



# SOFF Investment Phase Funding Request

Version 2.0

20 May 2024

Systematic Observations Financing  
Facility

**Weather  
and climate  
data for  
resilience**



# SOFF Investment Phase Funding Request

*The funding request should be prepared by the SOFF beneficiary country in collaboration with the SOFF implementing entity and supported by the SOFF peer advisor. The funding request reflects and is based on the National Contribution Plan. In case of questions on how to complete this template, please contact the SOFF Secretariat at: [soffsecretariat@wmo.int](mailto:soffsecretariat@wmo.int).*

The SOFF Investment Funding Request template includes the following sections:

1. **Basic Information**
2. **Programming Criteria**
3. **Readiness and Country Context**
4. **Investment Phase Outputs and Budget**
5. **Investment Phase Implementation Arrangements**
6. **Investment Phase Monitoring, Reporting, and Verification**
7. **Investment Phase Risk Management Framework**

The **GBON Gap Analysis**, the **GBON National Contribution Plan** and **Country Hydromet Diagnostic** are included in **Annex 1, 2, 3**.

The **Terms of References** of the advisory services provided by the **SOFF peer advisor** are provided in **Annex 4**.

## 1. Basic Information


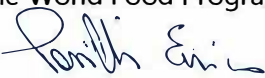


<b>SOFF Beneficiary Country and Focal Point</b>	Agence Nationale de Météorologie (ANAM) Mr. Sakine Youssouf Batchomi, Director General of National Agency of Meteorology, Ndjamena and Hamid Abakar Souleymane, Deputy Director General of National Agency of Meteorology			
<b>Country classification</b>	<input checked="" type="checkbox"/> LDC	<input type="checkbox"/> SIDS	<input checked="" type="checkbox"/> FCS	<input checked="" type="checkbox"/> ODA-recipient
<b>SOFF Implementing Entity and Focal Point</b>	<b>Mr. Enrico Pausilli, DCD Operations, and Hagar Ibrahim</b> The World Food Programme (WFP)			
<b>SOFF Peer Advisor and Focal Point</b>	<b>Mr. Harou Abdoulaye, Mr. Giora Gershtein and Dr. Delia Arnold,</b> GeoSphere Austria – Federal Institute for Geology, Geophysics, Climatology and Meteorology			
<b>Total Budget (USD)</b>	<b>Total: \$6,945,084 USD</b> <b>First tranche: \$4,511,559 USD (70%)</b> <b>Second tranche: \$1,933,525 USD (30%)</b> The tranches exclude the peer advisor's fee. <b>Peer Advisor: \$500,000.00</b>			
<b>Delivery timeframe</b>	<b>01.07.2024 – 30.06.2029</b>			
<b>Date of Steering Committee Approval</b>	<i>Planned for 18-19 of June 2024</i>			
<b>Signatures</b> <div style="text-align: center; margin-top: 20px;">  </div> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 45%;"> <p>The World Food Programme</p>  <p>WF Chad, Country Director, a.i.</p> </div> <div style="width: 45%;"> <p>The National Agency of Meteorology for The Republic of Chad (ANAM)</p>  <p>Directorate General GeoSphere Austria</p>  </div> </div>				



Table 1 indicates location of the stations. Those stations marked with NAP are installed by the NAP project (ended in Dec 2023) and some of them will be rehabilitated. SOFF will ensure their operation (details in the NCP).

**Table 1:** Stations to be maintained and installed during the SOFF Investment phase.

Standard density surface network – GBON target			
Station number	Station location	Status	Deploying entity
1	Mangalmé	Installed, operational and handed over to ANAM. Not transmitting internationally yet.	UNDP/To be rehabilitated /upgraded/operationalised with SOFF Support
2	Melfi		
3	Ati		
4	Bokoro		
5	Pala		
6	Kélo		
7	Moundou		
8	Larmanaye		
9	Doba		
10	Goré		
11	Ngouri		
12	Kyabé		
13	Moissala		
14	Iriba		
15	Goz-Beida		
16	Aboudeia		
17	N'djamena		
18	Am-Timan		
19	Sarh		
20	Bongor Aéroport	Installed but non operational	
21	Haraze Manguéigne		

22	Abéché		
23	Oum Hadjer		
24	Mongo		
25	Goundi		
26	Nokou		
27	Daguela	To be installed by UNDP	
28	Faya Largeau	To be installed	New SOFF Investment
29	Bardai		
30	Zouar		
31	Biltine		
32	Fada		
33	Koro Toro		

If investments are done adequately, Chad will have 33 surface GBON stations with 200 km resolution and 6 upper-air stations (**Table 2**). The observational network clearly requires only automatic weather stations and not conventional manual ones building on the type of stations already installed and operational.

Table 2: GBON National Contribution Target based on WMO GBON gap analysis.

Type of station	Baseline (Results of the GBON National Gap Analysis)				GBON National Contribution Target	
	Target (# of stations)	GBON-compliant stations (#)	Gap		To improve	New
			New	To improve		
Surface standard density	33	1	0	32	27	6
Upper-air	6	0	4	2	0	3

### Target easy fixes

The Readiness Phase assessments in collaboration with already existing initiatives identified areas for deployment of the stations in Table 1.

The selection of surface observation stations for GBON was based on the newly installed AWS and the AWSs to be installed by the UNDP Project:

- 19 of the operational NAP AWS are well positioned and operational; therefore, they are readily selected for GBON although they are not transmitting their data internationally yet. Of these, 15 require only battery replacement, while fencing is necessary for the 6

	<p>additional stations. SOFF is to ensure acquisition of spare parts, the acquisition of the 6 additional stations and installation of a system for the international transmission of data.</p> <ul style="list-style-type: none"> <li>• 6 AWS were installed but are not functional; therefore, due to their adequate positions, it is recommended that they are rehabilitated through SOFF,</li> <li>• Out of the 2 stations to be installed by UNDP, 1 of them has already been installed and the second one is planned for installation in July 2024.</li> <li>• Due to the lack of data north of the 14° Lat North, the installation and operation of additional 6 AWSs in Bardai, Faya Largeau, Koro-Toro, Fada, Zouar and Biltine are planned. It is also recommended for these stations, due to their remote locations, to consider using the EUMETSAT Data Collection Platform (DCP) to ensure sustained international telecommunication through WIS.</li> </ul> <p>ASECNA already operates 2 upper air observation stations in N'Djamena and Sarh and its delegated authority plans to install, starting in January 2024, one upper air observation station at the Amdjarass airport followed by another upper air station in Moundou (no target date is currently available). Due to uncertainties around the plan for Moundou, it is deemed not feasible. Therefore, considering the GBON requirement of 6 Upper air stations for Chad, it is recommended that SOFF helps with the acquisition, installation, and operation of 3 new upper air stations in Faya Largeau and Ngolo Fitri and Goz Beida bringing the total number of upper air stations to the required number of 6.</p> <p>ICT infrastructure and services will be based on the system planned for deployment by the PILIER project in the establishment of the hydrometeorological operational forecast centre (2024–2025-time frame). The IT architecture includes servers to equip a data centre with associated software for data management (described in NCP).</p> <p>In Chad, there is limited maintenance capacity and limited coverage of the telecommunications and infrastructure to ensure sustainability in the long term. Therefore, any station maintained, improved, or deployed should be accompanied by the corresponding training of staff for data management to ensure proper usage and exploitation of the observational data. This should also be accompanied by training in technical and IT skills of dedicated personnel to guarantee a sustainable approach towards network deployment and data transmission.</p>
<b>Create leverage</b>	<p>In Chad, hydrometeorological services are provided by two separate entities: All Meteorological and climatological services are provided by the agency “Agence Nationale de la Météorologie (ANAM)”, and the hydrological services by the “Direction des Ressources en Eau (DRE)”. These institutions are under the “Ministère de l’Aviation Civile et de la Météorologie Nationale (MACN)” and the “Ministère de l’Hydraulique urbaine et rurale”, respectively. Since the focus of SOFF is on Surface and upper air observation stations, the main player in GBON is ANAM.</p> <p>ANAM works in partnership with other government agencies to produce ten-day bulletins and produce Early Warnings, especially in the food security sector. In that context, ANAM works in partnership with the following projects: Information System for Food Safety and Early Warning (“Système d’information sur La Sécurité Alimentaire et l’Alerte Précoce (SISAAP)”), The National Office for Food Safety (“L’Office Nationale pour la Sécurité Alimentaire (ONASA)”), the National Agency for Support to Rural Development (“l’Agence Nationale d’Appui au Développement Rural (ANADER)”, the Ministry of Livestock (“Ministère de l’élevage”), Water Resources Directorate (“La Direction de ressources en eau (DRE)”), and with the Direction of Civil Protection (“la Direction de la Protection Civile (DPC)”). It also collaborates with the “Commission of the Basin of Lake Tchad (CBLT)” in data exchange and</p>

use of CBLT Automatic Weather System (AWS) information. ANADER, through its regional entities, provides data on precipitation.

Other than NAP and PGCRCCT projects, a few other projects are ongoing or about to start in Chad:

- a. The **CREWS** Project (Climate Risks and Early Warning System) – WB/WMO. The CREWS implemented jointly by the World Meteorological Organization (WMO - 1.5 million USD) and the World Bank (WB- 1, 6 million USD). The part initiated by the WMO is implemented by ANAM through 3 pilot sites for improving agrometeorological information in support of farmers and market gardeners. SOFF will contribute to increasing the capacity of the ANAM in the production of high-quality data and services.
- b. **FSRP** (Food Safety and Resilience Program) – WB: the FSRP Project is in development and provides approximately USD 8 million in support of weather services. The support concerns the training of several engineers and technicians and observation systems. In exchange, ANAM will have to produce appropriate forecasts and timely alerts for effective and efficient decision-making for the agricultural sector. In that context ANAM would access quality NWP products outputs due to SOFF investment and would present high quality information to the agricultural sector.
- c. **IFAD** (International Funds for Agricultural development): The International Fund for Agricultural Development project targets the integration of climate information and observation stations in support of agriculture. The weather stations will also support the agricultural insurance program. Which means that ANAM must collect, analyze and disseminate data for agricultural risk management. Here again SOFF complement the high-quality data necessary to its mission. This project targets the Lac, Hadjer Lamis and Kanem Nord regions.
- d. **PILIER** (Projet Intégré pour la Lutte contre les inondations et la résilience urbaine à N'Djaména)– World Bank: The Pilier project is a World Bank (WB) project for integrated urban resilience in the city of Ndjamen. The project, in its component 2.2: Strengthening early warning and disaster preparedness in the city of N'Djamena provides for the development and implementation of an integrated early warning system requiring capacity building of hydrometeorological services, in particular the ANAM and the DRE. The project as a whole targets funding of approximately 140 million USD divided into several components including 2.2. The project will provide ANAM with an hydrometeorological operational centres which will equipped with equipment necessary to manage data and to develop products and services in support, particularly of the city of N'Djamena. SOFF will complement the operational data of ANAM and help assess severity of hydrometeorological hazards and their impacts.
- e. **PGCRCCT** (Projet Gestion Communautaire des Risques Climatiques au Tchad) – PNUD. The project main objective is to strengthen the response capacities of vulnerable populations in order to cope with climate shocks. The project concentrates in 44 communities in the two Logones areas to entice the communities to embrace community-based climate risk management processes and support resilience to climate change risks. SOFF will facilitate the predictions of hazards therefore allowing the population to take appropriate actions to save lives and properties.



- f. **EW4ALL Chad** – Under the UN Secretary General’s Initiative to ensure every citizen on earth is protected by early warnings, GCF Project Preparation Facility funding is being used to develop a full GCF proposal including a pre-feasibility study, economic analysis, gender analysis and safeguard assessments is being prepared in Chad. These activities are expected to both leverage the SOFF investments and further capitalize on them to ensure additional coverage of skillful early warning systems are utilized in Chad.

Consequently, there has been increased interest in anticipatory action by the Chadian Government and its partners. In October 2022 a framework for anticipatory action for drought was approved by the UN OCHA’s Central Emergency Response Fund (CERF) which defines early warning alerts for predicted rainfall deficits that could lead to dry conditions and reduced agriculture harvests. Similarly, work is in progress on a framework for anticipation of flooding. WFP is one of OCHA’s main partners in the CERF AA frameworks developing them in more than 12 countries across Asia, Latin America, and Africa. A working group for Anticipatory Action has been formed around this, with regular attendance from WFP, FAO, UNICEF, OCHA, UNDP and others, including government representatives. The education cluster in Chad has submitted a concept note to Education Cannot Wait to add an AA in Education component to the CERF framework for anticipatory action, including an objective relating to school feeding. WFP has been involved in the coordination calls and will continue to engage through the CERF working group.

In Chad, the AA CERF framework led by OCHA is distinct from the WFP’s more rigorous AA framework, which is still under development. The WFP framework emphasizes the importance of designing triggers and thresholds that are closely linked to ANAM’s forecasting and observation systems. This system prioritizes not only the timeliness but also the skill and resolution of forecasts, crucial for effective anticipatory actions. This approach ensures that responses are both swift and precisely targeted to the needs.

The installation of Automatic Weather Stations (AWS) in Chad, supported by the Systematic Observation Financing Facility (SOFF), will substantially enhance climate data collection, validation of forecasts, development of impact-based thresholds, and probabilistic triggers for issuing early warning alerts in support of improving both seasonal and long-term adaptation strategies. Additionally, the data will highlight regions in Chad most susceptible to climate-related impacts such as droughts and floods, facilitating more effective allocation of humanitarian resources. These stations will also refine local weather forecasting and early warning systems, bolstering preparedness and response to adverse weather and extreme events, critical for reducing economic losses and saving lives during emergencies.

In 2024, WFP has received funding from the government of Austria to develop anticipatory action mechanisms, including triggers and action plans in the case of a disbursement. Actions in the workplan include developing readiness and trigger thresholds for drought and flooding with the relevant government agencies and coordinating capacity building for the development of sub-seasonal forecasts. A roadmap will be developed to improve the AA and early warning systems and to transfer these to the responsibility of the authorities for drought and flood. Eventually these early warning systems should be handed over to the government. Another key output for the project is to integrate AA into Disaster Risk Management policies, strategies and plans at all levels.

In tandem, plans will be developed in the case of a trigger, in collaboration with local and national authorities.

<b>Maximize delivery capacity</b>	<p>Geosphere Austria, the Austrian Federal Institute for Geology, Geophysics, Meteorology and Climatology, formerly known as the Austrian Meteorological and Geodynamics service (ZAMG), has performed the Country Hydromet Diagnosis in Kazakhstan, North Macedonia and South Sudan, and has deployed EWS in Myanmar. Based on this practical experience, Geosphere Austria and WFP can act in collaboration as SOFF peer advisor and Implementing Entity, respectively with adequate capacity to deliver SOFF support efficiently and effectively in Chad. Currently, Geosphere is not receiving any funding from other sources for Chad.</p> <p>The WFP has a country office in Chad, supported by the WFP's main Headquarters based in Rome, Italy, with excellent contacts with the government and other organizations relevant to facilitating interactions for SOFF work and missions during the readiness and implementation stages. The close cooperation and/or implementation of other complimentary projects in Chad, as previously mentioned (PILIER, CREWS, CERF etc.) by WFP, ensures efficient collaboration and implementation of SOFF activities towards improving both GBON compliance and its leveraging/integration into complimentary initiatives. For instance, the installation of the Weather Information System (WIS) in Chad will be conducted through the CREWS project, while the PILIER project is responsible for managing data operations, enhancing forecasting capabilities, and rehabilitating the operational centre which also includes the provision of storage servers and specialized training for data management technicians.</p> <p>WFP Chad is actively implementing several climate related programmes aimed at strengthening food security and community resilience. This includes WFP's efforts in providing climate risk insurance, which offers financial protection to communities based on rainfall observations, helping them access financing immediately to recover from the impacts of climate extremes. To ensure communities are adapting to a changing climate, WFP's Food Assistance for Assets program focuses on improving long-term food security by building assets that also enhance resilience to climate shocks. The resilience-building activities involve rehabilitating degraded lands and promoting sustainable agricultural practices, crucial for maintaining the ecological balance and ensuring food production sustainability. WFP also supports sustainable energy solutions, such as solar-powered equipment for food production, and storage, which helps reduce dependency on unsustainable energy sources and supports the overall well-being of communities. WFP's anticipatory action programme ensures these long-term investments are protected by skilful early warnings, prearranged financing and actions that save lives and livelihoods. Together, these projects form a comprehensive approach to addressing the challenges posed by climate change in Chad.</p>
<b>Sub-regional gains</b>	<p>The Republic of Chad has the following neighboring countries: Sudan (Political Stability global rank 182), Libya (186), Niger (174), Cameroun (171), Nigeria (178), and Central African Republic (185). Thus, it is surrounded by countries which are considered politically unstable. In addition to these boundary conditions, Chad (global rank 185) is going through a governmental transition resulting in more emphasis on the government's future internal structure than any other external relationship within its region.</p> <p>None of the neighbouring countries has been selected in the first batch of countries considered for SOFF. However, stations identified near borders can also serve the neighbouring countries once their data are transmitted internationally. Efforts should be made to have these countries share their own data as well, and to enhance the cooperation of NMCs within the region regarding monitoring and downstream meteorological applications.</p>

	<p>There are regional programs and projects that can be leveraged to advance GBON, particularly in the area of data management and training. Among those, CREWS-Central Africa; CREWS Chad; WMO SWFP (Severe Weather Forecasting Program).</p> <p>One aspect to be considered in terms of resource optimization is the purchasing of the same type of AWS equipment (ADCON) and the establishment of a cooperative agreement with ASECNA, which also operates in three of the neighbouring countries (Cameroun, Niger and Central African Republic). This would facilitate regional maintenance and more effective spare parts management and training. As the other neighboring countries get involved in SOFF, regional discussions could be organized on these items, as Chad is a pilot project.</p> <p>It is particularly important to highlight that Chad and one of its neighbouring countries, Sudan, belong to the countries targeted within the Early Warnings for All initiative (EW4All). As it is well known, SOFF is contributing to the pillar “Detection, observations, monitoring, analysis and forecasting of hazards” with specific actions toward closing the significant Global Basic Observing Network (GBON) gap. The downscaled action plan for the Early Warnings for All initiative, considers an action to provide SOFF long-term, open-ended grant financial and technical support to close Africa’s GBON gap and to internationally exchange the mandatory GBON data in a sustained manner. It is foreseen to have a specific workshop within the EW4All initiative to capitalize on the activities foreseen therein and to use it as a platform to further engage with those intergovernmental agencies, regional commissions, and regional centers, financing institutions and UN agencies and programs that may facilitate the sustainability of the deployed network. This, in turn, is a prerequisite for a future national early warning system that is urgently needed.</p>
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### 3. Readiness and Country context

#### **SOFF Beneficiary Country Capacity Assessment**

ANAM is responsible for the provision of meteorological services, including weather forecasts and early warnings, in Chad. It is an Agency, which should be self-funded, but currently, its budget covers mainly the salary costs. No budget is allocated for the operations and maintenance of its infrastructure other than some royalty from the Aviation Industry (ASECNA Delegation). In its creation act, it was endowed with a legal personality and financial autonomy. Unfortunately, it is not yet entrusted with such kind of financial independence from the government that would be needed to sustain all its NMS functions. The lack of qualified personnel, operational infrastructure and capacities currently constitute still major obstacles for ANAM in this regard. With government intervention, ANAM shall be responsible for the operations, maintenance, and replacement of the equipment, considering its life cycle and subsequent replacement. ANAM should be supported by ASECNA through an agreement as mentioned in the NCP and as done in other ASECNA member countries when necessary.

In February 2022, Chad submitted its first National Adaptation Plan to the UNFCCC based on the NAP project. ANAM benefits from the 69 AWSs<sup>2</sup> installed and to be installed under the project (implemented by UNDP). It is recommended to leverage the NAP project and other ongoing projects and activities in Chad to facilitate the buildup and operations of the GBON stations and to avoid duplication of efforts in data acquisition and exploitation. A strategic plan is under development through CREWS-Chad project and includes human resources capacity building and modernization of materials and infrastructure including additional weather observation stations. The Plan also calls for an effective data management system, which will be facilitated by the implementation of the PILIER project through the establishment of a fully equipped Hydro-meteorological operational Centre. The Centre will be equipped with adequate servers and data management software to facilitate the provision of accurate weather and climate services and warnings. Therefore, SOFF implementation will lean on the data management system that will be provided by PILIER (project implementation began on 8 Aug 2023). The World Bank Project FSRP will support the training of meteorological engineers and technicians, therefore offering the opportunity for qualified maintenance services. The CREWS project (WMO/WB), terminating in 2024, will facilitate the international transmission of ANAM data and the implementation of WIS 2.0 when it becomes available for the pre-operational phase of its implementation in 2024 (WIS 2.0 is currently in its implementation pilot phase) that will profit SOFF.

Considering these national conditions, support from other organizations working in Chad in the implementation of this project would significantly improve delivery of the project objectives. Appropriate mitigation measures have been identified (summarized in the Risk Management section in this proposal). Accordingly, the Chad Meteorological and climatological services (CMCS) has requested the involvement of other institutions to support the implementation of the project. We envisaged that in the course of implementing this project, the CMCS would build its capacity and be able to implement similar programs and projects in the future. The capacity building program proposed will greatly build the capacity of CMCS during this project.

It is to be noted that the NCP envisages the expansion of the institutional and human capacity to ensure the success of the implementation of SOFF support.

#### **Investment Phase Alignment with the GBON National Contribution Plan**

The investment proposal includes all activities and recommendations from NCP. The NCP estimates a 5-year implementation period (separated into 3 phases), upon detailed consideration of the baseline capacity of CMCS and the existing risks as detailed in the risk section. The actual proposed phases of investment should be accompanied with a full plan detailing the type of stations, the parameters observed, their maintenance strategy and costs for implementation for various components; a proper maintenance strategy should be developed in collaboration with the manufacturer to achieve sustained GBON compliance in the country.

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<sup>2</sup> UNDP installed a total of 69 stations: 64 from NAP and 5 other provided by the PGCRCCT (Project de gestion Communautaire de risques climatiques au Tchad) to the NAP project to take advantage of their installation program. Both NAP and PGCRCCT were managed by UNDP.

#### 4. Investment Phase Outputs and Budget

The GBON National Contribution Plan provides detailed information on the Investment Phase Outputs (please see Annex 1).

Output 1. GBON institutional and human capacity developed	Main activities	Budget (USD)
1.1 <b>National consultations</b> including with CSOs, and other relevant stakeholders conducted	<ul style="list-style-type: none"> <li>• Conduct consultation workshops to set up a legislative framework, including establishing the responsibility of the CMCS in relation to generation and dissemination weather and climate data and the use the weather observation infrastructure being rolled out by SOFF funding.</li> <li>• Advocacy towards the establishment of this legal framework defining role and mandate of the CMCS.</li> <li>• Workshops to include a specific dialogue platform for the CSOs addressing gender opportunities (Gender mainstreaming)</li> <li>• Quarterly meetings of the SOFF Project Steering Committee involving key government stakeholders.</li> <li>• Field missions and consultations</li> </ul>	<b>491,292</b>
1.2 <b>NMHS institutional capacity</b> required to operate the GBON network developed	<ul style="list-style-type: none"> <li>• Stakeholder engagement workshops/consultations with inclusion of CSOs.</li> <li>• Support the development of policy or national strategy at government level on data sharing, public data services or public-private engagement.</li> <li>• Capacity strengthening for ANAM to operate and GBON network, including some key aspects for institutional infrastructure (2 vehicles in key areas), as well as specialized staff capacity development (to benchmark with another well-established weather service).</li> <li>• Generation of Standard Operating Procedure (SOP) and quality assurance/quality control for the station operations: Implementation of Quality Management System</li> <li>• Deliver capacity building activities on gender-sensitive topics in the context of SOFF operations.</li> <li>• Promote gender equality by establishing minimum thresholds for female participation in SOFF- related activities.</li> </ul>	<b>68,675</b>

<p>1.3 <b>NMHS human capacity</b> required to operate the GBON network developed</p>	<ul style="list-style-type: none"> <li>• Training and capacity development for staff (On Weather observations and weather parameters, Station components and maintenance, Calibration, IT, ICT and potentially cloud services, and Best practices in data quality and quality management) of 5 technicians.</li> <li>• Basic and best practices training for observers, and caretakers.</li> <li>• Train new recruited, IT expert, maintenance technicians. The draft 2023-2028 strategic plan calls for a total staff of 70 including at least 7 operational meteorologists and 6 maintenance technicians.</li> <li>• Design capacity development activities for senior management.</li> <li>• Develop Gender assessment plan as part of the human capacity assessment (including areas as gender discrimination, harassment, gender balance etc..) and provide recommendations accordingly.</li> <li>• Support in formulating policies or national strategies for data sharing and public data services.</li> <li>• Development of ANAM business model that aligns with GBON Network's sustainability objectives.</li> <li>• Training on OSCAR/Surface and support on updating WIGOS metadata.</li> <li>• Establishment of an MoU for collaboration between ASECNA and ANAM (incl. exchange of data nationally and internationally using the ASECNA link to WIS (WMO Information System), maintenance of the stations including an acquisition of spare parts for stations)</li> </ul>	<p><b>1,488,814</b></p>
Output 2. GBON infrastructure in place	Main activities	Budget (USD)
<p>2.1 <b>New land-based</b> stations and related equipment, ICT systems, data management systems and standard operating practices in place</p>	<ol style="list-style-type: none"> <li>1. Installation and operation of additional 6 AWSs in Bardai, Faya Largeau, Koro-Toro, Fada, Zouar and Biltine funding by SOFF</li> <li>2. Installation and operation of 2 other AWSs, amongst those planned for installation by UNDP (considered for GBON)</li> <li>3. Purchasing spare parts for the whole network of the existing stations and the 6 additional proposed stations for the North</li> </ol>	<p><b>334,375</b></p>

2.2 <b>Improved land-based</b> stations and related equipment, ICT systems, data management systems and standard operating practices in place	<ol style="list-style-type: none"> <li>1. Replace batteries and fix the telecommunication issues of the first 19 NAP AWS stations selected for GBON (to start international data transmission)</li> <li>2. Rehabilitation of the telecommunication issues affecting the 6 AWS stations installed by the NAP project.</li> <li>3. This includes all ICT related cost.</li> <li>4. Rehabilitation of existing stations which includes upgrading of communication systems and programming for data transmission in accordance with GBON requirements.</li> <li>5. Development SOP</li> </ol>	<b>190,018</b>
2.3 <b>New upper-air</b> stations and related equipment, ICT systems, data management systems and standard operating practices in place	<ol style="list-style-type: none"> <li>1. Support for the procurement and setup of three new Upper-air stations and associated logistics (SAGIM System same as ASECNA) at the Faya Largeau, N'Golo Fitri and Goz Beida</li> <li>2. procurement and installation of solar energy system and water wells for the hydrogen generator</li> <li>3. Procurement of Hydrogen Generator and container system</li> <li>4. Development of Upper-air SOP for data management and sharing</li> </ol>	<b>910,697</b>
2.4 <b>Improved upper-air</b> stations, related equipment, ICT systems, data management systems and standard operating practices in place	N/A	
<b>Outcome: Sustained compliance with GBON</b>	<b>Main activities</b>	<b>Budget (USD)</b>
3.1 <b>GBON land-based stations' commissioning period completed</b> , country-specific standard cost for operations and maintenance established, and data sharing verified by WMO Technical Authority	<p>Routine maintenance and verification of the observation network in accordance with the maintenance plan for the 33 GBON stations during the 5-year period (incl. diesel for the 2 vehicles and maintenance)</p> <p>Conduct preventive maintenance and setup for additional AWS stations in the 6 additional AWS in Bardai, Faya Largeau, Koro-toro, Fada, Zouar, and Biltine.</p> <p>Perform annual inspections and maintenance for AWS stations, ensuring their operational integrity.</p>	<b>439,000</b>
3.2 <b>GBON upper air stations' commissioning period completed</b> , country-specific standard cost for operations and	<p>Cost for upper air consumable such as radio sondage, and backup helium gas.</p> <p>Maintenance, commissioning and technical assistance</p>	<b>2,128,850</b>

maintenance established, and data sharing verified by WMO Technical Authority	<b>Details of activities:</b> <ol style="list-style-type: none"> <li>1. Technical site assistance package for installation, commissioning, and training on specific site safety, usage, and regular maintenance of backup generators.</li> <li>2. Contingency costs.</li> <li>3. Transportation cost for the container (shipping to Douala, then to N'Djamena and to sites).</li> <li>4. Totex/Balloons 350 g (Quantity for 6 sites for 3 years of operation, 2 balloon releases per day) + spare sparts.</li> <li>5. Radiosondes METEOMODEM M20 with Barometer (Quantity for 3 Sites for 3 years of operation).</li> <li>6. Parachutes METEOMODEM for radiosondes (quantity for 3 sites for 3 years of operation).</li> </ol>	
<b>Total for all Outputs</b>		<b>6,051,722</b>
<b>Implementing Entity Fee<sup>3</sup></b>		<b>393,362</b>
<b>SOFF peer advisory services</b>		<b>500,000</b>
<b>Total funding request</b>		<b>6,945,084</b>

<b>Budget breakdown by UNDG category (Excluding SOFF peer advisory services)<sup>4</sup></b>	<b>USD</b>
Staff and personnel costs	<b>1,252,154.94</b>
Supplies, Commodities and Materials	<b>3,131,559.79</b>
Equipment, Vehicles, Furniture and Depreciation	<b>40,188.00</b>
Contractual Services Expenses	<b>691,190.46</b>
Travel	<b>232,572.96</b>
Transfers and Grants	<b>407,109.45</b>
General Operating Costs	<b>296,946.40</b>

<sup>3</sup> The implementation fee cannot exceed 7% of the total Investment Phase funding request.

<sup>4</sup> The total budget (excluding the budget for the SOFF peer advisory services) is expected to be disaggregated by UNDG category. It includes direct and indirect costs of the Implementing Entity and beneficiary countries to establish a fully operational observation network, collecting and internationally exchanging data according to GBON requirements. Eligible expenditures are any type of expenditure required to implement the GBON National Contribution Plan, including the requirements of the beneficiary country to manage and administer the day-to-day activities of the Investment Phase. It also includes the budget required for the operation and maintenance of the observing network.



## 5. Investment Phase Implementation Arrangements

<p><b>Execution model and implementation arrangements</b></p>	<p><b>IMPLEMENTATION</b></p> <p><b>Project Organization and Institutional Analysis</b></p> <p><b>Implementing Entity:</b> WFP will take charge as the main Implementing Entity, overseeing the entire process including execution, financial management through WFP HQ's Trust Fund, evaluation, annual reporting, and project conclusion within agreed deadlines. It will ensure strict adherence to the SOFF Operational Manual and legal frameworks, guaranteeing that funds are used properly, and procurement aligns with UN principles of value, fairness, transparency, and global competition.</p> <p>A steering committee involving ANAM and WFP, will be formed to guide the project both strategically and technically, meeting regularly for oversight and direction. ANAM acts as the national Executing Entity, responsible for on-the-ground project execution and resource management, under a cooperation agreement with WFP outlining roles, responsibilities, and financial oversight. GeoSphere will act in a supervision and advising capacity and focal point with the SOFF Secretariat as a cross-check of the evolution of the overall implementation phase activities.</p> <p>Procurement will mainly be handled by WFP, leveraging its procurement expertise and infrastructure for the efficient acquisition of assets. A joint procurement plan with ANAM and Geosphere will outline key procurement phases, technical requirements, and supplier engagement strategies, focusing on transparency and competitive procurement processes. This committee will include officers and experts from ANAM and WFP, with Geosphere in an advisory role.</p> <p>ANAM, supported by WFP and partners, will ensure effective project management and data transmission to WIS 2.0, maintaining close coordination across its regional hubs and with WFP field offices for streamlined project execution and monitoring.</p> <p><b>Executing Entity:</b> In Chad, the National Meteorological Agency (ANAM) is at the forefront of meteorology and climatology, essential for ensuring the safety and well-being of the population. By offering a suite of critical services, including weather observation, forecasting, and alerts, ANAM enhances both air transport safety and environmental defense. Central to its mission is the provision of accurate rainfall data, which plays a pivotal role in supporting agricultural activities. Farmers rely on this information to make informed decisions about sowing times, effectively mitigating risks associated with flooding and pest infestations, such as striga. This highlights the crucial need for precise and accessible meteorological data, particularly for Chad's agricultural sector, where weather patterns significantly impact livelihoods.</p> <p>Recognizing the broader challenges posed by climate change and the necessity for robust infrastructure to combat these issues, ANAM has embarked on a path of collaboration with various partners. Among these, the Lake Chad Basin Commission (CBLT) and the United Nations Development Programme (UNDP) stand out, working together on regional initiatives aimed at addressing the dual challenges of climate change and security within the Lake Chad Basin. A key focus of these partnerships is the establishment and enhancement of meteorological infrastructure, including the installation of new weather stations. These efforts are designed to stabilize communities reeling from crises by rehabilitating essential infrastructure, thereby fostering climate resilience and safeguarding the region's future. Through these collaborations, ANAM not only contributes to the immediate improvement of meteorological data collection and dissemination but also underpins broader strategies for sustainable development and climate adaptation in Chad and the surrounding regions. The initiative underscores the interconnectedness of accurate weather forecasting, agricultural planning, and climate change mitigation,</p>
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	<p>highlighting the vital role of international cooperation and advanced infrastructure in securing a resilient future.</p> <p><b>Peer advisor:</b> The Peer Advisor for this project is GeoSphere Austria. It will provide technical support and contribute to supervision for the implementation of the project as well as support WFP and contribute to providing regular feedback to the SOFF secretariat on the evolution of the Investment Phase activities. In addition, the Peer Advisor will:</p> <ul style="list-style-type: none"> <li>• Provide general technical advisory services to support the beneficiary country and the implementing entity in the implementation of the National Contribution Plan and agreed activities for the Investment Phase.</li> <li>• Support exploration of synergies with ongoing complementary activities and facilitate stakeholder engagement in coordination with the Beneficiary Country and Implementing Entity.</li> <li>• Contribute and provide recommendations and guidance on reporting.</li> <li>• Provide recommendations and content for the interface towards the second stage of Investment Phase.</li> <li>• Provide technical support and review of the AWSs and Upper Air Stations tender process.</li> <li>• Technical support on management, data management, IT and communication tenders and purchasing processes.</li> <li>• Provide specific training activities and acting as synergies with WMO RDC and any related training entity approached. Support on Standard Operating Procedures (SOP) development and quality control and quality assurance mechanisms.</li> <li>• Advice and support for regional capitalisation. Participate and coordinate as needed liaison activities with the international community.</li> <li>• Advice for the generation of private public partnerships and engagement.</li> <li>• Advice for policy development and high-level engagement.</li> </ul> <p>WFP will support ANAM, with the support of GeoSphere Austria, to procure the equipment, install or rehabilitate existing stations according to the technical specifications for GBON, and develop the activities to strengthen the human and institutional capacity.</p>
<p><b>Private sector involvement</b></p>	<p>In this initial stage it is envisaged to establish a partnership or contractual cooperation with ASECNA which is an international organization responsible for regulating aviation and meteorology in west African countries and is not part of the private sector. ASECNA operates under the joint authority of its member states, ensuring safe and efficient air navigation services across the region.</p> <p>However, to understand the potential role of other private sectors for future sustainability, private sector partners will be invited to join stakeholder engagement workshops.</p> <p>The only external entity providing operational observations and data services in Chad is ASECNA and its Delegated Authorities (the Delegation). They operate in Chad 17 conventional surface observation stations (with observers) of which 13 are co-located with the new AWSs of ANAM (UNDP stations), but ASECNA does not have access to the AWS data. It has a great interest in accessing the ANAM AWS data instead of their conventional system data. ASECNA is also open to contributing to the operation and maintenance of ANAM station data. This could be achieved by establishing a MOU between ANAM and ASECNA. ASECNA also has an optical fibre connection with ANAM, which could facilitate data exchange between them. In addition, using the ASECNA WIS (WMO Information System) connection could help disseminate ANAM data internationally, thus meeting the GBON requirements. ASECNA is moving to implement WIS, as it currently uses the Regional Telecom Hub in Niamey.</p>

	<p>In consideration of the limited availability of a relevant private sector in the field of meteorology, it is advisable to adopt a fully public business model, i.e., for the government to assume full control of the observational capacities/operation and services. This model should be set up in a way that it does not prevent ASECNA from providing support to reinforce ANAM capabilities.</p>
<b>Civil society participation</b>	<p>Civil Societies Organizations (CSOs) which could include community-based Organizations and Non-Governmental Organizations (NGOs) are, in most cases, the recipient of weather services to support their activities. They need, therefore, to be considered in weather-related outreach programs. SOFF's key objective is the improvement of warnings of high-impact meteorological events whose impacts are exacerbated on most vulnerable people (gender, elderly, sick ones). CSOs constitute the best conduits in reaching out to these most vulnerable people. Within the investment phase, it is recommended to make use of the stakeholder engagement workshops to include a specific dialogue platform for the CSOs addressing gender opportunities while at the same time advocating for the rights of marginalized groups and more vulnerable individuals.</p> <p>It is also expected that CSO are brought in through collaborative processes, specifically relevant during the stakeholder engagement workshops, where specific vulnerabilities and gender aspects will be addressed. The CSO will also be crucial play a critical role especially in sustainability of this project. They'll play a critical role in preparing the government and communities to eventually manage and implement government projects by themselves.</p>
<b>Fiduciary systems</b>	<p><b>Information on the financial flows</b></p> <p>WFP and ANAM will formalize a comprehensive letter of agreement, which will detail the mutual responsibilities of both parties. This document will encompass various crucial aspects, including reporting requirements, monitoring and evaluation processes, auditing standards, payment procedures, the specific objective of the collaboration, the duration of the agreement, the conditions of any amendments and the conditions of termination throughout the SOFF investment phase.</p>
<b>Social and environmental safeguards</b>	<p>Since 2021, the WFP Environmental and Social Safeguards Framework (ESSF) applies to all WFP activities and the standards are included in agreements with Cooperating Partners. The WFP ESSF is based on existing 'do no harm' provisions mandated by WFP's Environmental Policy, Climate Change Policy, Policy on DRR and Management, Humanitarian Protection Policy, Statement of Humanitarian Principles, Guidance Note on Prevention of Child Labour, Policy on Building Resilience for Food Security and Nutrition, Gender Policy, Policy on HIV and AIDS, Disability Inclusion Strategy and relevant international agreements and treaties. The WFP ESSF is fully aligned with the Model Approach to Environmental and Social Standards in UN Programming.</p> <p>Regarding cross-cutting issues on human rights, women's rights and gender equality, disability inclusion, climate/environment, the following applies:</p> <ul style="list-style-type: none"> <li>• Climate and environment: The project design adheres to core environmental standards outlined in the WSP ESSF, preventing potential environmental harm and ensuring sustainability. The Environmental and Social Risk Screening Tool is employed to categorize risks, allowing for informed decision-making to mitigate risks. Additionally, the Environmental Management System guides daily operations to ensure environmental sustainability is prioritized over the project's timespan.</li> <li>• Women's rights, gender equality, local and indigenous communities: Upholding accountability, inclusion, and non-discrimination principles, the project prioritizes the empowerment and participation of marginalized and vulnerable groups. In line with the UN Declaration on the Rights of Indigenous Peoples, Local and Indigenous</li> </ul>

	<p>Communities rights are respected. The SOFF investment phase is committed to gender equality and women’s empowerment, aligning with WFP’s Gender Policy (2022) based on gender-transformative approaches. WFP will ensure that women and girls, in addition to men and boys, participate meaningfully throughout the full investment cycle. Activities will respond to beneficiaries’ gender-differentiated needs and interests, paying attention to power dynamics that might increase risks of gender-based violence (GBV). Further, WFP is fully committed to beneficiaries’ protection from sexual exploitation and abuse (PSEA), as demonstrated by the WFP Executive Director’s Circular (OED2023/011) and WFP’s current role as an Inter-Agency Standing Committee (IASC) Champion for PSEA in 2024. This aligns with ANAM’s recognition of the importance of Gender, Equality and Social Inclusion (GESI) and the crucial role of the department to address the issues of GESI and support people and communities disproportionately impacted by extreme weather, seasonal events and climate change. They recognise the need to proactively support women, girls and marginalised people who are more likely to be negatively affected by the impacts of a climate and weather-related extreme events. It is recommended that ANAM undertake Gender, Equality and Social Inclusion (GESI) training as part of a broader activity to ensure GESI is mainstreamed in their working practices. Next to WFP’s corporate guidelines and tools for gender, protection and inclusion, the SOFF investment phase will also integrate Austrian Meteorological and Geodynamics service Minimum Standards. At the onset of the SOFF investment phase, a gender and inclusion gap assessment will be conducted, informing a work plan that will outline how project activities will meet GESI Minimum Standards throughout the implementation timeline.</p>
<b>Dispute resolution mechanism</b>	<p>WFP is first and foremost accountable to the people it serves; accountability, participation and empowerment through meaningful and consistent engagement are the key principles for mainstreaming protection. This means ensuring that affected populations, their families and diverse community organizations representing young people, older people, indigenous peoples, people living with HIV/AIDS and persons with disabilities participate in the decisions that affect their lives, receive the information they need to make decisions and have access to safe and responsive mechanisms for providing feedback. It also means working to ensure that affected populations have safe and dignified access to assistance in proportion to their needs, priorities and preferences. Investing in engagement with affected populations through adapted and accessible materials in clear terms and appropriate languages will facilitate acceptance of WFP’s presence and sustained and unhindered humanitarian access, enabling affected populations to obtain WFP services and providing a level of protection for WFP staff and assets. This two-way communication with affected populations will be supported by the development of a system-wide community engagement strategy. This includes ensuring that activities designed at the field level with affected populations are validated by those same affected populations. Mechanisms for providing positive and negative feedback must also be set up to ensure that programmes and operations respond to needs as they evolve.</p> <p>Ensuring effective community feedback mechanisms (CFMs) is one of three pillars of the <a href="#">WFP Community Engagement for AAP Strategy</a>.</p> <p>WFP’s CFMs are governed by six <a href="#">assurance standards</a>, which govern the following areas:</p> <ol style="list-style-type: none"> <li>1) Reach and accessibility of CFM channels</li> <li>2) Minimum data collection</li> <li>3) Case handling procedures</li> <li>4) Information management systems</li> <li>5) Feedback analysis, reporting and tracking</li> <li>6) Quality assurance procedures</li> </ol>

<b>Additional relevant policies and procedures</b>	<p>WFP is a Green Climate Fund and Adaptation Fund accredited entity, a Climate Risks &amp; Early Warning Steering Committee member, a member of the Risk-Informed Early Action Partnership (REAP) Secretariat, and a lead partner in the EW4All Global Executive and Africa Action Plan.</p> <p>WFP has corporate supply chain and procurement policies and guidelines that will also apply to relevant activities under this project.</p>
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## 6. Investment Phase Monitoring and Reporting

The implementing entity, with the support of the peer advisor, is expected to monitor the implementation of the Investment stage following an output-based approach. The Investment Phase outputs as well as respective indicators and targets are presented below. *Please indicate the implementation targets and adjust the table as needed to reflect the implementation timeline. Years can be added.*

Output 1. GBON institutional and human capacity developed	Indicator	Target Y1	Target Y2	Target Y3	Target Y4	Target Y5
1.1 National consultations including with CSOs, and other relevant stakeholders conducted	# Workshops with Stakeholders	3 consultation workshops to set up a legislative framework of data sharing and responsibility of the CMC	0	0	0	0
	# Project steering Committee meetings	2	3	3	4	4
	# % of women participating in SOFF consultations with CSO and private sector	5%	10%	10%	15%	20%
1.2 NMHS institutional capacity required to operate the GBON network developed	# ANAM senior management trained	0	3	3	0	0
	# team member trained in project management	0	2	2	2	2

1.3 <b>NMHS human capacity</b> required to operate the GBON network developed	# training and capacity development for the 6 maintenance technicians, data manager, IT expert.	0	2	2	2	2
	% of women participating in the capacity-building activities	5%	10%	10%	15%	20%
<b>Output 2. GBON infrastructure in place</b>	<b>Indicator</b>	<b>Target Y1</b>	<b>Target Y2</b>	<b>Target Y3</b>	<b>Target Y4</b>	<b>Target Y5</b>
2.1 <b>New land-based</b> stations and related equipment, ICT systems, data management systems and standard operating practices in place	# stations as per the GBON National Contribution Plan	0	2	4	0	0

2.2 <b>Improved land-based</b> stations and related equipment, ICT systems, data management systems and standard operating practices in place	# stations as per the GBON National Contribution Plan	19	11	3	0	0
2.3 <b>New upper-air</b> stations and related equipment, ICT systems, data management systems and standard operating practices in place	# stations as per the GBON National Contribution Plan	0	0	1	2	
2.4 <b>Improved upper-air</b> stations, related equipment, ICT systems, data management systems and standard operating practices in place	# stations as per the GBON National Contribution Plan	N/A	N/A	N/A	N/A	N/A
<b>Outcome: Sustained compliance with GBON</b>	<b>Indicator</b>	<b>Target Y1</b>	<b>Target Y2</b>	<b>Target Y3</b>	<b>Target Y4</b>	<b>Target Y5</b>
3.1 <b>GBON land-based stations'</b> commissioning period <sup>5</sup> completed, country-specific standard cost for operations and maintenance established, and data sharing verified by WMO Technical Authority	# stations as per the GBON National Contribution Plan	19	30	33	33	33

<sup>5</sup> The commissioning period is the last year of the Investment Phase. The beneficiary country, supported by the Implementing Entity, must demonstrate the sustained operation of all the SOFF-supported stations according to the GBON compliance.



<b>3.2 GBON upper air stations'</b> commissioning period completed, country-specific standard cost for operations and maintenance established, and data sharing verified by WMO Technical Authority	# stations as per the GBON National Contribution Plan	0	0	1	2	3
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- The target of Y<sub>n</sub> includes the target of Y<sub>n-1</sub>

The implementing entity is expected to report on progress as described below.

- **Quarterly updates** to the SOFF Secretariat: A simple standardized form providing a progress update against the Investment Phase Outputs' indicators (and Outcome, where applicable<sup>6</sup>) and flagging major issues that are delaying implementation, if any.
- **Annual narrative and financial reports** according to the UNMPTF reporting requirements indicated in the legal agreements. The annual narrative report reports on progress on the delivery of the Investment Phase Outputs, measured by the Investment Phase Indicators. It includes also a review of the Investment Phase risks and an update on environmental and social safeguards, including gender.
- **Final narrative and financial reports** according to the UNMPTF reporting requirements indicated in the legal agreements. The final narrative report confirms the completion of all the activities and report on the number of stations that have completed the commissioning period (outcome). The WMO technical authority verifies GBON compliance of the indicated stations and provides a verification report to the SOFF Secretariat. Upon WMO verification, the Investment Phase can be considered completed. The Final Report should describe the Investment Phase results achieved and lessons learned; and it should also specify the long-term institutional arrangements to secure sustained GBON compliance with SOFF Compliance Phase support.

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<sup>6</sup> The quarterly reports should also include, when applicable, progress achieved in terms of new or rehabilitated stations that have become operational and are already sharing the data into the WIS 2.0 system as confirmed through the WIGOS Data Quality Monitoring System (WDQMS) web tool.

## 7. Investment Phase Risk Management Framework

The Investment Phase Risk Management Framework should be based on the [SOFF Risk Management Framework](#), incorporating relevant programmatic risks and including additional country-specific risks. Please follow the [methodology established by the Multi-Partner Trust Fund Office \(MPTFO\)](#) presented below.

### Overview:

Chad does not have a risk management framework in place, but a proper management of risks is required during and after the SOFF investment phase to prevent potential setbacks and to adapt as much as possible to an emerging risk. The risk management should follow the internal approaches existing at IE and that will facilitate the execution of the investment phase. Chad has a government in transition with a referendum on the type of estate occurring in December 2023 and a General election expected by December 2024. It is anticipated that things will go smoothly, otherwise it may be difficult to impossible (armed opposition is on standby) to implement the project.

		Impact				
		Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Extreme (5)
Likelihood	Very Likely (5)	Medium (5)	High (10)	High (15)	Very High (20)	Very High (25)
	Likely (4)	Medium (4)	Medium (8)	High (12)	High (16)	Very High (20)
	Possible (3)	Low (3)	Medium (6)	High (9)	High (12)	High (15)
	Unlikely (2)	Low (2)	Low (4)	Medium (6)	Medium (8)	High (10)
	Rare (1)	Low (1)	Low (2)	Medium (3)	Medium (4)	High (5)

The table below describes the most critical risks that may be encountered to be added to those presented in the business model selection.

Risk	Risk level	Likelihood	Impact	Risk Mitigation Measures
Non-compliance with fiduciary and procurement standards in some SOFF activities	Medium (3)	Rare	Moderate	WFP has strict corporate guidelines for procurement as well as fiduciary arrangements that are enforced at all levels.

SOFF-funded investments cause environmental or social impacts	Low (1)	Rare	Insignificant	<i>WFP has a corporate environmental and social safeguards screening tool that will be applied to all relevant activities. Through this tool, specific risk related to specific assets and activities are identified and mitigation measures planned.</i>
NMHS staff depart after being trained	High (9)	Possible	Moderate	<i>WFP, ANAM and Geosphere will collaborate closely to ensure that institutional capacity is built to ensure that even in case of departure of key staff members, institutional knowledge is not lost. This will include tailored training and capacity building methodologies and material.</i>
Slow implementation and delays in procurement, installation and capacity building activities	High (12)	possible	Major	<i>WFP, ANAM and Geosphere will establish a detailed workplan considering all relevant activities in order to ensure compliance with agreed timelines. In case there are any delays in specific activities, WFP, Geosphere and ANAM will closely coordinate to take preventive action to ensure that this does not affect any other activities.</i>

After the conclusion of the Investment phase, GBON data are not collected or shared or are shared of insufficient quality	High (9)	Possible	Moderate	<i>Corrective action will be taken in case during the implementation of this investment phase, new or different needs occur that may prevent the GBON data collection after the conclusion of the investment phase. Additionally, ANAM and WFP will take preventive action to avoid that data is not collected or shared through comprehensive investment in human capacity to conduct these tasks.</i>
Destruction or theft of SOFF-financed equipment and infrastructure	High (9)	Possible	Moderate	<i>ANAM will ensure adequate conditions for procured infrastructure, to ensure that it is safe from theft and destruction in case of major climate events.</i>  <i>ANAM and WFP will ensure adequate CSO involvement, including community sensitization that will aim to maximize local understanding and ownership of the initiative.</i>
Chad cannot make optimal use of data, including accessing or using improved forecasts products from the Global Producing Centers throughout the hydromet value chain	High (9)	Possible	Moderate	<i>Capacity building activities supported by WFP for ANAM complementary to the SOFF investment phase activities will have a specific focus on supporting ANAM to make optimal use of data, aligned with national policy</i>

				<i>frameworks for early warning, forecast-based finance and anticipatory action.</i>
Meteorological conditions that affect the deployment activities by limiting accessibility to sites and constructions as needed.	High (16)	Likely	Major	Adaptation of the timings and flexibility in the phased approach fulfilling the milestones consecutively. Take into account meteorological conditions in the planning phase
Limited availability of potential staff members to be trained to ensure full operations of the network.	High (12)	Likely	Moderate	Ensure a sufficient number of staff is secured and the training plan is followed; outreach to secondary schools and higher education facilities

## **Annex 1: National Gap Analysis**

The National Gap Analysis for Chad is available here: <https://www.un-soff.org/wp-content/uploads/2024/05/Chad-GBON-National-Gap-Analysis.pdf>

## **Annex 2: National Contribution Plan**

The National Contribution Plan for Chad is available here: <https://www.un-soff.org/wp-content/uploads/2024/05/Chad-GBON-National-Contribution-Plan.pdf>



## **Annex 3: Country Hydromet Diagnostics**

The Country Hydromet Diagnostics for Chad is available here: <https://www.un-soff.org/wp-content/uploads/2023/11/Chad-CHD.pdf>

## **Annex 4: Terms of Reference for the provision of technical advisory services during the SOFF Investment Phase**

### **1. Purpose and scope**

These Terms of Reference describe the provision of technical advisory services by GeoSphere Austria to Chad to contribute to the delivery of the SOFF Investment Phase outputs as described **in Section 3.**

The Terms of Reference are based on the [SOFF Operational Manual](#), Section 4.4.3 on the Operational Partners and Section 4.5.2 on the Investment Phase; as well as on the [SOFF Investment Framework](#), Section 4.5 on the Peer Advisors and WMO Technical Authority.

### **2. Roles and responsibilities**

#### **Beneficiary country National Meteorological and Hydrological Service**

- Is responsible for implementing the activities of the SOFF Investment Phase activities with the support of the Implementing Entity and the peer advisor.
- Submits the SOFF Investment Phase funding request using the standardized template provided by the SOFF Secretariat, including the Terms of References for the peer advisor's technical advisory services during the Investment Phase.
- Is responsible for collaborating with the Implementing Entity to provide all the necessary information, participate in and facilitate the national activities that the Implementing Entity and peer advisor need to conduct in order to deliver the SOFF Investment Phase outputs.
- Confirms the completion of all the Investment Phase activities and provides comments as needed on the final report prepared by the Implementing Entity.

#### **Peer advisor**

- Is accountable to the beneficiary country and the Implementing Entity.
- Is contracted via the WMO pass-through mechanism and operates on a cost-recovery basis.
- Provides technical advisory services to support beneficiary countries and Implementing Entities in the design and implementation of the SOFF Investment Phase activities.
- Contributes to the final report of the SOFF Investment Phase.

#### **Implementing Entity**

- Prepares the Investment Phase funding request in collaboration with the beneficiary country and the peer advisor, including the Terms of References for the provision of technical advisory services during the SOFF Investment Phase.

- Manages the Investment Phase activities following the terms specified in the funding request and in collaboration with relevant national partners, including civil society organizations.
- Delivers the Investment phase outputs and is responsible for their quality and timely delivery, in coordination with the country and the peer advisor.
- Provides quarterly updates to the SOFF Secretariat according to a simple standardized form and annual reports according to the United Nations Multi-Partner Trust Fund Office's reporting requirements indicated in the legal agreements.
- Informs the SOFF Secretariat of circumstances that could materially impede the implementation of the Investment phase or any considerable deviation in the conditions of the funding request to achieve its objectives.
- Submits the final report to the SOFF Secretariat including the beneficiary country's comments and the peer advisors' feedback. The final report describes the institutional arrangements to secure sustained operation and maintenance of the investments made.

### **WMO Technical Authority**

- Provides basic on-demand technical assistance to the beneficiary country, Implementing Entity and peer advisor on GBON regulations, including on monitoring and assessing the data-sharing status of the stations using the WDQMS web tool<sup>7</sup>
- Is responsible for the verification of data sharing of the new or rehabilitated surface and upper -air stations as per GBON regulations.
- WMO provides a verification report to the SOFF Secretariat, upon which the Investment Phase can be considered completed.
- Establishes and administers the pass-through mechanism for contracting and funding of the advisory services provided by the peer advisors.

### **SOFF Secretariat**

- Facilitates communication, coordination and collaboration between the beneficiary country, the Implementing Entity, the peer advisor and WMO Technical Authority.
- Reviews the SOFF Investment Phase funding request, including the Terms of Reference for the provision of technical advisory services and provides feedback as needed. Then transmits the funding request to the SOFF Steering Committee for their decision.
- Compiles quarterly updates and annual reports and monitors implementation based on information received from the Implementing entity, the peer advisor and the beneficiary country. Regularly informs the Steering Committee of progress.
- Coordinates regional implementation approaches to the SOFF Investment Phase.

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<sup>7</sup> The WDQMS web tool monitors the availability and quality of observational data based on near -real-time information from the four participating global Numerical Weather Prediction centres: the German Weather Service (DWD), the European Centre for Medium range Weather Forecasts (ECMWF), the Japan Meteorological Agency (JMA) and the United States National Centers for Environmental Prediction (NCEP). These are four of the ten World Meteorological Centres, designated by WMO to provide global numerical weather prediction products for all WMO Members.

- Confirms receipt of the final report by the Implementing Entity and completion of the Investment Phase based on WMO verification of data sharing.
- Organizes exchange of knowledge and experiences and captures lessons learned.

### **3. Peer advisors' activities during the SOFF Investment Phase**

The peer advisor will perform the following support activities during the investment phase:

- General technical advisory to support the beneficiary country and the implementing entity in the implementation of the National Contribution Plan and agreed activities for the Investment Phase.
- Support exploration of synergies with ongoing complementary activities and facilitate stakeholder engagement in coordination with the Beneficiary Country and Implementing Entity.
- Contribute and provide recommendations and guidance on reporting.
- Provide technical support and review of the AWS and manual station tender process.
- Technical support on management, IT and communication tenders and purchasing processes.
- Provide specific training activities and acting as synergies with WMO and any related training entity approached.
- Support on Standard Operating Procedures (SOP) development and quality control and quality assurance mechanisms.
- Advice and support for regional capitalisation. Participate and coordinate as needed liaison activities with the international community.
- Advice for the generation of private public partnerships and engagement.
- Advice for policy development and high-level engagement.