 Information management and communication

10.2.1 Existing capacities (strengths and weaknesses)

Under the Research Department, NADMO leads the BIG Data unit. This unit is in charge of collecting, treating and disseminating information related to the impact of disaster. For data collection, NADMO has an assessment form to quickly evaluate the damages and losses caused by a disaster. All the NADMO staff participate in the collection of data after a disaster. The technical partners also support the collection of data. The data collected pass through the different Emergency Operational Centers from the districts to the central level. The information generated by these data are shared with the different partners. There is no defined way to share that information or any kind of procedures and SOP on the way to disseminate the information related to losses and damages caused by a disaster. The coordination meetings serve as the platforms for sharing such information and planning responses based on the available data.

I0.2.2 Challenges

- The BIG Data unit does not have sufficient resources (human and material) to collect and analyze data on time to inform response and preparedness. The data collection is done by everyone in NADMO and partners without clear guidelines from this unit and the analysis is only done at the central level.
- Multiple forms and methodologies exist to assess damages and losses after a disaster.
- There is no centralized data/information system in the country; therefore, the data are not available on the long-term to facilitate

analyses and adapted response. Post-disaster analysis is not possible.

The dissemination process is not clear, nor well defined for all the partners.

10.2.3 Recommendations



- I. Reinforce the human resources and equipment capacities of the BIG Data unit at both national and the decentralized levels.
- 2. Develop an SOP for the dissemination of the information produced on the damages and losses caused by disaster during and after the emergency response phase.
- 3. Harmonize the multi-sector needs assessment methods and tools.
 - Improve agreements on harmonized needs assessments template for all actors and disseminate the assessment methodologies.
 - Review the existing template for integrating data on WASH and livelihood.

- 4. Put in place a system to centralize data/ information on disasters to ensure their conservation overtime and create a protocol to manage it in collaboration with the universities and research centers involved in this field.
- 5. Provide regions and selected districts with necessary equipment to facilitate the analysis and communication of the information at the regional level, in collaboration with the national level.
- 6. Put in place a system to monitor the interventions of the partners and consolidate the information for the long run to guide future emergencies and development projects by giving the partners controlled access to this database.

10.3 Legal and policy framework for DRM

10.3.1 Existing capacities (strengths and weaknesses)

The framework of disaster risk management has three main references: the NADMO Act 927 published in 2016 the NDMP, which was first created in 1997 and reviewed in 2007, and the National Standard Operating Procedures for Emergency Response (NSOP).

The NADMO Act provides necessary information on the organization of disaster management in the country. NADMO has the responsibility to manage disasters in the country by implementing the disaster management plans and coordinating with the various partners at the international and in-country levels. The mobilization of the communities and the community-based organization is highlighted because they are considered as an actor or the first one in the organization of a disaster response. This Act places the National Disaster Management Committee as the first entity in charge of disaster management, under the guidance of the directives given by the President, in case of a national disaster. This committee has an expeditious function. In sum, the NADMO Act establishes the different levels of responsibilities from the national to the community level and provides the orientation for the cooperation with the international partners and funding for preparedness and emergency responses. In addition, the country developed a NDMP that was reviewed for the last time in 2007. This plan is the framework for managing disasters. It takes into account all the phases from prevention to recovery. Finally, a NSOP was developed in December 2019. This SOP is centralized on the preparedness and response for earthquakes. The various institutions involved, the actions to be taken, and the coordination mechanisms for in-country and international support are clearly explained in the document.

I0.3.2 Challenges

- The different documents (Act 927, NSOP, and NDMP) do not provide enough information on the role and responsibilities of NADMO during some kinds of disasters, such as epidemics, epizooties, pest, oil spills, and social turmoil. This lack of clarity hinders NADMO's ability to fulfill its coordination, information management, and reporting roles during an emergency.
- The Act mentions the creation of a budget fund for emergencies, but there is no information on the budget for recovery, rehabilitation, and reconstruction after an emergency.
- Ghana had about 500 000 international migrants in 2019 and about 6.5 million

internal migrants in 2015.⁸⁷ The different legal documents do not take this population into account, though most of them are more vulnerable than the local population.

The existing legislative framework just mentions the role of NADMO in coordinating with national and international partners. However, the way to mobilize international assistance when the country has a high level of exposure to different hazards is not clearly outlined. For a major disaster, the presidency will be in charge, but international assistance will be needed at various levels: sub-regional, regional and international.

10.3.3 Recommendations



- Specify the role and responsibilities of NADMO in the different legislative dispositions to facilitate the effectiveness of the coordination in all kinds of emergencies in collaboration with the other agencies and ministries.
- 2. Integrate international and internal migrants, as well as internally displaced persons in the legislative dispositions.

 Review the technical documents to take into account migrants and the displaced people, while waiting for the revision of the legislative documents.

 Conduct advocacy to raise awareness of the decision makers and introduce the migrants to the discussions and decisions related to disaster management or emergency responses.

- Sensitize the national and international partners to take into account migrants in their planning and interventions related to disaster management or emergency responses.
- Clarify the role of NADMO or the government in the mobilization of international assistance in case of a major disaster.
- 4. Make laws on how to mobilize resources for interventions after the emergency phase, such as recovery and rehabilitation.

10.4 Institutional framework and coordination mechanisms for disaster response and recovery

10.4.1 Existing capacities (strengths and weaknesses)

NADMO has the authority to organize and equip Disaster Volunteer Groups to enhance their skills in disaster management and income generation; sensitize and motivate communities to serve as voluntary organs to assist in managing disasters; and provide the first line response in the event of a disaster.

NADMO is structured and placed under the Ministry of Interior and functions under a national secretariat, 10 regional secretariats, 243 metropolitan, municipal and district secretariats and over 900 zonal offices throughout the country.

The country has set up EOCs at the central, regional, and local levels, which allow various stakeholders to share and collect the information they need for their intervention and to know the areas that are most in need, as well as the kind of assistance they need. In addition, the navy has a Maritime Operations Coordination Center which monitors disaster impacts at both the national and regional levels. The navy maintains regular communication checks and regional collaboration with the neighboring countries such as Togo, Côte d'Ivoire, Senegal and Cameroon.

The EOCs develop a communication network to share information during all the phases of a disaster. They ordinarily use personal mobile phones, HF and VHF radios to carry out communications. They also use some free apps to communicate. The Communication Department is responsible for keeping the contact list inserted in the response plan of each sector up-to-date.

With the information made available by the EOCs, the different humanitarian partners organize the response to fulfill the basic needs. For that, the government (ministries and specialized agencies such as NADMO), UN agencies, NGOs and religious organizations work together on emergency responses under the coordination of NADMO and the management of District Assemblies. Those activities often have the support of Disaster Volunteer Groups (DVGs), under the coordination and management of a NADMO Zonal Coordinator. The coordination between the different stakeholders is regulated by some protocols, detailing their responsibilities before, during and after emergencies. But these protocols are not harmonized into standard operating procedures.

Finally, the coordination and management structure for the emergency response are well described through terms of references and an organogram for the strategic, operational, and tactical levels. According to the NSOP, Armed Forces, Police, Fire Services, NGOs, INGOs, UN agencies and private sector actors should have a good understanding of their key roles and responsibilities and are supposed to be aware of existing gaps and areas of improvement.

I0.4.2 Challenges

- There is insufficient interaction between the central and the decentralized levels. The regional and district levels depend on the central level for important actions, but they do not have regular interactions. In addition, the decentralized authorities do not fully and always get involved in the emergency responses, and this delays the responses.
- There are only 10 regional EOCs outside Accra, with the capacity to cover only 54 districts. The EOCs are under-equipped and staff members need further training.
- The national system for preparedness and response depends largely on the partners' human resources. NADMO has few staff in the regions and districts. In addition, the government volunteers are given little incentives and resources for their contribution, and that would imply turnover of volunteers and low engagement during emergencies.
- During the emergency responses, institutionalized operational coordination

does not function well. The actuators seem not to understand their roles and responsibilities in ascending and descending communication. A similar situation is seen in the coordination with the partners.

- There is limited involvement of the sectoral ministries. They are not active and some do not have enough and skilled staff in the regions.
 This impacts the rapidity in the emergency responses. For instance, the MoGCSP does not have a strong presence at the district level.
- There is also an overlap between the national institutions during the emergency responses. Due to the limited human resources of NADMO across the country and for political reasons, some national institutions at a level higher than NADMO lead the management of disaster at the national and regional levels. In such cases, it becomes difficult for NADMO to efficiently monitor the responses.
- Most exposed localities have few places of shelter.

10.4.3 Recommendations



- I. Reinforce NADMO's capacity to ensure better coordination of DRR activities, particularly the emergency responses at the national and sub-national levels.
 - Develop a capacity building plan including emergency coordination and crisis communication for all staff involved in the EOCs and other ministries and specialized agencies.
 - Include sessions on development of SOP and SIMEX for each stage of disaster management, particularly

for the first 24-48-72-hour response in the training.

- Put in place a mechanism to support the regions and districts with additional staff during the postdisaster activities. The additional staff can be from the closest regions or districts.
- Put in place a monitoring system to follow DRR activities in each region, specifically emergency responses.

- 2. Enforce the 5% quota of District Common Fund to be allocated to emergency preparedness and response at the national and district levels.
- 3. Enhance the equipment of the EOC at the regional and district levels, providing essential items such as computer and office supplies. Revitalize disaster committees at the district level.
- 4. Strengthen networks with sub-regional organizations, as they learn best practices from other countries and share experiences through ECOWAS yearly consultations.
- 5. Advocacy at customs for quick clearance of the goods intended for emergency operations and the elimination of taxes imposed on them, or establish a protocol with customs to facilitate the entry of the humanitarian items.

10.5 Contingency planning

10.5.1 Existing capacities (strengths and weaknesses)

Various institutions, with or without close collaboration with NADMO, develop contingency plans related to their areas of interventions. Among existing contingency plans are the Emergency Preparedness and Response Plan (EPRP) for the Millennium Development Authority (MiDA); National Flood Risk Contingency Plan; National Nuclear and Radiological Emergency Response Plan (NNRERP); Emergency Preparedness and Response Plan for Tono Dam, Upper East Region of Ghana; Preparedness for Responding to a Radiation Emergency; National Oil Spill Contingency Plan; and Flood Contingency Plan for the Eastern region.

The Emergency Preparedness and Response Plan (EPRP) for the Millennium Development Authority (MiDA) is centered around the activities of this institution and its partners. The EPRP provides clear guidance on the procedures to follow in case of emergency and the coordination with other national institutions involved in relief such as fire services or police. The plan refers to NADMO only in case of damages caused by earthquakes. They do not involve NADMO in preparatory actions like training or sensitization of the staff.

The National Flood Risk Contingency Plan, developed in 2018 by NADMO, presents the vulnerabilities related to flood and explains the role of the key sectoral ministries, such as MoE and MoH in the preparatory actions and the response. The coordination structure is well presented from the National Security Council to the community level and between the national institutions and the UN agencies, but this coordination should be initiated by the appointed humanitarian coordinator in case of a major emergency. The flood contingency plan for the Eastern Region reviewed in 2022 has similar content for the regional level.

The National Nuclear and Radiological Emergency Response Plan (NNRERP) outlines the nation's type of exposure to radiological hazards as well as the procedures to prevent, prepare and respond to them. The implementation of this plan is under the lead of the radiation protection board, the Ghana Atomic Energy Commission and NADMO.

The Emergency Preparedness and Response Plan for Tono Dam was developed in 2018 under the leadership of the MoFA. This plan expects to address (prevent and respond to) the damages that a dam failure, or where expected operational flows, could cause in terms of threatening life and property downstream. NADMO is not the lead for the implementation and updating of the EPRP; the Irrigation Company of Upper East Region (ICOUR) is. In addition to the contingency plan, the government through NADMO and the Ghana Armed Forces organizes simulation exercises supported by external partners for some disaster risks such as flood and earthquake. Those exercises mobilize the Ghana Armed Forces, Ghana Police Service, National Ambulance Service, Ghana National Fire Service, and NADMO Management Response Team. The localities or municipalities are chosen based on their level of vulnerability to flood or earthquake. The last exercise took place in March 2022.

There is an inter-agency committee "WASH in emergencies" consisting of NADMO, MoH, MoE, UNICEF, and WHO. The Committee meets before a predictable emergency to discuss preparedness measures and response plans.

I0.5.2 Challenges

- NADMO has offices in 10 regions and in all the pre-existing 219 districts. However, it does not have functional offices in the 30 newly created districts. Its equipment and logistical capacity at the district level seems insufficient and not properly maintained.
- Over the past years, despite significant investment made in developing preparedness plans, these plans do not guide the operations during the response phase, especially at the district level because the response is often guided by high-level authorities at the national level. NADMO, at the district/regional levels, does not have enough authority to lead postdisaster coordination efforts, due to the overdependency on the national authorities for decision-making and resources allocation.
- In the plans, the support of the armed forces is not as well-outlined as it is in the EOCs.
- There are well-established plans, but the knowledge of these plans is limited to a small number of individuals. In many cases, staff and experts knew of the plans and procedures, but in the event of an emergency, they were not able to implement them or review them.
- The plans and procedures represent only the basis of an EPR capability. However, the national institutions listed in the documents, including those in charge of operating the response do not have a clear understanding

of their strengths and weaknesses to fulfill their responsibilities.

- The existing contingency plans are not updated, except for the Eastern region. The most recent was published in 2021 and most of them were updated in 2018. Even though the institution responsible for updating the different plans are clearly listed, they do not have sufficient technical and financial resources to proceed with the revision.
- While NADMO and in-country partners conduct simulation exercises, they do not have a budget allocated for that. They rely on partners to conduct them. Hence it is difficult to conduct this important exercise regularly in all the highly exposed areas.

10.5.3 Recommendations



- Regularly update the current national 4. contingency plan while opting for a multihazard plan.
- 2. Review the existing contingency plans at regional, district and community levels, as well as plans for specific sectors or disaster risks such as oil spills, earthquakes, etc. Develop contingency plans for those that do not have them yet.
 - Mobilize the human resources available in different institutions across the ministries and agencies at the national level to support the revision or the development of the contingency plans.
 - Engage in discussions with the sectoral ministries to collect the necessary resources to finance the revision or the elaboration of the contingency plans.
 - Mobilize the national and international technical partners to support the process, which are led by core experts from the state institutions.
 - Organize discussions on the lessons learnt after each process and capitalize on them for subsequent exercises.
 - Ensure that the contingency plans are disseminated at all levels and engage in discussions on the role and responsibilities of the various stakeholders with them to guarantee that they are aware of them.
- Include the police and armed forces in the process of emergency planning, with dedicated roles and responsibilities to support the specialized ministries or agencies during the emergency operations.

- E. Develop a capacity building plan for EVVS and contingency planning for all stakeholders, with a focus on Civil-Military coordination. Emphasize adherence to existing guidelines that shape military interventions.
- 5. Promote joint training programmes at all levels (national to district), followed by Simulation Exercises in the EOCs in collaboration with the Chair of DRR at the University of Cape Coast.
- 6. Review and test the emergency response plans for oil spills and earthquakes, while creating or updating related SOPs.
- 7. Increase the comprehension of the civil society actors on disaster management.
 - Create training plans and adapt them to the specific targets.
 - Prioritize policy makers and professional bodies, such as journalists and social or political activists, who will work on themes like DRR or CCA.
- 8. Invest in capacity building and resourcing (infrastructure) of the Fire Service, key ministries and other sectoral stakeholders, to enable them to prepare contingency plans and better coordinate their deployment across all districts.
- Conduct Vulnerability and Risk Analyses and Mapping (VRAM) capacity analysis by incorporating health facility safety with WHO support, and engaging various technical agencies to enhance the preparedness activities.

10.6 Emergency services and prepositioning – recovery

10.6.1 Existing capacities (strengths and weaknesses)

For the response operations, NADMO and other state institutions have equipment such as office supplies, vehicles, etc. However, for logistics for the transportation of heavy items and personnel, they rely on international partners and the private sector. NADMO established formal and informal agreements with the private sectors to provide the transportation and other logistical support during emergency responses. In addition, NADMO has a call line that allows any individual to signal any hazardous situation.

Some regions have contingency stocks managed by a partner or by the state. The contingency stock is placed close to the most exposed areas. The contingency stocks are constituted with items provided by the state institutions (agencies and ministries) and the national and international partners. The partners also have their own contingency stocks and those stocks are included into the national stocks.

If there exist contingency plans and stocks, there is no recovery plan. In terms of recovery activities, the sectoral ministries and the partners conduct them based on their capacities. An analysis done by UNDRR on the national budgets for the period 2016-2019 shows that only 0.2% of the budget allocated to disaster management was for the recovery phase. This percentage varies from one ministry to another – from a minimum of 0.2% for the Ministry of Works and Housing to a maximum of 1.8% for the Ministry of Lands and Natural Resources.⁸⁴

Some international partners provide cash transfers to extremely poor households with the goal of alleviating short-term poverty and encouraging long-term human capital development.

10.6.2 Challenges

- The communities are not familiar with the call lines. They do not report emergencies on time to the police officers and firemen.
- NADMO does not have a clear vision on the various types of insurance in the country that could support the recovery and rehabilitation. They are managed by the MoFEP.
- There is a lack of dedicated budget allocations for the recovery phase. In the NADMO Act, where the use of the disaster fund is explained, there is no reference to rehabilitation and recovery.
- There is limited information on logistics, security and civil-military humanitarian assistance before and during disaster response.

- At the regional and district levels, the EOCs do not have adequate equipment to perform well in their role and there is a lack of SOPs to guide the operations at this level.
- There is a limited inventory of stocks and exchange of information among organizations on their capacities to intervene in the different regions.

10.6.3 Recommendations



- Identify and implement the insurance options that exist in the country to carry out innovative insurance solutions to support the recovery of the most vulnerable people, particularly the poorest people and vulnerable urban communities.
- 2. Develop a comprehensive post-disaster [recovery] strategy and plan for the country, with specific plans for the most vulnerable regions.
 - Develop a recovery plan for the Northern region by taking into account the population that depends on natural-resource-based activities as well as migrants.
 - Conduct an analysis on the various livelihood activities for young people to foster early recovery and prevent them from taking part in harmful, lawless, and criminal activities such as *galamsey* for survival.
- 3. Explore agreements between NADMO and the United Nations Humanitarian Response Depot (UNHRD) managed by WFP, located at Accra to improve the stockpiling capacities of the country, and facilitate the dispatch of the relief items in a timely manner.
- Advocate to include more funds into the national budget for recovery and add NADMO as one of the receivers of the funds in addition to the sectoral ministries. Also, allow NADMO to have an overview on the planning of the recovery activities.

5. Reinforce the operational capacities of the regions and districts by providing them with the adequate materials and training needed to reduce the time taken to organize the response at the different levels in the country.

- Conduct a needs assessment in the regions and districts to estimate the materials and training that can help them to better perform in their role of organizing the response.
- Develop a reinforcement plan for the most exposed regions, including capacity building for the staff and the necessary equipment, all with fixed timelines.
- Conduct an inventory of the existing warehouses and their content in the country and keep this data up-todate every year or twice a year and give the partners access to it.
- Define the places to serve as temporary shelters with a clear protocol of agreement with their manager and equip them, while working on building specific temporary shelters in the most exposed localities.
- 6. Ensure a more equitable dispatch of the resources between the central level and the regions.

APPENDICES

Appendix I

In normal times, the National WinE TWG works under the structure of the WASH Sector Group (Figure 1.1) and closely coordinates its actions with the committees of NADMO (Figure 1.2), especially with the Disease Epidemic Technical Advisory Committee.

In case of a disaster, when the NADMO emergency response coordination structure is activated, the WinE TWG will be part of NADMO's coordination mechanism.

In case the Disease Epidemic Technical Advisory Committee is not activated during an emergency, the WinE TWG will work under another relevant Committee (e.g. the Hydro-Meteorological Committee).

The National WinE TWG will promote and support the creation of Regional and District WinE TWGs. Where local WinE TWG exists, the National WinE TWG will work in close collaboration with them and will provide technical support.



Figure I.I: Structure of the WASH sector group in Ghana



Figure I.2: Current WinE Response Systems in Ghana

Appendix II: List of institutions visited

Architectural and Engineering Services Limited (AESL)

Chief Executive and District Disaster Management Committee of Nalerigu District

Chief Executive and District Disaster Risk Management committee of Anglo

District Chief Executive and District Disaster Management Committee of Techiman South Municipality

District Chief Executive and District Disaster Management Committee of Shama Municipality

Ghana National Fire Service

Ghana Police Service

Ghana Red Cross Society

Ghana Statistical Service

- Geospatial
- Survey Organisation
- Census

Ghana Meteorological Agency (GMET)

Ministry of Communication

Ministry of Education (GES)

Ministry of Environment, Science and Technology

- EPA
- Mineral Commission
- CSIR
- Forestry Commission

Ministry of Finance

- Director, Economic Strategy and Research Division
- Director, Budget
- Director External Resources Mobilization and Economic Relations

Ministry of Food and Agriculture

• PPRSD

- PPMeD
- SRID
- Crops
- Vet and other relevant directorates
- NAFCO
- National Farmers Association
- E-Agriculture

Ministry of Gender, Children and Social Protection

- Department of Social protection
- National Household Registry

Ministry of Health

- Nutrition Directorate
- National Ambulance Service
- Ghana Health Service

Ministry of Local Government and Rural Development

Ministry of Roads

- Urban Roads
- Highways
- Feeder Roads

Ministry of Sanitation and Water Resource

- Ghana Water Company
- Community Water and Sanitation Agency

Ministry of Works and Housing

National Development Planning Commission

National Security

National Communications Authority (NCA)

National Information Technology Agency (NITA)

Parliamentary Select Committee for Defense and Interior

Regional Minister and Regional Disaster Management Committee

Regional Minister and Regional Disaster Management Committee

Regional Minister and Regional Disaster Management Committee

Regional Minister and Regional Disaster Risk Management committee

United Nations Interagency Working Group on Emergency (UN/IAWGE)

University of Ghana - Centre for Migration Studies, Institute for Environment and Sanitation Studies (CERGIS)

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 - Understandable to users

- Implementable (usable, doable)
- Originated within communities, based on local needs, and specific to culture and context (environment and economy)
- Provides core knowledge with flexibility for local adaptation for implementation.
- Uses local knowledge and skills, and materials based on local ecology.
- Has been proven to be time tested and useful in disasters.
- Is applied or applicable in other communities or generations.
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36

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- 58 United Nations Development Programme: Inclusive insurance and risk financing in Ghana, Snapshot and way forward, Accra, 2022, p. 5
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- 60 The study reveals <u>flooding</u> as a key threat to health facilities in the entire GAMA (Greater Accra Metropolitan Area) area but identifies Accra Metropolitan Area as a locality with most exposed health facilities. Furthermore, the study discovers that, many of the health facilities in GAMA are clustered in a highly vulnerable enclave of about 20 km radius and estimates that, occurrence of any disaster within this area could affect more than twenty facilities and deny healthcare services to over two hundred thousand people. Ref. Identifying exposures of health facilities to potential disasters in the Greater Accra Metropolitan Area of Ghana, <u>https://www.sciencedirect.com/science/article/abs/pii/S2212420920315302</u>
- 61 The transport sector is male dominated with only 22% of the workforce in the Ministry of Transport and its agencies being female. This gender imbalance perpetuates inconsistencies in the use of gender disaggregated data in the planning and development of transport systems. Ref: UNOPS et alii: Ghana: roadmap for resilient infrastructure in a changing climate, UNOPS, 2022, p.44
- 62 Environmental and Social Assessment, Ministry of Roads & Highways, March 2017
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- For example, following the devastating floods in 2015, in the absence of contingency funds, the Government of Ghana had to secure funding of \$6.4 million for emergency repairs of drainage systems, buildings, and roads in Accra from an ongoing World Bank-funded project, causing that project to be negatively affected. If no adaptation measures are implemented, it has been estimated that Ghana will need to spend \$473 million to maintain and repair the cumulative damages caused to its road infrastructure due to climate change from 2020 to 2100. The delays in obtaining financing for repairs results in further deterioration of assets and greater operational and management costs in the long run, in addition to costs associated with increased disruptions to transport services, economic activities, transportation of goods and access to livelihoods. Ref. UNOPS, OP. Cit., p. 52
- 65 <u>1999 World Food Summit</u>
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- 70 Health Budget Brief
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- 73 Republic of Ghana (2015). Ghana Social Protection Policy
- 74 Disaster Risk Management (DRM) is defined as "the application of disaster risk reduction policies and strategies to prevent new disaster risk, reduce existing disaster risk and manage residual risk, contributing to the strengthening of resilience and reduction of disaster losses" (UNDRR).
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- 76 A female porter or bearer.
- 77 Person who carries out gold mining without legal permission.
- 78 The United Nations is part of the UN system, which, in addition to the UN itself, comprises many funds, programmes and specialized agencies, each of which have their own area of work, leadership and budget. For detailed description see https://www.un.org/en/about-us/un-system
- 79 Ghana's spending on social protection as a percentage of GDP is less than 1%, which is even lower than average spending in Low-Income Countries. In Middle-Income Countries, social protection spending as a percentage of GDP is between 6.7% to 8.7%. Ghana's spending on social protection is also below the sub-Saharan African average. Ref. <u>https://www.unicef.org/ghana/media/4336/file/Budget%20Brief%20-%20Social%20Protection.pdf</u>
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Government launches Apiate Support Fund

MoF COVID-19 Updates



Photo: NADMO/Ghana







