UN Multi-Partner Trust Fund Office

General Information

Fund	MPTF_00281: The Systematic Observations Financing Facility
FMP Record	MPTF_00281_00028: Chad Investment Funding Request
MPTFO Project Id	00140908
Start Date	01-Nov-2024
End Date	01-Nov-2029

Applicants

Status	Contact Type	Name	e-mail	Position	Telephone
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Description

The Systematic Observation Financing Facility (SOFF) Initiative is supporting the country together with Geosphere and the World Food Programme (WFP), aiming at enhancing Chad's meteorological observation capabilities. Utilizing the National GBON Gap Analysis and the National Contribution Plan, the initiative will rehabilitate, replace, and install new surface and upper-air observation stations across Chad, along with improvements in ICT and data management systems.

The project focuses on closing significant data gaps in Chad's observational network to align with Global Basic Observing Network (GBON) standards. This includes establishing 33 GBON-compliant surface stations and 6 upper-air stations, rehabilitating existing stations, and installing new ones in critical regions. ANAM's capacity will be strengthened through specialized staff training, stakeholder engagement, and policy development. Compliance with GBON standards will be ensured through the development of standard operating procedures (SOPs) for data collection, maintenance, and management, verified by the World Meteorological Organization (WMO). The project also includes refresher training, routine maintenance, and verification of the observation network.

The project aims to significantly enhance Chad's meteorological capabilities and climate data accuracy, supporting climate resilience efforts. Strategic partnerships and robust infrastructure development will ensure GBON standards compliance, providing reliable data for agriculture, water management, disaster risk reduction, and socio-economic development in Chad.

Universal Markers

Gender Equality Marker	Risk
• GEM1 - The Key Activity contributes to GEWE in a limited way	• Low Risk

Optional Markers

WB Income Category	• Low Income
UN LDC	• Yes
Small Island Developing States (SIDS)	• No

Fund Specific Markers	**SOFF Phases**	**SOFF Phases** • Investment Phase		
	EW4All	**Early Warnings for All initial focus countries** • Yes		
	Fragile and conflict-affected situation	**Fragile and conflict-affected situation** • Yes		
	Peer advisor	**Peer advisor** • GeoSphere [Austria]		
Geographical Scope	**Geographical Scope**	**Name of the Region**	**Region(s)**	**Country**
	• Country		• Africa	• Chad
Participating Organizations and their Implementing Partners	**UN Participating Organizations**	**Government/ Multilateral/ NGO/ Other**	**New Entities**	**Implementing Partners**
	• WFP - WFP (World Food Programme) • WMO - WMO (World Meteorological Organization)			

Programme and Project Cost	**Participating Organization**	**Amount (in USD)**	**Comments**			
	Budget Requested					
	WFP	$6,445,084.00	Insert fund_requested from Quantum;			
	WMO	$535,000.00	Insert fund_requested from Quantum;			
	Total Budget Requested	**$6,980,084.00**				
	Tranches					
	Tranche 1		Tranche 2		Tranche 3	
	WFP (70%) WMO (33.33%) **Total:**	$4,511,558.80 $178,315.50 **$4,689,874.30**	WFP (30%) WMO (33.33%) **Total:**	$1,933,525.20 $178,315.50 **$2,111,840.70**	WFP (0%) WMO (33.34%) **Total:**	$0.00 $178,369.00 **$178,369.00**
	Other Sources (Parallel Funding)					
	Total	**$6,980,084.00**				
Thematic Keywords						
Programme Duration	**Anticipated Start Date**	01-Nov-2024				
	Duration (In months)	60				
	Anticipated End Date	01-Nov-2029				

Narratives

Title	Text

Close the most significant data gaps	Based on the National Gap Analysis conducted in May 2024, Chad is suffering from major limitations in its observational network, with only 1 out of 33 surface stations meeting standard density GBON requirements and no upper air capacity. The country lacks upper air station capacity entirely with two former locations in Ndjamena and Sarh Airports that are currently not operating. The National Adaptation Plan Advancement Project (NAP) provides a tremendous opportunity to close the gaps in GBON type stations in Chad. Collaboration with UNDP, World Bank, ASECNA, and CREWS-CHAD will facilitate the GBON implementation needs. Strengthening of Chad's network will ensure availability of reliable data and improve the quality of the numerical weather prediction products both at national level and contribute better to global model outputs. Closing the most significant data gaps will involve a well-structured and gradual process. Currently, Chad is quite close to achieve a low-resolution GBON-compliance. As stated above, investments in already existing network, together with a potential addition of stations in the North of country will lead to a substantial increase in availability and reliability of the observational data. This will result in improvement of the quality of global NWP models outputs including products and forecasts at national and regional level. It is expected that 33 GBON Surface Stations and 6 GBON upper air sites operating and transmitting stations will be functional by the end of the SOFF project. To reach this GBON compliance target, 19 stations will need improvements, 6 operationalisations, and 6 new ones need to be purchased with SOFF financing. UNDP project will invest in 2 additional surface stations that will be maintained and operated through SOFF Therefore adding up to the GBON required 33 surface stations. 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 (though it had not been installed at the time of our last check with the country). Despite the end of the NAP project, the responsibility of acquiring these 2 additional stations were passed on to UNDP PGCRCT (Projet Gestion Communautaire des Risques Climatiques au Tchad) project. 3 Upper-air stations will be as well costed through SOFF and managed by ANAM. This upper air capacity will add to the already existing one through ASECNA. Figure 1: WQDMS Display of GBON stations showing the availability of surface land observations. Stations that are not transmitting data on time on a daily basis are marked in black, covering the entire regions of Chad and Sudan (where SOFF operations are currently suspended), as well as neighboring countries, none of which are supported by SOFF, except for Niger, which is currently experiencing political instability. In red are those transmitting less than 30% of the time (less than 8 times per day) 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 Stations number | Station Location | Status | Deploying Entity

1	Mangalmé	Installed, operational and handed over to ANAM. Not transmitting internationally yet.	UNDP/To be rehabilitated /upgraded/ operation alised 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'Djaména		
18	Am-Timan		
19	Sarh		
20	Bongor Aéroport	Installed but not operational	
21	Haraze Mangueigne		
22	Abéché		
23	Oum Hadjer		
24	Mongo		
25	Goundi		
26	Nokou	To be installed by UNDP	
27	Daguela		
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 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 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.

● 6 AWS were installed but are not functional; therefore, due to their adequate positions, it is recommended that they are rehabilitated through SOFF,

● 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.

● Due to the lack of data north of the 14o 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.

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.

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).

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.

Create leverage	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 Resources 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. 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 (“ Systême 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’élévage”), 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 use of CBLT Automatic Weather System (AWS) information. ANADER, through its regional entities, provides data on precipitation. Other than NAP and PGCRCT projects, a few other projects are ongoing or about to start in Chad: Chad: a. The CREWS Project (Climate Risks and Early Warning System) – WB/WMO. The CREWS implemented jointly by the World Meteorological Organizajon (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 product outputs due to SOFF investment and would present high quality information to the agricultural sector. c. IFAD (Internajonal Funds for Agricultural development): The Internajonal 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 complements the high-quality data necessary to its mission. This project targets the Lac, Hadjer Lamis and Kanem Nord regions. d. PILIER (Projet Integré pour la Lune contre les inondajons 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 Ndjamena. 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. PGCRCT (Projet Gesjon Communautaire des Risques Climajques 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 enable the communities to embrace community-based climate risk management processes and support resilience to climate change risks. SOFF will facilitate the prediction of hazards therefore allowing the population to take appropriate actions to save lives and properties. f. EW4ALL Chad – Under the UN Secretary General’s Inijajve 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 climaterelated 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.

Maximize delivery capacity	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. 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. 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.

Sub-regional gains	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. 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. 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). 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. 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.

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 AWSs2 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. **Footnote**: 2 UNDP installed a total of 69 stations: 64 from NAP and 5 other provided by the PGCRCT (Project de gestation Communautaire de risques climatiques au Tchad) to the NAP project to take advantage of their installation program. Both NAP and PGCRCT were managed by UNDP.

Execution model and implementation arrangements	**IMPLEMENTATION** **Project Organization and Institutional Analysis** **Implementing Entity:** 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. 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. 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. 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. **Executing Entity:** 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. 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, highlighting the vital role of international cooperation and advanced infrastructure in securing a resilient future. **Peer advisor:** 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: • Provide general technical advisory services to support the beneficiary country and the implementing entity in the implementation of the National Contributions 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 recommendations and content for the interface towards the second stage of the Investment Phase. • Provide technical support and review of the AWSs and Upper Air Staaons tender process.

	• Technical support on management, data management, IT and communication tenders and purchasing processes. • 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. • 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. 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.
Private sector involvement	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. However, to understand the potential role of other private sectors for future sustainability, private sector partners will be invited to join stakeholder engagement workshops. 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 fiber 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. 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.
Civil society participation	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 weatherrelated outreach programs. SOFF's key objective is the improvement of warnings of highimpact 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. 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.
Fiduciary systems	**Information on the financial flows** 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.

Social and environmental safeguards	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. Regarding cross-cutting issues on human rights, women's rights and gender equality, disability inclusion, climate/environment, the following applies: • 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. • 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 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 additional 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 genderbased 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.

Dispute resolution mechanism	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. Ensuring effective community feedback mechanisms (CFMs) is one of three pillars of the WFP Community Engagement for AAP Strategy. WFP's CFMs are governed by six assurance standards, which govern the following areas: 1. Reach and accessibility of CFM channels 2. Minimum data collection 3. Case handling procedures 4. Information management systems 5. Feedback analysis, reporting and tracking 6. Quality assurance procedures
Additional relevant policies and procedures	WFP is a Green Climate Fund and Adaptation Fund accredited entity, a Climate Risks & 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. WFP has corporate supply chain and procurement policies and guidelines that will also apply to relevant activities under this project.

SDG Targets

Target	Description
Main Goals	
Goal 13. Take urgent action to combat climate change and its impacts2	
TARGET_13.1	13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
TARGET_13.2	13.2 Integrate climate change measures into national policies, strategies and planning
TARGET_13.3	13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
TARGET_13.b	13.b Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities
Secondary Goals	
Goal 5. Achieve gender equality and empower all women and girls	
TARGET_5.5	5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life

SDG Indicators

Indicator Code	Description
C130b01	13.b.1 Number of least developed countries and small island developing States that are receiving specialized support, and amount of support, including finance, technology and capacity-building, for mechanisms for raising capacities for effective climate c

Contribution to SDGs

No data available.

List of documents

Document	Document Type	Document Source	Document Abstract	Document Date	Classification	Featured	Status	Modified By	Modified On
Chad signature included final ProDoc.pdf	Pro Doc	Project		09-Nov-2024	Internal	No	Finalized	ajuntalan@wmo.int	11-Nov-2024 9:55:54 AM
Chad signature redacted final ProDoc.pdf	Pro Doc	Project		09-Nov-2024	Internal	No	Finalized	ajuntalan@wmo.int	11-Nov-2024 9:55:18 AM
Chad-GBON-National-Contribution-Plan.pdf	Other Docs	Project	NCP	17-May-2023	External	No	Finalized	ajuntalan@wmo.int	11-Nov-2024 9:54:15 AM
Chad Country Hydromet Diagnostics.pdf	Other Docs	Project	CHD	23-Nov-2023	External	No	Finalized	ajuntalan@wmo.int	11-Nov-2024 9:52:28 AM
Chad-GBON-National-Gap-Analysis.pdf	Other Docs	Project	NGA	13-Dec-2023	External	No	Finalized	ajuntalan@wmo.int	11-Nov-2024 9:51:42 AM
ah Chad_SOFF Investiment Phase Funding Request_SOFF Draft_For Final Submission 20 May 2024_SIGNED_BY_ALL_REVU.pdf	Other Docs	Project		20-May-2024	Internal	No	Finalized - Signature Redacted	abdel-lathif.younous@wfp.org	31-Jul-2024 4:53:49 AM

WQDMS_Display.jpg	Other Docs	Project Narrative	Figure 1: WQDMS Display of GBON stations showing the availability of surface land observations. Stations that are not transmitting data on time on a daily basis are marked in black, covering the entire regions of Chad and Sudan (where SOFF operations are currently suspended), as well as neighboring countries, none of which are supported by SOFF, except for Niger, which is currently experiencing political instability. In red are those transmitting less than 30% of the time (less than 8 times per day)	22-Jul-2024	Internal	No	Draft	abdel-lathif.younous@wfp.org	22-Jul-2024 11:18:18 AM

Project Results

Outcome	Output	Description
1. GBON institutional and human capacity developed		
	1.1 National Consultations conducted	National consultations including with CSOs, and other relevant stakeholders conducted.

Outcome	Output	Description			
	Activities				
	Title	**Description**	**Lead Participating Organization**	**Participating Organization**	**Other Organizations**
	Conduct Consultation workshops for Legislative Framework	Conduct consultation workshops to set up a legislative framework, including establishing the responsibility of the CMCS in relation to the generation and dissemination of weather and climate data and the use of weather observation infrastructure being rolled out by SOFF funding.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Advocacy for Establishing the Legal Framework for CMCS	Advocacy towards the establishment of the legal framework defining role and mandate of the CMCS.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Workshops Including Dialogue Platform for CSOs on Gender Opportunities	Workshops to include a specific dialogue platform for the CSOs addressing gender opportunities (Gender mainstreaming).	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Quarterly meetings of the SOFF project steering committee	Hold quarterly meetings of the SOFF project steering committee involving key government stakeholders.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Field missions and consultations	Carry out field missions and consultations with relevant stakeholders.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	1.2 NMHS institutional capacity developed	NMHS institutional capacity required to operate the GBON network developed.			

Outcome	Output	Description			
	Activities				
	Title	**Description**	**Lead Participating Organization**	**Participating Organization**	**Other Organizations**
	Stakeholder engagement workshops/consultations with inclusion of CSOs.	Conduct stakeholder engagement workshops and consultations with the inclusion of civil society organizations (CSOs).	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Support the development of policy or national strategy at government level on data sharing, public data services or public-private engagement.	Support the development of policy or national strategy at the government level related to data sharing, public data services, or public-private engagement.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Capacity strengthening for ANAM to operate 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).	Strengthen ANAM's capacity to operate the GBON network, including institutional infrastructure support (e.g., provision of 2 vehicles in key areas) and specialized staff capacity development by benchmarking with other well-established weather services.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Generation of Standard Operating Procedure (SOP) and quality assurance/quality control for the station operations: Implementation of Quality Management System	Develop Standard Operating Procedures (SOPs) and implement quality assurance/quality control measures for station operations through a quality management system.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Deliver capacity-building activities on gender-sensitive topics in the context of SOFF operations.	Provide capacity-building activities on gender-sensitive topics in the context of SOFF operations.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	

Outcome	Output	Description			
	Promote gender equality by establishing minimum thresholds for female participation in SOFF-related activities.	Promote gender equality by setting minimum thresholds for female participation in SOFF-related activities.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	1.3 NMHS human capacity developed	NMHS human capacity required to operate the GBON network developed.			

Outcome	Output	Description			
	Activities				
	Title	**Description**	**Lead Participating Organization**	**Participating Organization**	**Other Organizations**
	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 & quality management) of 5 technicians.	Provide training and capacity development for staff on weather observations, weather parameters, station components and maintenance, calibration, IT, ICT, and potentially cloud services, including best practices in data quality and quality management, targeting 5 technicians.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Basic and best practices training for observers, and caretakers.	Deliver basic and best practice training for weather observers and caretakers	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Train newly recruited, IT experts, and 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.	Provide training for newly recruited IT experts and maintenance technicians in alignment with the 2023-2028 strategic plan, which calls for a total of 70 staff members, including at least 7 operational meteorologists and 6 maintenance technicians.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Design capacity development activities for senior management.	Design and implement capacity development activities specifically tailored for senior management.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Develop Gender assessment plan as part of the human capacity assessment (including areas such as gender discrimination, harassment, gender balance etc..) and provide recommendations accordingly.	Develop a gender assessment plan as part of the human capacity assessment, focusing on areas such as gender discrimination, harassment, and gender balance, and provide recommendations accordingly	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	

Outcome	Output	Description			
	Support in formulating policies or national strategies for data sharing and public data services.	Support the formulation of policies or national strategies related to data sharing and public data services.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Development of ANAM business model that aligns with GBON Network's sustainability objectives.	Assist in the development of a business model for ANAM that aligns with the sustainability objectives of the GBON network	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Training on OSCAR/Surface and support on updating WIGOS metadata.	Provide training on OSCAR/Surface and offer support for updating WIGOS metadata.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	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 acquisition of spare parts for stations).	Facilitate the establishment of a Memorandum of Understanding (MoU) between ASECNA and ANAM, which includes data exchange nationally and internationally through the ASECNA link to the WMO Information System (WIS), maintenance of stations, and acquisition of spare parts for stations.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
2. GBON infrastructure in place					
	2.1 New land- based stations in place	New land-based stations and related equipment, ICT systems, data management systems and standard operating practices in place.			

<table>
<tr><th>Outcome</th><th>Output</th><th colspan="5">Description</th></tr>
<tr><td rowspan="4"></td><td colspan="5">Activities</td></tr>
<tr><td>Title</td><td>Description</td><td>Lead Participating Organization</td><td>Participating Organization</td><td>Other Organizations</td></tr>
<tr><td>Installation and operation of additional 6 AWSs in Bardai, Faya Largeau, Koro-Toro, Fada, Zouar and Bilane funding by SOFF</td><td>Install and operate 6 additional Automatic Weather Stations (AWSs) in Bardai, Faya Largeau, Koro-Toro, Fada, Zouar, and Bilane with funding provided by SOFF.</td><td>WFP - WFP (World Food Programme)</td><td>• WMO - WMO (World Meteorological Organization)</td><td></td></tr>
<tr><td>Installation and operation of 2 other AWSs, amongst those planned for installation by UNDP (considered for GBON)</td><td>Operationalize 2 additional AWSs, among those planned for installation by UNDP, which will be considered for inclusion in the GBON network.</td><td>WFP - WFP (World Food Programme)</td><td>• WMO - WMO (World Meteorological Organization)</td><td></td></tr>
<tr><td>Purchasing spare parts for the whole network of the existing stations and the 6 additional proposed stations for the North</td><td>Purchase spare parts for the entire AWS network, including the existing stations and the 6 additional proposed stations in the northern region.</td><td>WFP - WFP (World Food Programme)</td><td>• WMO - WMO (World Meteorological Organization)</td><td></td></tr>
<tr><td></td><td>2.2 Improved land-based stations in place.</td><td colspan="3">Improved land-based stations and related equipment, ICT systems, data
management systems and standard operating practices in place.</td></tr>
</table>

Outcome	Output	Description			
	Activities				
	Title	**Description**	**Lead Participating Organization**	**Participating Organization**	**Other Organizations**
	Replace batteries and fix the telecommunication issues of the first 27 NAP AWS stations selected for GBON (to start international data transmission)	Replace batteries and resolve telecommunication issues for the first 27 NAP AWS stations selected for GBON compliance to initiate international data transmission.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Rehabilitation of the telecommunication issues affecting the 6 AWS stations installed by the NAP project.	Address and rehabilitate telecommunication issues affecting the 6 AWS stations installed by the NAP project.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	ICT-Related costs for AWS network maintenance	Cover all ICT-related costs for maintaining and ensuring the functionality of the AWS network.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Rehabilitation of existing stations which includes upgrading of communication systems and programming for data transmission in accordance with GBON requirements.	Rehabilitate and upgrade the communication systems of existing stations and reprogram them for data transmission in line with GBON requirements.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Development of Standard Operating Procedures (SOP)	Develop Standard Operating Procedures (SOP) to ensure the efficient operation and maintenance of the AWS network.	WFP - WFP (World Food Programme)		
	2.3 New upper-air stations in place.	New upper-air stations and related equipment, ICT systems, data management systems and standard operating practices in place.			

<table>
<tr><th>Outcome</th><th>Output</th><th>Description</th></tr>
<tr><td></td><td colspan="2">Activities<table>
<tr><th>Title</th><th>Description</th><th>Lead Participating Organization</th><th>Participating Organization</th><th>Other Organizations</th></tr>
<tr><td>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</td><td>Support the procurement and setup of three new Upper-air stations, using the SAGIM System (same as ASECNA), at Faya Largeau, N'Golo Fitri, and Goz Beida, along with associated logistics.</td><td>WFP - WFP (World Food Programme)</td><td>• WMO - WMO (World Meteorological Organization)</td><td></td></tr>
<tr><td>procurement and installation of solar energy systems and water wells for the hydrogen generator</td><td>Procure and install solar energy systems and water wells to support hydrogen generators for the new Upper-air stations.</td><td>WFP - WFP (World Food Programme)</td><td>• WMO - WMO (World Meteorological Organization)</td><td></td></tr>
<tr><td>Procurement of Hydrogen Generator and container system</td><td>Procure a hydrogen generator and container system necessary for the operation of the Upper-air stations.</td><td>WFP - WFP (World Food Programme)</td><td>• WMO - WMO (World Meteorological Organization)</td><td></td></tr>
<tr><td>Development of Upper-air SOP for data management and sharing</td><td>Develop Standard Operating Procedures (SOP) for the management and sharing of data collected by the Upper-air stations.</td><td>WFP - WFP (World Food Programme)</td><td>• WMO - WMO (World Meteorological Organization)</td><td></td></tr>
</table></td></tr>
<tr><td>3. Sustained compliance with GBON</td><td></td><td></td></tr>
<tr><td></td><td>3.1 GBON land-based stations commissioning period completed.</td><td>GBON land-based stations’ commissioning period completed, country-specific standard cost for operations and maintenance established, and data sharing verified by WMO Technical Authority</td></tr>
</table>

<table>
<tr><th>Outcome</th><th>Output</th><th colspan="5">Description</th></tr>
<tr><td rowspan="5"></td><td colspan="5">Activities</td></tr>
<tr><td>Title</td><td>Description</td><td>Lead Participating Organization</td><td>Participating Organization</td><td>Other Organizations</td></tr>
<tr><td>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)</td><td>Carry out routine maintenance and verification of the observation network, following the maintenance plan for the 33 GBON stations over a 5-year period. This include</td><td>WFP - WFP (World Food Programme)</td><td>• WMO - WMO (World Meteorological Organization)</td><td></td></tr>
<tr><td>Conduct preventive maintenance and setup for additional AWS stations in the 6 additional AWS in Bardai, Faya Largeau, Koro-toro,
Fada, Zouar, and Biltine.</td><td>Conduct preventive maintenance and setup for the 6 additional AWS stations located in Bardai, Faya Largeau, Koro-Toro, Fada, Zouar, and Biltine.</td><td>WFP - WFP (World Food Programme)</td><td>• WMO - WMO (World Meteorological Organization)</td><td></td></tr>
<tr><td>Perform annual inspections and maintenance for AWS stations, ensuring their operational integrity.</td><td>Perform annual inspections and maintenance for all AWS stations to ensure their ongoing operational integrity and functionality.</td><td>WFP - WFP (World Food Programme)</td><td>• WMO - WMO (World Meteorological Organization)</td><td></td></tr>
<tr><td></td><td>3.2 GBON upper air stations' commissioning period completed.</td><td colspan="3">GBON upper air stations' commissioning period completed, country-specific
standard cost for operations and maintenance established, and data sharing
verified by WMO Technical Authority.</td></tr>
</table>

Outcome	Output	Description			
	Activities				
	Title	**Description**	**Lead Participating Organization**	**Participating Organization**	**Other Organizations**
	Cost for upper air consumables such as radio sondage, and backup helium gas.	Purchase upper-air consumables such as radiosondes, backup helium gas, and 350 g Totex balloons (for 6 sites, 3 years of operation, 2 balloon releases per day), along with spare parts. Procure METEOMODEM M20 radiosondes with barometers for 3 sites (3 years of operation) and METEOMODEM parachutes for radiosondes.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Maintenance, commissioning and technical assistance	Provide maintenance, commissioning services, and ongoing technical assistance to ensure sustained functionality of upper-air stations.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Technical site assistance package for installation, commissioning, and training on specific site safety, usage, and regular maintenance of backup generators.	Provide a technical site assistance package that includes installation, commissioning, and training on site safety, proper usage, and regular maintenance of backup generators.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Contingency costs for upper-air station operations	Allocate contingency costs to cover unexpected expenses related to the operations of upper-air stations.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Transportation cost for the container (shipping to Douala, then to N'Djamena and to sites).	Cover transportation costs for shipping containers from Douala to N'Djamena and then to the sites for the upper-air stations.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Totex/Balloons 350 g (Quantity for 6 sites for 3 years of operation, 2 balloon releases per day) + spare sparts.		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	

Outcome	Output		Description		
	Radiosondes METEOMODEM M20 with Barometer (Quantity for 3 Sites for 3 years of operation).		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Parachutes METEOMODEM for radiosondes (quantity for 3 sites for 3 years of operation).		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	

Signature Indicators

Indicator Title	Component Title	Description	Means of Verification	Category	Cycle	Scope	Value Type	Baseline Value	Baseline Year	Target Value	Target Year	Linked Outcome / Output

No signature indicators available.

Imported Fund Outcome / Output Indicators

Indicator Title	Component Title	Description	Means of Verification	Category	Cycle	Scope	Value Type	Baseline Value	Baseline Year	Target Value	Target Year	Link Outc / Ou
Number of new land-based stations installed		Number of stations as defined in the National Contributio n Plan.	Progress updates/An nual or quarterly reports	Investment	At closure	Country	Number	0	2024	6	2029	**Outc : 2.** GBO infra ture place **Outp** 2.1 N land base stati in pl
Number of land-based stations improved		Number of stations as defined in the National Contributio n Plan.	Progress updates/An nual or quarterly reports	Investment	At closure	Country	Number	0	2024	25	2029	**Outc : 2.** GBO infra ture place **Outp** 2.2 Impr land base stati in pl
Number of new upper-air stations installed		Number of stations as defined in the National Contributio n Plan.	Progress updates/An nual or quarterly reports	Investment	At closure	Country	Number	0	2024	3	2029	**Outc : 2.** GBO infra ture place **Outp** 2.3 N uppe stati in pl

Indicator Title	Component Title	Description	Means of Verification	Category	Cycle	Scope	Value Type	Baseline Value	Baseline Year	Target Value	Target Year	Link Outc / Ou
GBON land-based stations' commissioned		Number of stations as defined in the National Contribution Plan.		Policy	At closure	Country	Number	1	2024	33	2029	**Outc : 3.** Susta com ce w GBO **Outp** 3.1 GBO land base stati com onin perio com d.
GBON upper air stations' commissioned		Number of stations as defined in the National Contribution Plan.		Policy	At closure	Country	Number	0	2024	6	2029	**Outc : 3.** Susta com ce w GBO **Outp** 3.2 GBO uppe stati com onin perio com d.

Project Indicators

Indicator Title	Component Title	Description	Means of Verification	Category	Cycle	Scope	Value Type	Baseline Value	Baseline Year	Target Value	Target Year
Workshops with stakeholders		Number of workshops with stakeholders	progress updates/Annual or quarterly reports	Capacity	Yearly	Country	Number	0	2024	3	2029
	Percentage of female participants	Percentage of female participants in workshops	progress updates/Annual or quarterly reports	Capacity	At closure	Country	Percentage	0	2024	20	2029

Indicator Title	Component Title	Description	Means of Verification	Category	Cycle	Scope	Value Type	Baseline Value	Baseline Year	Target Value	Target Year
Project steering committee meetings		Number of project steering committee meetings	progress updates/Annual or quarterly reports	Investment	At closure	Country	Number	0	2024	16	2029
	Percentage of female participants	Percentage of female participants in the steering committee	progress updates/Annual or quarterly reports	Capacity	Yearly	Country	Percentage	0	2024	20	2029
ANAM senior management trained		Number of ANAM senior management trained	Attendance records (sign-in sheets or logs) Training completion certificates Training agendas and materials Official correspondence (invitations/emails) Training reports summarizing participation and outcomes				Number	0	2024	6	2029
	Percentage of female participants	Percentage of female participants in senior management training	progress updates/Annual or quarterly reports	Capacity	Yearly	Country	Percentage	0	2024	33	2029

Indicator Title	Component Title	Description	Means of Verification	Category	Cycle	Scope	Value Type	Baseline Value	Baseline Year	Target Value	Target Year
Team member trained in project manage ment		Number of team members trained in project manageme nt	progress updates/An nual or quarterly reports	Capacity	At closure	Country	Number	0	2024	8	2029
	Percentage of female participants	Percentage of female participants in project manageme nt	progress updates/An nual or quarterly reports	Capacity	At closure	Country	Percentage	0	2024	50	2029
Training and capacity develop ment for the 6 maintena nce technicia ns, data manager, IT expert.		Training and capacity developme nt for the 6 maintenanc e technicians, data manager, IT expert.	progress updates/An nual or quarterly reports	Capacity	Every two years	Country	Number	0	2024	8	2029
	Percentage of female participants	Percentage of female participants in training	progress updates/An nual or quarterly reports	Capacity	Every two years	Country	Percentage	0	2024	33	2029
Women participat ing in the capacity-building activities		percentage of women participatin g in capacity-building activities	progress updates/An nual or quarterly reports	Capacity	Yearly	Country	Percentage	0	2024	20	2029
	No components available.										

Risks

Event	Category	Level	Likelihood	Impact	Mitigating Measures	Risk Owner
Non-compliance with fiduciary and procurement standards in some SOFF activities	• Financial	Medium	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	• Social and Environmental	Low	Rare	Insignificant	WFP has a corporate environmental and social safeguards screening tool that will be applied to all relevant activities. Through this tool, specific risks related to specific assets and activities are identified and mitigation measures planned.	
NMHS staff depart after being trained	• Operational	High	Possible	Moderate	WFP, ANAM and Geosphere will collaborate closely to ensure that institutional capacity is built to ensure that even in case of the departure of key staff members, institutional knowledge is not lost. This will include tailored training and capacity building methodologies and material.	
Slow implementation and delays in procurement, installation and capacity building activities	• Operational	High	Possible	Major	WFP, ANAM, and Geosphere will establish a detailed work plan 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.	
After the conclusion of the Investment phase, GBON data are not collected or shared or are shared of insufficient quality	• Operational	High	Possible	Moderate	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.	
Destruction or theft of SOFF-financed equipment and infrastructure	• Operational	High	Possible	Moderate	ANAM will ensure adequate conditions for procured infrastructure, to ensure that it is safe from theft and destruction in case of major climate events. ANAM and WFP will ensure adequate CSO involvement, including community sensitization that will aim to maximize local understanding and ownership of the initiative.	
Chad cannot make optimal use of data, including accessing or using improved forecasts products from the Global Producing Centers throughout the hydromet value chain	• Operational	High	Possible	Moderate	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 frameworks for early warning, forecast-based finance and anticipatory action	
Meteorological conditions that affect the deployment activities by limiting accessibility to sites and constructions as needed.	• Operational	High	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	• Operational	High	Likely	Moderate	Ensure a sufficient number of staff is secured and the training plan is followed; outreach to secondary schools and higher education facilities	

Budget by UNSDG Categories: Over all

Budget Lines	Description	WFP (6.5%) *	WMO (7%) *	Total
1. Staff and other personnel		$1,252,154.94	$500,000.00	$1,752,154.94
2. Supplies, Commodities, Materials		$3,131,559.79	$0.00	$3,131,559.79
3. Equipment, Vehicles, and Furniture, incl. Depreciation		$40,188.00	$0.00	$40,188.00
4. Contractual services		$691,190.46	$0.00	$691,190.46
5. Travel		$232,572.96	$0.00	$232,572.96
6. Transfers and Grants to Counterparts		$407,109.45		$407,109.45
7. General Operating and other Direct Costs		$296,946.40		$296,946.40
Project Costs Sub Total		**$6,051,722.00**	**$500,000.00**	**$6,551,722.00**
8. Indirect Support Costs		$393,361.93	$35,000.00	$428,361.93
Total		**$6,445,083.93**	**$535,000.00**	**$6,980,083.93**

Performance-based Tranches Breakdown

Tranche			Total
Tranche 1	WFP (70%)	$4,511,558.80	$4,689,874.30
	WMO (33.33%)	$178,315.50	
Tranche 2	WFP (30%)	$1,933,525.20	$2,111,840.70
	WMO (33.33%)	$178,315.50	
Tranche 3	WFP (0%)	$0.00	$178,369.00
	WMO (33.34%)	$178,369.00	
			$6,980,084.00

Results based budget

Outcome *	Output *	Agency *	Budget (USD) *
No data available.			

Programme Outcome Costs

Outcome	Output	Activity	Implementing Agent	Time Frame				
				2024	2025	2026	2027	2028
				1	1	1	1	1
1. GBON institutional and human capacity developed								
	1.1 National Consultations conducted							
		Conduct Consultation workshops for Legislative Framework						
			WFP	☑	☐	☐	☐	☐
			WMO	☑	☐	☐	☐	☐
		Advocacy for Establishing the Legal Framework for CMCS						
			WFP	☑	☐	☐	☐	☐

Outcome	Output	Activity	Implementing Agent	Time Frame				
				2024	2025	2026	2027	2028
				1	1	1	1	1
			WMO	☑	☐	☐	☐	☐
		Workshops Including Dialogue Platform for CSOs on Gender Opportunities						
			WFP	☑	☐	☐	☐	☐
			WMO	☑	☐	☐	☐	☐
		Quarterly meetings of the SOFF project steering committee						
			WFP	☑	☑	☑	☑	☑
			WMO	☑	☑	☑	☑	☑
		Field missions and consultations						
			WFP	☑	☑	☑	☑	☑
			WMO	☑	☑	☑	☑	☑
	1.2 NMHS institutional capacity developed							
		Stakeholder engagement workshops/consultations with inclusion of CSOs.						
			WFP	☑	☐	☐	☐	☐
			WMO	☑	☐	☐	☐	☐
		Support the development of policy or national strategy at government level on data sharing, public data services or public-private engagement.						
			WFP	☑	☐	☐	☐	☐
			WMO	☑	☐	☐	☐	☐
		Capacity strengthening for ANAM to operate 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).						
			WFP	☑	☑	☑	☑	☑
			WMO	☑	☑	☑	☑	☑
		Generation of Standard Operating Procedure (SOP) and quality assurance/quality control for the station operations: Implementation of Quality Management System						
			WFP	☑	☐	☐	☐	☐
			WMO	☑	☐	☐	☐	☐
		Deliver capacity-building activities on gender-sensitive topics in the context of SOFF operations.						
			WFP	☑	☑	☑	☑	☑
			WMO	☑	☑	☑	☑	☑
		Promote gender equality by establishing minimum thresholds for female participation in SOFF-related activities.						
			WFP	☑	☑	☑	☑	☑
			WMO	☐	☐	☐	☐	☐
	1.3 NMHS human capacity developed							
		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 & quality management) of 5 technicians.						
			WFP	☑	☑	☑	☑	☑
			WMO	☑	☑	☑	☑	☑
		Basic and best practices training for observers, and caretakers.						
			WFP	☑	☑	☑	☑	☑
			WMO	☑	☑	☑	☑	☑
		Train newly recruited, IT experts, and 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.						
			WFP	☐	☑	☑	☑	☑
			WMO	☐	☑	☑	☑	☑
		Design capacity development activities for senior management.						
			WFP	☐	☑	☑	☑	☑
			WMO	☐	☑	☑	☑	☑

Outcome	Output	Activity	Implementing Agent	Time Frame				
				2024	2025	2026	2027	2028
				1	1	1	1	1
		Develop Gender assessment plan as part of the human capacity assessment (including areas such as gender discrimination, harassment, gender balance etc..) and provide recommendations accordingly.						
			WFP	☑	☐	☐	☐	☐
			WMO	☑	☐	☐	☐	☐
		Support in formulating policies or national strategies for data sharing and public data services.						
			WFP	☑	☐	☐	☐	☐
			WMO	☑	☐	☐	☐	☐
		Development of ANAM business model that aligns with GBON Network's sustainability objectives.						
			WFP	☐	☑	☐	☐	☐
			WMO	☐	☑	☐	☐	☐
		Training on OSCAR/Surface and support on updating WIGOS metadata.						
			WFP	☐	☑	☑	☑	☑
			WMO	☐	☑	☑	☑	☑
		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 acquisition of spare parts for stations).						
			WFP	☑	☐	☐	☐	☐
			WMO	☑	☐	☐	☐	☐
2. GBON infrastructure in place								
	2.1 New land- based stations in place							
		Installation and operation of additional 6 AWSs in Bardai, Faya Largeau, Koro-Toro, Fada, Zouar and Bilane funding by SOFF						
			WFP	☑	☑	☑	☐	☐
			WMO	☑	☑	☑	☐	☐
		Installation and operation of 2 other AWSs, amongst those planned for installation by UNDP (considered for GBON)						
			WFP	☑	☐	☐	☐	☐
			WMO	☑	☐	☐	☐	☐
		Purchasing spare parts for the whole network of the existing stations and the 6 additional proposed stations for the North						
			WFP	☑	☐	☐	☐	☐
			WMO	☑	☐	☐	☐	☐
	2.2 Improved land-based stations in place.							
		Replace batteries and fix the telecommunication issues of the first 27 NAP AWS stations selected for GBON (to start international data transmission)						
			WFP	☑	☑	☐	☐	☐
			WMO	☑	☑	☐	☐	☐
		Rehabilitation of the telecommunication issues affecting the 6 AWS stations installed by the NAP project.						
			WFP	☑	☑	☐	☐	☐
			WMO	☑	☑	☐	☐	☐
		ICT-Related costs for AWS network maintenance						
			WFP	☑	☐	☐	☐	☐
			WMO	☑	☐	☐	☐	☐
		Rehabilitation of existing stations which includes upgrading of communication systems and programming for data transmission in accordance with GBON requirements.						
			WFP	☑	☑	☐	☐	☐
			WMO	☑	☑	☐	☐	☐
		Development of Standard Operating Procedures (SOP)						
			WFP	☑	☐	☐	☐	☐
	2.3 New upper-air stations in place.							

Outcome	Output	Activity	Implementing Agent	Time Frame				
				2024	2025	2026	2027	2028
				1	1	1	1	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						
			WFP	☐	☐	☑	☑	☐
			WMO	☐	☐	☑	☑	☐
		procurement and installation of solar energy systems and water wells for the hydrogen generator						
			WFP	☐	☐	☑	☑	☐
			WMO	☐	☐	☑	☑	☐
		Procurement of Hydrogen Generator and container system						
			WFP	☐	☐	☑	☑	☐
			WMO	☐	☐	☑	☑	☐
		Development of Upper-air SOP for data management and sharing						
			WFP	☐	☐	☑	☐	☐
			WMO	☐	☐	☑	☐	☐
3. Sustained compliance with GBON								
	3.1 GBON land-based stations commissioning period completed.							
		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)						
			WFP	☑	☑	☑	☑	☑
			WMO	☑	☑	☑	☑	☑
		Conduct preventive maintenance and setup for additional AWS stations in the 6 additional AWS in Bardai, Faya Largeau, Koro-toro, Fada, Zouar, and Biltine.						
			WFP	☐	☑	☑	☑	☑
			WMO	☐	☑	☑	☑	☑
		Perform annual inspections and maintenance for AWS stations, ensuring their operational integrity.						
			WFP	☐	☑	☑	☑	☑
			WMO	☐	☑	☑	☑	☑
	3.2 GBON upper air stations' commissioning period completed.							
		Cost for upper air consumables such as radio sondage, and backup helium gas.						
			WFP	☐	☐	☑	☑	☑
			WMO	☐	☐	☑	☑	☑
		Maintenance, commissioning and technical assistance						
			WFP	☐	☐	☑	☑	☑
			WMO	☐	☐	☑	☑	☑
		Technical site assistance package for installation, commissioning, and training on specific site safety, usage, and regular maintenance of backup generators.						
			WFP	☐	☐	☑	☑	☑
			WMO	☐	☐	☑	☑	☑
		Contingency costs for upper-air station operations						
			WFP	☐	☐	☑	☑	☑
			WMO	☐	☐	☑	☑	☑
		Transportation cost for the container (shipping to Douala, then to N'Djamena and to sites).						
			WFP	☐	☐	☑	☑	☑
			WMO	☐	☐	☑	☑	☑
		Totex/Balloons 350 g (Quantity for 6 sites for 3 years of operation, 2 balloon releases per day) + spare sparts.						
			WFP	☐	☐	☑	☑	☑
			WMO	☐	☐	☑	☑	☑
		Radiosondes METEOMODEM M20 with Barometer (Quantity for 3 Sites for 3 years of operation).						
			WFP	☐	☐	☑	☑	☑
			WMO	☐	☐	☑	☑	☑

Outcome	Output	Activity	Implementing Agent	Time Frame				
				2024	2025	2026	2027	2028
				1	1	1	1	1
		Parachutes METEOMODEM for radiosondes (quantity for 3 sites for 3 years of operation).						
			WFP	☐	☐	☑	☑	☑
			WMO	☐	☐	☑	☑	☑