



SOFF Investment Phase Funding Request

Version 2.0

27 October 2023

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.

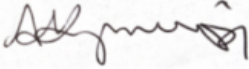


The SOFF Investment Funding Request template includes the following sections:

- 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**
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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

SOFF Beneficiary Country and Focal Point	South Sudan Meteorological Services (SSMS) Mr Mojwok Ogawi Modo AYOKER, Head of South Sudan Meteorological Services, Juba and Hon. Capt. Subek David Dada, South Sudan Civil Aviation Authority			
Country classification	<input checked="" type="checkbox"/> LDC	<input type="checkbox"/> SIDS	<input checked="" type="checkbox"/> FCS	<input checked="" type="checkbox"/> ODA-recipient
SOFF Implementing Entity and Focal Point	Dr. James Kinyangi and Dr. Solomon Ngoze The African Development Bank (AfDB)			
SOFF Peer Advisor and Focal Point	Dr. Delia Arnold and Mr. Giora Gerhstein GeoSphere Austria – Federal Institute for Geology, Geophysics, Climatology and Meteorology			
Total Budget (USD)	Total: 2,460,056 USD First tranche: 1,409,236 USD (65%) Second tranche: 758,820 (35%) The tranches exclude the peer advisor’s fee.			
Delivery timeframe	<p>The implementation of the National Contribution Plan will be done in two stages (Stage 1 and Stage 2), each with its corresponding Investment Phase Funding Request (See section 3 ‘Investment Phase Alignment with the GBON National Contribution Plan’). This is stage 1 funding request.</p> <p>Stage 1: January 2024 to January 2028. Commissioning will start at the beginning of 2027. A stage 2 funding request will be submitted to the SOFF Secretariat after the completion of stage one. The two stages are needed for South Sudan to achieve GBON Compliance.</p>			
Date of Steering Committee Approval				
Signatures	<div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;">  Dr. James Kinyangi, Coordinator, ClimDev Africa Special Fund The African Development Bank </div> <div style="text-align: center;">  Mr Mojwok Ogawi Modo AYOKER, Head South Sudan Meteorological Service & WMO Permanent Representative </div> </div> <div style="text-align: center; margin-top: 20px;">  Dr. Andreas Schaffhauser and Ing. Mag. Sylvia Bauer-Beck Directorate General GeoSphere Austria </div>			

2. SOFF Programming Criteria (2 pages)

Alignment with the SOFF Programming Criteria																																															
Close the most significant data gaps	<p>Based on the WMO Global GBON Gap Analysis conducted in June 2023, South Sudan suffers from a significant limitation in observational network. Strengthening of South Sudan’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.</p> <p>Closing the most significant data gaps will involve installation and operationalization of surface stations, both automatic and manual (the rationale is described in the National Contribution Plan, NCP). It is expected that up to 10 AWS and 5 manual (co-located with 5 AWS) operating and transmitting stations will be functional. This installation will give us 10 locations as per GBON requirements.</p> <p>Table 1 indicates location of the stations. Those marked with BREFONS are stations that will be maintained and operated by SOFF but purchased and deployed by the BREFONS project (details in the NCP). Stage 1 refers to the first Investment Stage.</p> <p>Table 1: Stations to be upgraded and new installed in the Investment Stage.</p> <table border="1"> <thead> <tr> <th>Station ID</th> <th>Location</th> <th>Funding Organization Manual</th> <th>Funding Organization AWS</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>Juba Airport</td> <td>New -SOFF *</td> <td>Upgrade - SOFF</td> </tr> <tr> <td>2</td> <td>Juba University</td> <td>New -SOFF *</td> <td>New -SOFF</td> </tr> <tr> <td>3</td> <td>Malakal Airport</td> <td>New -SOFF *</td> <td>New -SOFF</td> </tr> <tr> <td>4</td> <td>Wau Airport</td> <td>New -SOFF *</td> <td>New -SOFF</td> </tr> <tr> <td>5</td> <td>Renk</td> <td>New -SOFF *</td> <td>New -SOFF</td> </tr> <tr> <td>6</td> <td>Gok Machar</td> <td></td> <td>New – BREFONS, AfDB O&M - SOFF</td> </tr> <tr> <td>7</td> <td>FAO Campus near Bor</td> <td></td> <td>New – BREFONS, AfDB O&M - SOFF</td> </tr> <tr> <td>8</td> <td>Leer</td> <td></td> <td>New – BREFONS, AfDB O&M - SOFF</td> </tr> <tr> <td>9</td> <td>Wunrok</td> <td></td> <td>New – BREFONS, AfDB O&M - SOFF</td> </tr> <tr> <td>10</td> <td>Kapoeta</td> <td></td> <td>New – BREFONS, AfDB O&M - SOFF</td> </tr> </tbody> </table>			Station ID	Location	Funding Organization Manual	Funding Organization AWS	1	Juba Airport	New -SOFF *	Upgrade - SOFF	2	Juba University	New -SOFF *	New -SOFF	3	Malakal Airport	New -SOFF *	New -SOFF	4	Wau Airport	New -SOFF *	New -SOFF	5	Renk	New -SOFF *	New -SOFF	6	Gok Machar		New – BREFONS, AfDB O&M - SOFF	7	FAO Campus near Bor		New – BREFONS, AfDB O&M - SOFF	8	Leer		New – BREFONS, AfDB O&M - SOFF	9	Wunrok		New – BREFONS, AfDB O&M - SOFF	10	Kapoeta		New – BREFONS, AfDB O&M - SOFF
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* Manual stations are co-located with AWS (more details provided in the NCP).

Currently South Sudan has only two operating synoptic stations in Juba and Wau. Two observing stations out of five were destroyed during the conflicts in 2014 and 2016, and the third station closed due to lack of instruments and lack of technical staff required to operate them. The observational network clearly requires both conventional manual and automatic weather stations. SSMS has no upper-air stations or weather radars.

Table 2: GBON National Contribution Target (stage 1 and 2) based on WMO GBON gap analysis.

Type of station	Baseline (Results of the GBON National Gap Analysis)				GBON National Contribution Target	
	Target (# of stations) ¹	GBON-compliant stations (#)	Gap		To improve	New
			New	To improve		
Surface	16	0	11	5	5	11
Upper-air	3	0		3	0	3
Marine	*when applicable					

Any station 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.

The Readiness Phase assessments in collaboration with already existing initiatives identified areas for deployment of the stations in Table 1. It is expected that the GBON target will potentially be reached through a second stage of investment.

Target easy fixes

Any development of an enhanced network towards GBON compliance in South Sudan will bring many benefits to the observational capacity of the country. However, sustainability is key as demonstrated in the section above, where stations have been deployed but later discontinued due to multiple reasons. With potential funding provided by SOFF and additional support from the implementing entity – the African Development Bank (AfDB), a staged approach is proposed to rehabilitate and renew the basic weather observational infrastructure in South Sudan.

The first targeted quick wins are to ensure **sustained operation of the already existing infrastructure that builds a minimum capacity for the country**. This means upgrading the station currently operating in Juba airport.

	<p>The fixes will be as well supported by cooperation with CREWS East Africa, that will provide WIS2.0 in a box implementation as well as all the related training actions on this matter.</p>
<p>Create leverage</p>	<p>Concrete leveraging aspects have already been identified and agreed:</p> <p>In relation to the project "<i>Program to build resilience for food and nutrition security in the Horn of Africa through the Africa Disaster Risk Financing Programme – South Sudan</i>". An agreement through AfDB has been reached where:</p> <ul style="list-style-type: none"> • Five of the stations included in the National Contribution Plan target will be covered by the 20 stations expected in this project (BREFONS). The costs of the stations and their operations within the extension of the project (up to 2027) will be covered by AfDB and they are not included in the SOFF funding request. However, the costs to ensure long-term operations and maintenance of these stations (which cannot be covered by the project) are included in this funding request. • The AWS to be purchased both in SOFF and BREFONS will be coordinated to optimize purchase options, operations and maintenance and purchasing of spare parts. • The vehicles purchased through the AfDB project can be used to maintain and access SOFF stations (hence costs for vehicles are not budgeted for in this funding request). • The data management system is not expected to be covered by the AfDB project at the time of writing the NCP. However, discussions on this are ongoing and should an agreement be reached to cover also data management system the funding will be returned. • Training will be coordinated and exploited jointly for better effectiveness. SOFF organized trainings will also be open to stakeholders under the AfDB project. The Bank approved "<i>Build Resilience for Food and Nutrition Security in the Horn of Africa through the Africa Disaster Risk Financing Program</i>" in 2021 and commenced implementation in 2022. <p>With the support of the WMO Regional Office for Africa, the Regional Training Center (located in Kenya), the SSMS and the Juba University will develop a training program on weather observations (manual and automatic) and technical maintenance of the networks.</p>

	<p>Similarly, with the support of the WMO Regional Office for Africa, it is envisaged that exchange activities are performed with the Regional Instrument Center in Nairobi, Kenya,^[1] to train staff and assist in the calibration actions across the country.</p> <p>Procedures are going to be developed to get information already available on GTS from neighboring countries, e.g., Ethiopia, Kenya, and Uganda weather services specifically for upper-air soundings. At the same time, a dialogue will be initiated with Ethiopia, Kenya and Uganda weather services and neighboring countries supported by SOFF regarding the deployment of stations funded by SOFF in bordering areas to optimize network operations.</p> <p>The Climate Risk and Early Warning Systems (CREWS) East Africa (EA)^[3] project is targeting all the members of the East Africa Community (EAC) except the Democratic Republic of Congo. The project, which started in early 2023 with a duration of four years includes South Sudan. CREWS EA project scope in South Sudan is to improve hydrometeorological forecasting and early warning capacity, including the assessment and strengthening of the hydrometeorological network. CREWS activities are complementary to SOFF operations. Upon agreement with CREWS, CREWS and SOFF will support WIS2 deployment and jointly manage it. CREWS will procure and install WIS2 and support related training, therefore this activity is not budgeted in this Funding Request.</p> <p>^[1]https://community.wmo.int/en/activityareas/imop/Regional Instrument Centres/ric-kenya ^[2] https://community.wmo.int/en/activity-areas/wis/GISCs ^[3]https://public.wmo.int/en/resources/meteoworld/crews-finance-early-warnings-project-east-africa-and-lake-victoria-region</p>
<p>Maximize delivery capacity</p>	<p>Geosphere Austria, formerly known as the Austrian Meteorological and Geodynamics service, has performed the Hydromet Diagnosis in Kazakhstan, North Macedonia and Albania and has deployed EWS in Myanmar while AfDB has supported over the years many Climate information services projects in many countries in Africa. Based on this practical experience, Geosphere Austria and AfDB can act in collaboration as SOFF peer advisor and Implementing Entity, respectively with adequate capacity to deliver SOFF support efficiently and effectively in South Sudan. The AfDB has a country office in South Sudan, supported by the AfDB’s East Africa Regional Headquarters based in Nairobi Kenya, with excellent contacts with the Government and other organizations relevant to facilitating interactions for SOFF work and missions during the readiness and implementation stages.</p> <p>In addition, the close cooperation with CREWS in South Sudan, facilitates any action towards improving delivery capacity for GBON compliance.</p>

Sub-regional gains	<p>Sub-regional gains are also ensured while addressing the items and following upon the tasks as defined in the "Create Leverage" section. Please refer to that section for additional details.</p> <p>South Sudan is currently covered by Regional WIGOS Center (RWC) East African Countries (Kenya and Tanzania). SSMS will benefit from the maintenance of observation observational metadata and data performance.</p> <p>South Sudan is currently a member state of IGAD Region and its Climate Prediction and Applications Centre (ICPAC). The linkage between the project and ICPAC will benefit SSMS in observational data access and management. The ICPAC currently hosts one of four AfDB funded Regional Advanced Retransmission Service (RARS) installed in Africa and Numeric weather prediction infrastructure (high performances computers with modelling capabilities) linked to all 10 countries in the IGAD region. The RARs will enhance access to satellite data from low polar orbiting meteorological satellites.</p>
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3. Readiness and Country context (1 page)

SOFF Beneficiary Country Capacity Assessment

Presently, the SSMS operates as a directorate under the Civil Aviation Authority of South Sudan (SSCAA) in the Ministry of Transport (MoT) and primarily focuses on providing meteorological services for aviation. However, the institution lacks a formal mandate for this activity at this moment. This aspect is considered within the National Contribution Plan and actions aiming at gearing the development of a legal framework and surrounding policy will take place. SSMS also lacks the resources to deliver the required meteorological services to end-users, besides the aviation Authority. The Service is now confronted with the challenge of establishing a fully functional National Meteorological Service with all the observational and services capacity.

The SSMD faces significant limitations in terms of its capacity regarding observations and IT infrastructure, human resources and expertise. This is exacerbated by lack of adequate facilities to accommodate its personnel to perform their duties. Despite SSMS having been supported in the past through donor funded projects from different international organisations, not much has been achieved due to the political challenges the country faced since gaining its independence in 2011.

Considering these national conditions, support from other organizations working in South Sudan in the implementation of this project would significantly improve delivery of the project objectives, as the SSMS builds its capacity. Appropriate mitigation measures have been identified (summarized in the Risk Management section in this proposal). Accordingly, the SSMS 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 SMSS 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 SSMS during this project.

The Annexes with the NGA and CHD provide additional details of the capacity gaps and needs of the country.

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

While the NCP estimates a 6-year implementation period (separated into 3 phases), upon detailed consideration of the baseline capacity of SSMS and the existing risks as detailed in the risk section, the actual implementation of the NCP is split into two stages of 4 years each. The first stage includes an initial period of several months to ramp up all the bureaucratic and logistical aspects to initiate the implementation of the NCP's activities as

well as a final period to facilitate the transition towards the second stage. This approach presents a more realistic roadmap to achieve sustained GBON compliance in the country.

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 National consultations including with CSOs, and other relevant stakeholders conducted	<ul style="list-style-type: none"> Support development of the legislative framework, including establishing the responsibility of the SSMS in relation to generation and dissemination weather and climate data. Advocacy towards the establishment of this legal framework defining role and mandate of the SSMS. Workshops on Gender mainstreaming 	115,417
1.2 NMHS institutional capacity required to operate the GBON network developed	<ul style="list-style-type: none"> Stakeholder engagement workshops with inclusion of CSO. Support the development of policy or national strategy at government level on data sharing, public data services or public-private engagement. Capacity building for SSMS management and staff (benchmark with other weather service, exchange with WMO ETR, training on Project Management, financing training) Generation of Standard Operating Procedure (SOP) and quality assurance/quality control for the station operations: Implementation of Quality Management System Establishment of a coordination mechanism, centered around SSMS with the University of Juba in collaboration with the Nairobi based IGAD Climate and Weather centre (ICPAC) as well as with the designated training and calibration centers in Nairobi. Engagement with other institutions implementing related climate information services initiatives in South Sudan. 	148.173
1.3 NMHS human capacity required to operate the GBON network developed	<ul style="list-style-type: none"> Recruit 4 Technical staff. Under the guidance of SSMD, the project will support recruitment on training of the following key positions Meteorologist: climatologist hydrologist 	390,417

	<p>weather forecast, weather Observer for the SSMS Department best in South Sudan juba. This will improve the SSMD's capacity to collect, manage and process and disseminate the data. It's anticipated that the project will support these positions during the life of this project thereafter SSMS at the government of South Sudan will take over the staff.</p> <ul style="list-style-type: none"> • Conduct Gender assessment plan and a final evaluation of at end of the Investment Stage • Train new and existing staff in the following fields: weather observation and parameters, station components and maintenance, calibration, IT and ICT (basic and advanced), data transfer and WIS2, best practices in data quality and quality management, instrument maintenance and calibration (WMO Class III). Perform training to local observers deployed in the areas where the stations are located and provide periodic training on maintenance and operation. 	
Output 2. GBON infrastructure in place	Main activities	Budget (USD)
<p>2.1 New land-based stations and related equipment, ICT systems, data management systems and standard operating practices in place</p>	<ul style="list-style-type: none"> • Procure and install 4 AWS, including cost of fencing and security • Spare parts for the 10 AWS stations (including BREFONS) • Procure and Install 5 Manual Stations, including spare parts and maintenance and security • Procure and install Mobile (portable) AWS sensor calibration kit • Procure and install cluster server and data storage equipment including aggregation software and computers • Procure phones for observers and the 5 manual stations + credit • Provide internet connection to transfer the data from AWS to a central server – GPRS 	<p>1,014,417</p>

	<ul style="list-style-type: none"> Support the establishment of a hydrometeorological information exchange and dissemination platform (WIS2 in a box, under the coordination with WMO funded by (CREWS) Procure and install Automatic Message switching System (AMSS) <p>The cost of maintenance and Operation of the 5 AWS from the BREFONS Project is included in this budget. BREFONS only pays for procurement and installation.</p>	
2.2 Improved land-based stations and related equipment, ICT systems, data management systems and standard operating practices in place	Upgrade 1 AWS (1 at Juba airport) and rehabilitate existing damaged equipment and measuring instruments.	125,417
2.3 New upper-air stations and related equipment, ICT systems, data management systems and standard operating practices in place	Consultancy fees for feasibility study for the development of Upper Air	5,000
2.4 Improved upper-air stations, related equipment, ICT systems, data management systems and standard operating practices in place	N/A	
Outcome: Sustained compliance with GBON	Main activities	Budget (USD)
3.1 GBON land-based stations' commissioning period completed , country-specific standard cost for operations and maintenance established, and data sharing verified by WMO Technical Authority	<ul style="list-style-type: none"> Site selection, engagement with Equipment testing, training on equipment management, repairs, and operationalization. Generation of Standard Operating Procedure (SOP) and QA/QM for the station operations. Maintenance and security for installed stations Develop training plan coordinated by SSMS with the University of Juba and the Nairobi WMO designated training centre with potential cooperation of WMO ETR Local Consultant Data Quality Assessment (DQA) 	225,417
3.2 GBON upper air stations' commissioning period completed , country-specific standard cost for operations and maintenance established, and data sharing verified by WMO Technical Authority	N/A	

Total for all Outputs		2,024,258
Implementing Entity Fee¹		143,798
SOFF peer advisory services		292,000
Total funding request		2,460,056

Budget breakdown by UNDG category (Excluding SOFF peer advisory services)²	USD
Staff and personnel costs	75,000
Supplies, Commodities and Materials	281,527
Equipment, Vehicles, Furniture and Depreciation	955,000
Contractual Services Expenses	84,000
Travel	89,500
Transfers and Grants	-
General Operating Costs	683,029

¹ The implementation fee cannot exceed 7% of the total Investment Phase funding request.

² 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>Execution model and implementation arrangements</p>	<p>IMPLEMENTATION</p> <p>Project Organization and Institutional Analysis</p> <p>Implementing Entity: The African Development Bank (AfDB) is the SOFF Implementing Entity. AfDB is a member of the Alliance for Hydromet Development. The AfDB has experience in implementing climate resilience and adaptation-related efforts that offer synergies around climate information, early warning systems, climate disaster planning, financing, and management. Over the last 4 years it has implemented hydromet and climate risks interventions worth over US\$ 100 million (including the Cyclone Idai Emergency Recovery and Resilience Project (IERRP). The AfDB has recently wrapped up the implementation of a <i>“Satellite and Weather Information for Disaster Resilience (SAWIDRA)” in Africa</i> programme between 2016 and 2022. The programme contributed to achieving operationalization of a Regional Advanced Retransmission Service (RARS) for the IGAD region- there are other three RARs stations across Africa to complete full coverage from meteorological satellites.</p> <p>AfDB will build on its experience in delivering country projects in Africa to oversee appropriate implementation of the SOFF support in line with the Bank’s procedures and standards, and specific requirements in the Legal Agreement that will be signed by the Bank and the UNMDTF acting on behalf of SOFF as well as the provisions in the SOFF Operational Manual.</p> <p>The AFDB’s technical and fiduciary teams shall conduct supervisory missions at least twice a year during the project implementation period. In addition, the AfDB shall provide constant advice and guidance to the entities that will implement the Project in terms of technical aspects, fiduciary requirements including prohibited practices, environmental & social aspects, and monitoring & evaluation.</p> <p>Executing Entity: The AfDB In partnership with SSMS will execute this project and manage other partnerships in the execution, with fiduciary responsibility to the AfDB.</p> <p>Because of SSMS’s limited capacity to execute this project, the partners involved in the implementation will help build the capacity of SSMS so that they can gradually take over the implementation of</p>
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activities with time. It is to be noted that within this investment phase (stage 1) the capacity will be enhanced (see NCP) to provide the conditions necessary for sustained operations of the stations as well as higher execution capacity for the expected second investment phase (stage 2). The AfDB and SSMS will be supported by international organizations working in South Sudan, such as FAO on the in-country deployment and co-location of weather stations and ICPAC on regional trainings. The AfDB and SSMS, with support of the peer advisor will manage the execution partnerships³ AfDB and SSMS shall sign agreements (Including terms of reference) with institutions that will assist to implement the project.

Under this arrangement, AfDB will provide fiduciary oversight of the project, including those pertaining to procurement and financial management, in accordance with the AfDB's regulations and rules, policies and procedures. as per the project work plan approved by the Bank.

The project shall form a Project Coordination Team (PCT) to support overall implementation of the project. Members of PCT shall include the Ministry of Transport, SSMS, Civil aviation Ministry of Water, ICPAC, Government of South Sudan's (GoSS) ministries utilizing weather data, representative of international organization implementing similar activities in South Sudan, such as FAO, Sudan and AfDB representative. The presence the PCT shall help to create awareness and support advocacy of the projects activities and raise the profile of SSMS as an essential ingredient for South Sudan's planning and development agenda.

The PCT will support project's overall policy, review development of work plans and coordination of project activities in line with the Funding Agreement between AfDB and the GoSS. The PCT will provide technical inputs in reviewing work plans and progress reports and support in addressing issues that affect the smooth implementation of activities. The AfDB will retain the overall responsibility for effective coordination, execution and management of the project including budget and financial management, procurement, progress reporting and monitoring.

³ The AfDB and the government of South Sudan currently have a similar execution partnership with FAO and ICPAC on an ongoing program (*"Build Resilience for Food and Nutrition Security in the Horn of Africa through the Africa Disaster Risk Financing"*) that also focuses on building the capacity of SSMS in climate information services.

To create synergies, SOFF activities will be undertaken in close coordination with another project to build resilience for food and nutrition security in the Horn of Africa, implemented by AfDB in South Sudan that focuses on building the capacity of SSMS.

Peer advisor:

The Peer Advisor for this project is the Austrian Meteorological and Geodynamics service. It will provide technical support and contribute to supervision for the implementation of the project as well as support AfDB and contribute in 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 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 recommendations and content for the interface towards the second stage of Investment Phase.
- 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 and coordinate training activities, including facilitating the development of a joint training program with the University of Juba and Nairobi designated training and calibration centers.
- Support on Standard Operating Procedures development and quality control and quality assurance mechanisms.
- Advice and support for regional capitalisation.
- Advice for the generation of private public partnerships and engagement.
- Advice for policy development and high-level engagement.

AfDB will support SSMS to procure the equipment, install or rehabilitate existing stations according to the technical specifications

	<p>for GBON, and develop the activities to strengthen the human and institutional capacity.</p>
Private sector involvement	<p>In this initial stage it is not envisaged to establish a partnership or contractual cooperation with the private sector. However, to understand the potential role of the private sector for future sustainability, private sector partners will be invited to join stakeholder engagement workshops.</p>
Civil society participation	<p>SOFF operations will include a strong focus on community engagement, through site selection, security arrangement and use of equipment. This will elevate understanding of climate risks and achieve sustainable change in behaviour among local communities.</p> <p>The population of South Sudan approximately 12 million people who mainly live in rural areas will greatly benefit from improved climate information services through the provision of timely early warning hydro hydrometallurgical information. Participation of other partners (e.g., NGOs, private sector, and academic institutions) will further promote the long-term sustainability of results.</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>
Fiduciary systems	<p>Information on the financial flows</p> <p>SOFF funding will be transferred to AfDB upon the approval and signing of the Fund Request, meeting necessary condition(s) and submitting the required documentations for disbursement. The AfDB will then sign a grant agreement ("Grant Agreement") with the GoSS, representing SSMS. AfDB will create a special account for SOFF proceeds to undertake this funded activity as approved by the SOFF Secretariat. Disbursement of the proceeds for the project will be done according to the terms and conditions of the Financing agreement as well as provisions of the Disbursement Handbook in force at the AfDB. The Bank will use the following disbursement methods (a) the special account method (for operating expenses, payment of project staff,</p>

and certain workshop related expenses) and (b) the direct payment method for the payment of works, goods and service contracts. Large procurements such as the acquisition of automatic weather stations will be made directly by AfDB to suppliers and service providers upon submission of relevant completion documents. Procurement will follow AfDB procurement procedures.

Procurement and financial management arrangements

All procurement of goods, works, and related services and acquisition of consulting services will be in accordance with the Bank's Rules and Procedures for Procurement of Goods, Works and Services using the relevant Bank Standard Bidding Documents, and the provisions stipulated in the Financing Agreement.

The assessment of procurement risks at the Country, Sector, and Project and Executing Entity levels the AfDB undertook for another AFDB 's bank project in South Sudan, a project he Africa Disaster Risk Financing (ADRFi) Programme (Sudan), has informed the choice on the procurement regimes applicable for specific transactions or groups of similar transactions under the project. Appropriate mitigation measures will be identified. Accordingly, considering the moderate procurement risks involved coupled with the limited capacity of the SSMS, the AfDB will undertake procurement using its procurement rules and regulations. The deployment of the equipment shall be supported by the FAO. A similar arrangement exists with Food and Agriculture Organization (FAO)'s office for the BREFONS project in South Sudan.

The Bank will consider all regulations related to tax, customs or international shipping at the time of procurement or purchasing of the stations (spare parts and all related infrastructures). The Bank will properly account for the regulated taxes and potential custom fees.

Financial Management, Disbursement, and Audit

AfDB will carry out fiduciary due diligence on the institutions that will support in the execution of the project activities The Institutions will develop a fiduciary safeguards system arrangement with the AfDB and SSMS following the conditions and terms stated in the approved fund request between the banks and based on its own rules, regulations and policies.

	<p>Interim and Annual Reporting: the third-party partners will be required to prepare on a six-monthly basis (or less frequently as will be agreed between the Host Government, the Bank and SSMS, interim unaudited financial reports adequate to reflect expenditures relating to the project's funding.</p>
<p>Social and environmental safeguards</p>	<p>Environmental and Social Safeguards Environmental and Social Categorization: In-country environmental assessment, legal and institutional framework, and the Banks Integrated Safeguards Systems Operational Safeguards (ISS, OS) are key to determining project categorization based on the level of Environmental and Social risks and impacts. The Project does not present any Environmental and Social Impacts and risks. However, AfDB will carry out an environmental and social categorization for the activities in this funding request upon inception of the activities.</p> <p>Negative Environmental and Social Negative Impacts: The project's activities have no envisioned Environmental and Social risks and impacts.</p> <p>Positive social impacts: Some of the project activities will lead to outcomes that will enhance climate preparedness capacity and the management of climate disasters through climate disaster risk insurance, thus safeguarding food security during extreme climate episodes, and improving the climate and weather observation networks and infrastructure and data processing for enhanced provision of hydro-meteorological services.</p> <p>Involuntary Resettlement: The project components and activities do not present any Resettlement Aspects.</p>
<p>Dispute resolution mechanism</p>	<p>The African Development Bank Group has an independent recourse mechanism in place and will apply to this project. Communities or individuals who believe that they are adversely affected by an African Development Bank Group (AfDB) supported project may submit complaints to existing project-level grievance redress mechanisms or the AfDB's Independent Recourse Mechanism (IRM). The IRM ensures project affected communities and individuals may submit their complaint to the AfDB's Independent Recourse Mechanism which determines whether harm occurred, or could occur, because of AfDB non-compliance with its policies and procedures. To submit a complaint or request further information, an email shall be sent to:</p>

	<p>IRM@afdb.org or, visiting the IRM website www.irm.afdb.org. Complaints may be submitted at any time after concerns have been brought directly to the AfDB’s attention, and Bank Management has been given an opportunity to respond before reaching out to the IRM.</p>
<p>Monitoring and Evaluation</p>	<p>The AfDB and SSMS with the support of the peer advisor will oversee and monitor the activities.</p> <p>The AfDB will complete the Progress Reviews (IPR) based on the Bank’s IPR template twice a year to track the results specified in the projects results framework. A mid-term review and project completion report will be done mid-way and at the close of the main project.</p>
<p>Gender Equality and Women’s Empowerment Promotion</p>	<p>Climate change impacts affect men and women differently, given the different roles and responsibilities they have at the household and at the community levels. Women are particularly vulnerable to climate change, however, they play central role on climate issues- i.e. having deep understanding of their direct environment, their experience in managing natural resources (water, forests, biodiversity and soil), and their active role in climate-sensitive activities such as farming, forestry and fisheries. Women can play a role in climate change adaptation and are often natural resource managers who can help develop strategies to cope with climate-related risks.</p> <p>Within this context, an initial gender assessment plan will be prepared. Following the assessment, and already recognising gender balance is currently inexistent, all the staffing activities and training activities will include the recommendation of enhanced woman representation and favouring the inclusion of female staff in the SSMS. As stated in the NCP, the stakeholder workshops will include a specific topic on gender issue not only to allow discussions but to advocate for gender equality and empowerment with all the relevant actors in the place.</p> <p>From an execution perspective, gender balance will also be sought so that the related staff from AfDB and its execution party and the Peer Advisor include 50% of female staff members.</p>

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
1.1 National consultations including with CSOs, and other relevant stakeholders conducted	# of stakeholder and advocacy actions workshops	1	1	1	1
1.2 NMHS institutional capacity required to operate the GBON network developed	#additional staff members	1 technician	1 IT + 1 observer as staff	1 IT + 1 observer as staff	1 technician + 1 observer as staff
	# gender assessment plan performed	1			1
1.3 NMHS human capacity required to operate the GBON network developed	# trained staff		8	8	8
	# Percentage of female staff members		20	30	50
	#percentage of female staff members for the execution of the plan (this is AfDB, FAO, Peers)	50	50	50	50
Output 2. GBON infrastructure in place	Indicator	Target Y1	Target Y2	Target Y3	Target Y4
2.1 New land-based stations and related equipment, ICT systems, data management systems and standard operating practices in place	# stations as per the GBON National Contribution Plan		5 manual + 5 AWS funded by BREFONS	4 AWS	
	# ICT deployed		5 Manual+ 5 AWS funded by BREFONS	4 AWS	

	# phones and phone plans acquired	5			
	# Mobile (portable) AWS sensor calibration kit		1		
	# cluster server and data storage system		1		
	# computers		10		
	# hydrometeorological information exchange and dissemination platform			1	
	Automatic Message switching System (AMSS)		1		
	# internet connection to transfer the data from AWS to a central server - GPRS		1		
2.2 Improved land-based stations and related equipment, ICT systems, data management systems and standard operating practices in place	# stations as per the GBON National Contribution Plan		1		
2.3 New upper-air stations and related equipment, ICT systems, data management systems and standard operating practices in place	# stations as per the GBON National Contribution Plan				
2.4 Improved upper-air stations, related equipment, ICT systems, data management systems and standard operating practices in place	# stations as per the GBON National Contribution Plan				
Outcome: Sustained compliance with GBON	Indicator	Target Y1	Target Y2	Target Y3	Target Y4
3.1 GBON land-based stations' commissioning period ⁴ 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			10	15
3.2 GBON upper air stations' 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				

⁴ 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.

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 applicable⁵) 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.

⁵ 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:

Political tension among political groups within the Government has been present in South Sudan since its independence. The signing of the Revitalised Peace Agreement (RPA) in 2018 and formation of the Transitional Government of National Unity in 2020, has eased the political disagreements in the country. However, the extensions of international sanctions to 2024 and the expected eruption of violence around the elections in December 2024 are likely to have impact on the activities and risk mitigation measures have been considered to prevent these from jeopardizing the successful completion of the investment phase activities. The Afdb has a risk management protocol for project activities in such situations. The measures included in this protocol related to planning and execution of the project activities will be applied in conjunction with the UN agencies working South Sudan.

		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)

Risk	Risk level	Likelihood	Impact	Risk Mitigation Measures
Non-compliance with fiduciary and procurement standards in some SOFF activities	High	Possible	Major	The AfDB will competitively select reputable institutions and implementing similar activities such projects in the country to assist in the implementation of the project thus mitigating this risk
SOFF-funded investments cause environmental or social impacts	Low	Unlikely	Minor	The Project activities are not expected to present any Environmental and Social Impacts and risks. However, AfDB will carry out an environmental and social assessment for the activities in this funding request upon inception of the activities.
NMHS staff depart after being trained	High	Likely	Major	SOFF Support will be used to build the capacity of SSMS to manage its own budget and activities, including provision of information and services as well as better working conditions for staff i.e. Adequate payment, equipment and working space

				needed. The SSMS will offer continuing service contracts, and organize regular refresher courses for trained staff.
Slow implementation and delays in procurement, installation and capacity building activities	Medium	Likely	Minor	Realistic planning and strong support from the Bank's fiduciary team and Robust application of the Bank's procurement regulations. Adapt buffer zone within the 4 years of project.
After the conclusion of the InvestmentPhase, GBON data are not collected or shared or are shared of insufficient quality	High	Possible	Major	The project will recruit and train staff. The staff will be offered permanent contracts. This will increase the number of operational staff. An independent SSMS with a dependable budget to manage its activities will motivate staff. Also, the project will be linked to ICPAC, hence accessing regional support
Destruction or theft of SOFF-financed equipment	High	Likely	Major	Station deployment close to populated areas and existing infrastructure. Through advocacy

and infrastructure				work and outreach programs the local program with the enlightened importance of project equipment and consequently guard them against theft
Countries cannot make optimal use of data, including accessing or using improved forecasts products from the Global Producing Centres throughout the hydromet value chain	High	Possible	Moderate	Trainings and other capacity development activities will be provided to technical staff, including forecaster
Meteorological conditions that affect the deployment activities by limiting accessibility to sites and constructions as needed.	High	Likely	Major	Adaptation of the timings and flexibility in the phased approach
Limited availability of potential staff members to	High	Possible	Major	Coordination with other institutions and project activities supporting climate

be trained to ensure full operations of the network.				related activities (eg the AfDB project, ICPAC's and FAO) to rationalize the availability of meteorologists and technicians.
Political and Governance Risk of change in government or government policies affecting the effective delivery of project activities	High	Possible	Major	The project design is inclusive with extensive consultations held with the Government through SSMS. Besides, the SSMS submitted explicit acknowledgement of support for the project during the readiness phase
Civil unrest Risk of conflict and violence affecting implementation of activities	High	Possible	Moderate	Political tensions usually cause high level of unrest in the country. However, with the signing of a peace agreement, the country has enjoyed peace and stability. The nature of activities under the project can still implement effectively. The AfDB through its country office in South Sudan in collaboration with the government monitors the county's political situation and any

				likelihood of unrest and appropriately advises the project on mitigation measures using a bank's mechanism
<p>Institutional Capacity</p> <p>Capacity of contracted entities to implement project activities</p>	Low	Unlikely	Minor	<p>The Bank will apply its robust procurement regulations to ensure that entities with a proven track record and good internal control mechanisms are selected to support the project implementation</p>

Annex 1: National Gap Analysis

The National Gap Analysis of South Sudan is available [here](#).

Annex 2: National Contribution Plan

The National Contribution Plan of South Sudan is available [here](#).

Annex 3: Country Hydromet Diagnostics

The Country Hydromet Diagnostics is available [here](#).

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 South Sudan 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 tool⁶
- 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.

⁶ 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 recommendations and content for the interface towards the second stage of Investment Phase.
- Provide technical support and review of the AWS and manual station tender process.
- Technical support on management, IT and communication tenders and purchasing processes.
- Support in provision and coordination of the training activities, including facilitating the development of a joint training program with the university of Juba and Nairobi designated training and calibration centers.
- Support on Standard Operating Procedures development and quality control and quality assurance mechanisms.
- Advice and support for regional capitalisation.
- Advice for the generation of private public partnerships and engagement.
- Advice for policy development and high-level engagement.