

# Early Warning and Civil Protection for Floods and Droughts in Sudan - APIS

In-depth analysis of the institutional and regulatory framework for flood and drought risk management in Sudan



ITALIAN AGENCY  
FOR DEVELOPMENT  
COOPERATION



## IN-DEPTH ANALYSIS OF THE INSTITUTIONAL AND REGULATORY FRAMEWORK FOR FLOOD AND DROUGHT RISK MANAGEMENT IN SUDAN

March 2023

### Background

Funded by the Italian Agency for Development Cooperation AICS and started in early 2022, the APIS project aims at strengthening technical and operational capacities in disaster prevention and management of the Sudan *National Council of Civil Defense* (NCCD) and members, through the implementation of an operational early warning system for flood and drought at national scale. As part of the activities of the project, an in-depth analysis of the institutional and regulatory framework for flood and drought risk management in Sudan was performed. The current paper is provided for information purposes only. CIMA Research Foundation is not responsible for any use that may be made of the information it contains. The work was completed before the eruption of the conflict in Sudan and the considerations highlighted are representative of the institutional situation before April 2023. The present briefing note has the objective of summarising main results of the in-depth analysis, highlighting the methodology, major steps as well as key recommendations and conclusions. For more details, the full report of the activity is attached.

### Methodology

The work was performed following the three main lines of assessment as described below:

1. First-level assessment through Desk review and studies: This involved reviewing primary and secondary documents related to DRR and EWS. The analysis focused on the review of the various legislative and regulatory instruments developed by the Government of Sudan as well as the Non-Governmental Organizations that are involved in humanitarian aid and response.
2. Second-level assessment through Questionnaire: The questionnaire gathered information about the legal and institutional framework for DRR and EWS in Sudan from relevant stakeholders helping to understand how communication is generated to provide reliable and real-time alerts and to deliver them to the community and population at the appropriate time. The questionnaire analyses were useful to highlight current and previous EWS projects in Sudan, discussing the results of the initial desk review.
3. Third-level assessment through Discussion-Based-Exercise: The Discussion-Based-Exercise was conducted during a physical workshop held in Khartoum in March 2023. The event had the participation of key stakeholders discussing

the current EWS ability to respond to a simulated flood event and mapping the chain of command, roles and responsibilities, and the specific relationship between the different actors in the EWS.

As general considerations, laws and acts analyzed during the three levels of assessments mainly focus on the response rather than the preparedness. It is worth highlighting that there is a **national disaster risk reduction strategy developed by Civil Defense** and a **national policy framework for disaster risk management developed by the Humanitarian Aid Committee (HAC)**. Despite the efforts made to create a legal and institutional framework for DRR and EWS in Sudan, most of the laws, acts, policies, and strategies are **not enforced throughout the country and are not widely acknowledged or known by most stakeholders**.

## Desk Review

The entire list of the laws and acts reviewed as part of the desk study is available in the final report. A summary of main actors identified and related mandates is presented here below:

- *National Council of Civil Defense (NCCD)*. Initially established in 1991 (Civil Defense Act) as the Higher Council of Civil Defense (HCCD), the agency in charge of disaster management at the national level, headed by the Minister of Interior and comprising the relevant ministers. After several reforms, today the NCCD remains the main decision-making body during emergencies ensuring coordination of operations at federal level, based on the decree enacted by the national assembly in 2005. Civil Defense has a federal component and a state component. The State level has a state council, state operations, provincial operations, and locality operations. At the federal level, there is a Central Operations room/Chamber linked to the NCCD which is comprised of technical experts. On the other hand, each state has its own Operation Chamber chaired by the state Governor and linked to the Central Operations Chamber.
- *Humanitarian Aid Committee (HAC)*. HAC was established in 1985 in response to the famous sub-Saharan droughts in 1984, as what so-called Relief and Rehabilitation Commission (RCC) to play a prominent role in disaster management and to collect, analyze and provide reliable information and assessment for donors' intervention. In 1993 the Commission of Voluntary Agencies Commission (COVA) was established. In 1995, the RCC and COVA were merged to create the current Humanitarian Aid Commission (HAC). Today HAC is responsible for humanitarian affairs and is represented both at the federal and state levels. HAC is the coordinating body of the Ministry of Social Development and Labor, and it is the only institution responsible for coordinating and allocating humanitarian efforts in Sudan. In 2006 The Voluntary and Humanitarian Work Organization Act was issued to repeal the Humanitarian Aid Commission Act of 1996.

- *Sudan Meteorology Authority (SMA)*. Established in 1996, the SMA is the responsible agency for providing weather related monitoring and forecasting services for the country. The mandate of the Sudan Meteorological Authority is the provision of Meteorological data and services for DRR purposes as well as the conservation of the natural environment, under national, regional and international obligations related to the dissemination of meteorological sciences.
- *Ministry of Irrigation and Water Resources (MoIWR)*. In relation to the EWS of the country, the Nile Water Directorate (NWD) is responsible for the establishment and operation of all hydrometric and sediment discharge monitoring stations on the Nile tributaries in Sudan. The NWD runs a Flood Early Warning System (FEWS).

As summary of main findings, the Civil Defense Act grants no real powers to the Council as opposed to conferring all powers to the Minister of Interior as head of the Council, including the authority to declare any area as a national emergency. Likewise, the Secretary General of the Council has broad powers. It emerges clearly that there are two national institutions, NCCD and HAC, responsible for disaster management, each with its own independent laws. It happens today that, in case of disasters, NCCD is responsible for providing shelters and securing evacuation routes, while HAC is responsible for coordinating and delivering humanitarian aid.

## **Questionnaire Findings and Results**

Based on the initial findings that emerged from the desk review, a tailored questionnaire has been designed to deepen the assessment, focusing on analyzing national stakeholders and their involvement in the EWS in Sudan. Focal points from each institution were identified for the purpose of coordinating the consultative meetings. The questionnaire was based on a broad view of EWS covering four aspects: background information, institutional and legal framework in DRR (existing laws, regulations, working rules), EWS for floods and droughts (processes and phases) and a fourth section dealing with the existing projects in the Country and past activities on DRM. To compile the questionnaire, a total of five consultative meetings were held between January and February 2023. The questionnaire was circulated prior to the meetings and after the dissemination of the request letters by the general secretariat of the NCCD, to ensure the assignation of the right personnel to fill out the questionnaire and resolve stakeholder concerns before the meetings. Through the questionnaires, a total of nine national stakeholder institutes have been interviewed. Stakeholders are clustered into three categories:

1. National stakeholders that represent law enforcement: Civil Defense.
2. National stakeholders that represent federal ministries: Ministry of Agriculture, Ministry of Irrigation and Water Resources, Ministry of Culture and Media, and Ministry of Health.



3. National stakeholders from specialized governmental associations: Higher Council for Environment and Natural Resources, Sudan Survey Authority, Sudan Meteorological Authority, and Humanitarian Aid Committee.

A summary of general challenges and gaps that are extracted from questionnaire is presented below:

- **Risk Knowledge.** Establishing and maintaining observing systems and data management systems is an issue; consequently, lack of harmonized data is one of the causes to establish and enforce institutional mandates, roles and responsibilities. Risk awareness activities are enclosed to voluntary and civil society organizations, with the fact that most local communities lack knowledge about how to reduce vulnerability and how to respond to warnings. Finally, compliance with internationally agreed and locally referenced risk indicators is not reflected in the policies, therefore it is challenging to measure the success and failure of early warning systems and thus improve the basis for collecting and analysing risk data.
- **Monitoring & Forecasting and warning dissemination.** There have been marked improvements in the quality, timeliness, and lead time of hazard warnings, largely driven by technical agencies and institutes. The existing capacities for monitoring of hydrometeorological hazards are relatively more developed than for other types of hazards. Unlike floods, drought forecasts are issued monthly and seasonally, which hampers effective DRR. The levels of interventions of EWS key actors are not specified in the National Strategy for DRR or the National Policy Framework for DRM due mainly to the **Insufficient multi-disciplinary, multi-agency coordination and collaboration for improving forecasting tools and for integrating warnings into the disaster risk reduction decision processes.** An inadequate access to the range of information available makes difficult the implementation of an efficient communication systems to provide timely, accurate and meaningful early warning alerts down to the level of communities and population.

Overall, **a major need is the integration of risk information into hazard warning messages. This would require close collaboration between NCCD members responsible for vulnerability and risk assessment.**

The desk review and the questionnaire assessment highlighted several challenges in mapping and understanding the EWS framework in Sudan. The **governmental transition phase and the institutional reform in some ministries pose a major challenge in identifying a clear and unique structure for the national EWS.** Furthermore, the request for a broader inter-institutional discussion on EWS and the assessment's purpose emerged from the interviews.

Therefore, it was decided to retarget the focus of the Table-Top Exercise, from the originally planned practical test of issuing a warning to a discussion-based exercise, involving all stakeholders, on the current state of the EWS.

## **Discussion-Based-Exercise**

The Discussion-Based Exercise (DBX) has been designed as a kind of facilitated discussion for mapping the different roles of the key stakeholders along the current chain of command, roles and responsibilities, and the specific relationship between the different actors in the EWS. The DBX had two main objectives: validate the review analysis and highlight good practices and gaps in the EWS for alerting population. After defining a shared vocabulary of the EWS, a simulated flood risk scenario has been described to facilitate the discussion. Each stakeholder was then invited to explain what his organization or entity does when a flood event is about to occur, what activities or procedures it carries out, and what relationship it has or activates with other risk management agencies.

The participants in the exercise represented the stakeholders from the relevant institutes and authorities as follows:

1. National stakeholders that represent law enforcement: Civil Defense.
2. National stakeholders that represent federal ministries: Ministry of Agriculture (MOA), Ministry of Irrigation and Water Resources (MoIWR), and Ministry of Health (MOH), Ministry of Culture and Media (MOCM).
3. National stakeholders from specialized governmental associations: Higher Council for Environment and Natural Resources (HCENR), Sudan Meteorological Authority (SMA), and Humanitarian Aid Commission (HAC), Sudan Survey Authority (SSA).

The following table describes the stakeholder's intervention in the four EWS pillars as obtained from the DBX. The non-participants are the invited stakeholders that confirmed their participant but didn't attend the workshop, so their intervention is introduced as perceived by other stakeholders. In the same way, a list of potential actors that didn't respond to the invitation but that are relevant for the operational EWS is suggested.

<b>Code:</b> <ul style="list-style-type: none"> <li>Blank – no involvement</li> <li>✓ – Limited involvement</li> <li>✓✓ – Substantively involved</li> </ul>					
Stakeholders Name		FOUR PILLARS OF EWS (FLOODS AND DROUGHT)			
		Risk Knowledge	Monitoring & Forecasting	Dissemination Communication	Response Capability
Participants	Civil Defense		✓	✓✓	✓✓
	MOH <sup>1</sup>	✓	✓	✓	✓✓
	SMA		✓✓	✓✓	
	HCENR	✓	✓	✓	
	SSA		✓		
	MOIWR		✓✓	✓✓	✓
	HAC	✓✓	✓	✓	✓✓
Non-participants	MOCM			✓✓	
	MOA	✓	✓	✓	
Potential	Ministry of Finance (department of natural resources)	✓	✓		
	Ministry of Physical planning	✓✓			
	Ministry of Infrastructure				✓✓
	Higher Council for Environment and Urban Development (Khartoum state)	✓✓			
	Ministry of Animal Wealth	✓	✓		
	Sudan Police Forces / Traffic Police			✓	

<sup>1</sup> MOH particularly deals with disaster-related consequence more than DRR.

## **EWS at the local level and integration of indigenous knowledge**

The strong social cohesion between Sudanese communities builds resilience in those communities so that any future crises or shocks including floods and droughts will be mitigated. Most of the current preparedness actions are based on 1988 floods; however, since 1946 Sudan has initiated its own preparedness/mitigation plans. Those plans include the community Flood response committees - these are informal and independent committees which include the national EWS based on indigenous people knowledge (historical data), and labors committees from the citizens to undertake excavation and backfill activities required to resist flood water (immediate response). They also have monitoring location distributed along the Nile Banks (real time monitoring).

## **Conclusions and recommendations**

Since most of the flood-prone areas in Sudan lies in rural areas and Agri-pastoral communities, the analysis also considered how the current framework involves the community and the local level, particularly from the warning dissemination point of view. As a result, the analysis showed communicating early warning alerts depends on the capabilities of the affected states, the coverage of telecommunication, and familiarity with social media means.

Main points for further discussion and follow-up on the implementation of the improvements for floods and droughts early warning system in Sudan are summarized below:

- Civil Defense has two committees for mitigation and for response in addition to a higher committee which regulates duties of the civil Defense during disasters. NCCD also operates at the state level. Among the Civil Defense functions are the deployment of task forces (over 10,000) located geographically throughout the country. They provide shelters, evacuation, and contact other NCCD members to issue bulletins and deal with disaster consequences (HAC for displacement, MOH for outbreaks and HCENR for pollution). **There is a gap to fill in providing scientifically sound information for harmonized hazards forecast and warnings dissemination to improve disaster preparedness.**
- During the rainy season, the central operation rooms at the federal and state level receive forecasts and humanitarian aid plans from all NCCD members. Through the state Civil Defense coordinator who is the rapporteur of the state NCCD, which is led by the state governor, civil Defense provides these alerts to states authority. Each State defines its capability to receive and disseminate alerts. Communication means include Social media, TV and Radio via State Ministry of Information And Culture. Other means include mosques and direct



alert to Local Committees, and Civil Administrations in Collaboration with Civil Defense State and Ministry of Social Development.

- Sudan has a national strategy for disaster risk reduction developed by the Civil Defense in collaboration with UNDP (2016). Nevertheless, most stakeholders claim that it has **not yet been endorsed or approved**. Moreover, the cabinet endorsed the policy framework for disaster risk management developed by HAC in December 2022.
- There is no disaster management information system (DMIS) in place, but MOH and HAC maintain a database for collecting data from all states regarding disaster consequences, including public health outbreaks and pandemics, displacement, and famine threats. The available information must be harmonized and shared among DRR actors through regular update and contribution from Government authorities.
- In addition to the Flood Watch Update, HAC also prepares Emergency and Humanitarian Response Plan in collaboration with International Organizations (eg. UNOCHA). **This workflow will benefit from a coordinated multi-agency early warning system structured on clear data sharing procedures** also providing valid source of information for humanitarian planning and intervention.

Finally, it is worth mentioning that the present study was carried out from July 2022 to March 2023 and is therefore representative of the situation in Sudan before the conflict erupted on 15 April 2023. The hope is for a peaceful solution soon, wishing that the results of the present study, which originated from the contributions of all institutions, will soon be of help in building an efficient civil protection system for Sudan and reduce the impact of natural disaster on vulnerable people.

## Attachments

1. Final Report “In-depth Analysis of the existing institutional and regulatory framework for flood and drought risk management in Sudan”, March 2023.
2. Chart of Sudan EWS structure.
3. Desk Review Findings.
4. Sample of Questionnaire (English and Arabic).

**IN-DEPTH ANALYSIS  
OF THE EXISTING INSTITUTIONAL  
REGULATORY FRAMEWORK  
FOR FLOOD AND DROUGHT  
RISK MANAGEMENT IN SUDAN**

**July 2023**

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## List of Acronyms

AICS	Italian Agency for Development Cooperation
AMESD	
CAP	Common Alerting Protocol
COVA	Commission of Voluntary Agencies Commission
DMI	Disaster Management Information System
DRR	Disaster Risk Reduction
EPA	Environmental Protection Act
EWU	Early Warning Unit
EWEA	Early Warning Early Action
EWS	Early Warning System
FAO	Food and Agriculture Organization of the United Nations
FERSAD	Improving the Adaptation to Climate Change by Enhancing Weather and Climate Services in Sudan
FMI	Finnish Meteorological Institute
GCOS	Global Climate Observing System
HAC	Humanitarian Aid Commission
HRC	Hydraulic Research Center
HYCOS	Hydrological Cycle Observation System)
ICO	International Community Organizations
ICPAC	IGAD'S Climate Prediction and Applications Centre
ICAO	International Civil Aviation Organization
IGAD	The Intergovernmental Authority on Development
IOC/UNESCO	The Intergovernmental Oceanographic Commission of UNESCO
IMO	The International Meteorological Organization
JCOMM	joint Committee for Oceanography and Meteorology
GOS	Government of Sudan
MESA	Monitoring of the Environment for Security in Africa
MOCM	Ministry of Culture and Media
MoSC	Ministry of Science and Communication
NAP	National Adaptation Plan
NBI	Nile Basin Initiative
NCCD	National Council of Civil Defense
NCEP	National Centers for Environmental Prediction
NDP	National Drought Plan
NeISAP	Nile Equatorial Lakes Subsidiary Action Program
NSDI	National Spatial Data Infrastructure
NCR	National Center of Research
NGOs	Non-Governmental Organizations
NWD	Nile Water Directorate
RCC	Relief and Rehabilitation Commission
RCMRD	Regional Centre For Mapping Of Resources For Development
RIMES	Regional Integrated Multi-Hazard Early Warning System for Africa and Asia



SAMIS	Strengthening Agro-climatic Monitoring and Information System
SDGs	Sustainable Development Goals
SMA	Sudan Meteorological Authority
SPI	Standardized Precipitation Index
SST's	Sea Surface Temperature
SRC	Sudan Red Crescent
SRCS	Sudanese Red Crescent Society
SRSA	Sudanese Remote Sensing Authority
SSA	Sudan Surveying Authority
UAV	Unmanned Aerial Vehicle
UNDP	United Nations Development Program
WFP	World Food Program
WMO	World Meteorological Organization

## **DECLARATION**

*This analysis covers the period between July 2022 and March 2023 and represents a snapshot of the EWS in Sudan prior to the 15 April 2023 outbreak of conflict.*

## **ACKNOWLEDGEMENT**

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*Many thanks to all the focal points who have invested their full effort in providing the required information and data to achieve the anticipated goal of the project. Thanks to everyone who provided comments and advice that contributed to the success of the assignment.*

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## 1 EXECUTIVE SUMMARY

Sudan is vulnerable to disasters related to natural hazards, especially drought, flash floods and floods, and other environmental hazards. Human livelihoods are negatively affected, infrastructure is damaged, health risks are developed, economic losses occur, and development plans are disrupted by these hazards. The analysis leading to this report was conducted by CIMA Research Foundation. The study assesses Sudan's Disaster Risk Reduction actions through Early Warning System (EWS) lens. It analyses the existing legal, institutional, and policy frameworks for DRR in Sudan with a focus on the development and improvement of EWS. Additionally, the analysis highlights the gaps within the EWS chain by identifying each stakeholder's location. The analysis utilized various methodologies and encompassed three levels of assessment as follows:

1. **First-level assessment through Desk review and studies:** This involves reviewing primary and secondary documents related to DRR and EWS. The analysis focused on the review of the various legislative and regulatory instruments developed by the Government of Sudan (GOS) as well as the Non-Governmental Organizations (NGOs) that are involved in humanitarian aid and response.
2. **Second-level assessment through Questionnaire:** The questionnaire aimed to gather information about the legal and institutional framework for DRR and EWS in Sudan from relevant stakeholders, and their means of intervention to get involved in the EWS pillars. This will also help understand how communication is generated to make NCCD members receive reliable and real-time alerts and deliver them to the community and population at the appropriate time. It also highlighted the synergies and the level of involvement of Sudan in the regional EWS platforms in order to reflect the best ways to utilize this involvement. The questionnaire also highlighted the ongoing and previous projects and initiatives that are concerned with DRR and EWS.
3. **Third-level assessment through Discussion-Based-Exercise:** The Discussion-Based-Exercise was conducted in participation of the key stakeholders assigned to EWS to identify roles and responsibilities of each, in a non-threatening environment, and simulated flood scenario. The discussion reflects the main responsibilities and roles of each stakeholder and the tools of communication between them during the flood season in order to verify findings obtained from the first and second levels of assessment.

The analysis showed that EWS is poorly reflected in the existing laws and acts, and the intervention of key stakeholders in the EWS is governed by the internal laws and laws of establishment for NCCD members. These laws and acts only focus on the response rather than the preparedness which entails the strengthening of EWS, however, there are several projects and initiatives that targeted the improvement of EWS in Sudan. There is a national DRR strategy developed by civil defense and a National Policy Framework for DRM developed by HAC. In spite of the outstanding

efforts made to create a legal and institutional framework for DRR and EWS in Sudan, the majority of the laws, acts, policies, and strategies are not enforced throughout the country and are not widely acknowledged or known by most stakeholders due to poor communication.

As regards to the institutional framework, SMA and MOIWR are the main actors for forecasting and monitoring, communication and dissemination of early warnings, while the Civil Defense and HAC are the frontline key actors for response. Other key actors also include HCENR and MOH which are concerned with environmental consequences and health consequences respectively. SSA's role in EWS is poorly defined and is only enclosed to inundation mapping through drones and aerial photos. The role of MOA is explicitly altered to drought monitoring and dissemination of seasonal monitors and dry spill prediction in collaboration with the Department of Agro-meteorology in SMA. The Ministry of Finance is a key player in EWS as it approves the annual government budget for DRR.

Since most of the flood-prone areas in Sudan lies in rural areas and agro-pastoral communities, the analysis also considers the EWS at the community and local level. The analysis showed communicating early warning alerts depends on the capabilities of the affected states, the coverage of telecommunication, and familiarity with social media means.

The analysis recommended that more attention should be paid to the risk knowledge and Analysis pillar; in addition, the roles of NCCD members regarding EWS and DRR should be clearly defined in the existing laws and acts. Furthermore, the analysis stressed the importance of assigning the roles of monitoring of preparedness, response, and recovery phases to the frontline stakeholders: SMA, Civil Defense, and HAC. The analysis also recommended that the private sector should also be encouraged to invest in the EWS, especially in communication and dissemination in remote areas.



## **2 BACKGROUND AND CONTEXT**

According to the World Bank, climate change is increasing the frequency and magnitude of weather-related disasters, such as floods and droughts, and poses challenges to Sudan's ongoing efforts to combat poverty, reduce food insecurity, and sustainably manage natural resources. The human and economic impact of these threats is further exacerbated by ongoing human-driven emergencies. It is therefore of utmost importance to build an effective Early Warning System (EWS) to reduce losses due to floods and droughts and to improve preparedness for these disasters.

The initiative “Early Warning for Floods and Droughts in Sudan”, funded by the Italian Cooperation Agency AICS and implemented by the National Council for Civil Defence (NCCD) with CIMA Research Foundation, operates in this direction.

The project envisages implementing an operational Early Warning System at the national scale to support Sudanese Civil Protection activities, enhancing weather-related risk monitoring, forecasting, and management capacities. This result will be achieved by fostering a process of sharing and tailoring to the Sudan context the technological tools and operational procedures in use at the Italian Civil Protection System.

The project has four main work packages, in line with the pillars that constitute an efficient Early Warning System: i) improving the knowledge and understanding of risks that threatens Sudan, ii) enhancing hydro-meteorological monitoring and forecasting capacities, by providing innovative tools, models, and training, iii) supporting the inter-institutional coordination in warning and emergency management, iv) increasing institutional and community awareness about risk exposure and preparedness actions.

Primary activity, as relevant and timeline, is the analysis of the existing institutional and regulatory framework for flood and drought risk management in Sudan, the focus of the present report.

## **3 OBJECTIVES OF THE EARLY WARNING SYSTEM ANALYSIS**

The in-depth analysis of the existing institutional and legal framework aims at mapping the chain of command, roles, and responsibilities, and the specific relationship between the different actors in the national flood and drought EWS.

Through a three-stage process, the activity aspires to identify strengths and explore areas and spaces for improvement, in order to guide the participatory process of

defining better and more appropriate operational procedures for warning communication and management.

## **4 METHODOLOGY**

The status of the EWS in Sudan has been assessed at three sequential levels:

1. Desktop review of the existing institutional and legal framework.
2. Stakeholders' consultation via questionnaire means finding the most relevant regulations concerning EWS in Sudan.
3. Table Top Exercise (TTX).

First, a desk review of natural hazards risk reduction and disaster risk management in Sudan was conducted as well as providing an overview of the existing national and regional legislation and institutional frameworks regarding Sudan's participation in regional treaties and membership in regional development bodies that deal with climate and weather forecast. The strengths and weaknesses of these frameworks and their structure were analyzed in order to provide ideas and next steps to strengthen the capacity of the country to respond to and prepare for emerging climate change risks in Sudan. Existing policies, strategies, or plans that are used to flesh out general directives described in the existing were taken into account in the analysis, as well as the initiatives led by some international agencies.

Subsequently, a questionnaire was established to determine the current legal and institutional setup and identify possible areas of improvement.

In the methodology for questionnaire filling, key stakeholders at national-level institutes were interviewed; the consultative meetings were conducted in collaboration with the civil Defense representing the general secretariat and the NCCD coordination body. Focal points from each institution were identified for the purpose of coordinating the consultative meeting.

Finally, a Table Top Exercise was developed for discussing the current EWS ability to respond to a simulated flood event and mapping the chain of command, roles and responsibilities, and the specific relationship between the different actors in the EWS, with a community-based approach and for mapping possible improvements for a more effective EWS.

## 5 DESK REVIEW OF LEGAL AND INSTITUTIONAL FRAMEWORK

The first step of the assessment was the desk review of the existing regulatory framework concerning early warning and disaster risk management. According to the analysis, laws and acts regarding disasters are consistent in focusing on three areas: a) Authorizing the declaration of a state of emergency; b) Establishing and appointing the Civil Defense Council and humanitarian aid commission; and c) Supporting local and community voluntary initiatives.

The following laws and acts are reviewed:

1. Civil Defense Act 1991 and Amendment 1995.
2. The Sudan Constitution, 1998, and the Police Forces Act, 1999, Amendment 2008.
3. The Interim National Constitution, 2005.
4. Civil Defense Act, 2005.
5. The Humanitarian Aid Commission (HAC) Act, 1996.
6. The Voluntary and Humanitarian Work (Organization) Act, 2006.
7. The establishment of the Meteorological Authority in 1996, and the Sudan Meteorological Authority (SMA) Decree, in 2007.
8. Sudanese Remote Sensing Authority (RSA).
9. Sudanese Red Crescent Society (SRCS) Decree, 1956.

The following laws, conceptualising environment protection, and water-related disaster risk reduction have also been considered in the analysis:

1. Combating Desertification Law, 2009.
2. Conservation of Environment Law, 2017.
3. The 2002 Forests and Renewable Natural Resources Act.
4. The Wildlife and National Park Act (1986). New wildlife draft legislation is developed in 2013 to amend the 1986 legislation.
5. The Range Act (2015).
6. The water resource act 1995 (Ministry of Irrigation and Water Resources embraced most of the sub-sectors in the country.
7. Environmental Protection Act (EPA) (2001 Act) harmonizes the different sectors of environmental laws.
8. Local Government Act 2003: The Locality is entrusted, along with other functions, with agriculture, forestry, natural resources, and animal wealth.
9. Arab strategy for disaster risk reduction 2030 with League of Arab States.
10. The Arab protocol on cooperation for a speedy and immediate response within Arab countries to transfer equipment and expertise in cases of disasters.

11. The Arab Cooperation Agreement in organization and facilitation of relief operations (approved by LAS Council in 1987, entered into force in 1990 and updated in 2009).

The following programs, policies, strategies, and plans are also reviewed:

1. Water Policy, 1999.
2. The Twenty-Five--Year National Strategy 2007-2031.
3. The Five-Year Program for Economic Reform 2015- 2019.
4. Sudan Water Sector Strategy 2021 – 2031.
5. National Water Allocation Plans (NWAPs).
6. Sudan National Drought Plan (NDP), 2018.
7. The Sudan Flood Response Plan, FAO, 2020–2021
8. Khartoum Disaster Risk Reduction Action Plan (2019-2023)
9. Early Warning Early Action (EWEA).

## **5.1 Findings of the Desk Review**

### **5.1.1 Civil Defense**

The first Civil Defense Act was passed in December 1991, establishing the Higher Council for Civil Defense (HCCD) as an agency for managing disasters at the national level, headed by the Minister of Interior and comprising the relevant ministers. Civil Defense Act of 1999 mandated the use of media to communicate early warnings for water-related disasters to citizens to allow them to take the necessary precautions and mitigate their impacts. Ten federal Ministers and some executive councils were represented in addition to the governor of Khartoum, HAC, Sudan Red Crescent (SRC), and the assistant director of the General Administration for Civil Defense as a rapporteur. Following the 1992 reforms, all the regular forces were united under an inclusive entity, and the Civil Defense Council became one of the specialized police administrations (The Republic of Sudan, 2005)

In the Sudan Constitution 1998, general provisions for dealing with risks, epidemics, and disasters were outlined, and laws were left to elaborate on the specifics. Accordingly, the Sudan Constitution of 1998 assigned to police forces the duties and tasks of disaster prevention. According to the above, what resulted therefrom was the Police Forces Act 1999, which emphasized the role of the police forces in disaster risk prevention and civil prevention (The Republic of Sudan, 1998). The Civil Defense Council and its associated general secretariat became without duties as a result of the existence of the (General Directorate of Civil Defense) established under the provision of the Police Act 1999 and reorganized under the Police Act, 2008 (The Republic of Sudan, 1999). The constitutional and legal responsibility of civil Defense was uniquely assigned to the directorate. Based on the variables and developments

occurring in several aspects of life in the country, the 1995 law was annulled according to the guidelines of Decision No (24) for 1994 regarding the Ministry of Interior's functions in preventing disasters and managing crises, as well as providing adequate potentials to the Ministry for Civil Defense operations, ensuring that the department perfectly fulfills its assigned duties.

Under a provisional decree enacted by the national assembly in 2005, the Civil Defense Act governs civil Defense in Sudan, prevents housing and building in Sudan in the course of floods and river sanctums, and protects souls and property. The Act of Civil Defense, 2005 is a system of tasks, actions, procedures, and means that have a vocational, technical, administrative, legal, and compulsory nature, addressing the needs of the public when they are (The Republic of Sudan, 2005). The main duties and responsibilities of the NCCD can be summarized as:

1. Coordination of plans and operations for civil Defense operations at the federal level in coordination with authorities.
2. Allocation of national efforts towards disaster management and the reduction of their impacts.
3. Approval, monitoring, and evaluation of national plans for civil Defense.
4. Approval of annual budgets for the DRR programs and phases.
5. Establishment of similar institutions for civil Defense at the state level and define their authorities and functions.
6. Establishment of any other relevant additional administrations/departments to support the program.
7. Acceptance or rejection of any funds (national/international) that may constitute financial support to the program.
8. Submission of budget proposals approved by the Minister to the specified authorities.
9. Specification and determination of banks and banking channels to run DRR program activities.
10. Submission of the annual financial statement of the council accounts to the Minister and the annual report of the auditor general.
11. Affirmation of payments to beneficiaries (volunteers) as recommended.
12. Issuance of the necessary regulations and decrees in consultation with the Minister.

Since 2013, the National Council for Civil Defense (NCCD) has served as the nation's highest disaster management organ, with the Interior Minister serving as its president and all governmental ministries represented. The Civil Defense Act 2005 also provides for the inclusion of the Police director, Security organs, and Civil Defense director into the NCCD. The council and the higher committees were re-



established in 2020 to consider the reform of the different ministries and to include representatives from the rapid forces arms.

Civil Defense has a federal component and a state component. The State level has a state council, state operations, provincial operations, and locality operations. At the federal level, there is a Central Operations room/Chamber linked to the NCCD which is comprised of technical experts. On the other hand, each state has its own Operation Chamber chaired by the state Governor and linked to the Central Operations Chamber. The levels of intervention of NCCD during disasters are as follows:

1. The national level.
2. The state level: for the formation of state operations rooms and committees to manage the two flood prevention operations, supporting the affected areas, and mobilization of the community efforts
3. The level of localities: for the formation of operating and emergency committees and operation rooms at the local level and Establishing focal points from members of the civil defense forces in the governorates to monitor the situation.
4. The level of the Community: Configuring the central operating rooms to manage civil defense operations, providing urgent needs to meet emergency conditions, provision support for the affected states, providing assistance during early warning and emergent situations, excavation of canals and culverts and draining and environmental sanitation operation.

The institutional framework and main responsibilities of Civil Defense Organs established under the 2005 Act are as follows (UNISDR and Ministry of Infrastructure and Transport, 2019):

1. National Civil Defense Council (NCDC): chaired by the minister and with a membership of concerned ministries and a secretariat general chaired by the director of the directorate general. NCCD is responsible for the coordination, administration and mobilization of all civil Defense activities at the national level during disasters. The council is also authorized to approve annual budgets, allocate financial resources, attract international funds and support, and review and define duties carried out by all ministries and institutions for the protection against disasters.
2. The General Directorate: responsible for protecting and providing safety of transport, telecommunications, protecting buildings, installations, institutions, and public and private properties during national disasters. It is also responsible for the reduction, prevention, mitigation, and management as well as coordination and organization with other organs regarding the disasters and their impacts. The general directorate is responsible for taking

the necessary procedures and propagating the civil Defense culture either those stipulated in the act or obtained from Sudanese traditions of collective work.

3. Ministry of Interior: The Act has specified the duties and responsibilities of the minister of the Interior during the national disaster as follows:
  - i. Declaration of the state of emergency for disaster-prone areas.
  - ii. Temporary acquisition of properties and restricting the aspects of the financing in consultation with the relevant authorities.
  - iii. Temporary acquisition of water resources, electrical generators, and other facilities, and assign those in charge of managing those facilities in a defined manner.
  - iv. Temporary acquisition of fuel and determine means of storage and provision.
  - v. Coordination with relevant authorities to organize the crucial staff in their offices to be effective at disaster emergencies.
4. The General Administration: its functions include the following:
  - i. Specify and set up the bases, standards, and national systems for civil Defense including training.
  - ii. Establishment of specialized early warning units to predict the occurrence of disasters in coordination and consult with the relevant authorities.
  - iii. Preparing and implementing evacuation and emergency plans during national disasters and emergencies in coordination with the relevant authorities. The administration is also responsible for setting up plans required for preventing armed dispute risks in coordination with the Ministry of Defense in accordance with the regulations.
  - iv. Undertake media-based awareness to the citizens to take necessary precautions during disasters and reduce their impacts.
  - v. Prepare the rescue teams and provide necessary supplies, equipment and disinfectants, and materials as well as the basic needs for citizens required for the civil Defense work in coordination with relevant authorities.
  - vi. Provide prompt response to areas of national disasters and emergencies and work to stop the consequences of their occurrence, mitigate and contain the disaster, prevent its spread, and alleviate its complications. Also, the administration is responsible for the restriction of traffic movement during disasters in coordination with the relevant authorities.
  - vii. Provide Quick causality aid during disasters and national emergencies in coordination with the competent health authorities.

- viii. Mobilize Rescue teams and volunteers to prevent national disasters and emergencies and mitigate their impacts.
  - ix. Recommend to the minister to declare the area as an emergency area.
  - x. Form civil Defense operation rooms/chambers in accordance with the regulations.
5. The Central Operation Rooms/Chambers: were established by virtue of the Minister of Interior Resolution No. (89) Dated 16/4 and is responsible for leading all civil Defense operations at the national level during the occurrence of disasters and working to prevent them, reducing the resulting damage and mitigating its complications, according to specific plans and programs. It consists of technical experts from different ministries. Among its main responsibilities is implementing decisions and policies of the NCCD through the chain of command, ensuring that the relevant information cascades down to the States' Operations Chambers. In addition, the State Operations Chamber, chaired by the State Governor, shares information with the Central Operations Chamber. The most important duties of the central room are to develop a guide to organize the work and find ways to control the sources of danger and develop Contingency plans needed to prevent disaster risks, in consultation with the line Ministries at the States level, Civil Societies, and local NGOs. Each state prepares its own contingency plan, including estimated budget and needs, in consultation with the line ministries at the States' levels, and civil societies including the community level, plans are usually forwarded to the Central Operations Chamber at the center for an initial review by the Technical officials from the line Ministries (UNISDR and Ministry of Infrastructure and Transport, 2019). During floods, it is responsible for providing information on the affected areas and immediate access to them with the mobilization of all rescue teams, follow-up, evaluation, and analysis of the situation, developing solutions and alternatives to prevent the disaster from recurring and working to restore the environment to its natural course. The state operational room is responsible for organizing and coordinating civil Defense operations and setting up General plans at the state level to face disasters with the establishment of an emergency reserve fund and the establishment of other operations sub-rooms in the state, which have branches in the governorates. One of its most important duties is to obtain the inventory for all types of disasters and secure communications while identifying the needs of civil Defense during DRR phases (Mohamed, 2018)

### **5.1.2 Sudan Humanitarian Aid Commission (HAC)**

The Humanitarian Aid Commission (HAC) was established in 1985 in response to the famous sub-Saharan droughts in 1984, as what so-called Relief and Rehabilitation

Commission (RCC) to play a prominent role in disaster management and to collect, analyze and provide reliable information and assessment for donors' intervention. The commission played a significant role in collaboration with ADRA organization in preparing a social study for displacement in North Kordofan. The partnership with MOA and WFP successfully drilled boreholes in the new settlements. The main role assigned to the commission at that time is to operate as a (hub) for all NGOs, by providing information for intervention and funds allocation in the fields of DRR and development. In 1993 the Commission of Voluntary Agencies Commission (COVA) was established. In 1995, the RRC and COVA were merged to create the current Humanitarian Aid Commission (HAC). HAC has sub-offices in all 18 states in addition to field offices in some states (UNISDR).

HAC is responsible for humanitarian affairs and is represented both at the federal and state levels. HAC is the coordinating body of the Ministry of Social Development and Labour and it is the only institution responsible for coordinating and allocating humanitarian efforts in Sudan, and monitoring the dangers of disasters and disputes through conscious collaboration with International Community Organizations (ICO) via the following technical departments (Humanitarian Aid Commission (HAC): Early Warning System Multi-Hazard, 2019):

1. General Directorate for Emergency,
2. General Directorate of National Organizations,
3. Directorate for Co-ordination of Program,
4. Directorate of Analysis and Information.
5. National Center for the Displaced and Voluntary Return.

The Commission will have the following Terms of Reference and jurisdictions regarding disaster preparedness and response:

1. To activate the social movement to enhance voluntary and charitable work to give relief to the needy and protect people with special needs.
2. To keep strategic aid storage for basic needs during disasters.
3. To encourage the efforts of women and youth to protect and defend the community
4. To protect the environment from all the hazards and to develop it
5. To expand the zone of humanitarian and charity work from the national level to the international level.

The act also provided for the establishment of the National Council for Voluntary and Charitable Work with the following terms of references regarding any interventions and reforms concerning humanitarian work at the National Level:

1. Develop policies and strategies to support voluntary, charitable, and relief work, including research, training, conferences, and media campaigns.

2. To propose laws, legislations, and regulations needed for implementation of the policies.
3. To make efforts to promote and attract capacities to work in the field of humanitarian and voluntary work.
4. To approve all administrative and technical plans for the work of HAC and its intervention with other institutions.
5. To prepare the necessary regulation for the implementation of the law and to submit it to the minister for approval.

The Voluntary and Humanitarian Work (Organization) Act, 2006 was issued to repeal the Humanitarian Aid Commission Act (HAC), 1996. The main objectives of HAC, as stipulated under the provisions of this act shall include, but not be restricted to rendering the following services, which also include services of human rights protection of the environment and are supervised by HAC commissioner:-

- i. Emergent relief to citizens suffering from natural and unnatural disasters, by concentrating on the most affected group.
- ii. Parrying, Reducing, and managing the disaster risks.
- iii. Reconstruction of economic and social infrastructure, which is destroyed by war, or natural disaster, in coordination with national institutions, established for such purpose.
- iv. Specifying priorities for relief, resettlement , rehousing and reconstruction, in consultation and coordination with beneficiaries and government authorities having connection ;
- v. Building of local capacities, to enable national organizations to depend upon their capabilities;
- vi. Implementing relief and humanitarian services projects, through nongovernmental and charitable organizations, voluntary organizations, or civil society organizations, whose objectives are harmonies with public policies and beneficiaries' interests.

The Humanitarian Aid Commission (HAC) is re-named under this to be known as the” voluntary and humanitarian aid commission “, and shall exercise the following functions in disaster risk management phases ((Mitigation, Preparedness, Response, and Recovery) :

1. Train in disaster management, at all levels, in coordination with other bodies.
2. Mobilize resources, prepare and promote comprehensive lists in case of disasters, and arising of the need to use such resources.
3. Initiate projects and specify humanitarian aid needs, aimed at parrying the effects of natural and unnatural disasters, in coordination with the competent bodies.
4. Strive to provide strategic emergency stores to meet the necessary needs.



5. Coordinate with foreign bodies, in cases of disasters, and facilitate the entry thereof to perform the work of the same.
6. Rally internal and external efforts and coordinate with the authorities.

### **5.1.3 Sudan Meteorological Authority**

In 1996 the general meteorological authority was established to manage the meteorological facilities and propose general policy in this field at the local level, and has the following functions and duties (The Republic of Sudan, 1996):

1. Provide and facilitate all the meteorological services, of different types and purposes, at the local and international levels, in accordance with local and international laws, regulations, and procedures, in the manner that Sudan is obligated to.
2. Supervise and provide the necessary training of specialists, technicians, professionals and administrators for various aspects of activity in the field of meteorology.
3. Organize collection, broadcast, distribution and exchange of meteorological information.
4. Encourage the study and development of meteorological sciences and arts and work to disseminate them in Sudan,
5. Cooperate with the national transport and aviation institutions, to carry out meteorological operations aimed at securing the safety of their fleets, in accordance with the applicable local and international systems.
6. Study the pattern of disasters that occur in Sudan as a result of weather changes to find out their causes and propose suitable mitigation measures.
7. Propose and setting of bilateral agreements with foreign countries to the government of Sudan, and monitor the implementation of their provisions, as well as the implementation of Sudan's obligations with regard to meteorological affairs, in accordance with what is specified in regional and international treaties and agreements.

The authority council includes ten members from the relevant authorities and specialization and has the following duties:

1. Approve the annual budget proposals of the authority.
2. Approve the annual work programs in accordance with the approved budget.
3. Borrow and conclude contracts and agreements, on behalf of the Authority.
4. Invest the surplus funds of the Authority, in the manner approved by the Minister, in consultation with the Minister of Finance and National Economy.
5. Approval of all expenses of the Authority.
6. Establishment of all different types of meteorological stations, weather forecasting and communications centers for the transmission, preparation,

and management of meteorological information to the fullest extent, provided that the authority is unique in its establishment, preparation, and management, and is exclusive of other state agencies, and that these agencies do not establish any of these stations and centers, except With the prior permission of the Authority.

7. Work to raise the level of skill for all employees, and maintain the level of performance of the Authority's equipment.
8. Report on participation in regional and international conferences and meetings related to the Authority's activity.
9. Form the necessary technical committees to assist him in performing his duties.
10. Appoint the authority's employees, in the schedule of jobs included in its budget.
11. Submit periodic reports to the Minister on the Authority's activities.

The Council of Ministers approved the establishment of the General Meteorological Authority on the 18<sup>th</sup> of February 2007. The establishment order specified the functions, purposes, and terms of reference of the General Meteorological Authority. Currently, the General Meteorological Authority is one of the bodies of the Ministry of Water Resources and Irrigation. The strategic objectives are to rehabilitate and modernize the Commission and to build the capacity of its human cadres to absorb technological developments in the fields of monitoring and forecasting and to develop market-investment-based mechanisms to ensure the recovery of the operating cost and the creation of a sound internal/national working environment in addition to the building of external/international cooperation relations in order to utilize information, data, and expectations to ensure the safety of life and property (N/A, 2012). The specific objectives include:

1. Maintain and update the monitoring network at the horizontal and vertical level and update the communications network to cover most parts of the country especially remote areas that have not installed monitoring stations.
2. Maintain the ISO 9001-2008 certificate in ensuring the safety of air navigation in accordance with international quality standards and laws.
3. Capacity building and training to keep pace with the expansion of the monitoring network and adoption of technology.
4. Modernization of the workforce with its various segments (specialists, supervisors, technicians, and engineers), strengthening relations, and building companies with institutions related to the services of the General Meteorological Authority.
5. Contributing to the implementation of the policies, plans, and programs of the State in the development, Natural legacy.

The Sudan Meteorological Agency (SMA) collaborates with ICPAC and the Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES) to provide short-term weather and climate forecasts, as well as seasonal predictions. Seasonal rain forecasts are regularly verified by SMA throughout the season. Ministry planners, such as those in charge of irrigation and civil Defense, as well as banks, insurance companies, media outlets and the public, have access to weather forecasts for planning purposes. SMA disseminates seasonal forecasts through a variety of social media and communication channels, as well as through federal and state-level workshops. Several nongovernmental stakeholders use these forecasts, including the Inter-Agency Standing Committee (IASC), which prepares annual emergency response plans based on SMA information. Sudan Humanitarian Aid Commission (HAC)'s Multi-Hazard Early Warning and Mitigation Centre, in collaboration with the Ministry of Irrigation and Water Resources, publishes a monthly bulletin, along with a three-day flood watch, which includes rainfall forecasts, rainfall the previous day, and river levels. Additionally, 24-hour forecasts are provided based on US Climate Prediction Centre and the National Centers for Environmental Prediction (NCEP) model data. The recent floods demonstrated that, despite news and radio warnings, information does not reach people on the ground, such as farmers, in a timely manner. SMA mandate isn't properly implemented, especially in the area of providing weather and climate information and services of quality to aid decision-makers in planning and implementing sustainable development, poverty reduction, and food security initiatives (World Food Program and Overseas Development Institute, 2022).

The mandate of the Sudan Meteorological Authority is the provision of Meteorological data and services for DRR purposes as well as the conservation of the natural environment. The SMA is working to fulfill the national, regional (ICPAC), Arab League-Environment Administration (Secretariat of Meteorology), and international obligations under various conventions such as WMO, ICAO, IOC/UNESCO, IMO, JCOMM (GCOS); FAO and WFP etc. SMA is a major key actor leading the EWS group. SMA's role is to provide the weather information and forecast for the issuing of the Weather Index Insurance for smallholder farmers, pastoralists as end users, Banks and Insurance & Reinsurance Companies. SMA collaborated with regional specialised institutes and organization to follow up the monitoring of weather factors through early warning systems in order to formulate a projection for the rainy season in Sudan, usually in May month. The forecast depends on the Standardized Precipitation Index (SPI) and other indices, automated networks, satellite and soil moisture data, media, and official requests) and also predictions/projections (SPI and other indices, soil moisture, stream flow, seasonal forecasts, Sea Surface Temperature SST's). Those early warning signals are provided to the specialised council related to the environment, agriculture, economics, and social welfare to disseminate and communicate prompt alerts to the Ministerial

Cabinet, its high level committees and vulnerable states. However, according to the Sudan Disaster Risk Management Policy and Strategy, The Governor of the State is the sole position in the government that can declare a disaster whether it is drought, flood, epidemics...etc. at the National level. However, as drought can be localised to certain geographical or ecological zone, the National Drought Plan (NDP) proposes that according to the technical assessment by the locality working groups and endorsement of the state, the state should seek the approval and consent from the Federal Governance Chamber to declare drought condition (World Food Program and Overseas Development Institute, 2022).

#### **5.1.4 Ministry of Water Resources and Irrigation/ Nile Water Directorate**

The Nile Water Directorate (NWD) is responsible for the establishment and operation of all hydrometric and sediment discharge monitoring stations on the Nile tributaries in Sudan. The NWD runs a Flood Early Warning System (FEWS) on the Blue Nile and Atbara rivers. The performance of these key agencies is found wanting, as demonstrated by their response capacity during the 2020 floods (and the ensuing State of Emergency). The Nile River is reasonably monitored by telemetric weather stations, while most of the local streams (wadis) are not regularly monitored (Government of Sudan: Ministry of Irrigation and Water Resources, 2022).

#### **5.1.5 Strategies, Programs, Plans and policies**

1. Water Policy, 1999: emphasized the importance of Climate change and population increase which intensifies the impact of droughts. The disaster management process should include procedures for collecting and analyzing information, monitoring resources, and early warning systems, and these would clearly be different for flood and drought disasters (Ministry of Irrigation and Water Resources, 1999).
2. The Twenty-Five--Year National Strategy 2007-2031: Focused on Building and managing early warning systems one of the functions of the cabinet of ministers, in order to recognize potential threats and identify weaknesses within the executive institutions in order to avert disasters. Several sub-strategies stressed the importance of developing and enhancing early warning systems. For example, the (Investment Strategy) discusses the need for early warning systems in order to avert crises and disasters through precautionary and preparatory measures (The National Council for Strategic Planning: The General Secretariat).
3. The Five-Year Program for Economic Reform 2015- 2019: The program policies include (The Ministry of Finance and National Economy):
  - i. The rehabilitation and modernization of the forecasting network on horizontal and vertical levels as well as modernizing the

- telecommunications network to cover most parts of the country especially the remote areas without weather monitoring and forecasting stations.
- ii. Capacity building and training to keep up with the expansion of the forecasting network and modern technology.
  - iii. Strengthening relations with authorities relevant to the services of Sudan Meteorological Authority.
  - iv. Accommodating the National policies, plans, and programs of development, investment and natural disasters management.
  - v. Maintaining and establishing monitoring stations.
4. Sudan Water Sector Strategy 2021 – 2031: The strategy highlighted that satellite imagery and digital technologies have proven important in various water management applications, such as agriculture water use management, flood and drought early warning systems, and disaster risk reduction as well as in the operational management of water in structures such as dams and in improving citizen participation in various activities, including monitoring. Water resources management interventions should take into consideration climate variability monitoring and forecasting, as well as appropriate management planning (Government of Sudan: Ministry of Irrigation and Water Resources, 2022).
  5. Khartoum Disaster Risk Reduction Action Plan (2019-2023): This Strategy is developed as the action plan for disaster risk reduction for Khartoum, which is aligned with both the national and state strategies. The action plan was developed with the participation of the key stakeholders, and the methodology adopted was mainly based on the use of the UNISDR scorecard assessment, in addition to the literature review and input from Khartoum focal point (UNISDR and Ministry of Infrastructure and Transport, 2019).

#### **5.1.6 Gap Analysis for the existing legal and institutional framework**

The Civil Defense Act grants no real powers to the Council as opposed to conferring all powers to the Minister of Interior as head of the Council, including the authority to declare any area as a national emergency. Likewise, the Commissioner of the Council has broad powers.

The Sudan Constitution 1998, 2005, the Police Forces Acts, 1999, 2008, and the Civil Defense Acts 1991, 1994, and 2005 didn't state comprehensively the duties and tasks of the police forces and Civil Defense Authority in Disaster Risk Management and Early Warning. The different phases of disaster risk management (Mitigation, Preparedness, Response, and Recovery) are clearly at odds with these acts and laws. There are also no specific provisions for managing water-related disasters since disaster includes epidemics as well as wars. Furthermore, the aforementioned acts

did not provide for the establishment of early warning systems for water-related disasters, and the majority of efforts were devoted to firefighting.

A diagnostic report released by the World Bank in 2021 and supported by the NCCD, has underpinned some gaps with regard to DRR and EWS in Sudan (The World Bank, 2021). The release of the report was preceded by the Stakeholders Engagement Process and revealed that the Civil Defense Act is not an understanding that is not shared by all concerned actors. Although the law provides a general framework and Process for managing and preparing for disasters, there are a number of contradictions accompanying the implementation of the Civil Defense Act. These include:

1. Contradictions between certain articles of law and other laws in place.
2. It seems that the law and its bylaws are poorly communicated to relevant stakeholders, especially non-state actors and humanitarian organizations.
3. Consequently, entities do not perceive the law as binding since it addresses only the role of the NCCD rather than the holistic guidelines for DRR and early warning systems.
4. Generally, the law is focused on emergency response, with little emphasis given to preparedness.
5. Sudan's 1991 and 2005 laws do not address the present and emerging emergencies arising from climate change, social unrest, and war.
6. There is no mechanism for cooperation between other relevant specialized entities and their roles are not clearly defined.

SMA mandate isn't effectively practiced, especially when it comes to providing weather and climate information and services of quality to help decision-makers plan and take action to ensure food security, poverty reduction, and sustainable development. On the other hand, RSA mandate and activities are not feeding into the decision-making process of disaster management in Sudan. Moreover, RSA is developing a homegrown early warning system based on the internal data warehouses which, if fully utilized, will constitute a strong information base in preparing for emergencies. Sudan Meteorological Authority (SMA) also generates robust data through satellite images and provides the data to NCCD for action. However, the information provided by SMA was only acted upon when the 2020 floods occurred.

According to the desk study, gaps in the institutional framework include:

1. There is substantial overlap in mandates and ambiguity of responsibilities among the relevant authorities, and there are no action plans for different pillars that could facilitate accountability across entities.
2. At different levels of the government, there are different committees for addressing emergencies and disasters, as well as thematic coordination and technical working groups. While these committees and working groups are intended to enhance coordination in responding to specific emergencies,

they may create confusion and ambiguity among major actors regarding their roles and responsibilities.

3. Lack of coordination among emergency committees within different entities may cause duplication of response efforts due to the existence of several emergency committees. To compensate for the lack of overall oversight by one entity, government entities create individual committees to address DRR and EWS.
4. Disaster management in Sudan involves a wide range of public organizations and departments. However, the disaster risk response is hindered by significant weaknesses in coordination, duplication of efforts, and bureaucracy.
5. There are two national institutions responsible for disaster management, each with its own independent laws. NCCD is established under the Civil Defense Act and is regarded as the highest authority in disaster management, while the Act for the Organization of Humanitarian and Voluntary Works of 2006 stipulates that HAC is the agency in charge of humanitarian affairs and is responsible for coordinating humanitarian efforts in Sudan as well as preventing disasters and disputes, even though this is an integral part of disaster management. This consequently creates a cross-cutting jurisdiction between HAC and the Civil Defense Council.

APPENDIX-1 shows the EWS stakeholders and their engagement with EWS pillars.



## 6 QUESTIONNAIRE DESIGN

Based on the initial findings that emerged from the desk review, a tailored questionnaire has been designed to deepen the assessment. This assignment focused on analysing national stakeholders and their involvement in the EWS in Sudan.

The Questionnaire is a preliminary instrument that is used to find the most relevant regulations concerning Disaster Risk Management (DRM) and to map the stakeholders that will be involved in the assessing phases of the project. It has been developed with these main goals:

1. Collecting relevant facts on the legal and institutional framework of disaster risk management, in particular on the Disaster Preparedness and Response phases (DPR). In the proposed questions the fact-finding intent has been preferred to a strict assessing goal.
2. Creating a categorized repository of the most relevant documentation concerning the bone structure of the DPR activities
3. Identifying the key actors involved in the DPR activities, understanding the territorial level at which they operate, and the official/legal basis that identifies their position. Key actors are both institutions that have the power to make laws with respect to disaster risk management, and institutions/organizations that operate in this sector.
4. Understating the roles and responsibilities along the DPR chain (duty holder), with the aim of involving these persons in the working groups foreseen in the other phases of the project.

The questionnaire is based on a broad view of EWS and covers four aspects:

1. Background information: This was devoted to describing the key elements of the basic legal and institutional structure of each country, trying to understand whether a general framework to tackle disasters exists at the national or supra-national level (general policies and strategy that set goals and targets). The generic administrative subdivision should also arise from this part.
2. Institutional and legal framework in DRR: This is aimed specifically at finding dedicated DRR laws, regulations, working rules and other dedicated laws that are critical for managing essential functions in the DRR, such as institutional arrangements, legal facilities, and protections. A major stress is given to the DPR in case of floods.
3. Early Warning System (EWS) for floods and droughts: This is tailored to disclose the key actors and institutions playing a relevant role in the early



warning system. Also, in this case, the questions refer mostly to the processes and phases generally activated during floods and droughts.

4. A fourth section deals with the existing projects in the Country and the ongoing, and past projects and activities on DRM: This aimed at gathering relevant information on the on-going projects and initiatives related to enhancing the DRM in the Countries.

## 6.1 Data Collection and Questionnaire Filling

To compile the questionnaire, a total of five consultative meetings were held between January and February 2023. The questionnaire was circulated prior to the meetings and after the dissemination of the request letters by the general secretariat of the NCCD, in order to ensure the assignation of the right personnel to fill out the questionnaire and resolve stakeholder concerns before the meetings.

Through the questionnaires, a total of nine national stakeholder institutes have been interviewed. Stakeholders are clustered into three categories:

1. National stakeholders that represent law enforcement: Civil Defense.
2. National stakeholders that represent federal ministries: MOA, MOIWR, MOCM, and MOH.
3. National stakeholders from specialized governmental associations: HCENR, SSA, SMA, and HAC.

The desk review and the questionnaire assessment highlighted several challenges in mapping and understanding the EWS framework in Sudan. In particular, the governmental transition phase and the institutional reform in some ministries pose a major challenge in identifying a clear and unique structure for the national EWS. Furthermore, the request for a broader inter-institutional discussion on EWS and the assessment's purpose emerged from the interviews.

Therefore, it was decided to retarget the focus of the Table Top Exercise, from the originally-planned practical test of issuing a warning to a discussion-based exercise, involving all stakeholders, on the current state of the EWS.

The table below shows the interviewed stakeholders and the number of interview representatives.

Table 1: Interviewed Stakeholders and number of representatives

Interviewed Stakeholders	No. of interviewed personnel
Civil Defense	4
MOH	4
SMA	6
HCENR	3
SSA	2
HAC	2
MOIWR	3

## 6.2 Questionnaire Findings and Results

### 6.2.1 Overview of DRR and EWS Development in Sudan

Sudan has 18 states with a decentralized government operated by the Ministry of Federal Governance. Sudan has 4 levels of administrative levels: i) federal level, ii) state level, iii) localities, and iv) Administrative units. Sudan has three pillars of governance: i) the constitution power, ii) the execution power, and iii) the jurisdiction power. In general, the function of Sudan government takes place in the framework of a federal provisional government, for which each state has a governor, a cabinet of ministers, and a parliament. The form of decentralization is that the constitution assigns some subjects/matters to the federal central government and delegates others to the state's institutions.

Sudan took part in regional agreements and memberships that could influence disaster risk management or risk reduction, these agreements include:

1. African Agency for Disaster Risk Reduction (2018).
2. Membership of the Council of Arab Ministers.
3. Membership of ICDO 1994.
4. Hugo framework.
5. Sendai Framework.
6. International Health Regulation IHR (2005).
7. Nile Basin treaty.
8. NelSAP agreement.

The NCCD is the primary decision-making body during emergencies and adopts policies regarding disaster management for the country. NCCD has state councils that are headed by the state governors (Walis). The federal NCCD is composed of 16 Ministries, and is headed by the Ministry of Interior; its activities are facilitated by the General Secretariat of NCCD which is the Federal Civil Defense. NCCD members

have state offices coordinated with the federal government through the Ministry of Federal Governance, except SSA, which operates only at the federal level. NCCD members and institutions (including committees) are responsible for implementing the Sendai Framework. The framework is cross-cutting; therefore it has been delegated to each entity to monitor certain parameters of DRR. However, the continuous reform of governments has resulted in a constant staff turnover and a shift of focal points for DRR between HCENR (Ministry of Environment at that time), HAC, and then recently the Civil Defense. As a consequence, Sudan's Sendai Frameworks profile does not yet contain complete information.

In Sudan, the Ministry of Finance allocates budgets for DRR to the relevant ministries, which are members of the NCCD. Nonetheless, some ministries, such as MOH and the SMA, fund their DRR projects with funds they receive directly from the General Administration of Emergency or with internal resources. The MOIWR receives funds from ENTRO to combat floods and optimize dam operation during the rainy season, with the majority of funds going to hydrological stations and numerical models.

Civil Defense which was established by the Civil Defense Act (2005) and is acting as the general secretary of NCCD is responsible for the coordination and mobilization of the NCCD activities as well as the compilation of annual plans from NCCD federal members. During disasters, the civil Defense prepares recommendations that the Ministry of Interior approves and passes to the Ministry of Finance for approving the budget disaster needs and budget. Additionally, it prepares recommendations for the Cabinet of Ministers to approve the deceleration of the state of emergency in order to attract international aid during disasters.

Generally, funds are allocated for awareness-raising capacity building, and development of strategies, policies, and building databases. Infrastructure rehabilitation funds are allocated to the relevant ministries, and they have become more frequent since the COVID-19 crisis, which involves rehabilitating health facilities damaged by flooding, in order to improve hygiene promotion. In addition, funds are also injected for technical support into institutions that build DRR databases, such as MOH and HAC. A number of factors influence the allocation of funds and their priority, including the type and intensity of disasters, as well as the capacity of the affected area. For example, some states have the capability to deal with floods and droughts whereas other least-developed states cannot.

There is a link between DRR and development planning represented in the annual strategic plan developed by the higher council for strategic planning. There is no clear strategy for climate change adaptation except the NAP developed by HCENR.

A national strategy for the Sustainable Development Goals doesn't exist, but Sudan complies with the international commitment to UN SDGs, and the Ministry of Finance is the responsible body for the implementation. (The Triple Program for Development and Political Stability) which was established during the transitional period and implemented by the Ministry of Finance focused on achieving SDGs and monitoring their indicators.

### **6.2.2 Institutional and legal framework in DRR**

While Sudan has no specific law or legalisation for DRR, the 2005 Civil Defense Act assigns generalized duties and responsibilities to all government ministries and institutions during disasters but does not explicitly assign the responsibilities to any government ministries. The ambiguity in the Civil Defense Act makes it difficult to assign responsibilities during implementation by different authorities, but only during flood emergencies does coordination improve, and responsibilities under the NCCD umbrella become clearly defined. The act of Humanitarian Aid 2006 developed by HAC is also considered for the regulation of activities during disasters; however, the clauses of the act are enclosed to activities within the council whether for national support or NGOs intervention.

Sudan Constitution 2005 also provides a summary of the synergies and links between various government authorities and how duties and responsibilities are delegated. Due to recent political instability, the constitution was updated to the transitional constitution 2019, which is currently inactive. State governments have the power to legislate for DRR and DPR via their state parliament in accordance with federal laws and regulations.

The Civil Defense Act 2005 is not binding to all NCCD members, as it comprehensively assigns responsibilities for the civil defense only and its general secretariat as a technical committee. As the Civil Defense Act focuses on the implementation of disaster relief activities, NCCD members typically have their own internal laws and establishment laws that define their Terms of Reference and allow them to intervene and plan ahead of disasters, such as developing emergency and contingency plans. These laws also have clauses to regulate the establishment of governmental institutions or public organizations/services with responsibilities in Disaster Prevention and Resilience.

Laws of establishment for DRR bodies are not always enforced, especially when certain institutions are authorized to perform certain duties. For instance, the role of the SMA, which regulates weather forecast equipment and services, has always been overlooked. Many institutes, including governments, purchase and provide weather forecasting equipment without obtaining SMA approval. Further, even though some

models and applications are very popular among citizens, local forecasters do not seek authorization from the SMA, and their predictions sometimes differ from official ones. In addition, HCENR laws of the establishment (2001 and amendments 2017), as well as the Law of the Unification of Councils (2020), undermine some of the duties and responsibilities of the council, and restrict their capability to actively participate in DRR. The federal MOH established the law of public health to deal with deteriorated public health status associated with water-related disasters, and the federal duties are downscaled for the implementation by states. The law deals with preparedness, response, mitigation....etc. While the public health law and other plans and strategies encompass all DRR phases, they are very brief and generic, basically the parts regarding the enforcement and regulations.

NCCD members' laws of establishment and the Civil Defense Act 2005 only pertain to the coordination, planning, and implementation of disaster relief and recovery activities. However, NCCD members have always debated whether to allocate Preparedness, Response, and Recovery activities to specific ministries and councils so that there is no duplication of effort and overlapping of responsibilities. It is emphasized that distributing efforts among the NCCD members according to their areas of specialization and authority will ensure a robust workflow during disasters and the inclusion of all DRR pillars within the council's remit.

The DRR laws and legalisations in Sudan are enclosed to Disaster response specifically for floods, while droughts are underestimated. NCCD used to have 19 specialized committees which are recently downscaled to 14 committees and are established for disaster response only. The new committees are headed by NCCD members and relevant authorities as follows:

1. Higher Committee for Early Warning and Telecommunication headed by the Civil Defense.
2. Higher Committee for Rescue, Security, and Casualties Affair Management headed by the Police Forces.
3. Higher Committee for Health Services and Environmental Health headed by MOH.
4. Higher Committee for Rehabilitation and Residential Affairs headed by the Higher Council of Residents.
5. Higher Committee for Information headed by the Ministry of MOCM.
6. Higher Committee for Risk Knowledge headed by the Ministry of Higher Education.
7. Higher Committee for the Mitigation of Extremely Dangerous Material Risks headed by the National System for Atomic and Radioactive Surveillance.
8. Higher Committee for Securing Aviation headed by the Civil Aviation Authority.

9. Higher Committee for Riverine and Sea Pollution headed by the Ministry of Water Resources and Irrigation.
10. Higher Committee for Labor Safety and Fire Fighting headed by the Civil Defense.
11. Higher Committee for agricultural services headed by the Ministry of Agriculture and Natural Resources.
12. Higher Committee Veterinary Services headed by the Ministry of Animal Wealth.
13. Higher Committee for Raising International Funds headed by the Ministry of Foreign Affairs.
14. Higher Committee for Attracting Local Efforts headed by the Ministry of Youth and Sport.

There is a National Strategy for DRR (2017 – 2031) which is developed by UNDP and the civil Defense with participation and inputs from other NCCD members. Khartoum state has its own DRR strategy developed by the Ministry of Infrastructure. IGAD, UNDRR, and other regional and international bodies support existing coping strategies, as well as promote new DRR strategies and update the previous ones. MOH developed a 5-year national health risk reduction strategy (National Plan for Health Security) and it is established for 5 years. This strategy is developed for the years (2018-2022) are currently under update for (2023-2027). The plan is for mitigating all public health-related disasters (pandemics, chemical pollution, and molecular, radiation....etc). HAC also developed a National policy framework for DRM that was endorsed by the cabinet of ministers in December 2022 with a plan of action.

The Private sector is also involved in DRR regarding awareness raising campaigns and corporate social responsibilities activities. Civil society organizations and voluntary groups ramp up fundraising campaigns to reach out and facilitate the distribution of aid to the impacted areas in cooperation with civil Defense prior to and during disasters. Despite the fact that the Civil Defense Act and the Public Health Law establish the roles and responsibilities of nongovernmental entities (private sector, volunteers, and community groups) for DRR activities without attributing them any decisional power. Non-governmental entities are only responsible for the implementation of DRR activities, for instance, the Ministry of Health assigns roles for these groups in accordance with the ministry's needs and gaps and based on government guidelines, by indicating which portion of their annual plan and which activities they should carry out.

A disaster management information system (DMIS) is not in place in Sudan; nevertheless, some entities have relevant information, such as Weather, floods and

droughts parameters, population under threat, famine-prone and vulnerable areas, and disaster records from the past.

This information and data are collected and saved by the Central Bureau of Statistics, Ministry of Finance, SMA, MOH, HAC and Ministry of Irrigation and Water Resources. HAC and MOH have databases for all the states that are retrieved from their state offices. Currently, MOH has what so-called (Surveillance and Information System), which is designed only for outbreaks. As of now, it has been upgraded to (events surveillance) and become a national system that captures all disaster types from all states. While its reach is limited and it does not capture all disaster levels as it is concerned with disaster consequences, it is a good start in capturing all types of disasters. Furthermore, most of the information and records related to DRR in Sudan are not shared with all relevant bodies or are available for a high fee.

It is not common in Sudan to have an insurance system to protect against natural disasters, but some banks and insurance companies have recently attempted to provide finance and weather-based insurance for crops and livestock to farmers (Shaikan) and herders (Ebdaa Bank and Tengesta company). The recently established weather-based insurance is perceived as a mitigation measure rather than compensation for losses. There is an initiative by ARC (African risk capacity) inside MOF. A pilot project involving risk finance was in place under disaster insurance, which was supervised by HCENR (Ministry of Environment at that time). Several investors participated in the project and obtained insurance; due to the 2013 floods, their infrastructure was partially damaged, and the World Bank compensated them for the damage.

### **6.2.3 Early Warning System Effectiveness in Sudan (EWS)**

There is no standalone law or act for EWS in Sudan, as most of the convening laws deal with response and recovery rather than preparedness. However, some entities are responsible for developing and regulating EWS activities in Sudan.

It is agreed that SMA is responsible for forecasting and issuing weather bulletins, while MOIWR is responsible for flood routing and issuing flooding bulletins and scenarios. Both SMA and MOIWR have onsite observation (weather stations and gauges), and the bulletins are communicated using broadband connections. SMA and MOIWR deliver their bulletins to all NCCD members for further actions including the issuing of humanitarian status bulletins and environmental alerts in addition to the distribution of humanitarian and health aid by MOH and HAC. Radio communication is rare and is usually used by police centres and NGOs in rural and remote areas where telecommunication coverage is poor. It is worth mentioning that some NGOs including UN agencies established some weather stations in



project areas especially in western Sudan to support agro-pastoral communities. With its direct coordination and intervention with NGOs, HAC makes use of weather stations established by NGOs, which are generally utilized for the purpose of coordinating and planning humanitarian aid, and in addition, some agricultural and livestock firms invest in weather stations as part of their project areas.

MESA and AMESD programs were provided by RMRCDD to the agro-meteorology department in SMA and to HCENR for drought monitoring. The programs are able to perform drought risk mapping as part of the seasonal drought monitor, in addition to specifying NDVI, SPI, and all other Copernicus parameters. Nevertheless, most of these programs need to be enhanced in order to be used for drought risk mapping and to be approved as a real-time monitor for drought conditions that are capable of providing alerts to potential threats in advance. It is worth mentioning that some maps vulnerable areas have been produced by HCENR but haven't been disseminated or shared, nonetheless, SMA is actively engaging with MOA for developing co-products that can be used for famine prediction, food security plans, and import/export actions.

EWS for drought is underestimated and there is no clear workflow for monitoring and forecasting of drought among NCCD members. Usually, drought forecasts are included in the seasonal monitors that measure above-average rainfall, SPI, and NDVI. Drought monitors and Food security indicators are primarily used by the Ministry of Agriculture and the Ministry of Finance for famine predictions in addition to exports and trade activities. Sudan has a drought plan developed by the higher council of desertification. Additionally, Sudan adheres to the regional drought strategy (2019-2024) developed by the IGAD Drought Disaster Resilience and Sustainability Initiative (IDDRSI).

Despite having field teams that specialize in disaster response, NCCD members rarely train for drills and simulations. The Red Crescent, on the other hand, offers regular trainings to citizens and voluntary organizations.

#### **6.2.4 The ongoing and past projects and activities on DRM**

A number of projects have been implemented by national and international agencies either for DRR or under other development themes for instance climate change and SDGs. Due to political instabilities, economic sanctions, and substantial turnover in project management, several projects have been terminated or suspended resulting in no tangible results.

The following projects are identified for DRR and EWS in Sudan:

1. NAP (Ongoing) is a holistic national project of the Higher Council of Environment and Natural Resources funded by GCF with an accreditation of



FAO, component that SMA shares in this project is not that big, it is around US\$ 100,000 ( US\$ 30,000 hardware+ US\$ 70,000 capacity building).

2. FMI-SMA (Suspended since 2020) is a project under the title "FERSAD".
3. A Proposal for a Project submitted to GCF under the title "Strengthening Climate Services and Multi-hazard Early Warning for Resilience in Sudan" Planned to be funded by GCF, accredited by UNEP Financial Volume: US\$ 10,000,000, the submission made late 2020.
4. Red Cross initiative: Forecast-based Financing (FbF) seeks to allocate funds for the implementation of pre-defined early actions based on a scientific weather forecast and knowledge of risks. FbF remains the most complete methodology for AA planning through its three key components.
5. CLIMATE RISK EARLY WARNING SYSTEM (CREWS) for Ethiopia, Somalia, and Sudan): The objective of the project is to enhance the capacities of regional and national entities to produce and use climate, weather, and hydrological services, including early warning systems. In Sudan US\$ 370,000 was allocated, activities will focus on: (a) Strengthening community involvement in EW, and (b) Strengthening flood early warning services.
6. Strengthen the Sudan Meteorological Authority's hydro- meteorological I network and Climate services: funded by the Ministry of Environment, Land and Sea of Italy and implemented by FAO. The client is the HCENR and other partners include SMA.
7. Eastern Nile projects: IGAD HYCOS HYDROMET (NeISAP) which is implemented by MOIWR.
8. Strengthening drought resilience for smallholder farmers by IGAD which is implemented by MOIWR/HRC.
9. EN Flood Preparedness and Early Warning - Phase 1: This is funded by Eastern Nile Technical Regional Office and implemented by MOIWR.

## 6.3 Conclusion

The involvement of the interviewed stakeholders in risk knowledge is vague; HCENR used to be responsible for developing annual plans for DRR before the reform, in addition to the development of the National Adaptation Plan (NAP) which is updated regularly. NAP responds to the overall objectives of the UNFCCC's National Adaptation Plan Guidelines for reducing vulnerability to the impacts of climate change through the building of local adaptive capacity and resilience and facilitating the integration of climate change adaptation into relevant new and existing policies, programs, and activities. In addition, HCENR and the agro-meteorological department at SMA have a couple of initiatives for undertaking drought risk mapping, frequency distributions, scenario plans and exercises, and qualitative measures.

Challenges and gaps that are extracted from questionnaire regarding Risk Knowledge are:

1. Establishing and maintaining observing systems and data management systems;
2. Maintaining archives, including quality control and digitization of historical data;
3. Obtaining systematic social and environmental data for vulnerability analysis;
4. Establishing institutional mandates for vulnerability data collection and analysis.
5. Restriction of data by national or institutional policies that seek to generate revenue from the sale of publicly funded data resources.
6. Risk awareness activities are enclosed to voluntary and civil society organizations, most local communities lack knowledge about how to reduce vulnerability and how to respond to warnings.
7. Compliance with internationally agreed and locally referenced risk indicators is not reflected in the policies, therefore it is challenging to measure the success and failure of early warning systems and thus improve the basis for collecting and analyzing risk data. SMA is the authorized entity for approving and ensuring the reliability of the risk indicators at the national level according to its law of establishment, however, the law only governs the internal duties of SMA, and its duties are not well addressed to other stakeholders.

There have been marked improvements in the quality, timeliness, and lead time of hazard warnings, largely driven by SMA and MOIWR, particularly in computer systems. The existing capacities for monitoring and warning for hydrometeorological hazards are relatively more developed than for other types of hazards. SMA is responsible for continuously observing, monitoring, detecting, forecasting, and developing hazard warnings for a wide range of weather and climate, in addition International coordination is very well developed with WMO and IGAD.

Early warning systems for drought are more complex than those for floods and are, consequently, relatively less developed in Sudan. Department of agro-meteorological drought in SMA heavily relies on monitoring of observed patterns of monthly and seasonal rainfall, land cover, and the use of historical statistical data. The department's capability is enclosed to predict dry spills and some developed co-products between SMA and MOA make use of information from seasonal monitors to predict the risk of famine or extreme food insecurity. Desertification prediction and monitoring is among the activities of HCENR, same as droughts it is difficult to predict because of the complexity of the interaction of the multiple driving forces and its long-term nature.

On the other hand, a common consequence from floods is water-related diseases; MOH makes use of information from SMA and MOIWR to predict outbreaks and epidemics like dengue fever, malaria, and cholera as well as heat strokes that are resulted from extreme hot temperatures. The national surveillance systems at MOH operated nationally at various stages of development and effectiveness. Comprehensive health-related early warning systems are developed at the national level, where information from all states is collected and stored in the server, health information systems are in use in epidemiological monitoring and detection.

Gaps identified in the Forecasting and Monitoring, and dissemination pillars as reflected by the interviewed stakeholders include:

1. Inadequate capability of systems for monitoring, processing, and storing hydro-meteorological parameters;
2. Unlike floods, the majority of drought forecasts are issued monthly and seasonally, which hampers effective DRR, as drought impacts require extensive intervention, such as land reclamation and food security mitigation, rather than prompt responses.
3. The levels of interventions of EWS key actors are not specified in the National Strategy for DRR or the National Policy Framework for DRM.
4. Inadequate access to information (forecasts and interpreted data) from national stakeholders.
5. Insufficient multi-disciplinary, multi-agency coordination and collaboration for improving forecasting tools such as flood forecasting and for integrating warnings into the disaster risk reduction decision processes in a more effective and proactive fashion.
6. Inadequate communication systems to provide timely, accurate and meaningful early warning alerts down to the level of communities and population.
7. Meteorological and hydrological forecasts and warnings for impending disasters are available, but the extent and capacity of monitoring and warning means at the country level varies and reflects countries' economic development level, the broadband and radio connections are poor and under-developed in many rural areas and in agro-pastoral communities, where those are particularly among the vulnerable areas. Effective monitoring and forecasting systems are operated by SMA and MOIWR. Consequence monitoring includes health-related consequences, food security indicators, displacement, desertification, and other environmental impacts.

Overall, a major need is the integration of risk information into hazard warning messages. This would require close collaboration between NCCD members responsible for vulnerability and risk assessment. Capacities for risk assessment need

to be developed at national and local levels, on methodologies, hazards, and various socioeconomic data.

There is an urgent need to upgrade telecommunications facilities around Sudan, including equipment, service provisioning and operation, to comply with the international agreed standards for the real-time delivery of warnings from authorities to the community. Consequently, the private sector needs to be encouraged, and their responsibilities must be clearly defined and regulated in the field, as the existing laws only set standards for corporations that plan to participate in early warning communication and dissemination activities, but their involvement is still very rare.

It is also revealed that alert dissemination may be inadequate in Sudan, because of the ineffective engagement of warning authorities (SMA, MOIWR) with the media as the media is focusing on reporting news and not necessarily disseminating useful warnings. According to interviewed stakeholders, conflict arises as the media publishes inaccurate or misleading information about potential events that contradict the official warning messages, and some warning messages are not translated into languages that will be understood by all stakeholders. Additionally, there is a need for a single, consistent, and easily understood global nomenclature to be used by all issuers across all key stakeholders. In addition, HAC and Civil Defense exhibit discrepancies in the dissemination of the number of affected people, the main reason behind these challenges, is the fact that the civil Defense mandate is designed for rapid response and action based on immediate reports from citizens only, while HAC receives reports from its state office, UN agencies, Red Crescent, and other NGOs.

On the international level, SMA cooperates with a number of agencies that disseminate and exchange data, information, and alerts. SMA and the WMO's Common Alerting Protocol (CAP) are modestly integrated, but the latter isn't effectively used due to a lack of knowledge by other stakeholders.

Civil Defense and HAC are the frontline stakeholders in disaster response in Sudan. Civil Defense is responsible for the coordination between the NCCD members and activation of the contingency and emergency plans. Traditionally these plans mainly focused on post-disaster emergency response and recovery, and the warning triggers at the different levels are not adequately represented in the DRR national strategy. Among NCCD, rehearsal of contingency plans and simulations are significantly underrated, and the Red Cross is one of the most active agencies in this regard. Since some humanitarian agencies and NGOs have their own early warning equipment installed in their areas of operation, they play a large role in mainstreaming these plans.

## 7 TABLETOP EXERCISE

The desk review and the questionnaire assessment highlighted several challenges in mapping and understanding the EWS framework in Sudan. In particular, the governmental transition phase and the institutional reform in some ministries pose a major challenge in identifying a clear and unique structure for the national EWS. Furthermore, the request for a broader inter-institutional discussion on EW and the assessment's purpose emerged from the interviews.

Therefore, it was decided to retarget the focus of the Table Top Exercise, from the originally-planned practical test of issuing a warning to a discussion-based exercise, involving all stakeholders, on the current state of the EWS.

### 7.1.1 DBX Implementation

The Discussion-Based Exercise (DBX) has been designed as a kind of facilitated discussion for mapping the different roles of the key stakeholders along the current chain of command, roles and responsibilities, and the specific relationship between the different actors in the EWS.

The DBX had two main objectives: validate the review analysis and highlight good practices and gaps in the EWS for alerting population.

After defining a shared vocabulary/understanding of the EWS, a simulated flood risk scenario has been described to facilitate the discussion. Each stakeholder was then invited to explain what his organisation or entity does when a flood event is about to occur, what activities or procedures it carries out, and what relationship it has or activates with other risk management agencies.

The participants in the exercise represented the stakeholders from the relevant institutes and authorities as follows:

1. National stakeholders that represent law enforcement: Civil Defense.
2. National stakeholders that represent federal ministries: MOA, MOIWR, and MOH.
3. National stakeholders from specialized governmental associations: HCENR, SMA, and HAC.





Figure 1: Photos from the DBX (19-21) March 2023

### 7.1.2 DBX Results and Findings

The stakeholders involved in EWS and their means of intervention as discussed in the DBX include:

#### 1. **Civil Defense**

- i. The responsibility for civil Defense is shared between the central government, state governments, local governments, administration units, and villages and through the geographically distributed offices and task forces. SMA and MOIWR forecasts are used by the civil Defense to act ahead of flood peaks; in addition, it has committees at localities that operate during flood season.
- ii. Communication and Dissemination: Civil Defense provides emergency alerts at community levels prior to flooding, then initiates response activities and provides communication tools for the population. The NCCD media administration supervises the radio, television, and social media in modern states and urban areas, and it is conducted through mosques, direct alerts to civil administrations (community or tribe levels), and change-service committees (neighbourhood levels). It is worth mentioning that dissemination via TV or radio is conducted with caution to avoid panic and unplanned evacuation from affected areas. The early warnings are disseminated to the population also by the civil defense at state level (rapporteur of the state NCCD). Depending on the capabilities of the state, early warnings can be disseminated throughout TV and Radio via the State Ministry of information and culture or via mosques, Local Committees, and Civil Administrations in collaboration with the State Ministry of social development.
- iii. Response Capability: Throughout the River Nile and in the vulnerable areas, task forces serve as the frontlines of response, and they are governed and connected through telecommunications to the central operation room. As a first response, civil Defense involves evacuation and sheltering once an alert is received, in coordination with FMOH and other relevant authorities. The levels of intervention depend on the nature, intensity, and expected consequences of the water-related disaster.

#### 2. **SMA**

- i. Monitoring and Forecasting: During normal and extreme weather events; SMA collects weather data on all parameters through geographically distributed gauges and stations. SMA monitors and predicts weather conditions at the national, state, and local levels using numerical prediction models (WRF). In reciprocal collaboration with IGAD/ICPAC through the membership in the Horn of Africa Climate Outlook Forum, SMA provides weather predictions for ICPAC as well as

receives its downscaled forecasts at national scale, which are then verified by SMA. In addition to considering national weather predictions, the authority considers regional predictions from the Nile Basin, such as those provided by IGAD/ICPAC for upstream forecasts. The regional predictions are provided to SMA via sophisticated models that are downscaled to the national level and provide early warning alerts.

- ii. Communication and Dissemination. SMA generates daily general weather bulletin and special 3-Day forecasts for extreme events. SMA has a member in the emergency committee of NCCD who is responsible for communicating daily bulletins to NCCD during flood season. All communities, NGOs, and the private sector are notified with flood bulletins via social media (Facebook, Whatsapp) as well as via a mailing list for other partners and government departments. Emergency committees for flood seasons are composed of all stakeholders' including forecasts providers or key actors who serve as the official communication channels for flood alerts. SMA Representatives provide the committee with the general bulletin and extreme parameters, as well as frequent follow-ups.

In the SMA, the agro-meteorology department prepares drought forecasts that are distributed to farmers, insurance companies, and FAO. However, no separate bulletins are issued for droughts, and NCCD members do not receive these bulletins, making these forecasts fairly limited in reach. Generally, SMA produces weather bulletins at the state and national levels, but Local bulletins as well as bulletins provided for specific projects are only produced upon request.





Figure 2: Daily Bulletin showing weather parameters (temperature, wind speed and rainfall) issued by SMA/Early Warning Bulletin.

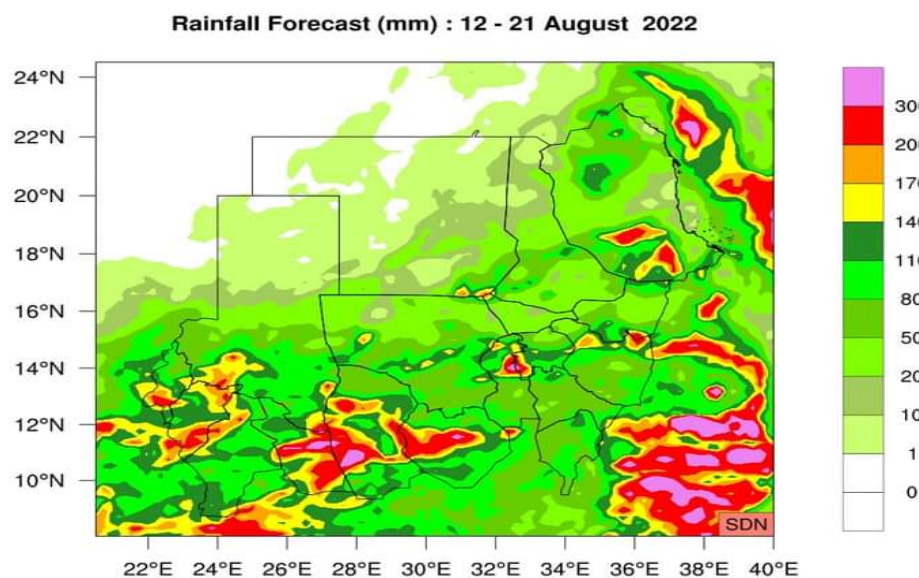


Figure 3: Rainfall intensity forecast issued by SMA



The image shows a simplified bulletin issued by the Sudan Meteorological Authority (SMA). It features the SMA logo at the top center, flanked by two circular emblems. The text is in Arabic and provides a weather forecast for April 14, 2023, at 10:05 AM. The bulletin includes a title, a date, a time, and a list of weather conditions and forecasts. The background is a light blue gradient with a large, faint watermark of the SMA logo and the text 'SUDAN METEOROLOGICAL AUTHORITY'.

الهئية العامة للأرصاد الجوية  
وحدة الإنذار المبكر

تاريخ الإصدار: 2023/04/14م  
الساعة 10:05 ص توقيت محلي

توقع حالة الطقس للـ 24 ساعة القادمة

- أهم معالم الطقس:
- مرتفع جوي يتركز في شمال أفريقيا يمتد ليشمل أقصى شمال غرب البلاد.
- منخفض السودان الحراري والذي يغطي جنوب شرق و جنوب البلاد.
- ملخص طقس الأمس:
- أعلى درجة حرارة سجلت ليوم الأمس كانت 41 °م في أبونعامة
- أدنى درجة حرارة رصدت صباح اليوم كانت 17 °م في دنقلا.
- الطقس المتوقع:
- من المتوقع أن ترتفع درجات الحرارة بشقيها العظمى والصغرى عن ماهي عليه ارتفاعاً تدرجياً في جميع أنحاء البلاد.
- من المتوقع تنشيط الرياح المثيرة للغبار و الاتربة أحياناً في أواسط و غرب البلاد
- أعلى درجة حرارة متوقعة 41.0 °م في بعض مناطق شرق و جنوب شرق و جنوب البلاد
- أدنى درجة حرارة متوقعة صباح الغد 18.0 °م في وادي حلفا

تلفونات: +249118944479- +249913500937- +249128055422- +249918057436- +249911284351

Figure 4: Simplified bulletin issued by SMA

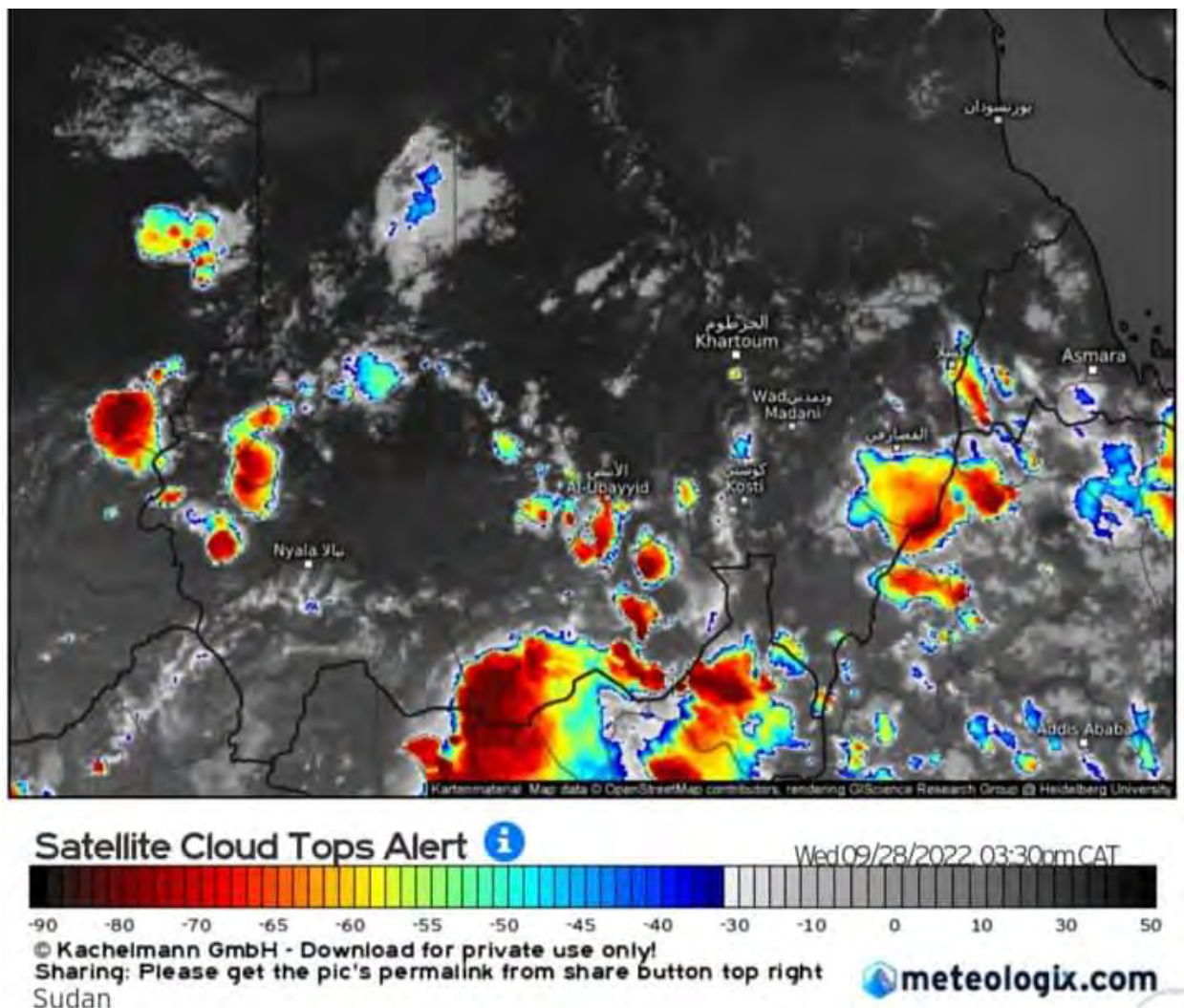


Figure 5: Satellite Cloud Tops Alert issued by SMA





الهيئة العامة للأرصاد الجوية  
وحدة الإنذار المبكر



التاريخ: 2022/08/13 م

موقف الأمطار في البلاد ( ليوم أمس 12 أغسطس حتى صباح اليوم 13 أغسطس )

المرصد	كمية المطر (بالمليمترات)
شندي	2.3
الخرطوم	2.1
كسلا	23.0
حلفا الجديدة	24.5
الدويم	8.1
ود مدني	33.7
القضارف	43.0
سنار	29.0
الجنينة	15.5
كوستي	2.7
أم بنين	67.0
نيالا	1.2
أبونغامه	21.0
الدمازين	2.2
بابنوسة	0.5

❖ ملحوظة: هناك هطول للأمطار بكميات مقدرة ومتفاوتة خارج نطاق محطات الرصد.

Figure 6: Rainfall gauges readings issued by SMA

### **3. MOIWR:**

- i. Monitoring and Forecasting: MOIWR is responsible for flood routing from upstream to downstream through hydrological stations installed along the River Nile as well as upstream and downstream dams. Data providers for MOIWR include:
  - i. ICPAC/IGAD at the regional scale.
  - ii. SMA at the national scale.
  - iii. MOIWR/Nile Water Directorate at national scale
- ii. Communication and Dissemination: As part of its routine operations, MOIWR produces daily bulletins and early warning specialized bulletins. Furthermore, these bulletins are communicated via television, email, and SMS. The ministry has a permanent representative in the flood emergency committee also known as the Central Operation Room for NCCD and headed by the civil Defense. Flood bulletins are issued by the federal MOIWR and are linked directly to SMA bulletins. Data users include:
  - i. NCCD Members.
  - ii. Communities in prone areas.
  - iii. SRCS.

A daily specialized bulletin from MOIWR is issued for experts and NCCD members including:

- i. Stations.
- ii. Water Levels and Discharge for the day before the forecast day and for the same day from the previous year.

A simplified bulletin is issued for local communities and citizens and disseminated in social media which includes alerts and recommendations for citizens to stay away from these areas.

- iii. Response Capability: The basic mode of response of MOIWR during floods is the optimization of dams operation to control riverine floods using licensed models and software provided by the NBI.

### **4. HCENR:**

- i. Risk Knowledge: The state level of HCENR prepares reports for after-risk assessment.
- ii. Monitoring and forecasting: HCENR has focal points at the state level that are responsible for data collection for DRR and climate change in order to identify vulnerable areas for droughts and floods; they also have some stations for measurements. Focal points ought to coordinate with all stakeholders including civil Defense, MOA, SMA, and MOIWR at the state level. HCENR prepares projects from NAP for GCF and GEF. HCENR main mandate is for monitoring the vulnerable areas for droughts and floods

under the theme of climate change, and it has a plan to undertake forecast in the future through measurement devices.



### البيان اليومي للجنة الفيضان 28 سبتمبر 2022م

تنبيه: على مواطني ولاية الخرطوم و المواطنين القاطنين على النيل الأبيض و نهر الدندر اتخاذ الحيطة والحذر حفاظاً على ارواحهم وممتلكاتهم.

#### الإيراد عند الحدود:

- النيل الأزرق 477 م<sup>3</sup> في اليوم - أعلى من العام الماضي بـ 2 م<sup>3</sup>
- نهر عطبرة 84 م<sup>3</sup> في اليوم - أقل من العام الماضي بـ 18 م<sup>3</sup>
- معدل إيراد النيل الأبيض (ملكال) 180 م<sup>3</sup> في اليوم .

الجدول التالي يوضح مناسيب المحطات المختلفة اليوم والمتوقعة ليوم غدٍ

المحطة	منسوب اليوم (متر)	المنسوب المتوقع ليوم غدٍ (متر)	منسوب الفيضان (متر)
الديم	11.95	11.90	12.30
ود العيس	15.85	15.90	17.00
الدندر *	14.86	14.80	13.50
ودموني	18.50	18.33	19.91
الشجرة	16.30	16.40	17.08
الخرطوم	16.68	16.79	16.50
شندي	17.54	17.67	17.60
عطبرة	15.36	15.40	15.78
دنقلا	14.42	14.58	15.22

#### التصريف خلف الخزانات بملايين الأمتار المكعبة

الخزان	اليوم	الامس	نفس اليوم من العام الماضي	الفرق	
				الامس	العام الماضي
الروصيرص	452	437	362	15	90
سفار	418	445	311	-27	107
جبل الأولياء	162	163	135	-1	27
أعالي عطبرة وستيت	55	57	125	-2	-70
خشم القرية	22	46	70	-24	-48
مروي	691	667	461	24	230

\* استمرار التخزين بجميع الخزانات و اكمال التخزين بخزان جبل الأولياء.

م. م. عبدالرحمن صغيرون  
ع/ رئيس لجنة الفيضان

د. م. رضوان عبدالرحمن محمد أحمد  
مقرر لجنة الفيضان

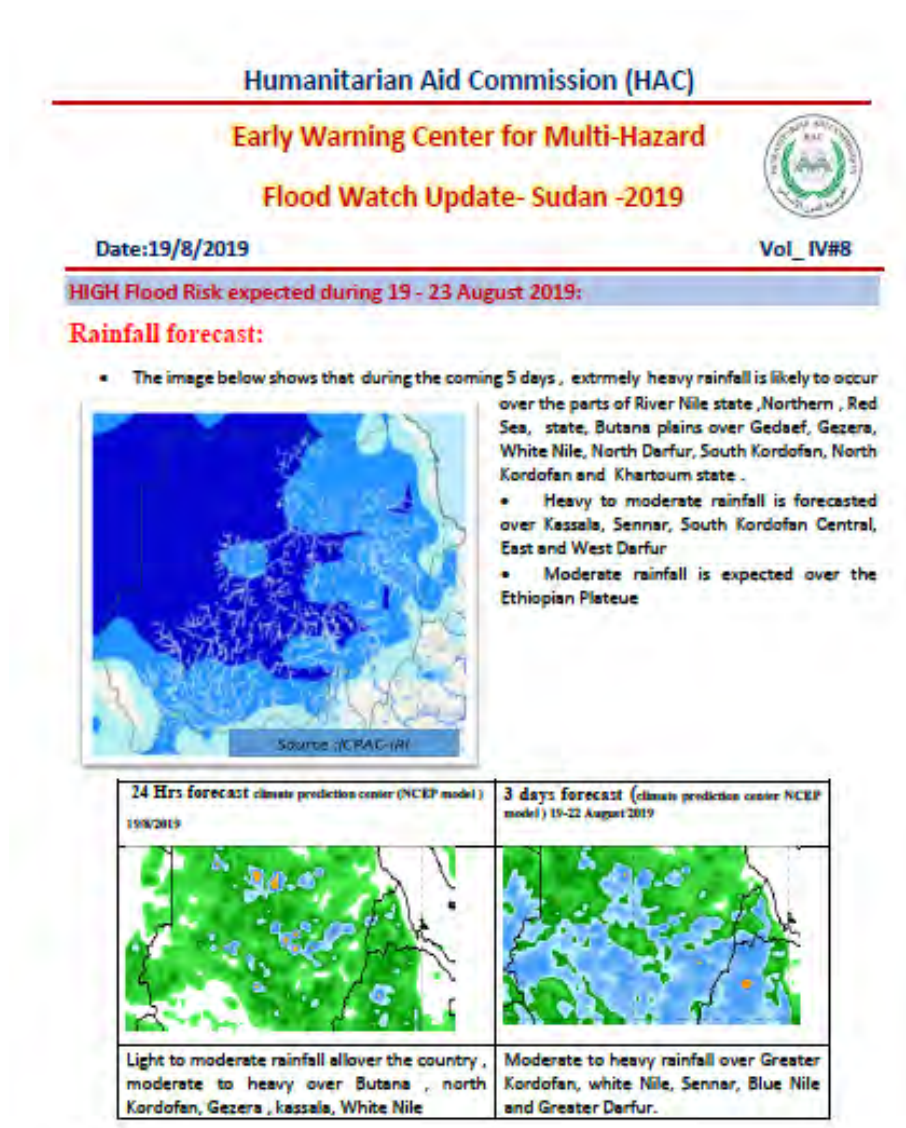
Figure 7: Daily bulletin for floods from water level stations issued by MOIWR/ Nile Water Directorate and contains a alerts for threatened population

## **5. HAC:**

- i. **Risk Knowledge:** Since 2009, HAC initiated the preparation of a (Pre-Flood Assessment) in collaboration with state civil defense, SRCS and UN-OCHA. The assessment is used to assess the potential intervention of DRR key actors and to prepare the needs of all vulnerable states for riverine floods and flash floods. A three-year Human Response Plan (HRP) is also prepared by HAC in collaboration with the UN and contingency plans are made prior to flood season based on average figures from the past three years. NCCD receives the annual contingency plan prepared by HAC and line ministries, which includes all scenarios (best, moderate, and worst) in addition to disaster consequences preparedness like pandemics and displacements.
- ii. **Monitoring and Forecasting:** Collects and compiles systematic data from primary sources through inter-agency assessment with government sectors (SMA, civil Defense, MOH, MOIWR), UN, and NGOs. HAC analyses and produces early warning indicators from bulletins provided by SMA and MOIWR for most likely affected areas prior to hazards occurrence (Rainfall, river gauges, vulnerability, topography.....etc). HAC has emergency committees at the state level which are operated by the state HAC offices. In addition, HAC is also permanent member and a rapporteur in The (Higher Council for Humanitarian Affairs) which is headed by a member from the Sovereignty Council. HAC is a member of the Horn of Africa Climate Outlook Forum, which produces regional forecasts based on the pattern of the season. Furthermore, HAC also utilizes data and information from ICPAC/IGAD on a daily/weekly basis, as well as seasonal forecasts, for which SMA also provides data. HAC uses satellite images and records for rainfall above and below averages to make vulnerability assessments and determine the number of people that will be impacted based on density and topographic attributes.
- iii. **Communication and Dissemination:** HAC has a special regular bulletin (Flood Watch Update) in collaboration by UN-OCHA, which is derived from the downscaled forecast produced by SMA as well as from MOIWR. The bulletin is disseminated to NCCD members, line ministries at all levels and more than other 300 stakeholders. In addition the bulletin is also disseminated to the (Higher Council for Humanitarian Affairs). The outreach of HAC bulletins also includes the localities, Resistance committees, and SRCS.
- iv. **Response Capability:** HAC provides response during all stages of water-related disasters even displacement and social consequences. In addition, HAC also coordinates with civil Defense and the Ministry of



Infrastructure to facilitate access for NGOs and voluntary groups during flood season in affected areas.



*Figure 8: Flood Watch Update issued by HAC and UN-OCHA*

## 6. FMOH:

- i. Risk Knowledge: FMOH works in raising awareness for disaster-related consequence, for instance outbreaks and pandemics.
- ii. Monitoring and forecasting: Uses satellite data from IGAD/ICPA and WHO for a 100-year return period in order to forecast floods. The GIS layers used by FMOH include Satellite images, settlements, and streams, population, and health facilities. FMOH also coordinates with the Ministry of Animal Wealth for monitoring zoonotic diseases.

- iii. Communication and Monitoring: FMOH delivers alerts against public health and poor hygiene via regular bulletins in social media and television. The ministry also coordinates with state MOH to feed the Disaster Surveillance Data Base which is used for decision making process by the Health Emergency Committee
- iv. Response Capability: As part of preparation of the support for affected areas before the rainy season, GIS layers prepared by (Department of Health Emergency and Fighting Outbreaks) are used to identify buffering zones and health facilities within the affected areas, including hygiene kits, medicine and, mosquito nets. FMOH doesn't obtain data SMA, thus overestimating the amount of support provided and wasting resources.

#### **7. MOA:**

- i. Risk Knowledge: MOA works in raising awareness among farmers through the department of (Agriculture Supervision), to provide recommendations for the best planting areas and avoid floodplain areas.
- ii. Monitoring and Forecasting: Uses satellite data and receives droughts and floods seasonal monitor from SMA and MOIWR on a weekly and seasonal basis. By analysing satellite and weather data from ground stations operated by other institutions, MOA identifies areas prone to flooding, desertification, and desert locust attack. Likewise, MOA cooperates with the Ministry of Animal Wealth to provide farmers and herders with monitoring of land use and land cover degradation.
- iii. Response Capability: MOA uses forecasts to prepare support programs for small-holder farmers. In addition to crop protection against desert locusts and desertification, MOA coordinates with civil Defense to provide seeds to affected farmers.

The table below shows the intervention of NCCD members in EWS as obtained from the DBX. The non-participants are the invited stakeholders but didn't attend the workshop, so their intervention is introduced as what is perceived by other stakeholders. Appendix-2 shows how NCCD members communicate from the coordination to the public notification of alerts.

**Table 2: Stakeholders Intervention in EWS pillars**

<b>Code:</b> <ul style="list-style-type: none"> <li>Blank – no involvement</li> <li>✓ – Limited involvement</li> <li>✓✓ – Substantively involved</li> </ul>					
Stakeholders Name		FOUR PILLARS OF EWS (FLOODS AND DROUGHT)			
		Risk Knowledge	Monitoring & Forecasting	Dissemination Communication	Response Capability
Participants	Civil Defense		✓	✓✓	✓✓
	MOH <sup>1</sup>	✓	✓	✓	✓✓
	SMA		✓✓	✓✓	
	HCENR	✓	✓	✓	
	SSA		✓		
	MOIWR		✓✓	✓✓	✓
	HAC	✓✓	✓	✓	✓✓
Non-participants	MOCM			✓✓	
	MOA	✓	✓	✓	
Potential	Ministry of Finance (department of natural resources)	✓	✓		
	Ministry of Physical planning	✓✓			
	Ministry of Infrastructure				✓✓
	Higher Council for Environment and Urban Development (Khartoum state)	✓✓			
	Ministry of Animal Wealth	✓	✓		
	Sudan Police Forces / Traffic Police			✓	

<sup>1</sup> MOH particularly deals with disaster-related consequence more than DRR.

## **8 EWS AT THE LOCAL LEVEL - THE INTEGRATION OF INDIGENOUS KNOWLEDGE**

Sudan depends on the traditional legacy and exemplary practice in the mitigation of disaster risks. The strong social cohesion between Sudanese communities builds resilience in those communities so that any future crises or shocks including floods and droughts will be mitigated.

Most of the current preparedness actions are based on 1988 floods; however since 1946 (during the colonization) Sudan has initiated its own preparedness/mitigation plans. Those plans include:

- i. The community Flood response committees: These are informal and independent committees which include the national EWS based on indigenous people knowledge (historical data), and labors committees from the citizens to undertake excavation and backfill activities required to resist flood water (immediate response). They also have monitoring location distributed along the Nile Banks (real time monitoring).
- ii. Self-financing for disaster response: Funding for all flood resistance operations came from women jewelry and business men. Depending on self-financing is attributed to the isolation of some areas during floods, and also the historical conflicts between citizens and higher governments (whether during colonization or after the independence) and that is the main reason why the disaster risk management acts and legalizations remain un-developed, because those conflicts and isolations between the government and the citizens in the prone areas keep undermining the existing laws.

The effectiveness of the community Flood response committees depend primarily on the social cohesion between the prone communities, and also their relation with the key decision makers in the government.

The community Flood response committees are promoted to become National, regular elections usually take place to select the committees and assign their specific tasks, structure and practice, the work is done through agreed secretariats and transparent reports are issued at the end every season. The committee includes technical, financial media and hygiene sub committees. Those committees are responsible for developing the preparedness, response and post disaster plans, however these plans are not documented and they just depend on their experience from previous flood events. They seek some support for the Red Crescent, football clubs, singers union...etc. Its effectiveness varies from an area to another depending on the social cohesion as mentioned.

Integrations of Indigenous knowledge in EWS have been instrumental to maneuver the life patterns of the traditional communities in Sudan. It has now become

indispensable to take indigenous knowledge into account prior to any analysis of disasters especially in rural areas from Sudan. The use of indigenous knowledge has several reasons and logics, including the fact that people of such traditional communities are well versed in their environment. In rural areas where people have lived normally for centuries, natural calamities and their associated cultural traditions are closely linked. Throughout the Cultural Revolution, indigenous knowledge has played a very practical role in these societies where disasters of various magnitudes have inevitably affected the evolutionary process. The most common arrangement for EWS is the one that considers ten durations of the rainy season as follows:

1. 17<sup>th</sup> May – 12<sup>nd</sup> June: The beginning of the rainy season.
2. 13<sup>th</sup> June – 25<sup>th</sup> June: Sand storms associated with southern eastern winds.
3. 26<sup>th</sup> June – 8<sup>th</sup> July: The temperature is moderate and the weather is calm.
4. 9<sup>th</sup> July – 21<sup>st</sup> July: The actual start of rainfalls.
5. 22<sup>nd</sup> July – 3<sup>rd</sup> August: Moderate rains.
6. 4<sup>th</sup> August – 17<sup>th</sup> August: Heavy rains with long duration and high intensity.
7. 18<sup>th</sup> August – 31<sup>st</sup> August: The peak of highly intensive rains and strong winds and sand storms.
8. 1<sup>st</sup> September – 13<sup>th</sup> September: Highly intensive rains with short duration.
9. 14<sup>th</sup> September – 27<sup>th</sup> September: Rains start to be fewer.
10. 28<sup>th</sup> September – 10<sup>th</sup> October: The end of the rainy season.

## **9 ASSIGNMENT LIMITATION**

The present assessment of the legal and institutional frameworks in EWS in Sudan is based on what is stated in the laws and acts as well as the literature review. Given the transitional phase and the institutional reform in some ministries, acts and regulatory framework might not have been activated at some levels and might not represent the current situation.

As a result of logistical and security limitations in Sudan, complete review and interview of MOA, MOCM and SSA could not be completed. Therefore, the role of these institutions hasn't been adequately reflected in the study and the conclusion is derived from secondary data including previous reports, existing laws, and the perception of MOA, SSA and MOCM mandate from other stakeholders.

Finally, it is worth mentioning that the present study was carried out from July 22 to March 23 and is therefore representative of the situation in Sudan before the conflict erupted on 15 April. The hope is for a peaceful solution soon, wishing that the results of the present study, which originated from the contributions of all institutions, will

soon be of help in building an efficient civil protection system for Sudan and reduce the impact of natural disaster on vulnerable people.

## 10 CONCLUSION AND RECOMMENDATIONS

1. Civil Defense coordinates disaster response among NCCD members; they receive annual and contingency plans from ministry representatives and 18 states to determine federal and international assistance needs. Civil Defense is also responsible for the delivering recommendations to the cabinet of ministers for the declaration of state of emergency.
2. Civil Defense has two committees for mitigation and for response in addition to a higher committee which regulates duties of the civil Defense during disasters. NCCD also operates at the state level. Among the civil Defense functions are the deployment of task forces (over 10,000) located geographically throughout the country. They provide shelters, evacuation, and contact other NCCD members to issue bulletins and deal with disaster consequences (HAC for displacement, MOH for outbreaks and HCENR for pollution).
3. During the rainy season, the central operation room at the federal and state level, receives forecasts and humanitarian aid plans from all NCCD members. Through the state civil Defense coordinator who is the rapporteur of the state NCCD, which is led by the state governor, civil Defense provides these alerts to states. Each states defines its capability to receive and disseminate alerts. Communication Means Include: Social media, TV and Radio via State Ministry of Information And Culture. Other means include Via Mosques and direct alert to Local Committees, and Civil Administrations in Collaboration with Civil Defense State Ministry of Social Development.
4. Sudan has a national strategy for disaster risk reduction developed by the civil Defense in collaboration with UNDP. Nevertheless, most stakeholders claim that it has not yet been endorsed or approved. Moreover, the cabinet endorsed the policy framework developed by HAC in December 2022.
5. Currently, there is no disaster management information system (DMIS), but MOH and HAC maintain a database for collecting data from all states regarding disaster consequences, including: public health outbreaks and pandemics, displacement, and famine threats.
6. In addition to the Flood Watch Update, HAC also prepares ERP plan and HRP plan. HAC also coordinates with ministry of infrastructure and civil Defense during the mobilization of rescue teams



7. There is no standalone law/act for early warning in Sudan, and most of the activities and efforts for DRR are dedicated to response rather than preparedness. During disasters, the civil Defense law supersedes any other law and the implementation of activities during disasters is decentralized except for SSA, which does not have state offices.
8. The broadband network and radio communication are underdeveloped, especially in rural areas.
9. According to the stakeholders interviewed, civil Defense law does not clearly define their roles and responsibilities. As per civil Defense's statement, responsibilities depend on needs and gaps during disasters, and each NCCD member, including state governments, must prepare their annual emergency plans according to their mandates. Civil Defense adheres to the responsibilities stipulated by the Arab Interior Ministers Council and they are responsible for activating the contingency/emergency plans.
10. The existing civil Defense law can establish committees and administrations; it is worth mentioning that the law is currently being revised. It is revealed that the dissemination process for EWS bulletins is assigned only to SMA and MOIWR and they are responsible for circulating these bulletins (floods, weather, climate, flash floods) to other members of the council.
11. The national project by UNDRR assisted in developing the DRR strategy (2014-2016), but their coordination with civil Defense needs to be enhanced.
12. All NCCD members Defense have the authorization to establish committees and services for DRR. Civil society organizations are only involved in the implementation of emergency plans during the response phase and sometimes in raising awareness. The private sector is incorporated into its commitment to corporate social responsibility.
13. It is agreed that SMA is responsible for issuing weather bulletins, while MOIWR is responsible for issuing flooding bulletins and scenarios and both entities have site on site observation. Usually, drought predictions are included in seasonal monitors that measure above average rainfall, SPI, and Normalized Difference Vegetation Index NDVI. In terms of food security, drought monitors are primarily used by the Ministry of Agriculture, while they are used by the Ministry of Finance for exports and trade.
14. The drought part is greatly underestimated even in the SMA, which states that they usually deal with dry spells. MOA measures agricultural drought, while meteorological drought is measured by the department of agricultural meteorology in SMA. A drought mapping program developed by WFP for droughts (SAMIS) was planned to produce drought maps by measuring combined drought parameters, but it has yet to be developed.
15. Regulations and treaties that Sudan signed include:
  - i. IGAD Regional Strategy.



- ii. Sendai framework: HCENR was the entity that signed the framework before the reform and then the delegation was transferred to HAC before it became under civil Defense responsibility.
- iii. The Arab Strategy for Disaster Risk Reduction.
- iv. The International Civil Defense Organization (ICDO).

The following stakeholders are suggested during the consultative meetings:

- i. Ministry of Finance (department of natural resources).
  - ii. Ministry of Physical planning.
  - iii. Ministry of Infrastructure.
  - iv. Higher Council for Environment and Urban Development (Khartoum state).
16. Due to the political situation in Sudan, further activities for the project are recommended to be governed via the Higher Committee for Crisis Management that was recently established and include members from the Ministry of Federal Government, MOH, HCENR MOCM, HAC, and police forces.

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**Table 1: EWS stakeholders and their engagement in EWS Pillars**

Stakeholders Category	Institutions	Coverage/Domain	Engagement (as per pillars of early warning)			
			Risk Knowledge and Analysis	Monitoring and Warning	Dissemination and Communication	Response Capability
<b>Communities</b>	The community Flood response committees.	Community/ Floods		✓ ( Based on indigenous knowledge)	✓ (based on social media bulletins)	
	The Resistance Committees/ Committees for change and services	Community/ Floods			✓ (based on social media bulletins)	
	NCCD/localities operations	Community/ Floods				✓
<b>State government</b>	Humanitarian Aid Commission (HAC)	State/ Floods				✓
	NCCD/ state council	State/ Floods			✓ (based on SMA bulletins)	✓
	NCCD/state operation chambers	State/ Floods			✓(based on SMA bulletins)	✓
	NCCD/Locality operations	Sub-State and Locality/ Floods			✓(based on SMA bulletins)	✓
	Sudan Meteorological Authority (SMA)	State / Floods and Droughts		✓ (based on ground stations and verification from regional entities)		
<b>National government</b>	National Council of Civil Defense (NCCD)	Federal/ Floods	✓ (Via central operation room)		✓(based on SMA bulletins)	✓
	Sudan Meteorological Authority (SMA)	Federal/ Floods and Droughts		✓		

	Ministry of Irrigation and Water Resources/ The Nile Water Directorate (NWD)	Federal/ Floods	✓	✓		
<b>Regional and International institutions and organizations</b>	World Meteorological Organization (WMO)	International/ Floods and Droughts		✓		
	IGAD	Inter-Governmental and Regional/ Floods and Droughts		✓		
	WFP			✓		
	The International Meteorological Organization (IMO)	International/ Floods and Droughts		✓		
<b>The science and academic community</b>	Sudanese Remote Sensing Authority (RSA)	Federal/ All Types Hazards	✓			
	The Institute for Environmental Studies / University of Khartoum	Federal/Floods and Droughts	✓			
	Disaster Management and Refugees Studies Institute / The International University of Africa	Federal	✓			
	The Faculty of Environmental Studies and Disaster Management / Ribat University	Federal	✓			

<b>Non-governmental organisations</b>	The Inter-Agency Standing Committee (IASC)	International / Floods/Droughts				✓ (based on SMA information)
	Sudanese Red Crescent Society (SRCS)	Federal and State (decentralized)/ Floods		✓		✓
	World Food Program (WFP)	International/ Droughts		✓		✓
	FAO / Early Warning Early Action (EWEA)	-State (Kassala and North Darfur) / Drought -Local (under-development) / Drought		✓		✓
<b>The private sector</b>	x	x				



## MOH

- Operates at federal as state level.
- Has surveillance and information system for all states.

## HAC

- Operates at National, state and local levels, and they have offices for all line ministers. It has a department in the headquarters called (States Affairs Administration) for which information from states is collected.

## HCENR

- It was a separate ministry of environment before the reform in 2015.
- It is the Focal point for climate change
- There are 13 states HCENR headed by state governor.

- Data: satellite images from (ICPAC/IGAD) as well as from the WHO for 100-year floods.
- Tools for the forecast: GIS
- Layers: Satellite images, Settlement that will be affected by floods, settlements' population, and health facilities.
- Products: contingency and response plans as well operation plans.
- Mode of response: Estimates 5-km buffers for each settlement to assess the accessibility and to ensure it has health coverage. Areas that located within seasonal streams receive health supplies in May.

- Data: Regional from ICPAC. & National from SMA, MoIWR, and civil defense.
- Products: contingency plans, 3-Year Humanitarian response plan, Flood Watch update/bulletin with OCHA (forecasting and monitoring), Pre-flood assessment (risk knowledge) with OCHA, Red Crescent, and civil defense. Products are used to identify the resilience and needs of vulnerable areas.
- Their bulletins are communicated to NCCD and to the higher Committee for Humanitarian Affairs which is headed by a member of the sovereignty council (rapporteur is the HAC commissioner).
- It has the National Policy for DRM (endorsed in 2022).

- Coordinates between all stakeholders but under climate change themes and also they work on risk mitigations at the state level.
- Mainly works for risk knowledge and identification of vulnerable areas for floods and droughts.
- Products include: National Adaptation Plan (NAP), and the drought operations plan.
- It has representatives at state and local levels for climate change, who collect data for GEF and GCF projects.

## MoIWR

- Operates at National, state and local levels.
- Responsible for hydrological measurements.

CONTINUOUS UPDATES  
TO NCCD DURING RAINY  
SEASON

## FEDERAL LEVEL CIVIL DEFENSE COORDINATOR AND GENERAL SECRETARIAT OF NCCD

CONTINUOUS UPDATES  
TO NCCD DURING RAINY  
SEASON

## SMA

- Operates at National, state and local levels.
- Responsible for meteorological measurements.

- MoIWR undertakes flood measurement for the Nile (discharge and water levels) through on-site stations located on the borders, upstream and downstream of dams, and the main Nile course and tributaries.
- Data: Regional weather extremes from ICPAC/IGAD and NBI. & National from onsite weather stations, SMA, and Nile water directorate of the ministry.
- Tools for the Forecast: Numerical Models for flood routing.
- Means of communication/dissemination: MoIWR representative in the central operation room (federal), TV, and social media pages.
- Type of bulletins: comprehensive special bulletin for the experts and NCCD members include: discharge and water levels for a specific day, one day before forecast and the same day forecast from the previous year. A simplified bulletin is issued for the population with a clear alert statement.
- Mode of response during floods: Optimization of dams' operation rules.

Communication through the head of civil defense at the state (rapporteur of the state NCCD).

State NCCD which is headed by the state governor

Define State capability to receive alerts

Communication Means Include: TV and Radio Via State Ministry Of Information And Culture OR Via Mosques, Local Committees, and Civil Administrations In Collaboration With State Ministry Of Social Development

- SMA issues daily bulletins, extreme events bulletins, and specific bulletins (monthly monitors) for agro-meteorological parameters.
- Data: Regional weather extremes from ICPAC/IGAD, & National from onsite weather stations.
- Tools for the Forecast: for floods: numerical models for the 3-Day forecast (WRF) that are cropped and downscale at the national levels. For droughts: WaPOR software with HRC
- Means of communication/dissemination: Email list, WhatsApp, social media and the SMA Representative in the central operation room (federal level). Dissemination at the state and local levels is conducted upon request. Bulletins are also disseminated to NGOs and private sector.
- Agro-meteorological products include: % above average rainfall, NDVI, and SPI.

POPULATION

CIVIL DEFENSE TASK FORCES  
(more than 10,000 around the country)

1. Evacuation, sheltering.
2. Contact other NCCD members to issue certain bulletins for consequences (MOH for outbreaks, HCENR for pollution).

## Glossary

Disaster Response	Actions taken directly before, during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected.
Disaster Preparedness	The knowledge and capacities developed by governments, response and recovery organizations, communities and individuals to effectively anticipate, respond to and recover from the impacts of likely, imminent or current disasters
Disaster Risk Mitigation	The lessening or limitation of the adverse impacts of hazards and related disasters.
Disaster Risk Prevention	Activities and measures to avoid existing and new disaster risks.
DRM: Disaster Risk Management	Disaster risk management is 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.
DPR: Disaster preparedness and response	Here the terms DPR is used to indicate the actions and initiatives taken to anticipate, respond to and recover from the impacts of imminent or current disasters, including civil protection activities.
DRR: Disaster Risk Reduction	Disaster risk reduction is aimed at preventing new and reducing existing disaster risk and managing residual risk, all of which contribute to strengthening resilience and therefore to the achievement of sustainable development.
Contingency/emergency Plan	It is based on the analysis of disaster risks and establishes arrangements in advance to enable timely, effective and appropriate responses.

## A. Questionnaire

Using secondary and legal sources, identify and describe briefly in the table below the governmental structure of the country to assist readers understand how the different levels of law and regulation relate to each other.

Introductory Questions
<p><b>1. Describe the extent to which your institution/organization is involved in disaster preparedness and response in Sudan?</b></p>
<p><b>2. How would you describe the process in Sudan for interagency coordination and decision-making among stakeholders with responsibility for emergency preparedness and response (NCCD, HAC, RSA, Higher Council of Environment, etc.)?</b></p>
<p><b>3. In particular, please elaborate how does your institution/organization support Sudanese stakeholders to prepare for and respond to emergencies. Are there other state or non-state actors which your institution/organization supports?</b></p>

**4. From your point of view what are the development priorities for supporting emergency preparedness and response in Sudan?**

**5. How does your institution/organization balance between the provision of humanitarian and development aid in Sudan, in light of the global agenda (SDGs, Paris declaration, ?**

1. Background information (3 questions)				
#	Questions	Options	Description	Laws, regulations, standards, operational rules, and procedures.  Please, provide a copy or a link to the mentioned document
1/3)	<p>How many levels of government are there, and what are they called?</p> <p>How many administrative areas are there (i.e. national, sub-national and local)?</p> <p>Sudan currently has 18 states at first-order administrative level and 189 localities.</p>	<p><input type="checkbox"/> only one level (federal government)</p> <p><input type="checkbox"/> two levels (federal and state governments)</p> <p><input type="checkbox"/> three levels (federal, state, local governments)</p> <p><input type="checkbox"/> more than three levels, including Administrative units</p> <p><input type="checkbox"/> other (please specify)</p>		

2/3)	<p>Is there a decentralization of government functions?</p> <p>How is it decentralized? For example, does the law establish new institutions or delegate/share powers to/with local government?</p>	<p><input type="checkbox"/> no, all the functions are totally centralized</p> <p><input type="checkbox"/> yes, it is totally decentralized</p> <p><input type="checkbox"/> the law assigns some <u>subjects/matters</u> to the central government and delegates others to the sub-national institutions</p> <p><input type="checkbox"/> the law assigns the same <u>competency</u> to different government levels (sharing competencies<sup>1</sup>)</p>		
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<sup>1</sup> For example, for disaster risk reduction, both the central and peripheral governments have the power to make laws and adopt legally relevant acts in some specific themes.

3/3)	Does this country take part in regional agreements that could impact on disaster risk management or risk reduction? Is so, please name the agreement(s).	<input type="checkbox"/> yes <input type="checkbox"/> no		
	What types of financial resources are allocated for DRR in Sudan?	<input type="checkbox"/> National budget allocation mechanism <input type="checkbox"/> Administrative and finance section responsible for DRR <input type="checkbox"/> DRR thematic projects and budgets <input type="checkbox"/> Sector-specific projects and budgets <input type="checkbox"/> Humanitarian assistance projects of donor agencies and NGOs		



	Is there a link between DRR and development planning?	<input type="checkbox"/> yes <input type="checkbox"/> no		
	What are the coordination mechanisms within the national DRR system? What are the roles and responsibilities of sectoral line agencies and NGOs for DRR?	<input type="checkbox"/> Organizational Structure <input type="checkbox"/> Information Structure <input type="checkbox"/> Coordinating mechanism <input type="checkbox"/> Other (please specify)		
	What are the national perceptions about the appropriateness and effectiveness of support received, if any, from various higher-level governmental organizations/agencies to DRR in general	<input type="checkbox"/> Financial assistance <input type="checkbox"/> Technical advice <input type="checkbox"/> Service delivery <input type="checkbox"/> Infrastructural investments and maintenance		

		<input type="checkbox"/> Early warning systems  <input type="checkbox"/> Awareness raising and capacity building		
	What is the national perception of the risk of natural hazards/disasters differentiated	<input type="checkbox"/> Socio-economic category  <input type="checkbox"/> Geographical location		

2. Institutional/Legal framework in DRR, focus on FLOODS and DROUGHTS (10 Questions)				
#	Questions	Options	Description	Laws, regulations, standards, operational rules, and procedures.  Please, provide a copy or a link to the mentioned document
1/10)	Is there any <u>national</u> risk reduction strategy/policy? Is this established by a law? Provide details	<input type="checkbox"/> no, it doesn't exist <input type="checkbox"/> no, but there is a common agreement on the national DRR strategy <input type="checkbox"/> yes, there is a national risk reduction strategy/policy <input type="checkbox"/> Under development <input type="checkbox"/> Not aware		

	Is there any emergency management legislation in force in Sudan?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Under development <input type="checkbox"/> Not aware		
	Is there a disaster management information system (DMIS) in place?  Who operate the DMIS if exist?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Under development <input type="checkbox"/> Not aware		
<b>2/10)</b>	Is there a national disaster risk management law (DRM)? - or a group of regulations? Describe.	<input type="checkbox"/> no, it doesn't exist <input type="checkbox"/> no, but there are some working rules on DRM <input type="checkbox"/> yes, it exists <input type="checkbox"/> Under development <input type="checkbox"/> Not aware		

2.1/10)	Does the DRM law or other law deal with	<input type="checkbox"/> Disaster response <sup>2?</sup> <input type="checkbox"/> Disaster preparedness <sup>3?</sup> <input type="checkbox"/> Disaster mitigation <sup>4</sup> and prevention <sup>5?</sup>		
3/10)	Is there a national disaster preparedness and response law/regulation (DPR)? - or a group of regulations? Describe.	<input type="checkbox"/> no, it doesn't exist <input type="checkbox"/> no, but there are some working rules on DPR <input type="checkbox"/> yes, it exists <input type="checkbox"/> There are only local DPR regulations <input type="checkbox"/> Under development <input type="checkbox"/> Not aware		

<sup>2 2</sup> Disaster Response: Actions taken directly before, during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety and meet the basic subsistence needs of the people affected.

<sup>3</sup> Disaster Preparedness: The knowledge and capacities developed by governments, response and recovery organizations, communities and individuals to effectively anticipate, respond to and recover from the impacts of likely, imminent or current disasters.

<sup>4</sup> Disaster Risk Mitigation: The lessening or limitation of the adverse impacts of hazards and related disasters.

<sup>5</sup> Disaster Risk Prevention: Activities and measures to avoid existing and new disaster risks.

3.1/10)	Who and what does the DPR law aim to protect?	<input type="checkbox"/> Persons <input type="checkbox"/> Animals <input type="checkbox"/> Settlements <input type="checkbox"/> Environment <input type="checkbox"/> Properties <input type="checkbox"/> Activities		
	What infrastructure and equipment are available to save lives and livelihoods during a disaster and/or to provide temporary shelter and emergency supplies?	<input type="checkbox"/> Schools <input type="checkbox"/> Stores <input type="checkbox"/> Boats <input type="checkbox"/> Power stations, <input type="checkbox"/> Hospital or health clinics <input type="checkbox"/> Other (please specify)		



3.2/10)	Do local governments have the power to legislate for DPR?	<input type="checkbox"/> no, only the national government can make laws on DPR <input type="checkbox"/> yes, local governments can make laws on DPR		
3.3/10	Is there a decentralized implementation of Disaster Prevention and Resilience activities according to law (e.g. in relation to early warning systems, response planning, emergency management...)?	<input type="checkbox"/> no <input type="checkbox"/> yes <input type="checkbox"/> some		
3.4/10)	Which type of risks are considered in the Disaster Prevention and Resilience law (i.e., floods, droughts, fires, earthquakes, health...)?	<input type="checkbox"/> Fires <input type="checkbox"/> Flood <input type="checkbox"/> Drought <input type="checkbox"/> Health risks <input type="checkbox"/> Earthquakes <input type="checkbox"/> others		

4/10)	Does the Disaster Prevention and Resilience law (or any other law) or policy allocate Disaster Prevention and Resilience responsibilities in one or more government ministries? If so, which ministries? Describe their allocated roles.	<input type="checkbox"/> no, the law does not allocate explicitly the responsibilities in any government ministries  <input type="checkbox"/> no, the law does not allocate the responsibility, but one (or more) government ministry deals with Disaster Prevention and Resilience  <input type="checkbox"/> yes, the law allocates responsibilities in one or more government ministries, but each role is not well defined  <input type="checkbox"/> yes, the law allocates responsibilities in one or more government ministries, whose roles are well defined		
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5/10)	Does the Disaster Prevention and Resilience law or other law establish one or more governmental institutions or public organizations/services with responsibilities in Disaster Prevention and Resilience? What are they? what are their names and what type of body are they? and what are their mandates?	<input type="checkbox"/> no, the law does not allocate explicitly the responsibilities in any national institution  <input type="checkbox"/> no, but one (or more) national institutional deals with Disaster Prevention and Resilience. They are:  <input type="checkbox"/> yes, the law allocates responsibilities in one or more national institutions, but their mandates are not defined. They are:  <input type="checkbox"/> yes, the law allocates responsibilities in one or more national institutions with clear mandates in.... They are:		
	Are there any organizations/institutions, support existing coping strategies or promote new DRR strategies?  Who has access to/uses these supporting	<input type="checkbox"/> No there are not any organizations/institutions responsible for providing this service  <input type="checkbox"/> Yes, but their services are accessible to highly-authorized entities only,		

	<p>services?</p> <p>Please specify these organizations/Institutions</p>	<input type="checkbox"/> Yes, and their services are available to the public		
6/10)	<p>Are the roles and responsibilities of non-governmental entities (i. Private sector, ii. Volunteers, iii. Community groups) reflected in disaster management legislation? Are they included in multi-sectorial committees?</p>	<input type="checkbox"/> no, the roles and responsibilities of non-government entities are not reflected in the law  <input type="checkbox"/> no, but they are usually consulted and included in multi-sectorial committees  <input type="checkbox"/> yes, the law establishes roles and responsibilities of non-government entities without attributing them any decisional power  <input type="checkbox"/> yes, roles and responsibilities of non-government entities are reflected in disaster management legislation and these institutions are		

		included in multi-sectorial committees where they can exert their decisional power		
7/10)	Is there any institution (including committees) responsible for the implementation of the Sendai Framework for Action? What institutions?	<input type="checkbox"/> yes <input type="checkbox"/> no		
8/10)	Does a strategy for climate change adaptation exist?  Which institution is responsible or coordinator for it?	<input type="checkbox"/> yes <input type="checkbox"/> no		

9/10)	<p>Does a strategy for the Sustainable Development Goals exist?</p> <p>Which institution is responsible or coordinator for it?</p>	<p><input type="checkbox"/> yes</p> <p><input type="checkbox"/> no</p>		
10/10)	<p>Is there any system of insurance against the effects of disasters?</p>	<p><input type="checkbox"/> yes, compulsory.</p> <p><input type="checkbox"/> yes, facultative.</p> <p><input type="checkbox"/> no</p>		



3. Early warning system: floods (10 questions)			
#	Questions	Description	Law References
1/10)	<p>Is there a specific law on early warning about floods (i.e. not the main DRM law)? At what level(s) of government is this regulated?</p> <p>Does it define the roles and responsibilities (duty holders)?</p>		
	<p>Does there exist a technological monitoring and surveillance program that can predict and forecast floods?</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Underdevelopment <input type="checkbox"/> Not aware	

	Are broadband network connections available for emergency operations centers and command posts?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Underdevelopment <input type="checkbox"/> Not aware	
	Is radio communication available to support emergency operations centers and first responders?	<input type="checkbox"/> s rad <input type="checkbox"/> s ra <input type="checkbox"/> s rderdevelopment <input type="checkbox"/> Not aware	
2/10)	<p>Which institutions define the flood risk scenarios for early warning purposes?</p> <p>Are these institutions designated by law?</p>	<p><i>For each institution/organization please specify:</i></p> <p><i>At national level</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul> <p><i>At local level (please, consider all the government levels in your Country)</i></p>	

		<ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul>	
3/10)	<p>Which institution(s) oversees the weather forecasts for early warning purposes?</p> <p>Are these institutions designated by law?</p>	<p><i>For each institution/organization please specify:</i></p> <p><i>At national level</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul> <p><i>At local level (please, consider all the government levels in your Country)</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul>	

4/10)	<p>Which institution(s) oversees the hydrological forecasts for early warning purposes?</p> <p>Are these institutions designated by law?</p>	<p><i>For each institution/organization please specify:</i></p> <p><i>At national level</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul> <p><i>At local level (please, consider all the government levels in your Country)</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul>	
5/10)	<p>Which institution(s) deals with the monitoring (instrumental monitoring and/or on-site observations) in real time for early warning purposes?</p> <p>Are these institutions designated by law?</p>	<p><i>For each institution/organization please specify:</i></p> <p><i>At national level</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul> <p><i>At local level (please, consider all the government levels in your Country)</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> </ul>	

		<ul style="list-style-type: none"> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul>	
6/10)	Which institution(s)/ organization(s) is responsible for issuing early warnings? Are these institutions designated by law?	<p><i>For each institution/organization please specify:</i></p> <p><i>At national level</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul> <p><i>At local level (please, consider all the government levels in your Country)</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul>	

7/10)	Which institution(s)/ organization(s) receives the early warnings? Are these institutions designated by law?	<p><i>For each institution/organization please specify:</i></p> <p><i>At national level</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul> <p><i>At local level (please, consider all the government levels in your Country)</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul>	
8/10)	Which institution(s) should activate the contingency/ response plan <sup>6</sup> ? Are these institutions designated by law?	<p><i>For each institution/organization please specify:</i></p> <p><i>At national level</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul> <p><i>At local level (please, consider all the</i></p>	

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<sup>6</sup> A management process that analyses disaster risks and establishes arrangements in advance to enable timely, effective and appropriate responses

		<p><i>government levels in your Country)</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul>	
9/10)	<p>Are there organizations dealing with in trainings, drills, and simulations for people likely to be involved in responding to disasters? Are these institutions designated by law?</p>	<p><i>For each institution/organization please specify:</i></p> <p><i>At national level</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul> <p><i>At local level (please, consider all the government levels in your Country)</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul>	



10/10)	Is there any relevant organization not mentioned before that has contributed/contribute to the early warning system (i.e. universities, research centers)?	<p><i>For each institution/organization please specify:</i></p> <p><i>At national level</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul> <p><i>At local level (please, consider all the government levels in your Country)</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email)::</i></li> </ul>	
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4. Early warning system: droughts (6 questions)			
#	Questions	Description	Law References
1/10)	<p>Is there a specific law on early warning about droughts (i.e. not the main DRM law)? At what level(s) of government is this regulated?</p> <p>Does it define the roles and responsibilities (duty holders)?</p>		
2/10)	<p>Are drought conditions monitored in real-time to trigger early warning before impact?</p> <p>By which institution(s)?</p> <p>Are these institutions designated by law?</p>	<p><i>For each institution/organization please specify:</i></p> <p><i>At national level</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul> <p><i>At local level (please, consider all the government levels in your Country)</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul>	

3/10)	<p>Which drought conditions are considered for early warning purposes?</p> <p>Are conditions assessed separately by different sectors?</p>	<p><i>Indicate which drought conditions are considered among the following, by whom and how:</i></p> <ul style="list-style-type: none"> <li>• <i>Meteorological drought</i></li> <li>• <i>Hydrological drought</i></li> <li>• <i>Agrological drought</i></li> <li>• <i>Compound drought risk</i></li> </ul>	
4/10)	<p>Which institution(s)/ organization(s) is responsible for issuing early warnings? Are these institutions designated by law?</p>	<p><i>For each institution/organization please specify:</i></p> <p><i>At national level</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul> <p><i>At local level (please, consider all the government levels in your Country)</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul>	

5/10)	Which institution(s)/ organization(s) receives the early warnings? Are these institutions designated by law?	<p><i>For each institution/organization please specify:</i></p> <p><i>At national level</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul> <p><i>At local level (please, consider all the government levels in your Country)</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul>	
6/10)	Which institution(s) should activate the contingency/ response plan <sup>7</sup> ? Are these institutions designated by law?	<p><i>For each institution/organization please specify: At national level</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul> <p><i>At local level (please, consider all the government levels in your Country)</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> </ul>	

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<sup>7</sup> A management process that analyses disaster risks and establishes arrangements in advance to enable timely, effective and appropriate responses

		<ul style="list-style-type: none"> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul>	
7/10)	Is there any relevant organization not mentioned before that has contributed/contribute to the early warning system (i.e. universities, research centers)?	<p><i>For each institution/organization please specify:</i></p> <p><i>At national level</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email):</i></li> </ul> <p><i>At local level (please, consider all the government levels in your Country)</i></p> <ul style="list-style-type: none"> <li>• <i>Name of the institution:</i></li> <li>• <i>Public/private:</i></li> <li>• <i>Reference office:</i></li> <li>• <i>Any reference contact (email)::</i></li> </ul>	

5. Ongoing and past projects and activities on DRM (4 questions)		
#	Questions	Description
1/4)	Is there any organization/institution that has active projects/initiatives in the area for the improvement of the early warning system?	<p>For each project</p> <ul style="list-style-type: none"> <li>• Donors:</li> <li>• Name of the institutions:</li> <li>• Reference office:</li> <li>• National/local/Regional/International</li> </ul>
2/4)	Is there any organization/institution that has active projects/initiatives in the area about climate change adaptation?	<p>For each project</p> <ul style="list-style-type: none"> <li>• Donors:</li> <li>• Name of the institutions:</li> <li>• Reference office:</li> <li>• National/local/Regional/International</li> </ul>
3/4)	Is there any organization/institution that has active projects/initiatives in the area about Sustainable Development Goals?	<p>For each project</p> <ul style="list-style-type: none"> <li>• Donors:</li> <li>• Name of the institutions:</li> <li>• Reference office:</li> <li>• National/local/Regional/International</li> </ul>
4/4)	Are there any relevant project that in the past has dealt with DRM in the area?	<p>For each project</p> <ul style="list-style-type: none"> <li>• <i>Donors:</i></li> <li>• <i>Name of the institutions:</i></li> <li>• <i>Reference office:</i></li> <li>• National/local/Regional/International</li> </ul>





إسم المؤسسة:		العنوان:
التاريخ:		زمن البداية:
لائحة الحضور:		زمن النهاية:

الإسم	الوظيفة	رقم الهاتف	البريد الإلكتروني

## مصطلحات تعريفية:

المصطلح	الوصف
الاستجابة للكوارث	الإجراءات المتخذة مباشرة قبل الكارثة أو أثناءها أو بعدها مباشرة لإنقاذ الأرواح وتقليل الآثار الصحية وضمان السلامة العامة وتلبية الاحتياجات المعيشية الأساسية للأشخاص المتضررين
التأهب للكوارث	المعرفة والقدرات التي طورتها الحكومات ومنظمات الاستجابة والمجتمعات والأفراد للتنبؤ بفعالية والاستجابة والتعافي من آثار الكوارث المحتملة أو الوشيكة أو الحالية
التخفيف من مخاطر الكوارث	التقليل أو الحد من الآثار السلبية للأخطار والكوارث ذات الصلة
منع مخاطر الكوارث	الأنشطة والتدابير اللازمة لتجنب مخاطر الكوارث الحالية والمستقبلية
إدارة مخاطر الكوارث	إدارة مخاطر الكوارث هي تطبيق سياسات واستراتيجيات الحد من مخاطر الكوارث لمنع مخاطر الكوارث الجديدة ، والحد من مخاطر الكوارث الحالية وإدارة المخاطر السابقة ، مما يساهم في تعزيز القدرة على التصدي والحد من الخسائر
التأهب للكوارث والاستجابة لها	الإجراءات والمبادرات المتخذة للتوقع و الاستجابة لآثار الكوارث الوشيكة و الحالية والاستجابة لها والتعافي منها ، بما في ذلك أنشطة الحماية المدنية
الحد من مخاطر الكوارث	يهدف الحد من مخاطر الكوارث إلى منع مخاطر الكوارث الجديدة والحد من مخاطر الكوارث الحالية وإدارة آثار المخاطر السابقة ، وكلها تساهم في تعزيز القدرة على التصدي وبالتالي في تحقيق التنمية المستدامة
خطة الطوارئ / الإستجابة	تقوم على تحليل مخاطر الكوارث وتضع الترتيبات مسبقاً لتمكين الاستجابات المناسبة والفعالة في الوقت المناسب

## أسئلة تمهيدية:

1. صف باختصار مدى مشاركة مؤسستك / منظمته في التأهب للكوارث والاستجابة لها في السودان؟

2. كيف تصف العملية في السودان للتنسيق بين الوكالات وصنع القرار بين أصحاب المصلحة المسؤولين عن الاستعداد والاستجابة للطوارئ (NCCD ، HAC ، RSA ، المجلس الأعلى للبيئة ، إلخ)؟

3. على وجه الخصوص ، يرجى توضيح كيف تدعم مؤسستك / منظمته أصحاب المصلحة في السودان للاستعداد والاستجابة لحالات الطوارئ؟ هل هناك جهات فاعلة أخرى تابعة للدولة أو غير حكومية تدعمها مؤسستك / منظمته؟

4. من وجهة نظر مؤسستك ما هي أولويات التنمية لدعم التأهب والاستجابة للطوارئ في السودان؟

5. كيف توازن مؤسستك / منظمته بين تقديم المساعدات الإنسانية والتنمية في السودان ، في ضوء الأجندة العالمية (أهداف التنمية المستدامة ، إعلان باريس.....الخ) ؟

باستخدام المصادر الثانوية والقانونية ، حدد ووصف بإيجاز في الجدول أدناه الهيكل الحكومي للسودان للمساعدة على فهم كيفية ارتباط المستويات المختلفة من القانون واللوائح ببعضها البعض بما فيها تلك المتعلقة بإدارة الكوارث و الحد من مخاطرها

المعلومات الأساسية				
	الأسئلة	خيارات الأجوبة	الوصف و الملاحظات	القوانين واللوائح والمعايير والقواعد التشغيلية والإجراءات.  يرجى تقديم نسخة أو رابط للوثيقة المذكورة (قانون/لائحة/معياري.....الخ)
1/7	كم عدد مستويات الحكم الموجودة في السودان ، ماذا تُسمى؟ وكم عدد المناطق الإدارية الموجودة (أي القومية ودون القومية والمحلية)؟	<input type="checkbox"/> مستوى واحد فقط (حكومة مركزية) <input type="checkbox"/> مستويين (الحكومات المركزية والولائية) <input type="checkbox"/> ثلاثة مستويات (الحكومات المركزية والولائية والمحليات) <input type="checkbox"/> أكثر من ثلاثة مستويات بما في ذلك الوحدات الإدارية. <input type="checkbox"/> أخرى		
2/7	هل هناك لامركزية في تنفيذ المهام الحكومية؟  كيف تتم اللامركزية؟ على سبيل المثال ، هل	<input type="checkbox"/> لا ، كل المهام مركزية بالكامل <input type="checkbox"/> نعم ، إنها لا مركزية تمامًا		

		<input type="checkbox"/> ينشئ القانون مؤسسات جديدة أو يفوض / يتقاسم الصلاحيات إلى / مع الحكومة المحلية؟  <input type="checkbox"/> يخصص القانون بعض <u>الموضوعات /</u> <u>المسائل</u> للحكومة المركزية ويفوض البعض الآخر للمؤسسات و الحكومات الفرعية و الولائية  <input type="checkbox"/> يمنح القانون نفس <u>الاختصاصات</u> لمستويات حكومية مختلفة (تقاسم الاختصاصات)	
3/7	<input type="checkbox"/> نعم  <input type="checkbox"/> لا	هل يشارك السودان في الاتفاقيات الإقليمية التي يمكن أن تساهم في إدارة مخاطر الكوارث أو الحد من المخاطر؟ إذا كان الأمر كذلك ، يرجى تسمية هذه (الاتفاقيات)	
4/7	<input type="checkbox"/> آلية تخصيص ضمن الميزانية القومية  <input type="checkbox"/> تمويل مباشر من المؤسسة المسؤولة عن الحد من مخاطر الكوارث في السودان (المجلس الأعلى للدفاع المدني)  <input type="checkbox"/> المشاريع والميزانيات المواضيعية للحد من مخاطر الكوارث سواء ولاية أو إتحادية  <input type="checkbox"/> المشاريع والميزانيات القطاعية (المياه، البيئة، الصحة.....الخ)  <input type="checkbox"/> مشاريع المساعدات الإنسانية للوكالات المانحة والمنظمات غير الحكومية	ما هي أنواع الموارد المالية المخصصة للحد من مخاطر الكوارث في السودان؟	
5/7	<input type="checkbox"/> المساعدة المالية و الدعم بدون تحديد أوجه الصرف  <input type="checkbox"/> رفع و تحسين الإمكانيات الفنية  <input type="checkbox"/> التنفيذ و التوصيل المستدام لخدمات الحد من مخاطر الكوارث	ما هي التصورات القومية حول ملاءمة وفعالية الدعم الذي يتم تلقيه ( إن وجد ) ، من مختلف المنظمات / الوكالات الحكومية رفيعة المستوى للحد من مخاطر الكوارث بشكل عام؟	

		<input type="checkbox"/> استثمارات البنية التحتية وصيانتها <input type="checkbox"/> أنظمة الإنذار المبكر <input type="checkbox"/> رفع مستوى الوعي وبناء القدرات		
		<input type="checkbox"/> نوع الكوارث و شدتها و مدى تأثيرها <input type="checkbox"/> الفئة الاجتماعية والاقتصادية للمتضررين <input type="checkbox"/> الموقع الجغرافي للمنطقة المتأثرة <input type="checkbox"/> أخرى؟ (الرجاء تحديدها)	كيف يتم التصور القومي لتمييز الكوارث الطبيعية حتي يتم تخصيص الدعم لها ؟	6/7
		<input type="checkbox"/> نعم <input type="checkbox"/> لا	هل هناك ارتباط بين الحد من مخاطر الكوارث و الخطط التنموية في السودان؟	7/7

الإطار المؤسسي للحد من مخاطر الكوارث، مع التركيز على الفيضانات والجفاف (10 أسئلة)				
الأسئلة	خيارات الأجوبة	الوصف و الملاحظات	القوانين واللوائح والمعايير والقواعد التشغيلية والإجراءات. يرجى تقديم نسخة أو رابط للوثيقة المذكورة (قانون/لائحة/معياري...الخ)	
هل توجد أي استراتيجية / سياسة قومية للحد من المخاطر؟ هل هذه الإستراتيجيات أو السياسات تم تكوينها و تقييدها بقوانين؟ الرجاء ذكرها بالتفاصيل	<input type="checkbox"/> لا ، لا وجود لأي إستراتيجيات أو سياسات. <input type="checkbox"/> لا ، ولكن هناك اتفاق مشترك حول الإستراتيجية القومية للحد من مخاطر الكوارث <input type="checkbox"/> نعم ، هناك استراتيجية / سياسة قومية للحد من المخاطر <input type="checkbox"/> هناك إستراتيجية قومية ولكن تحت الإنشاء/الموافقة/المصادقة <input type="checkbox"/> لا توجد لدينا معلومات حول هذا الشأن			1/10
هل هناك أي تشريع مُفعّل حالياً لإدارة الكوارث في السودان؟	<input type="checkbox"/> نعم <input type="checkbox"/> لا <input type="checkbox"/> قيد الإنشاء <input type="checkbox"/> لا توجد لدينا معلومات حول هذا الشأن			
هل يوجد نظام معلومات لإدارة الكوارث؟ و من يقوم بتشغيله في حال وجوده؟	<input type="checkbox"/> نعم <input type="checkbox"/> لا <input type="checkbox"/> قيد الإنشاء <input type="checkbox"/> لا توجد لدينا معلومات حول هذا الشأن			
هل يوجد قانون قومي لإدارة مخاطر	<input type="checkbox"/> لا ، لا وجود لأي قانون قومي لإدارة مخاطر			2/10



		<p>الكوارث في السودان</p> <p><input type="checkbox"/> لا ، ولكن هناك بعض قواعد العمل الخاصة بإدارة مخاطر الكوارث</p> <p><input type="checkbox"/> نعم ، يوجد قانون قومي لإدارة مخاطر الكوارث في السودان</p> <p><input type="checkbox"/> قيد الإنشاء</p> <p><input type="checkbox"/> لا توجد لدينا معلومات حول هذا الشأن</p>	<p>الكوارث في السودان؟ هل توجد مجموعة من اللوائح لإدارة مخاطر الكوارث؟ الرجاء ذكرها بالتفصيل</p>	
		<p><input type="checkbox"/> الاستجابة للكوارث ؟</p> <p><input type="checkbox"/> التأهب للكوارث ؟</p> <p><input type="checkbox"/> التخفيف من حدة الكوارث والوقاية منها ؟</p>	<p>هل يتعامل قانون إدارة مخاطر الكوارث أو أي قانون مع :</p>	
		<p><input type="checkbox"/> لا ، لا وجود لأي لائحة قومية للتأهب للكوارث والاستجابة لها</p> <p><input type="checkbox"/> لا ، ولكن هناك بعض قواعد العمل على التأهب للكوارث والاستجابة لها</p> <p><input type="checkbox"/> نعم ، توجد لائحة قومية للتأهب للكوارث والاستجابة لها</p> <p><input type="checkbox"/> لا توجد سوى لوائح محلية للتأهب للكوارث والاستجابة لها</p> <p><input type="checkbox"/> قيد الإنشاء</p> <p><input type="checkbox"/> لا توجد لدينا معلومات حول هذا الشأن</p>	<p>هل يوجد قانون / لائحة قومية للتأهب للكوارث والاستجابة لها ؟ هل توجد مجموعة من اللوائح للتأهب للكوارث والاستجابة لها ؟ الرجاء ذكرها بالتفصيل</p>	3/10
		<p><input type="checkbox"/> الأشخاص</p>	<p>من وما الذي تهدف اللائحة وطنية للتأهب</p>	

		<input type="checkbox"/> الحيوانات <input type="checkbox"/> المستوطنات <input type="checkbox"/> البيئة <input type="checkbox"/> الممتلكات <input type="checkbox"/> الأنشطة	للكوارث والاستجابة لها لحياتها؟	
		<input type="checkbox"/> مدارس <input type="checkbox"/> قوارب نجا <input type="checkbox"/> مصادر طاقة/ محطات توليد كهرباء <input type="checkbox"/> مستشفى أو عيادات صحية <input type="checkbox"/> أخرى (يرجى التحديد)	ما هي البنية التحتية والمعدات المتوفرة لإنقاذ الأرواح و الممتلكات أثناء الكوارث و / أو لتوفير المأوى المؤقت وإمدادات الطوارئ؟	
		<input type="checkbox"/> لا ، فقط الحكومة القومية هي التي يمكنها سن قوانين بشأن التأهب للكوارث والاستجابة لها <input type="checkbox"/> نعم ، يمكن للحكومات المحلية سن قوانين بشأن التأهب للكوارث والاستجابة لها	هل تتمتع الحكومات المحلية بسلطة التشريع للتأهب للكوارث والاستجابة لها؟	
		<input type="checkbox"/> لا <input type="checkbox"/> نعم <input type="checkbox"/> يوجد تطبيق لبعض الأنشطة	هل هناك تنفيذ لامركزي لأنشطة الوقاية من الكوارث والمرونة وفقاً للقانون (على سبيل المثال فيما يتعلق بأنظمة الإنذار المبكر ، وتخطيط الاستجابة ، وإدارة الطوارئ... )؟	
		<input type="checkbox"/> حرائق <input type="checkbox"/> فيضان	ما نوع المخاطر التي يتم أخذها في الاعتبار في قانون الوقاية من الكوارث والمرونة (أي الفيضانات والجفاف والحرائق والزلازل	

		<input type="checkbox"/> الجفاف <input type="checkbox"/> المخاطر الصحية <input type="checkbox"/> الزلازل <input type="checkbox"/> أخرى	والصحة...؟	
		<input type="checkbox"/> لا ، القانون لا يحدد صراحة المسؤوليات في أي وزارة حكومية <input type="checkbox"/> لا ، لا يحدد القانون المسؤوليات و الصلاحيات ، لكن توجد وزارة حكومية واحدة (أو أكثر) تتعامل مع الوقاية من الكوارث والقدرة علي التكيف معها <input type="checkbox"/> نعم ، يحدد القانون المسؤوليات والصلاحيات في وزارة حكومية واحدة أو أكثر ، لكن دور كل منها غير محدد بشكل جيد <input type="checkbox"/> نعم ، يحدد القانون المسؤوليات في وزارة حكومية واحدة أو أكثر ، و أدوارها محددة بشكل جيد	<p>هل يخصص قانون منع الكوارث والقدرة على التكيف معها (أو أي قانون آخر) أو أي سياسة أخرى <u>المسؤوليات و الصلاحيات</u> للوقاية من الكوارث والقدرة على الإستجابة لوزارات حكومية واحدة أو أكثر؟ إذا كان الأمر كذلك ، فما هي الوزارات المسؤولة عن هذا العمل؟ صف الأدوار المخصصة لهم</p>	4/10
		<input type="checkbox"/> لا ، القانون غير مخصص لإنشاء أي مؤسسة مسؤولة في مجال الوقاية من الكوارث والقدرة على التصدي الإستجابة <input type="checkbox"/> لا ، ولكن هناك مؤسسة قومية واحدة (أو أكثر) تتخصص في منع الكوارث والقدرة على الإستجابة. وهم: <input type="checkbox"/> نعم ، يحدد القانون مؤسسة قومية واحدة أو أكثر ، لكن صلاحياتها غير محددة. وهم:	<p>هل يُنشئ قانون منع الكوارث والقدرة على الإستجابة (أو أي قانون آخر) أي <u>مؤسسة حكومية (أو أكثر) أو منظمات / خدمات عامة/لجان</u> ذات مسؤوليات في مجال الوقاية من الكوارث والقدرة على التصدي و الإستجابة؟ ما هي هذه المؤسسات؟ ما هي أسمائها وما نوع هياكلها؟ وما هي صلاحياتها؟</p>	5/10

		<input type="checkbox"/> نعم ، يحدد القانون المسؤوليات في واحدة أو أكثر من المؤسسات القومية بصلاحيات واضحة في.... وهم:		
		<input type="checkbox"/> لا توجد أية منظمات / مؤسسات مسؤولة عن تقديم هذه الخدمة <input type="checkbox"/> نعم ، لكن خدماتهم متاحة فقط للجهات ذات الصلاحيات العليا <input type="checkbox"/> نعم ، وخدماتهم متاحة لجميع أصحاب المصلحة	هل هناك أي منظمات / مؤسسات تدعم أو تطور استراتيجيات المواجهة الحالية أو تروج لاستراتيجيات جديدة للحد من مخاطر الكوارث؟ من لديه حق الوصول إلى / يستخدم هذه الخدمات الداعمة؟ يرجى تحديد هذه المنظمات / المؤسسة	
		<input type="checkbox"/> لا ، أدوار ومسؤوليات الجهات غير الحكومية لم يتم عكسها في هذا التشريعات <input type="checkbox"/> لا ، ولكن عادة ما تتم استشارتهم وإدراجهم في لجان متعددة القطاعات <input type="checkbox"/> نعم ، يحدد القانون أدوار ومسؤوليات الجهات غير الحكومية لكن دون إسناد أي سلطة لها لاتخاذ القرار <input type="checkbox"/> نعم ، تنعكس أدوار ومسؤوليات الكيانات غير الحكومية في تشريعات إدارة الكوارث ويتم تضمين هذه المؤسسات في اللجان متعددة القطاعات حيث يمكنها ممارسة سلطاتها في اتخاذ القرار	هل تنعكس أدوار ومسؤوليات الكيانات غير الحكومية (أولاً - القطاع الخاص ، ثانياً - المتطوعون ، ثالثاً - مجموعات المجتمع) في تشريعات إدارة الكوارث؟ هل هذه الكيانات متضمنة في لجان متعددة القطاعات؟	6/10
		<input type="checkbox"/> نعم <input type="checkbox"/> لا	هل هناك أي مؤسسة (بما في ذلك اللجان) مسؤولة عن تنفيذ إطار سيندائي للعمل؟ ما هي تلك المؤسسات؟	7.10
		<input type="checkbox"/> نعم	هل توجد استراتيجية للتكيف مع تغير المناخ؟ ما هي المؤسسة المسؤولة أو المنسقة لتلك	8.10

		<input type="checkbox"/> لا	الإستراتيجية؟	
		<input type="checkbox"/> نعم <input type="checkbox"/> لا	هل توجد استراتيجية لأهداف التنمية المستدامة؟ ما هي المؤسسة المسؤولة أو المنسقة عن ذلك؟	9.10
		<input type="checkbox"/> نعم إجباري. <input type="checkbox"/> نعم اختياري. <input type="checkbox"/> لا	هل يوجد نظام تأمين ضد آثار الكوارث؟	10.10

نظام الإنذار المبكر: الفيضانات (10 أسئلة)				
القوانين واللوائح والمعايير والقواعد التشغيلية والإجراءات. يرجى تقديم نسخة أو رابط للوثيقة المذكورة (قانون/لائحة/معياري.....الخ)	الوصف و الملاحظات	خيارات الأجوبة	الأسئلة	
		<input type="checkbox"/> نعم <input type="checkbox"/> لا <input type="checkbox"/> قيد الإنشاء <input type="checkbox"/> لا توجد لدينا معلومات حول هذا الشأن	هل يوجد قانون محدد بشأن الإنذار المبكر بشأن الفيضانات (بخلاف قانون إدارة مخاطر الكوارث الرئيسي إن وجد)؟ على أي مستوى (مستويات) من الحكومة يتم تنظيم ذلك؟ هل تحدد الأدوار والمسؤوليات (أصحاب الواجبات)؟	1/10
		<input type="checkbox"/> نعم <input type="checkbox"/> لا <input type="checkbox"/> غير متطورة <input type="checkbox"/> لا توجد لدينا معلومات حول هذا الشأن	هل يوجد برنامج مراقبة ورصد تكنولوجي يمكنه رصد الفيضانات والتنبيه بها؟	
		<input type="checkbox"/> نعم <input type="checkbox"/> لا <input type="checkbox"/> غير متطورة <input type="checkbox"/> لا توجد لدينا معلومات حول هذا الشأن	هل اتصالات شبكة البرودباند متاحة لمراكز عمليات الطوارئ ومراكز صنع القرار؟	
		<input type="checkbox"/> نعم <input type="checkbox"/> لا <input type="checkbox"/> غير متطورة <input type="checkbox"/> لا توجد لدينا معلومات حول هذا الشأن	هل الاتصالات اللاسلكية متاحة لدعم مراكز عمليات الطوارئ و الإستجابة الأولية؟	
		لكل مؤسسة / منظمة يرجى التحديد: <b>على المستوى القومي</b> ■ اسم المؤسسة: ■ عام / خاص: ■ المكتب المرجعي:	ما هي المؤسسات التي تحدد سيناريوهات مخاطر الفيضانات لأغراض الإنذار المبكر؟ هل هذه المؤسسات معينة بموجب القانون؟	2/10

		<ul style="list-style-type: none"> <li>▪ أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> <li>▪ اسم المؤسسة:</li> <li>▪ عام / خاص:</li> <li>▪ المكتب المرجعي:</li> <li>▪ أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> <li>▪ على المستوى المحلي (من فضلك ، ضع في اعتبارك جميع المستويات الحكومية في بلدك)</li> <li>▪ اسم المؤسسة:</li> <li>▪ عام / خاص:</li> <li>▪ المكتب المرجعي:</li> <li>▪ أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> <li>▪ اسم المؤسسة:</li> <li>▪ عام / خاص:</li> <li>▪ المكتب المرجعي:</li> <li>▪ أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> </ul>		
		<p>لكل مؤسسة / منظمة يرجى التحديد: على المستوى القومي</p>	<p>ما هي المؤسسة (المؤسسات) التي تشرف على التنبؤات الجوية لأغراض الإنذار</p>	3/10

		<ul style="list-style-type: none"> <li>▪ اسم المؤسسة:</li> <li>▪ عام / خاص:</li> <li>▪ المكتب المرجعي:</li> <li>▪ أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> </ul>	<p>المبكر؟ هل هذه المؤسسات معيّنة بموجب القانون؟</p>	
		<ul style="list-style-type: none"> <li>▪ اسم المؤسسة:</li> <li>▪ عام / خاص:</li> <li>▪ المكتب المرجعي:</li> <li>▪ أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> </ul>		
		<p><b>على المستوى المحلي (من فضلك ، ضع في اعتبارك جميع المستويات الحكومية في بلدك)</b></p> <ul style="list-style-type: none"> <li>▪ اسم المؤسسة:</li> <li>▪ عام / خاص:</li> <li>▪ المكتب المرجعي:</li> <li>▪ أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> </ul>		
		<ul style="list-style-type: none"> <li>▪ اسم المؤسسة:</li> <li>▪ عام / خاص:</li> <li>▪ المكتب المرجعي:</li> </ul>		



		<p>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</p> <p>لكل مؤسسة / منظمة يرجى التحديد:</p> <p><b>على المستوى القومي</b></p> <ul style="list-style-type: none"> <li>اسم المؤسسة:</li> <li>عام / خاص:</li> <li>المكتب المرجعي:</li> </ul> <p>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</p> <ul style="list-style-type: none"> <li>اسم المؤسسة:</li> <li>عام / خاص:</li> <li>المكتب المرجعي:</li> </ul> <p>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</p> <p><b>على المستوى المحلي (من فضلك ، ضع في اعتبارك جميع المستويات الحكومية في بلدك)</b></p> <ul style="list-style-type: none"> <li>اسم المؤسسة:</li> <li>عام / خاص:</li> <li>المكتب المرجعي:</li> </ul> <p>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</p> <ul style="list-style-type: none"> <li>اسم المؤسسة:</li> </ul>	<p>ما هي المؤسسة (المؤسسات) التي تشرف على التنبؤات الهيدرولوجية لأغراض الإنذار المبكر؟</p> <p>هل هذه المؤسسات معيّنة بموجب القانون؟</p>	4/10
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		<ul style="list-style-type: none"> <li>عام / خاص:</li> <li>المكتب المرجعي:</li> <li>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> </ul>		
		<p>لكل مؤسسة / منظمة يرجى التحديد:</p> <p><b>على المستوى القومي</b></p> <ul style="list-style-type: none"> <li>اسم المؤسسة:</li> <li>عام / خاص:</li> <li>المكتب المرجعي:</li> <li>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> </ul> <p><b>على المستوى المحلي (من فضلك ، ضع في اعتبارك جميع المستويات الحكومية في بلدك)</b></p> <ul style="list-style-type: none"> <li>اسم المؤسسة:</li> <li>عام / خاص:</li> </ul>	<p>ما هي المؤسسة (المؤسسات) التي تتعامل مع المراقبة (المراقبة الآلية و/ أو الملاحظات في الموقع) في الوقت الفعلي لأغراض الإنذار المبكر؟ هل هذه المؤسسات معيّنة بموجب القانون؟</p>	5/10

		<ul style="list-style-type: none"> <li>المكتب المرجعي:</li> <li>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> <li>اسم المؤسسة:</li> <li>عام / خاص:</li> <li>المكتب المرجعي:</li> <li>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> </ul>		
		<p>لكل مؤسسة / منظمة يرجى التحديد: <b>على المستوى القومي</b></p> <ul style="list-style-type: none"> <li>اسم المؤسسة:</li> <li>عام / خاص:</li> <li>المكتب المرجعي:</li> <li>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> <li>اسم المؤسسة:</li> <li>عام / خاص:</li> <li>المكتب المرجعي:</li> <li>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> </ul>	<p>ما هي المؤسسة (المؤسسات) / المنظمة (المنظمات) المسؤولة عن إصدار الإنذارات المبكرة؟ هل هذه المؤسسات معيّنة بموجب القانون؟</p>	6/10

		<p>هاتف):</p> <p>على المستوى المحلي (من فضلك ، ضع في اعتبارك جميع المستويات الحكومية في بلدك)</p> <ul style="list-style-type: none"> <li>اسم المؤسسة:</li> <li>عام / خاص:</li> <li>المكتب المرجعي:</li> </ul> <p>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</p> <ul style="list-style-type: none"> <li>اسم المؤسسة:</li> <li>عام / خاص:</li> <li>المكتب المرجعي:</li> </ul> <p>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف)</p>		
		<p>لكل مؤسسة / منظمة يرجى التحديد:</p> <p>على المستوى القومي</p> <ul style="list-style-type: none"> <li>اسم المؤسسة:</li> <li>عام / خاص:</li> <li>المكتب المرجعي:</li> </ul> <p>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</p>	<p>ما هي المؤسسة (المؤسسات) / المنظمة (المنظمات) التي تتلقى الإنذارات المبكرة؟ هل هذه المؤسسات معينة بموجب القانون؟</p>	7/10

		<ul style="list-style-type: none"> <li>▪ اسم المؤسسة:</li> <li>▪ عام / خاص:</li> <li>▪ المكتب المرجعي:</li> <li>▪ أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> </ul> <p><b>على المستوى المحلي (من فضلك ، ضع في اعتبارك جميع المستويات الحكومية في بلدك)</b></p> <ul style="list-style-type: none"> <li>▪ اسم المؤسسة:</li> <li>▪ عام / خاص:</li> <li>▪ المكتب المرجعي:</li> <li>▪ أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> </ul> <ul style="list-style-type: none"> <li>▪ اسم المؤسسة:</li> <li>▪ عام / خاص:</li> <li>▪ المكتب المرجعي:</li> <li>▪ أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> </ul>		
		<p>لكل مؤسسة / منظمة يرجى التحديد: <b>على المستوى القومي</b></p>	<p>ما هي المؤسسة (المؤسسات) التي يجب عليها تفعيل خطة الطوارئ / الاستجابة؟ هل</p>	8/10

		<ul style="list-style-type: none"> <li>▪ اسم المؤسسة:</li> <li>▪ عام / خاص:</li> <li>▪ المكتب المرجعي:</li> <li>▪ أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> <li>▪ اسم المؤسسة:</li> <li>▪ عام / خاص:</li> <li>▪ المكتب المرجعي:</li> <li>▪ أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> <li>▪ على المستوى المحلي (من فضلك ، ضع في اعتبارك جميع المستويات الحكومية في بلدك)</li> <li>▪ اسم المؤسسة:</li> <li>▪ عام / خاص:</li> <li>▪ المكتب المرجعي:</li> <li>▪ أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> <li>▪ اسم المؤسسة:</li> <li>▪ عام / خاص:</li> <li>▪ المكتب المرجعي:</li> </ul>	هذه المؤسسات معيّنة بموجب القانون؟
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		<ul style="list-style-type: none"> <li>■ أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف)</li> </ul>		
		<p>لكل مؤسسة / منظمة يرجى التحديد: <b>على المستوى القومي</b></p> <ul style="list-style-type: none"> <li>■ اسم المؤسسة:</li> <li>■ عام / خاص:</li> <li>■ المكتب المرجعي:</li> </ul> <p>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</p> <ul style="list-style-type: none"> <li>■ اسم المؤسسة:</li> <li>■ عام / خاص:</li> <li>■ المكتب المرجعي:</li> </ul> <p>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</p> <p><b>على المستوى المحلي (من فضلك ، ضع في اعتبارك جميع المستويات الحكومية في بلدك)</b></p> <ul style="list-style-type: none"> <li>■ اسم المؤسسة:</li> <li>■ عام / خاص:</li> <li>■ المكتب المرجعي:</li> </ul> <p>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</p>	<p>هل هناك منظمات تتعامل مع التدريبات والتمارين والمحاكاة للأشخاص الذين من المحتمل أن يشاركوا في الاستجابة للكوارث؟ هل هذه المؤسسات معينة بموجب القانون؟</p>	9/10

		هاتف):  <ul style="list-style-type: none"> <li>اسم المؤسسة:</li> <li>عام / خاص:</li> <li>المكتب المرجعي:</li> <li>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف)</li> </ul>		
		<p>لكل مؤسسة / منظمة يرجى التحديد: على المستوى القومي</p> <ul style="list-style-type: none"> <li>اسم المؤسسة:</li> <li>عام / خاص:</li> <li>المكتب المرجعي:</li> <li>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> <li>اسم المؤسسة:</li> <li>عام / خاص:</li> <li>المكتب المرجعي:</li> <li>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> </ul>	<p>هل هناك أي منظمة ذات صلة لم يتم ذكرها من قبل والتي ساهمت / ساهمت في نظام الإنذار المبكر (مثل الجامعات ومراكز البحوث)؟</p>	10/10



		<p>على المستوى المحلي (من فضلك ، ضع في اعتبارك جميع المستويات الحكومية في بلدك)</p> <ul style="list-style-type: none"> <li>▪ اسم المؤسسة:</li> <li>▪ عام / خاص:</li> <li>▪ المكتب المرجعي:</li> <li>▪ أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> </ul> <ul style="list-style-type: none"> <li>▪ اسم المؤسسة:</li> <li>▪ عام / خاص:</li> <li>▪ المكتب المرجعي:</li> <li>▪ أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف)</li> </ul>		
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نظام الإنذار المبكر: الجفاف (6 أسئلة)				
الأسئلة	خيارات الأجوبة	الوصف و الملاحظات	القوانين واللوائح والمعايير والقواعد التشغيلية والإجراءات. يرجى تقديم نسخة أو رابط للوثيقة المذكورة (قانون/لائحة/معياري....الخ)	
10/1	<p>هل يوجد قانون محدد بشأن الإنذار المبكر بشأن حالات الجفاف (بخلاف قانون إدارة مخاطر الكوارث الرئيسي إن وجد)؟ على أي مستوى (مستويات) من الحكومة يتم تنظيم ذلك؟</p> <p>هل تحدد الأدوار والمسؤوليات (أصحاب الواجبات)؟</p>	<p><input type="checkbox"/> نعم</p> <p><input type="checkbox"/> لا</p> <p><input type="checkbox"/> قيد الإنشاء</p> <p><input type="checkbox"/> لا توجد لدينا معلومات حول هذا الشأن</p>		
2/10	<p>هل يتم رصد ظروف الجفاف في الوقت الفعلي لإطلاق الإنذار المبكر قبل إتساع رقعتها؟</p> <p>و ماهي المؤسسات المسؤولة من رصد الجفاف؟</p> <p>هل هذه المؤسسات معيّنة بموجب القانون؟</p>	<p>لكل مؤسسة / منظمة يرجى التحديد:</p> <p><b>على المستوى القومي</b></p> <ul style="list-style-type: none"> <li>اسم المؤسسة:</li> <li>عام / خاص:</li> <li>المكتب المرجعي:</li> <li>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> </ul> <p>اسم المؤسسة:</p> <p>عام / خاص:</p> <p>المكتب المرجعي:</p> <p>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</p>		

		<p>على المستوى المحلي (من فضلك ، ضع في اعتبارك جميع المستويات الحكومية في بلدك)</p> <ul style="list-style-type: none"> <li>اسم المؤسسة:</li> <li>عام / خاص:</li> <li>المكتب المرجعي:</li> <li>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> <li>اسم المؤسسة:</li> <li>عام / خاص:</li> <li>المكتب المرجعي:</li> <li>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> </ul>	
		<p>وضح أحوال الجفاف التي يتم اعتبارها من بين التالي ومن يقوم بعملية التقييم و كيف يتم التقييم:</p> <ul style="list-style-type: none"> <li>ظروف الجفاف المرصودة من بيانات الأرصاد الجوية</li> <li>خصائص الجفاف التي يتم تحديدها من الدراسات الهيدرولوجية</li> </ul>	<p>ما هي خصائص وظروف الجفاف التي يتم أخذها في الاعتبار لأغراض الإنذار المبكر؟ هل يتم تقييم الظروف بشكل منفصل من قبل القطاعات المختلفة؟</p> <p>3/10</p>

		<ul style="list-style-type: none"> <li>ظروف الجفاف التي تؤثر علي الزراعة و الري و الرعي</li> <li>مخاطر و ظروف الجفاف المركبة</li> </ul>		
		<p>لكل مؤسسة / منظمة يرجى التحديد: <b>على المستوى القومي</b></p> <ul style="list-style-type: none"> <li>اسم المؤسسة:</li> <li>عام / خاص:</li> <li>المكتب المرجعي:</li> <li>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> </ul> <p>اسم المؤسسة:</p> <p>عام / خاص:</p> <p>المكتب المرجعي:</p> <p>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</p>	<p>ما هي المؤسسة (المؤسسات) / المنظمة (المنظمات) المسؤولة عن إصدار الإنذارات المبكرة للجفاف؟ هل هذه المؤسسات معينة بموجب القانون؟؟</p>	4/10

		<p>على المستوى المحلي (من فضلك ، ضع في اعتبارك جميع المستويات الحكومية في بلدك)</p> <ul style="list-style-type: none"> <li>اسم المؤسسة:</li> <li>عام / خاص:</li> <li>المكتب المرجعي:</li> </ul> <p>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</p> <ul style="list-style-type: none"> <li>اسم المؤسسة:</li> <li>عام / خاص:</li> <li>المكتب المرجعي:</li> </ul> <p>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</p>		
		<p>لكل مؤسسة / منظمة يرجى التحديد:</p> <p>على المستوى القومي</p> <ul style="list-style-type: none"> <li>اسم المؤسسة:</li> <li>عام / خاص:</li> <li>المكتب المرجعي:</li> </ul> <p>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</p>	<p>ما هي المؤسسة (المؤسسات) / المنظمة (المنظمات) التي تتلقى الإنذارات المبكرة للجفاف؟ هل هذه المؤسسات معينة بموجب القانون؟؟</p>	5/10

		<ul style="list-style-type: none"> <li>▪ اسم المؤسسة:</li> <li>▪ عام / خاص:</li> <li>▪ المكتب المرجعي:</li> <li>▪ أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> <li><b>على المستوى المحلي (من فضلك ، ضع في اعتبارك جميع المستويات الحكومية في بلدك)</b></li> <li>▪ اسم المؤسسة:</li> <li>▪ عام / خاص:</li> <li>▪ المكتب المرجعي:</li> <li>▪ أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> <li>▪ اسم المؤسسة:</li> <li>▪ عام / خاص:</li> <li>▪ المكتب المرجعي:</li> <li>▪ أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> </ul>	
		<p>لكل مؤسسة / منظمة يرجى التحديد:</p> <p><b>على المستوى القومي</b></p> <ul style="list-style-type: none"> <li>▪ اسم المؤسسة:</li> <li>▪ عام / خاص:</li> </ul>	<p>ما هي المؤسسة (المؤسسات) التي يجب عليها تفعيل خطة الطوارئ / الاستجابة؟ هل هذه المؤسسات معينة بموجب القانون؟</p>

		<ul style="list-style-type: none"> <li>▪ المكتب المرجعي:</li> <li>▪ أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> <li>▪ اسم المؤسسة:</li> <li>▪ عام / خاص:</li> <li>▪ المكتب المرجعي:</li> <li>▪ أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> <li>على المستوى المحلي (من فضلك ، ضع في اعتبارك جميع المستويات الحكومية في بلدك)</li> <li>▪ اسم المؤسسة:</li> <li>▪ عام / خاص:</li> <li>▪ المكتب المرجعي:</li> <li>▪ أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</li> <li>▪ اسم المؤسسة:</li> <li>▪ عام / خاص:</li> <li>▪ المكتب المرجعي:</li> </ul>	
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		<ul style="list-style-type: none"> <li>■ أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف)</li> </ul>		
		<p>لكل مؤسسة / منظمة يرجى التحديد: <b>على المستوى القومي</b></p> <ul style="list-style-type: none"> <li>■ اسم المؤسسة:</li> <li>■ عام / خاص:</li> <li>■ المكتب المرجعي:</li> </ul> <p>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</p> <ul style="list-style-type: none"> <li>■ اسم المؤسسة:</li> <li>■ عام / خاص:</li> <li>■ المكتب المرجعي:</li> </ul> <p>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</p> <p><b>على المستوى المحلي (من فضلك ، ضع في اعتبارك جميع المستويات الحكومية في بلدك)</b></p> <ul style="list-style-type: none"> <li>■ اسم المؤسسة:</li> <li>■ عام / خاص:</li> <li>■ المكتب المرجعي:</li> </ul> <p>أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف):</p>	<p>هل هناك أي منظمة ذات صلة لم يتم ذكرها من قبل والتي ساهمت / ساهمت في نظام الإنذار المبكر (مثل الجامعات ومراكز البحوث)؟</p>	7/10



		<ul style="list-style-type: none"> <li>▪ اسم المؤسسة:</li> <li>▪ عام / خاص:</li> <li>▪ المكتب المرجعي:</li> <li>▪ أي جهة اتصال مرجعية (بريد إلكتروني/رقم هاتف)</li> </ul>		
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المشاريع والأنشطة و المبادرات الجارية والسابقة بشأن إدارة مخاطر الكوارث (4 أسئلة)				
الأسئلة	خيارات الأجوبة	الوصف و الملاحظات	القوانين واللوائح والمعايير والقواعد التشغيلية والإجراءات. يرجى تقديم نسخة أو رابط للوثيقة المذكورة (قانون/لائحة/معياري.....الخ)	
هل هناك أي منظمة / مؤسسة لديها مشاريع / مبادرات فعالة في السودان لتحسين نظام الإنذار المبكر؟	<ul style="list-style-type: none"> <li>إسم المشروع:</li> <li>المتبرع/الممول:</li> <li>اسم المؤسسة:</li> <li>المكتب المرجعي:</li> <li>نوع المؤسسة (وطنية / محلية/إقليمية/عالمية):</li> <li>إسم المشروع:</li> <li>المتبرع/الممول:</li> <li>اسم المؤسسة:</li> <li>المكتب المرجعي:</li> <li>نوع المؤسسة (وطنية / محلية/إقليمية/عالمية)</li> </ul>			10/1

		<ul style="list-style-type: none"> <li>▪ إسم المشروع:</li> <li>▪ المتبرع/الممول:</li> <li>▪ اسم المؤسسة:</li> <li>▪ المكتب المرجعي:</li> <li>▪ نوع المؤسسة (وطنية / محلية/إقليمية/عالمية)</li> </ul>		
		<ul style="list-style-type: none"> <li>▪ إسم المشروع:</li> <li>▪ المتبرع/الممول:</li> <li>▪ اسم المؤسسة:</li> <li>▪ المكتب المرجعي:</li> <li>▪ نوع المؤسسة (وطنية / محلية/إقليمية/عالمية):</li> <li>▪ إسم المشروع:</li> <li>▪ المتبرع/الممول:</li> <li>▪ اسم المؤسسة:</li> <li>▪ المكتب المرجعي:</li> </ul>	<p>هل هناك أي منظمة / مؤسسة لديها مشاريع / مبادرات نشطة في المنطقة حول التكيف مع تغير المناخ؟</p>	2/10

		<ul style="list-style-type: none"> <li>▪ نوع المؤسسة (وطنية / محلية/إقليمية/عالمية)</li> <li>▪ إسم المشروع:</li> <li>▪ المتبرع/الممول:</li> <li>▪ اسم المؤسسة:</li> <li>▪ المكتب المرجعي:</li> <li>▪ نوع المؤسسة (وطنية / محلية/إقليمية/عالمية)</li> </ul>		
		<ul style="list-style-type: none"> <li>▪ إسم المشروع:</li> <li>▪ المتبرع/الممول:</li> <li>▪ اسم المؤسسة:</li> <li>▪ المكتب المرجعي:</li> <li>▪ نوع المؤسسة (وطنية / محلية/إقليمية/عالمية):</li> <li>▪ إسم المشروع:</li> <li>▪ المتبرع/الممول:</li> </ul>	<p>هل هناك أي منظمة / مؤسسة لديها مشاريع / مبادرات نشطة في المنطقة حول أهداف التنمية المستدامة؟</p>	3/10

		<ul style="list-style-type: none"> <li>▪ اسم المؤسسة:</li> <li>▪ المكتب المرجعي:</li> <li>▪ نوع المؤسسة (وطنية / محلية/إقليمية/عالمية)</li> <li>▪ إسم المشروع:</li> <li>▪ المتبرع/الممول:</li> <li>▪ اسم المؤسسة:</li> <li>▪ المكتب المرجعي:</li> <li>▪ نوع المؤسسة (وطنية / محلية/إقليمية/عالمية)</li> </ul>		
		<ul style="list-style-type: none"> <li>▪ إسم المشروع:</li> <li>▪ المتبرع/الممول:</li> <li>▪ اسم المؤسسة:</li> <li>▪ المكتب المرجعي:</li> <li>▪ نوع المؤسسة (وطنية / محلية/إقليمية/عالمية):</li> </ul>	<p>هل هناك أي مشروع سابق ذي صلة تعامل مع إدارة مخاطر الكوارث في السودان؟</p> <p>4/10</p>	

		<ul style="list-style-type: none"> <li>▪ إسم المشروع:</li> <li>▪ المتبرع/الممول:</li> <li>▪ اسم المؤسسة:</li> <li>▪ المكتب المرجعي:</li> <li>▪ نوع المؤسسة (وطنية / محلية/إقليمية/عالمية)</li> <li>▪ إسم المشروع:</li> <li>▪ المتبرع/الممول:</li> <li>▪ اسم المؤسسة:</li> <li>▪ المكتب المرجعي:</li> <li>▪ نوع المؤسسة (وطنية / محلية/إقليمية/عالمية)</li> </ul>		
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