National Emergency Telecommunications Plan and Early Warning 4 All Verification and Implementation Project for the Republic of The Gambia

Current State Clarification Meeting - DRAFT

November 2024

Agenda

1. Objective and Terms of Reference
2. What and Why a National Emergency Telecommunications Plan
3. How does the NETP address the Phases of a Disaster Management Cycle
4. The Gambia's Current State and the Action Items
5. Next steps

Objective

Disasters have devastating effects on people's lives and livelihoods, and in terms of economic losses. The Least Developed Countries (LDCs) and Small Island Developing States (SIDS) are particularly vulnerable to the effects of climate change and natural hazards.

This project focuses on supporting the Government of The Gambia on prioritising the development of an NETP framework and associated Action Items for the implementation of The Gambia's NETP framework.

Terms of Reference

1. Document the NETP Framework and the Action/Implementation Items for The Gambia
2. Identify the responsible entities to implement the NETP.
3. Consider the early warning system situational assessment, considering the current policies, regulatory frameworks and EWS implementations
4. Based on this assessment provide relevant Action/Implementation Items that are to be considered/implemented.

What do you have? What are you already doing?

The goal of this activity and this consultation is to understand more about and document what capacities currently exist (or are already in advanced planning/implementation) that can be mobilised in the event of a disaster.

This includes all kinds of telecommunications networks and equipment available in all possible government entities, agencies, NGOs, businesses and private organisations, how networks and equipment are maintained and checked, current systems/organisation of the response before, during and after emergencies, local and international agencies involved, early warning systems deployed, legislation that affects emergency telecommunications, disaster management legislation, plans, policies and individual agencies' SOPs.

What really happens on the ground? What works and what doesn't work?

National Emergency Telecommunications Plans

A National Emergency Telecommunication Plan (NETP) sets out a strategy to enable and ensure communications availability during the disaster mitigation, preparedness, response and recovery phases, by promoting coordination across all levels of government, between public and private organizations, and within communities at risk.

Source: ITU Guidelines for National Emergency Telecommunications Plans 2020, ITU Publications

Why is an NETP important?

- Improves coordination of disaster management
- Identifies critical telecommunications infrastructure and resources
- Determines the required capabilities for emergency responses
- Establishes multi-stakeholder roles and responsibilities
- Provides support and justification for the funding (from both national and international sources) of vital equipment and personnel
- Promotes the need for day-to-day resources and procedures to maintain preparedness
- Creates a framework for permanent on-going consultation and cooperation

NETP Principles

Multi-hazard

ICTs play a critical role in facilitating the flow of vital information in a timely manner.

Multi-technology

The use of different ICT technologies can help mitigate the impact of disasters

Multi-phase

ICTs are critical in all stages of disaster management

Multi-stakeholder

All stakeholders should ensure access to ICTs for better coordination

Source: ITU

The Four Phases of Disaster Risk Management

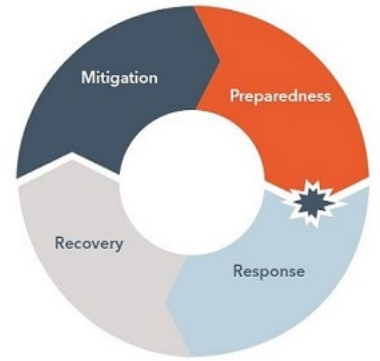
The disaster risk management process adopted by the United Nations Office for Disaster Risk Reduction (UNDRR) consists of four phases:

- Mitigation
- Preparedness
- Response
- Recovery

The NETP addresses each of these phases from the telecommunications point of view

The NETP also considers the overall governance structure for DRM reviewing legislation and policies

Phase 1 - Mitigation



Activities that seek to prevent an emergency, reduce the likelihood of its occurrence, or limit the negative effects of unavoidable threats

NETP topics:

- Legal and regulatory framework and authorities to support emergency telecommunication/ICT services
- Vulnerability and hazard mapping showing the location and types of hazards the country faces
- The telecommunication/ICT landscape, operators and service providers, facilities availability and service penetration
- Critical telecommunication/ICT infrastructure
- Disaster reporting procedures for carriers that are standardized and exercised considering each of these hazards
- Mechanisms for reducing the vulnerability and improving the resilience and redundancy of telecommunication/ICT networks
- Treaties and international cooperation agreements

Phase 2 - Preparedness

Activities include the planning and preparation necessary for responding to event. This includes the development of written plans and procedures, such as an NETP, to ensure that critical operations are maintained during and after the emergency.

NETP topics

- Standard operating procedures
- Response and contingency plans
- Coordination structures at all levels
- Information sharing protocols
- Telecommunication/ICT networks for monitoring, early warning and alert systems
- Continuous planning, and ongoing improvement of communication and cooperation between different stakeholders, including operators and private sector
- Prepositioning of back up telecoms and power equipment
- Training and exercises (including time frames, types, participants, schedules)
- Education to raise awareness and preparedness among citizens
- Support for vulnerable people

Phase 3 - Response

This phase is carried out during the emergency. Plans and procedures established in the mitigation and preparedness phases are executed. Telecommunication/ICT infrastructure is crucial for the government, private sector, non-governmental entities, humanitarian aid agencies and citizens in the aftermath of a disaster, including in establishing priorities and directing the allocation of limited resources.

NETP topics:

- Importation of equipment
- Provision of temporary connectivity
- Communication and coordination among government communications and national disaster management organization contacts, with carriers, and between first responders and the full range of stakeholders
- Geospatial information on the disaster event
- Situational awareness and updates
- Enabling response, connecting families and friends, enabling call centres

Phase 4 - Recovery

Occurs after the disaster and focuses on providing the help needed for the community to at least return to pre-emergency levels of safety and functionality, or to improve on pre-existing conditions. Activities during this phase may include, among others, removal of debris, reconstruction of infrastructure, and restoration of public sector operations.

NETP topics:

- Restoring telecommunications infrastructure and services
- Reflecting on performance to identify potential improvements
- Build back better – more resilient infrastructure with greater redundancy, new technology
- Identifying locations in need of recovery assistance, tracking recovery activities
- Enabling and coordinating reconstruction activities

Outcomes of the NETP

The NETP describes the elements of telecommunications and ICT services, and the actors involved in DRRM. The outcomes are meant to strengthen the use of telecommunications and ICT and be able to support DRRM activities appropriately.

There are 16 Areas of consideration which may have gaps in the DRRM ecosystem of which a number may apply to The Gambia.

It will be the focus of this project, to articulate these gaps and identify actions to be implemented via this NETP to close these gaps.

NETP Areas of Consideration

Governance (part of the Mitigation Phase)

1. Laws and Regulations for DRM and National Disaster Management
2. National Disaster Plan and NETP
3. Provisions for Emergency Telecom/ICTs
4. Responsibilities and activities for the minister responsible for Telecom/ICT and the telecoms NRA

Mitigation Phase

5. Updated Vulnerability Maps
6. Critical Infrastructure and Network Inventory
7. The Tampere Convention and Coordination with International Agencies

NETP Areas of Consideration

Preparedness Phase

8. Early Warning Systems and Common Alerting Protocol
9. Training and Drills
10. Accessibility
11. Contingency and Business Continuity Plans
12. Standard Operating Procedures

Response Phase

13. Emergency Operations Centres
14. Call Centres

Recovery Phase

15. Restoration and Reconstruction of the Telecom/ICT Infrastructure
16. NETP Update

Steps in the Development of The Gambia's NETP

Development of the NETP is a collaborative and iterative process

The steps towards the NETP implementation are as outlined below

1. Desk Research – Based on publicly available information (✓)
2. Collate Best Available Information – Based on (1) and supplementary information supplied by country stakeholders (✓)
3. Draft Initial NETP for review (✓)
4. Stakeholder Engagement Meetings – We are here
5. Confirm and update information arising from engagement meetings
6. Review Cycle
7. Finalisation
8. Implement and Continuous Revision

The Gambia's Information to be Reviewed

1. Disaster management legislation, polices and plans
2. Other legislation, polices and plans relevant to this activity
   - ICT
   - Clusters
   - Operational centres
   - Interface into other actors and civil society
3. International conventions and treaties
   - Tampere Convention
4. Hazard vulnerability maps
5. Early warning systems
   - Cyclone, tsunami, flood, earthquake etc
6. Telecommunications networks and services
   - Industry information such as tower locations and population coverage
   - Carrier services
   - International connectivity
   - Broadcast TV and radio
   - Land mobile radio
   - Amateur radio
   - Power
7. Standard operating policies and procedures

Mitigation Governance: Item 1 – Laws and Regulations for DRM and Disaster Management Plans

High-level laws and regulations for DRM should be established. This comprehensive legal, policy, and institutional framework should be based on the existing DRM policy and include national disaster management plans and be specific in defining the agencies accountable for developing emergency sectorial regulations.

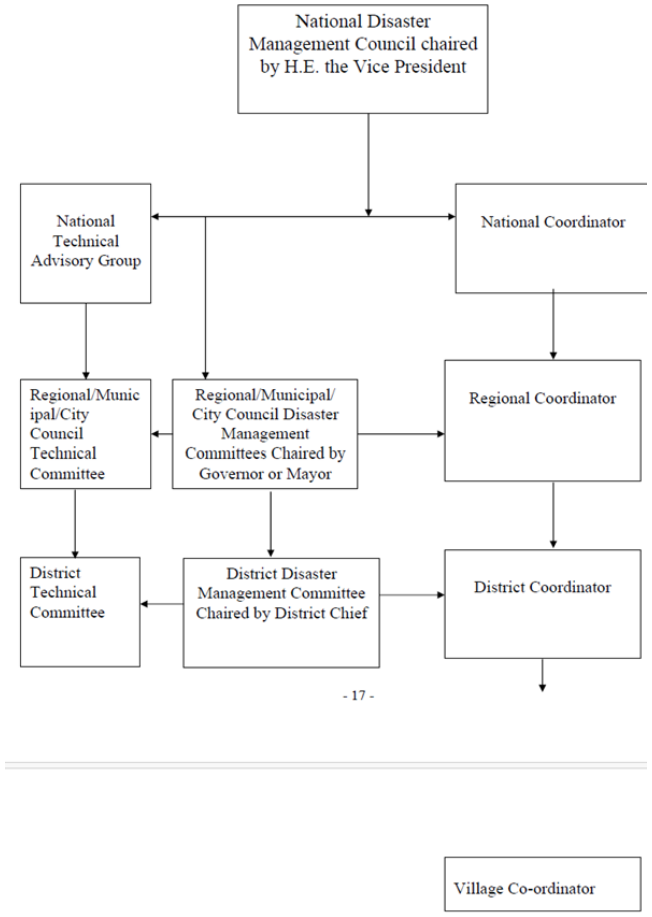
The Gambia does not appear to have a relative modern and up to date set of policies, plans, strategies and legislation that provides guidance and direction for the country's Disaster Risk Management system

Polices, Laws, Regulations and Plans

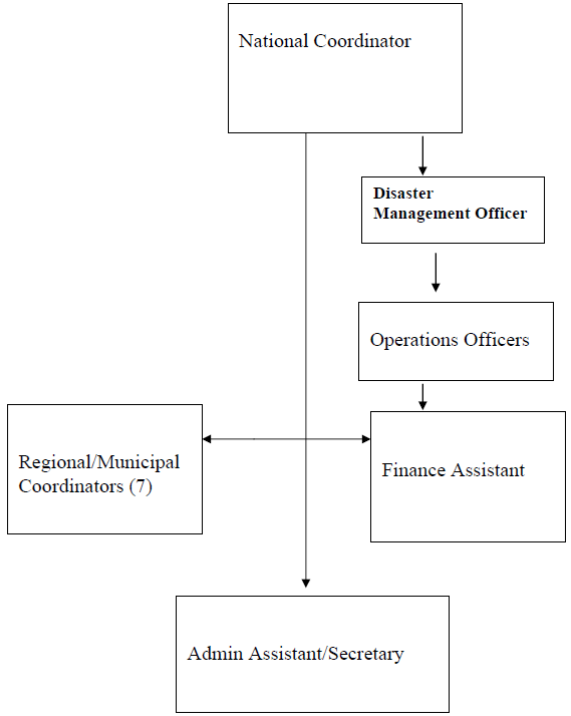
The Gambia's Disaster Risk Management legislation, policies and plans

- National Disaster Management Policy 2007
- National Disaster Management Act 2008
- National Disaster Management Programme 2007-2011
- National Climate Change Policy 2016
- The Gambia National Plan for Action for DRR 2012-2017
- Recovery Focused National Development Plan 2023-2027
- Customs and Excise Act 2010
- The Gambia 2050 Climate Vision
- National Plan of Action for Disaster Risk Reduction 2012-2017/18

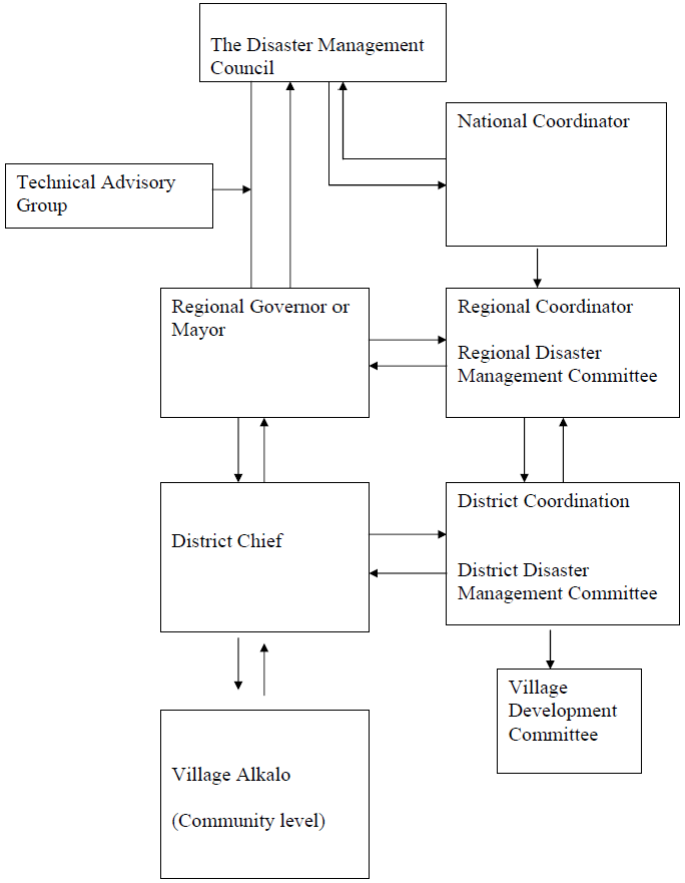
Institutional Framework



National Disaster Management Organisation



NDMA



Command Structure

Mitigation Governance: Implementation Task 1

High-level laws and regulations for DRM should be established. This comprehensive legal, policy, and institutional framework should be based on the existing DRM policy and include national disaster management plans and be specific in defining the agencies accountable for developing emergency sectorial regulations.

- Consider a holistic review of the DRM framework, legislation and policies and compare against best practice examples within the African community.
- The opportunities for enhancement should consider
  - The role of Information Technology and Communications within the DRM framework and particularly with respect to defining and leading these sectors during a disaster situation.
  - Stronger policy and regulation on the implementation of early warning systems.
  - Stronger policy surrounding agencies implementing monitoring systems to ensure that the NDMA is notified of such systems.
  - Clarity with respect to duty exemptions for disaster relief goods and materials

- Implementing Agency NDMA

Mitigation Governance: Item 2 NETP

National Disaster Plans and National Emergency Telecommunications Plans should be developed or updated based on the legislation for DRM currently in force.

There is currently no NETP Framework for The Gambia, which is to be rectified by this activity

This NETP developed (in draft) has identified several gaps and tasks to resolve these gaps.

There are several other policies and plans that are documented (possibly now outdated) that have input into the NETP

Mitigation Governance: Implementation Task 2

National Disaster Plans and National Emergency Telecommunications Plans should be developed or updated based on the legislation for DRM currently in force.

- Complete and implementation of The Gambia NETP Framework
- Create a repository for all plans associated with DRM and Climate Change Adaptation.

- Implementing Agency:
  - NDMA for repository of DRM materials,
  - PURA for repository for telecommunications materials

Mitigation: Item 3 Agencies Involved in DRRM

Based on the general national DRM laws and regulations clear responsibilities and activities for the Ministry responsible for telecom/ICT and the Telecoms NRA and should include the specific roles that the Ministry and the Telecoms NRA must play within the general DRM system, and the roles and representation they have within the sectoral committees or sub-committees for DRM.

There are numerous agencies that are involved in the DRRM process

There is no clear national sector arrangement with a clear communications sector and lead agency

Both PURA and MoCDE are critical, however, the existing policies and legal instruments do not mention or include MoCDE as part of the NDMC

There roles are unclear and undefined within the documents reviewed

Consideration should also be given to the creation of a Telecommunications Emergency Cluster, from within industry stakeholders to meet and discuss such topics as the NETP

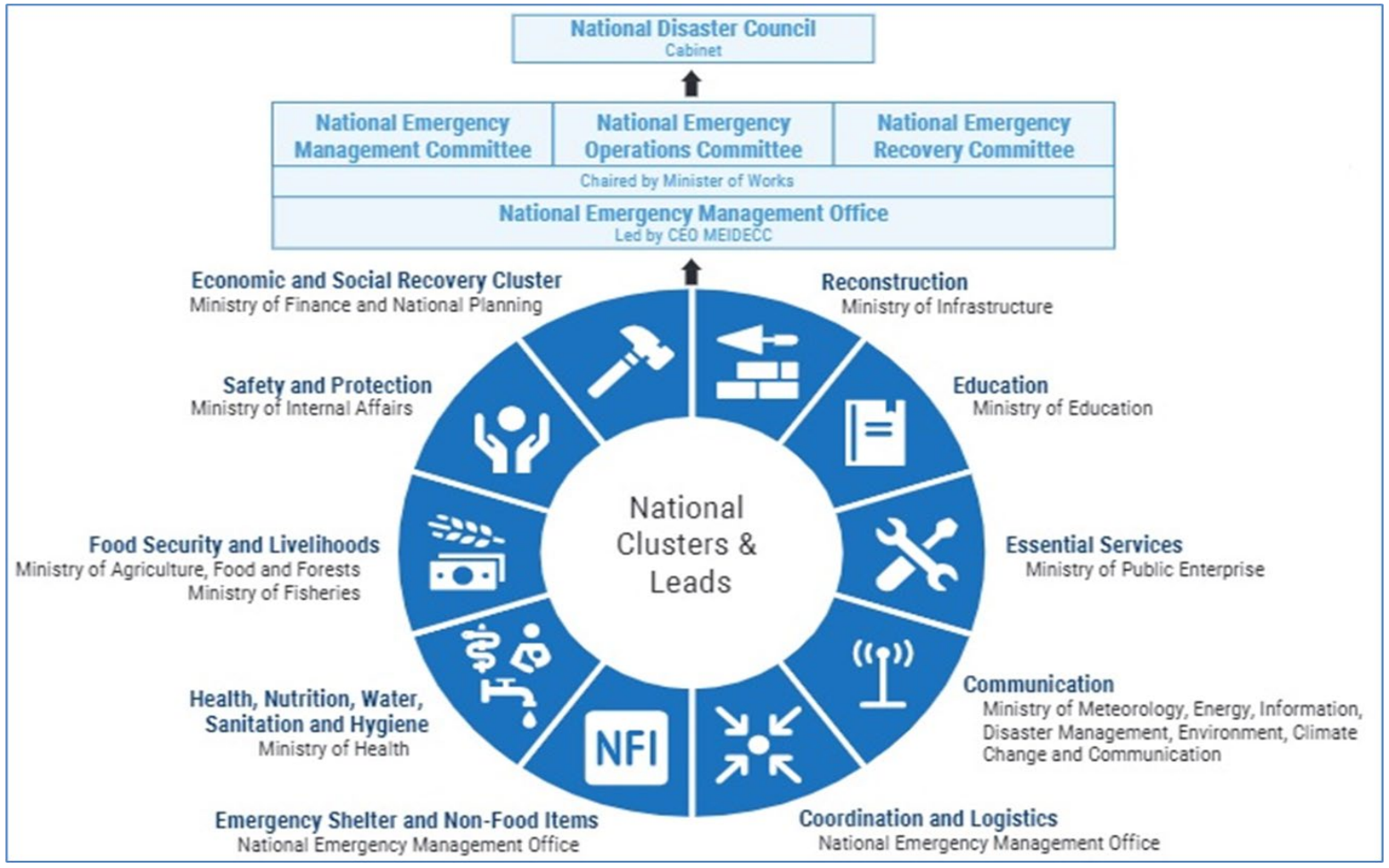
Sector/Cluster System

Clear structure
Identified Lead Agencies for each sector/cluster

Dedicated communications sector lead by ICT Agency

- In the case of The Gambia this would be MoCDE

Does a similar arrangement exist in The Gambia?



Tonga Cluster Arrangement

Mitigation: Implementation Task 3

Based on the general national DRM laws and regulations clear responsibilities and activities for the Ministry responsible for telecom/ICT and the Telecoms NRA and should include the specific roles that the Ministry and the Telecoms NRA must play within the general DRM system, and the roles and representation they have within the sectoral committees or sub-committees for DRM.

- Review and update The Gambian sector/cluster information particularly regarding the functions associated with the sector/cluster
- Create a communications Sector/Cluster to highlight the importance and relationship of telecommunications/ICT to DRRM
- Establish a National Emergency Telecommunications group that provides input into the NETP on an ongoing basis and takes part in the implementation tasks identified in the NETP
- Develop a Terms of Reference (ToR) and Standard Operating Procedures (SOP) for this cluster including appropriate information on members as an addendum to this NETP
- Responsible Agency
  - NDMA for the sector review
  - MoCDE as the national sector/cluster lead
  - PURA for creation of an National Emergency Telecommunications Group

Mitigation: Item 4 Provisions for Emergency Telecomm/ICT

Based on the mandate of a high-level DRM law or policy, the responsible agency for developing regulations for emergency telecom/ICTs should make provisions for different topics related to emergency telecom/ICTs for all phases of DRM (mitigation, preparedness, responses, and recovery).

The Gambia NETP project has identified several provisions that need to be addressed or updated, to improve this facilitation.

Whilst these provisions maybe implicit in there is a need to ensure that the provisions are explicit in the appropriate policies and legislative acts

Telecommunications Legislation & Regulations

- **The PURA Act 2001**
- **The Information Communications Act 2009**
  - Provides a licensing and regulation framework to support and oversee electronic communications and postal services and to undertake national regulations development and administration

Current Regulations & Guidelines

- National Frequency Allocation Plan
  - PPDR spectrum harmonisation
- National Numbering Plan
  - Emergency numbers
- Type Approvals
- The National Broadband Strategy 2020-2024

Regulator Powers

Under the Act the regulator may have certain powers that can be utilised in the case of a disaster situation. The Gambian NETP has identified that there are deficiencies in existing powers, rules and guidelines that need updating. For example,

- Temporary licenses for telecommunications service
  - Requires Ministerial approvals
  - Needs to be explicit and able to be expeditated for disaster situations
- Temporary licences for spectrum
  - Requires Ministerial approvals
  - Needs to be explicit and able to be expeditated for disaster situations
- Waiving type approvals
  - Not specific for disaster situations
  - There is a possible route via the Customs Act
- National roaming for disaster situations
  - Not considered in current guidelines

Responsibilities

Ministry of Communications and Digital Economy

- Responsible for providing overall policy directives on the use of telecommunication/ICT in disaster management
- Coordinating the ratification of international treaties on telecommunication/ICTs for disaster management
- Establish clear lines of responsibility for the leadership when using ICTs for disaster risk management at the national level to ensure actions are implemented with accountability and predictability

Public Utilities Regulatory Authority

- Responsible to develop, implement, and regularly review the NETP involving all the main stakeholders
- Ensure multiple ways of connecting (redundancy) to the Emergency Operational and Communication Centre (EOCC) to accommodate different technologies
- Develop and adopt a regulatory framework for emergency telecommunication purposes
- Include provisions in the regulatory framework for the private sector to make available its telecommunications infrastructure, and services during all phases of disaster management so as to facilitate and disseminate timely vital information when needed.

Mitigation: Implementation Task 4

Based on the mandate of a high-level DRM law or policy, the responsible agency for developing regulations for emergency telecom/ICTs should make provisions for different topics related to emergency telecom/ICTs for all phases of DRM (mitigation, preparedness, responses, and recovery).

- Review, develop and establish specific regulations for the telecom/ICT sector on disaster risk management. These regulations should be based on its functions granted by legislation, encouraging telecom/ICT network and service providers to actively participate in each of the phases of disaster risk management
- Implementing Agency
  - PURA

Mitigation: Item 5 Updated Vulnerability Maps

Vulnerability maps for the different types of hazards and especially those related to droughts, floods, and epidemics should be created, maintained and updated . This Information must be detailed at all levels and should be available to telecom/ICT operators.

Any DRM process should have an activity to provide vulnerability assessment and analysis that should be available for analysis on impacts to not only telecommunications assets but other critical assets

The National Disaster Management Policy 2007, under Section II, Policy Statement clearly states to "*Do a risk and hazard mapping*"

Vulnerability maps appear to be available but also appear to be developed by multiple parties. There does not appear to be a consistent integrated source of this information

Vulnerability analysis and hazard mapping is required in a format that can be used on a regular basis by all parties involved in the DRR and DRM processes to identify the risks posed to critical infrastructure.

Hazard History

Natural Hazard 1910-2024	Subtype	Event Count	Total Deaths	Total Affected	Total Damage ('000 USD)
Drought	Drought	9		1,321,100	5,885
Epidemic	Bacterial Disease	2	141	909	
	Viral Disease	2	200		
Flood	Flash Flood	1	53	32,000	
	Riverine Flood	6	16	57,219	
	Flood General	4	13	41,451	
Storm	Storm General	2	5	14,156	
	Severe Storm	3	10	19,599	
	Storm Surge	1	4	15,101	
Wildfire	Land Fire	1		5,000	

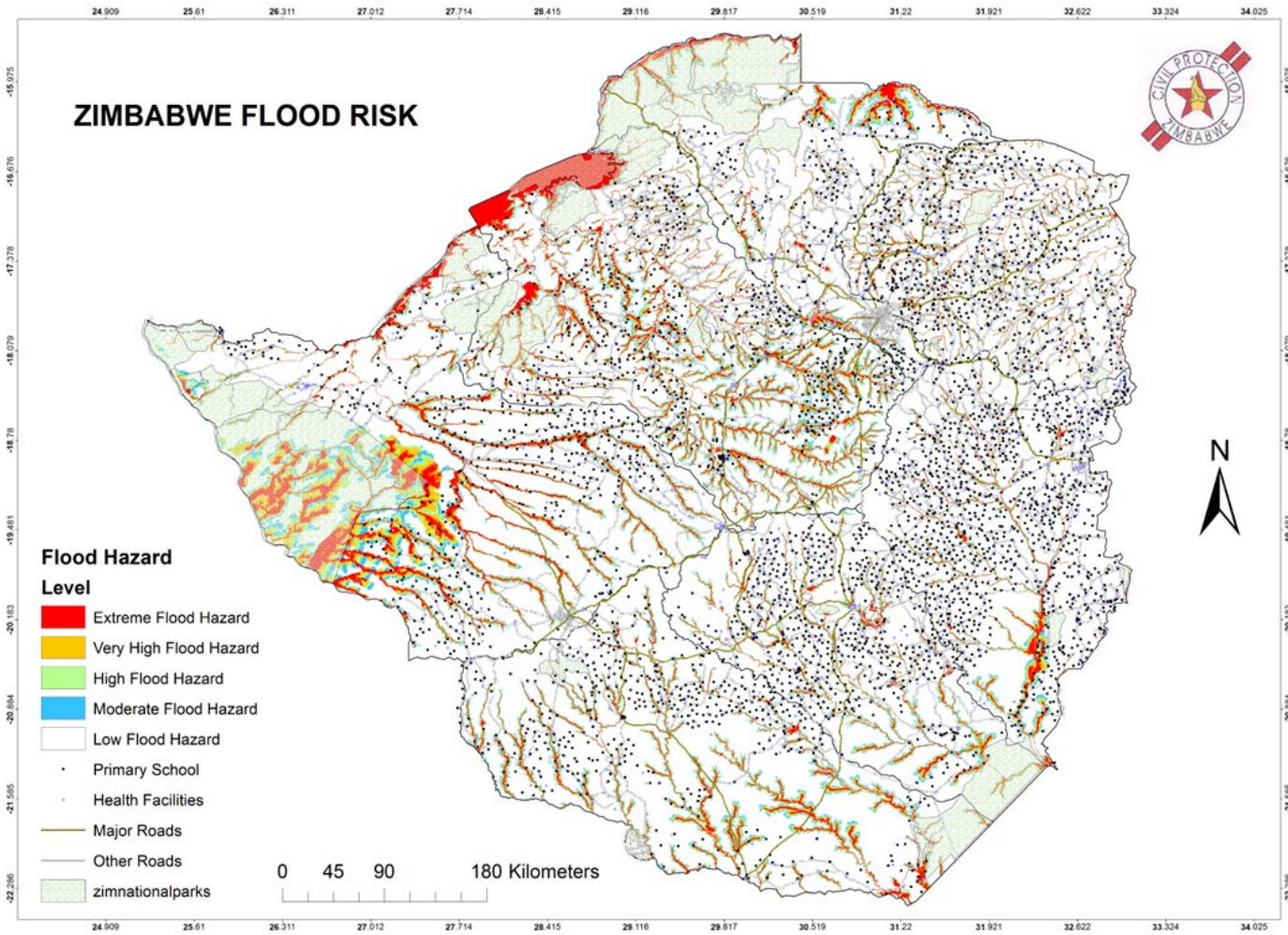
Total Events: 31
Total Affected: 1.5m
Total Deaths: 442

Drought is the most significant disaster event

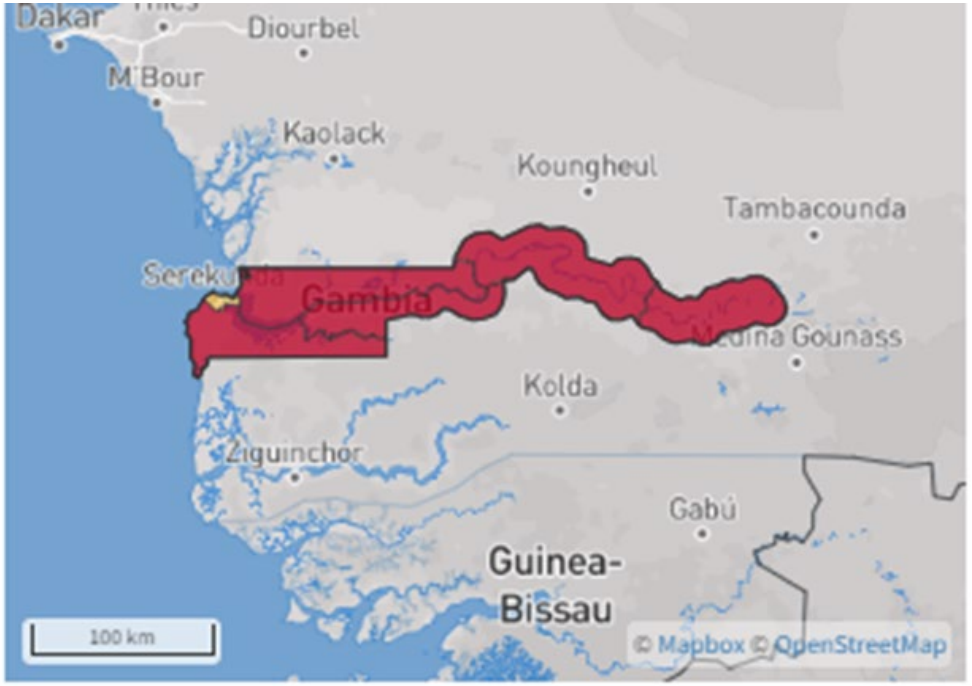
Source EM-DAT – The International Disaster Database

Vulnerability Maps

- What GIS hazard/risk mapping has been undertaken?
- Who is responsible for these maps
  - NDMA
  - Ministry of Lands, Surveys and Natural Resources
  - Geosciences
- Are these maps readily available?
  - Required under the NDMP 2007
  - Identified under the National Plan of Action
- What is the process to obtain these maps?
- Ideally, telecommunications infrastructure maps should be overlaid on hazard maps to determine the likelihood of failure and to consider resilience and redundancy of that infrastructure



Vulnerability Maps



Flood

Drought

Source Think Hazard

Mitigation: Implementation Task

Vulnerability maps for the different types of hazards in the NETP and especially those related to droughts, floods, and epidemics should maintain and updated . This Information must be detailed at the municipal level and should be available to telecom/ICT operators.

- Develop and enhance vulnerability maps for the different types of hazards, especially those related to droughts, floods, and epidemics developed and maintained by the relevant agencies involved in assessing and monitoring natural hazards in The Gambia.
- All telecom/ICT service operators, mobile, fixed, and radio and television broadcasting operators, as well as government networks, should develop (or update) and present for approval a vulnerability analysis of the critical infrastructure of their networks.
- Implementing Agency
  - NDMA for general vulnerability maps
  - PURA for telecommunications additions

Mitigation: Item 6 Critical Infrastructure and Network Inventory

All telecom/ICT service operators, mobile, fixed, and radio and television broadcasting operators, as well as Government networks should develop (or update) and present for approval to the DRM Authority a vulnerability analysis of the critical infrastructure of their networks according to the different types of hazards to which the country is prone to. This vulnerability analysis should also include precise coverage maps of the telecom/ICT networks and include an inventory of the infrastructure and power, maintenance, and connectivity.

It is important that PURA have this information at hand as this information will support a combination of activities, such as

- Critical infrastructure identification,
- Network redundancy development,
- Prepositioning of infrastructure/materials
- Coverage of populated areas for warning dissemination
- Scenario training and drills

Telecommunication Networks and Services

Four mobile operators

- Gamcell
- QCell
- Africell
- Comium

Gamcell

- Provides the only fixed network
- Manages ECOWAN (National Broadband Network)

Basic Statistics

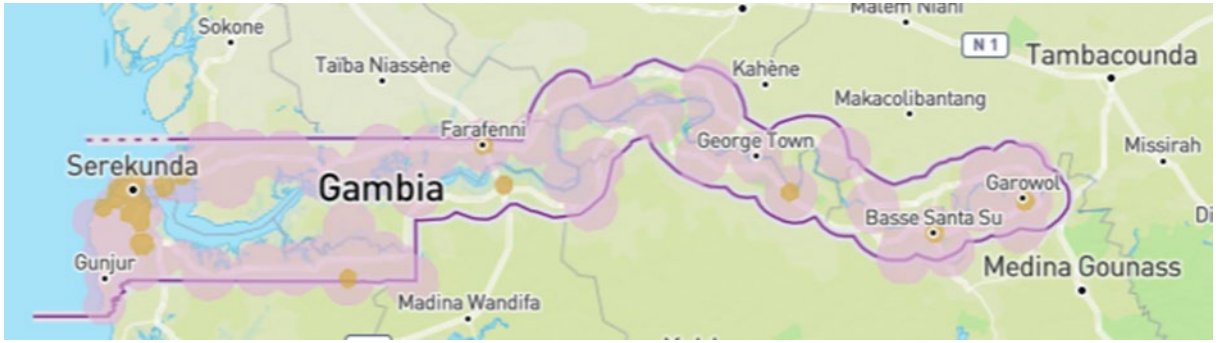
- Total Mobile Subscriptions – 2.8 million
- Mobile Penetration – 98%
- Mobile Broadband Penetration – 60%
- Fixed Broadband Penetration – 0.216%
- Fixed Line Penetration – 2%

Internet

- Eight ISP's
- Individuals 10+ years using the Internet - 54%
- Households with a laptop/desktop/tablet – 19%
- The Gambia IXP in operation

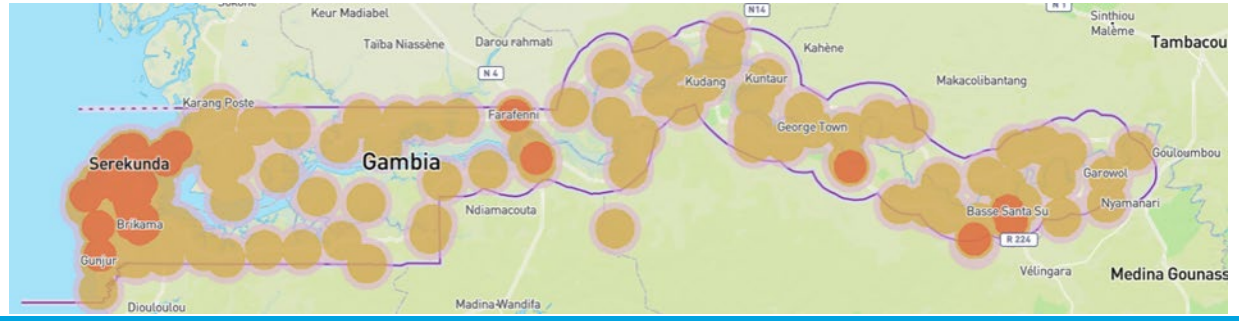
Source: ITU, GSMA, PURA

Mobile Coverage



Gamcell

Africell



QCell

Mobile Coverage by Population

- By any mobile network – 98%
- 3G - 88%
- 4G - 55%
- 5G – 0% (to early to measure)

Source: GSMA October 2024

Terrestrial Systems

Limited information is provided on the ITU Connectivity Infrastructure Maps

Subsea Cables

International cable

- Africa Coast to Europe (ACE)
  - Consortium inc The Gambian Submarine Company
  - Total capacity 12.8Tbps

Recent cable break on ACE

- What was the protocol for failure

Second submarine cable currently being investigated for redundancy purposes

Satellite Systems

Geosynchronous Orbit

- Ability to use alternate systems
  - SADC has an arrangement with Anglosat (Angola) for capacity in case of a disaster
  - Other African systems (Ghana, Nigeria, others?)
- SES/Intelsat
- Eutelsat
- VSAT Solutions
  - All the major operators have access to VSAT solutions
  - Private VSAT users (ie University, Multi-lateral Agencies, Resorts etc)
  - What records are there of the locations of these VSAT systems for disaster use?

Low Earth Orbit

- Starlink
  - Not licensed
  - Good solution for rapid deployment disaster solution
- OneWeb
  - Wholesale capacity
  - Some availability
- Rivada
  - Optical backbone in space
  - Wholesale
  - Direct to Government (sovereignty)
- Direct to Device (ie Lynk)
  - Consideration of spectrum use
- Earth Observation systems
  - Zimsat and others

Spectrum

- National Frequency Allocation Table
  - Standard information of frequency allocations

- Public Protection Disaster Relief (PPDR) allocations
  - Harmonised spectrum
    - Moves towards harmonisation in West Africa?
    - Follow the SADC/CRASA harmonisation?
  - Requires strategies from First Responders on how to utilise this spectrum most efficiently
    - Is there a First responder network in use now?
    - Nationwide PPDR radio network?
    - Future Strategy?
  - Future Public Safety Mobile Broadband (PSMB) with dedicated spectrum?

Other Systems

Humanitarian Networks

UN appear to have a reasonable radio network

Are there others?

Radio Amateurs

The Gambia Amateur Radio Club

- Unclear as to how active this group is

Are there any other telecommunications systems that may be in place?

Broadcast Radio and TV Network and Service Operators

The Gambia Broadcasting Corporation

- One National TV station
- Radio
  - One National radio station

Other TV and Radio

- Four Free-to-air TV channels
- Numerous commercial subscription services
- Numerous radio services
  - Commercial (9)
  - Community stations (38)

Mitigation: Implementation Task

All telecom/ICT service operators, mobile, fixed, and radio and television broadcasting operators, as well as Government networks should develop (or update) and present for approval to the DRM Authority a vulnerability analysis of the critical infrastructure of their networks according to the different types of hazards to which the country is prone to.

- Create a repository or knowledge base of critical infrastructure to be used in a disaster situation.
- Establish a methodology to regularly review the network inventory and coverage of mobile and fixed telecom/ICT operators, and radio and television broadcasting.
- Coverage maps of all mobile network operators should be reviewed and updated accordingly.
- Coverage maps should be easily available to the public for information purposes and should be available at a detailed level on an as-required basis.
- Maintain an updated database with the focal points in charge of technical aspects as well as with those in charge of communication of alerts and relevant information regarding disasters. Include network information and coverage of radio amateurs and first responders (police, firefighters, etc.) and identify any gaps.
- Assess other options such as LEO satellite services, academic networks and community WiFi to strengthen emergency response and recovery activities
- Compile information on VSAT capability in the country, including those systems already in situ and systems in storage for use as required.
- Consider the options for a second cable landing to ensure redundancy and resilience of this infrastructure.
- Implementing Agency
    - PURA

Mitigation: Item 7 International Cooperation and Tampere Convention

If not a signatory to the Tampere Convention the process to become part of it should be initiated and the provisions of the Tampere Convention should be included the in the national legislation. To this end, all relevant agencies should take the necessary steps for the ratification of the Convention and, subsequently, the necessary legislative and regulatory adjustments for effective implementation of that Convention.

The Gambia is not currently a party to the Tampere Convention

This is an identified gap that will need action from OPM, Foreign Affairs, NDMA, PURA and the MoCDE to ratify the convention and to include details into legislation and regulations

Tampere Convention

Tampere Convention on the Provision of Telecommunication Resources for Disaster Mitigation and Relief Operations

- Provides immunity against the confiscation of equipment.
- Encourages prompt issuance of the corresponding licenses (e.g. telecommunications licenses, use of spectrum, etc.).
- Requires a mechanism for the timely import/export of telecommunications equipment.
- Exempt fees

There are some regulatory positions in place that can be called upon

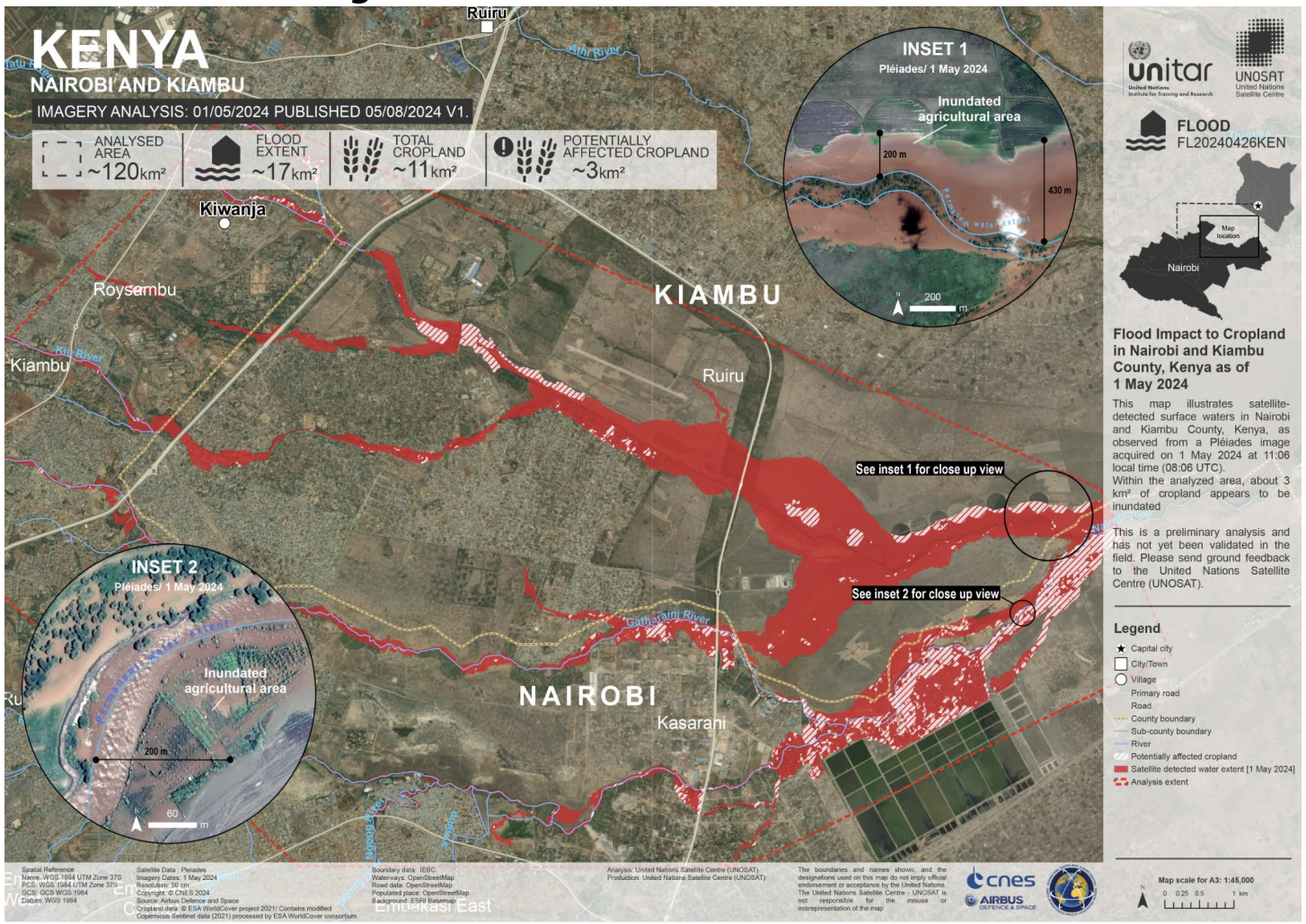
- Issuance of temporary licences
- Issuance of temporary spectrum

Unclear if Customs have similar position

International Charter Space and Major Disasters

A consortium of satellite operators and data solution providers that can provide high resolution earth observation data relating to a disaster or other relevant event

- Provides access to real time and historical satellite data for hazard event analysis
- Any country can access this data as long as the national disaster agency is registered and requests an appropriate event task
- The Gambia is a party to this service



Mitigation: Implementation Task

If not a signatory to the Tampere Convention the process to become part of it should be initiated and the provisions of the Tampere Convention should be included the in the national legislation.

- As a non-signatory to the Tampere Convention, the relevant government agencies or entities in Namibia should review existing regulations to simplify or create exemptions to any regulation that prevents the use of telecom/ICT resources for international aid.
- Based on the outcome above, The Gambia should move to become a signatory and ensure effective implementation of the Convention.
- Continue to maintain contacts in and work in co-operation with different international agencies, such as the International Telecommunications Union (ITU), the ETC (Emergency Telecommunications Cluster), other international bodies and with regional partners on issues related to preparedness and response to disasters or emergencies.
- Implementing Agency
  - OPM/MFA/MoCDE

Preparedness: Item 8 Early Warning Systems and Common Alerting Protocol

Assess, develop and/or enhance existing emergency alert and EWS, including surveillance and monitoring systems for probable threats prior to the occurrence of disasters and/or emergencies and solutions for warning and alerting the public through using different means of communications.

Early Warning Systems are mentioned in various documents but are not legislatively recognized

- Identified in the *National Disaster Management Policy 2007*
- Addressed in the *National Plan of Action for DRR 2012-2017/18*
- Stated as a policy objective in the draft *National Climate Policy of The Gambia (Draft) 2016*

There is mention of a National Multi-Hazard early Warning Strategy but no public evidence of this strategy or outcomes

EW4ALL

The UN Early Warnings for All (EW4ALL) initiative stipulates that every person in the world should be protected by an early warning system by 2027.

To do this we require an understanding of

- What hazards exists (Action Item 5)
- What internal information is available for hazard analysis (Action Item 5/6)
- What EWS systems are in place (Action Item 8)
- What EWS systems are available (Action Item 8)
- What EWS systems should be considered and implemented (Action Item 8)

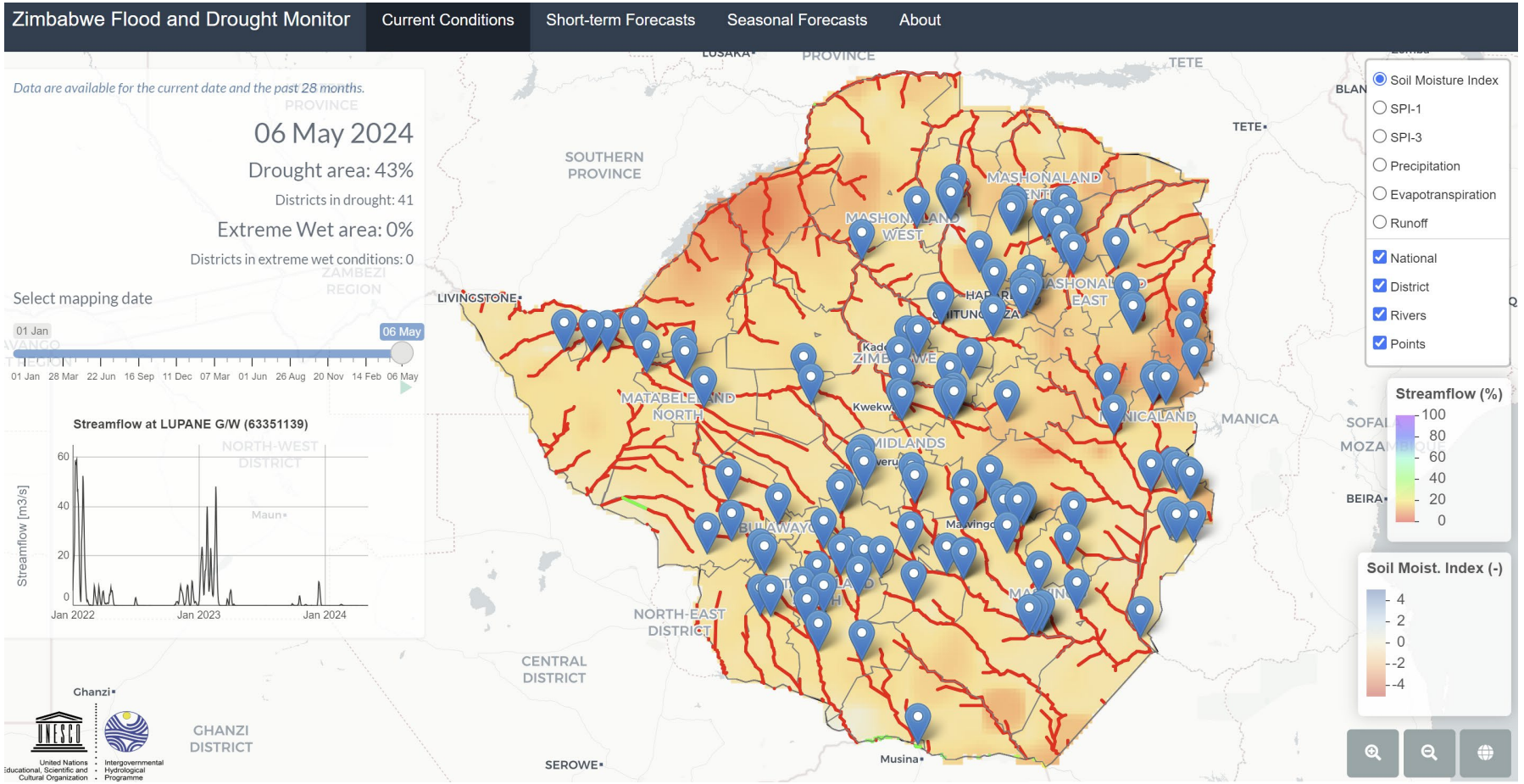
An EWS must have the capabilities to enable:

- the interpretation of disaster risk information;
- hazard and risk mapping;
- tracking, monitoring and forecasting impending events;
- processing and disseminating understandable warnings to political authorities and the population; and
- taking appropriate and timely actions in response to warnings.

EWS or Monitoring Systems Currently In Place

- There are monitoring systems in place
  - Flood and Drought Monitoring System
  - FEWSNET (famine warnings)
  - Automated Weather Stations/Cyclone/Tsunami warnings
  - Others?
- Many of these systems appear siloed
- Consequently, the consolidation and integration into a Multi Hazard Early Warning System (MHEWS) is likely to provide greater benefits
- There needs to be an activity to consolidate information on
  - What early warning systems are in place
  - Who uses these systems
  - What information is utilised
  - How this information is disseminated
  - How these systems can be integrated into a common platform

Example Monitoring Systems



Common Alerting Protocol

- The Common Alerting Protocol (CAP) is a standard message format designed for All-Media, All-Hazard, communications:
  - **over any and all media** *(television, radio, telephone, fax, highway signs, e-mail, Web sites, RSS "Blogs")*
  - **about any and all kinds of hazard** (*Weather, Fires, Earthquakes, Volcanoes, Landslides, Child Abductions, Disease Outbreaks, Air Quality Warnings,Transportation Problems, Power Outages)*
  - **to anyone:** the public at large; designated groups (civic authority, responders, etc.); specific people
  - In a standard format (CAP message templates provide the basic format with hazard information inserted)
- Driven by the World Meteorological Organisation (WMO)
- Requires an alerting agency
  - The Department of Water Resources is the alerting agency for The Gambia
  - To accept and analyse alerts
  - To create and disseminate the CAP alert messages where applicable
- Requires tools to be effective
  - Input agencies/information such as meteorological forecasts and monitoring systems
  - Tools and systems for implementation such as maps, CAP tools, integration with MNO's, broadcasters and other actors
- The Gambia is registered as having a working CAP implementation
  - How is it being used and how are messages disseminated?

Message Example

Identifier:	urn:oid:2.49.0.1.834.0.2024.5.3.11.42.57
Sender:	severe@meteo.go.tz
Sent:	2024-05-03T14:42:57+03:00
Status:	Actual
Message Type:	Update
Scope:	Public
References:	severe@meteo.go.tz,urn:oid:2.49.0.1.834.0.2024.4.30.11.27.6,2024-04-30T14:27:06+03:00 severe@meteo.go.tz,urn:oid:2.49.0.1.834.0.2024.4.29.10.42.8,2024-04-29T13:42:08+03:00
Language:	en
Category:	Met
Event:	STRONG WIND AND LARGE OCEAN WAVES.
Response Type:	Prepare
Urgency:	Expected
Severity:	Extreme
Certainty:	Likely
Onset:	2024-05-03T18:00:00+03:00
Expires:	2024-05-04T17:59:00+03:00
Sender Name:	Tanzania Meteorological Authority
Headline:	RED WARNING: STRONG WIND AND LARGE OCEAN WAVES.
Description:	WARNING of strong winds exceeding 40km/hr. and large ocean waves exceeding 2m has been issued for some areas along the coast of the Indian ocean (Dar es Salaam, Tanga, Pwani (Including Mafia isles), Lindi and Mtwara regions) together with the isles of Unguja and Pemba. Likelihood: HIGH Impact: HIGH Impacts expected: Marine activities impact, some activities cancelled and localized damage to marine infrastructure.
Instruction:	The Residents of high risk areas are advised TO TAKE preventive measures. TMA will continue to monitor the situation and issue updates when necessary.
Web:	http://www.meteo.go.tz
Contact:	met@meteo.go.tz
Area:	
Area Description:	Areas of Tanga, Dar es salaam, Pwani (including Mafia isles), Lindi and Mtwara regions together with Unguja and Pemba isles.
Polygon:	-11.1784,37.9688 -11.0059,38.6279 -10.8765,39.1992 -10.6174,39.9023 -10.1419,40.5176 -9.4924,40.0781 -8.7548,40.0342 -7.7545,40.1660 -6.9700,40.2100 -6.2716,39.9902 -5.3535,40.0781 -4.5655,39.9463 -4.3902,39.1553 -4.1273,38.4961 -4.6969,37.8809 -5.2660,37.2656 -6.0095,37.5293 -6.3153,38.1445 -7.1009,38.3643 -7.7545,37.8369 -8.6679,37.3096 -9.4057,37.2217 -9.9689,37.0898 -10.4446,37.6611 -11.1784,37.9688

Cell Broadcast

The prevalence of mobile networks and mobile handsets sees this technology as a ubiquitous early warning system. Simple utilization of SMS technology is currently utilised for warning message dissemination.

Cell Broadcast (CB) or Location Based SMS allows for geographic areas to be identified and a CAP warning message sent to all users in that geographic area.

CB is a component (software) of the 3GPP standards and is generally NOT implemented by operators by default and will require negotiation between the Regulator and the operators to implement this system. There may be a cost associated with the implementation

By integrating CB with CAP will provide a powerful early warning system that can reach the majority of the population

Cell Broadcast Example

Use Case in Nouméa

GOUVERNEMENT DE LA
NOUVELLE-CALÉDONIE

Campaigns Manager

< Back Next >

Get Target Area Info

Target Area Info

Number of Cells Selected:
0
Number of 2G Cells Selected:
0
Number of 3G Cells Selected:
0
Number of 4G Cells Selected:
0

Remove GeoJSON Area

Upload GeoJSON Area File

Choose File No file chosen

OPT Nouvelle-Calédonie

Preparedness: Implementation Task

Assess, develop and/or enhance existing emergency alert and EWS, including surveillance and monitoring systems for probable threats prior to the occurrence of disasters and/or emergencies and solutions for warning and alerting the public through using different means of communications.

- Conduct an audit of monitoring solutions and systems that are currently in place. This will provide the necessary input information for an aggregator solution for the early warning system.
- Move to develop and improve early warning and alerting systems strategy including the implementation/development of a centralised alert aggregator and Common Alert Protocol (CAP) to help with consistent, authoritative, impact-based forecast and alert messaging.
- Work with the MNO's to develop/implement a Cell Broadcast capability to send alerts via the mobile network infrastructure. Ideally this will build on the CAP implementation.
- Work with broadcasters to develop/implement the capability to send alerts via the broadcast radio and TV network infrastructure. Ideally this will build on the CAP implementation
- Review the role of amateur radio and actively encourage and build capacity of the amateur radio enthusiasts for disaster recovery situations.
- Implementing Agency
  - NDMA/MoCDE for systems
  - MoCDE/PURA for telecommunications specific

Preparedness: Item 9 Training and Drills

Telecommunications trainings and drills for emergencies should be regularly carried out to improve emergency responders' capacity with communications equipment as well as to enhance their ability to execute policies, plans, and procedures governing the use of communications networks.

There is no identified information that considers the need for the undertaking of drills and skills training for disaster situations.

For the telecommunications sector this should include

- Simulation exercises on possible failures based on hazard maps and network inventory
- Training or drills on operational procedures or equipment that would be used in a disaster situation.

The lack of this training may lead to limitations in response and recovery due to the inability to efficiently operate equipment and co-ordination between stakeholder groups

Preparedness: Implementation Task

Telecommunications trainings and drills for emergencies should be regularly carried out to improve emergency responders' capacity with communications equipment as well as to enhance their ability to execute policies, plans, and procedures governing the use of communications networks.

- Training and drills should occur in all the areas identified throughout the planning process, including institutional capacity and management of telecom/ICT networks.
- Telecom/ICT training and drills for emergencies should be regularly carried out to improve emergency responders' capacity with telecom/ICT equipment, as well as to enhance their ability to execute policies, plans and procedures governing the use of telecommunications networks.
- Table-top exercises (TTX), or discussions of a simulated emergency in a low-stress environment, should conducted, to test the NETP and other procedures for improvement.
- Implementing Agency
  - NDMA for general training and drills,
  - MoCDE/PURA for ICT specific

Preparedness: Item 10 Accessibility

Working together with network operators and telecom/ICT service providers, should develop mechanisms to understand the accessibility requirements needed to guarantee that vital digital communication technologies are inclusive and, therefore, are accessible to all persons, including People With Disabilities (PWDs), the elderly, women and girls, and refugees and immigrants.

There is no identified information that considers the need to include people with disabilities and specific needs.

The Telecommunications sector needs to consider what aspects need consideration. In particular EWS systems must be observable to all, so the need to consider how blind and deaf people are informed is necessary

What further is needed?

Preparedness: Implementation Task

Each country's DRM Authorities working together with network operators and telecom/ICT service providers, should develop mechanisms to understand the accessibility requirements needed to guarantee that vital digital communication technologies are inclusive and, therefore, are accessible to all persons, including People With Disabilities (PWDs), the elderly, women and girls, and refugees and immigrants.

- Working together with network operators and telecom/ICT service providers, develop mechanisms to guarantee that vital telecommunication technologies are inclusive, accessible and linked to the early warning systems.
- Where possible, working in collaboration with network providers, these messages should be via geo-location capabilities to those at risk.
- All warning messages should be issued in the most appropriate languages and sign language and/or captions and infographics should be used where appropriate for the medium.
- Implementing Agency
  - MoCDE

Preparedness: Item 11 Contingency and Business Continuity Plans

Public and private satellite and terrestrial networks, including mobile, fixed, and broadcasting operators must each keep their contingency and business continuity plans for emergencies updated.

There are no specific regulations/guidelines requiring operators to provide continuity and contingency plans for PURA for review.

Having these plans in place provides confidence that an organisation can recover quickly following a disaster

It may be relevant that a regulation/guideline is developed or as part of the operator's license conditions or as part of the any DRM legislation updates that DRP and BCP plans should be relevant and updated.

Preparedness: Implementation Task

Public and private satellite and terrestrial networks, including mobile, fixed, and broadcasting operators must each keep their contingency and business continuity plans for emergencies updated.

- Telecom/ICT network and service providers must develop contingency plans for emergencies in line with any updated polices and legislative instruments, and in conjunction with the authorities responsible for telecom/ICTs and for disaster risk management.
- Implementing Agency
  - PURA would have oversight

Preparedness: Item 12 Standard Operating Procedures

Develop, update and strengthen SOPs for emergency and disaster response related to communications within and among agencies and technical means for communication (voice/data), including interoperability. SOPs should be updated regularly for all relevant hazards and by all actors involved in effective emergency telecom/ICT risk management

The Gambia does not appear to have detailed SOPs for any DRM and DRR actions. This includes the Emergency Operations Centre, interagency procedures and inter sector procedures.

The objective of the SOPs is to provide, a concise execution of emergency response actions addressing all hazards.

A basic SOP for telecommunications should covering key entities, key people/positions. public alert procedures and various telecommunications services.

Preparedness: Implementation Task

Develop, update and strengthen SOPs for emergency and disaster response related to communications within and among agencies and technical means for communication (voice/data), including interoperability.

- Define the government entities and the contact points (key decision makers) within these entities that must maintain communication during a disaster or emergency.
- Maintain an updated database with these focal points of every agency, and where appropriate any associated partner organisations, countries, or other external entities, involved in disaster management.
- Analyse the possible interoperability between the equipment (wireless) and the communication networks of the government entities.
- Establish a set of radio frequencies that can be used for the communications of the contact points (key decision makers) compatible with the radiocommunication equipment being used and ensure it is aligned for regional compatibility.
- Establish alternative methods of communications, if necessary, for example through existing communication operators.
- Develop connectivity plans for any satellite equipment to be used as well as procedures for their use as primary or alternative communications between relevant stakeholders involved in disaster response.
- Implementation Agency
  - NDMA for general
  - PURA for telecommunications sector

Response(Preparedness): Item 13 Emergency Operations Centres

Emergency Operations Centres (EOCs) provide critical communications to users in each organisation involved during the response phase of a disaster. These positions can be fixed or mobile, be local or remote, and be located in a vehicle or shelter. Maintaining interoperable and continuous communications between command posts and stakeholders is vital for an effective response to the emergency

There is evidence of an Emergency Operations and Communications Centre established under the DRM framework specifically for COVID but it is not clear if this can be used for other emergency scenarios.

The EOC should operate at both national and regional level and provides a central co-ordination place for all activities related to the disaster situation to be managed such as

- Command, control and coordination of response to a national disaster
- Gather, collate and disseminate information
- Facilitate the damage and needs assessment process
- Maintain effective communication and information systems
- Coordinate all government, non-government, private, regional and donor assistance

Response: Implementation Task

Emergency Operations Centres (EOCs) provide critical communications to users in each organisation involved during the response phase of a disaster. These positions can be fixed or mobile, be local or remote, and be located in a vehicle or shelter. Maintaining interoperable and continuous communications between command posts and stakeholders is vital for an effective response to the emergency

- If the existing EOC cannot be used, then consider planning for the development of an Emergency Operations Centre or Communication and Coordination Command Posts to provide critical communications to users involved in the response phase of a disaster.
- Consider the network connectivity with Shelters to ensure it is reliable, stable, and able to cope with expected demands.
- Develop Standard Operating Procedures (SOPs) for all emergency operations centres (EOCs) that include the coordination and communication procedures and roles for every stakeholder involved in the process, such as public and private persons and agencies, and international humanitarian actors, among others.
- Implementation Agency
  - NDMA for bricks and mortar
  - MoCDE and PURA for ICT

Response: Item 14 Call Centres

Plan for the establishment of call centres during the response phase to warn the affected population of new risks, disseminate updates about the emergency, and connect affected populations with their relatives. These call centres can be located in shelters and should use means of communication that do not congest the networks, such as text messages.

There is no evidence in the DRM documents reviewed that relates to the implementation of a call centre to facilitate the ability of the affected population to request further information following a disaster.

Response: Implementation Task

Plan for the establishment of call centres during the response phase to warn the affected population of new risks, disseminate updates about the emergency, and connect affected populations with their relatives. These call centres can be located in shelters and should use means of communication that do not congest the networks, such as text messages.

- Investigate how call centres, potentially located in the EOC or shelters, can be established during the response phase to warn the affected population of new risks, to disseminate updates about the emerge and to connect affected populations with their relatives.
- Seek collaboration with telecom/ICT operators or international organisations to help establish the required telecom/ICT infrastructure, or use satellite networks, that can be easily installed.
- Implementation Agency
  - NDMA for bricks and mortal
  - MoDCE and PURA for ICT

Recovery: Item 15 Restoration and Reconstruction of Telecom/ICT Infrastructure

The principle of "building back better" should apply to any restoration and reconstruction of the telecom/ICT infrastructure. These activities should also involve the active participation of the private sector, including fixed, mobile, and satellite network and service providers.

There is no identification of any specific activities surround the restoration and reconstruction activities including the need to consider "lessons learnt" as a part of the restoration and recovery following a disaster

The NETP should also follow this with this type of review would providing an opportunity for the telecommunications sector to consider the response and to identify how to improve on all aspects of the DRM process.

Recovery: Implementation Item Task

The principle of "building back better" should apply to any restoration and reconstruction of the telecom/ICT infrastructure. These activities should also involve the active participation of the private sector, including fixed, mobile, and satellite network and service providers.

- Restoration and reconstruction of the telecom/ICT infrastructure should be based on lessons learned and on the principle of building back better. These activities should involve the active participation of the private sector service providers.
- Assessment, reconstruction, and improvement of telecom/ICT infrastructure can be supported on the Post Disaster Needs Assessment framework.
- Implementing Agency
  - NDMA for general review
  - PURA for specific telecommunications review

Recovery: Item 16 NETP Update

Lessons learned following a disaster event should be integrated into the NETP. All relevant actors involved in emergency telecommunications should input into these lessons learned. The countries NETP should be updated every 2 to 3 years in any case.

The NETP is an active document that requires updating. As action items are implemented the NETP should reflect changes and additional items added.

Recovery: Implementation Task

Lessons learned following a disaster event should be integrated into the NETP. All relevant actors involved in emergency telecommunications should input into these lessons learned. The countries NETP should be updated every 2 to 3 years in any case.

- After the response and recovery phases and based on the experience acquired during the disaster management or during any drills and exercises conducted, a report should be developed identifying lessons learned and including the necessary modifications and improvements that should be made to the NETP.
- The NETP should be reviewed every year and updated where necessary.
- PURA should review and provide feedback to the ITU on any progress, changes or NETP action items that have been implemented by an agreed timeframe (for example, six or nine months) after the validation of the NETP.
- Implementing Agency
  - PURA

Next Steps

- Review of information from this engagement
- Review of any comments on the draft document
- Clarification
  - Of information
- Documentation
  - Final draft

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