



SOFF Investment Phase Funding Request

Version 2.0

21 May 2024

Systematic Observations
Financing Facility

**Weather
and climate
data for
resilience**



SOFF Investment Phase Funding Request

The funding request should be prepared by the SOFF beneficiary country in collaboration with the SOFF implementing entity and be 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
7. Investment Phase Risk Management Framework




Annexes 1, 2, and 3 include the GBON gap analysis, the GBON national contribution plan, and the country's hydromet diagnostics.

The **terms of reference** for the advisory services provided by the **SOFF peer advisor** are provided in **Annex 4**.

1. Basic Information

SOFF Beneficiary Country and Focal Point	<p>Republic of Uganda</p> <p>Uganda National Meteorological Authority (UNMA)</p> <p>Dr. Bob Alex Ogwang, ED UNMA, WMO PR of Uganda</p> <p>Email: bob_ogwang@yahoo.co.uk</p>			
Country classification	<input checked="" type="checkbox"/> LDC	<input type="checkbox"/> SIDS	<input type="checkbox"/> FCS	<input checked="" type="checkbox"/> ODA-recipient
SOFF Implementing Entity and Focal Point	<p>The Islamic Development Bank (IsDB)</p> <p>Dr. Daouda Ndiaye</p> <p>Manager, Climate Change and Environment Division</p> <p>Email: DNdiaye@isdb.org</p> <p>Mr. Olatunji Yusuf</p> <p>Lead Climate Adaptation Specialist, Climate Change and Environment Division</p> <p>Email: Oyusuf@isdb.org</p>			
SOFF Peer Advisor and Focal Point	<p>The Royal Netherlands Meteorological Institute (KNMI)</p> <p>Mr. Rubert Konijn, Director International Affairs</p> <p>Email: rubert.konijn@knmi.nl</p>			
Total Budget (USD)	<p><i>Please complete with the total Investment Phase budget and the amount requested for the two tranches (value and percentage).</i></p> <p>Total: US\$ 6,280,136</p> <p>First tranche: US\$ 4,032,095 (70% of the total budget, excluding the budget of the Peer Advisor).</p> <p>Second tranche: US\$ 1,728,041 (30% of the total budget, excluding the budget of the Peer Advisor).</p>			

Delivery timeframe	October 2024 to October 2028
Date of Steering Committee Approval	
SOFF Steering Committee Co-Chairs Signature (signature confirms Steering Committee approval of the funding request)	

Partners	Date and Signature
SOFF Beneficiary Country Republic of Uganda Uganda National Meteorological Authority (UNMA) Dr. Bob Alex Ogwang, ED UNMA, WMO PR of Uganda	22 May 2024 
SOFF Implementing Entity The Islamic Development Bank (IsDB) Dr. Daouda Ndiaye Manager, Climate Change and Environment Division	20 May 2024 
SOFF Peer Advisor The Royal Netherlands Meteorological Institute (KNMI) Mr. Rubert Konijn, Director International Affairs	 21 May 2024

2. SOFF Programming Criteria (2 pages)

Alignment with the SOFF Programming Criteria

This section should be based on the SOFF Readiness Phase outputs, i.e., the National GBON Gap Analysis, GBON National Contribution Plan, and the Country Hydromet Diagnostic, where available.

Close the most significant data gaps.

Geographically, Uganda is a landlocked country mainly made up of plateaus with a rim of mountains. Located in Equatorial Africa, it borders Kenya to the east, Tanzania and Rwanda to the south, the Democratic Republic of Congo to the west, and Sudan to the north.

Based on the assessment conducted during the readiness phase, the following gaps were revealed in the context of Uganda:

- The Uganda National Meteorological Authority (UNMA) has registered 15 stations in OSCAR/Surface, of which 11 surface stations have a GBON affiliation. While the station at the Makerere University in Kampala is not visible at the WDQMS, UNMA shares data with the GTS of this station (this is not part of the stations to be rehabilitated under the SOFF investment and represents a quick fix to be financed by UNMA). All stations in Uganda are having severe data availability issues. The WIGOS Data Monitoring System (WDQMS) web tool indicates an average information availability of <30% and an average of 2-3 observations for the critical parameters per day, ranging between 0-4 per day.
- No upper air observation station is registered in WDQMS. The existing upper air station (Entebbe International Airport) is inactive and requires replacing the Hydrogen generator.

Regarding coverage gaps, the present GBON coverage of the stations in Uganda is reasonable, with gaps in the northwest—an area prone to drought—and around Mubende. Six (6) GBON affiliated stations are chosen to be included

in SOFF, in addition to three (3) non-GBON affiliated existing stations to close the remaining spatial gaps. This makes the total of the nine stations to be considered for rehabilitation under SOFF funding. None of the stations (nor the two proposed additional stations) are currently GBON-compliant. All stations require upgrading and partial rehabilitation. Stations were installed in 2014-2016 under the Strengthening Meteorological Product Services and used in the agriculture and water sectors (SMEPS)⁴, funded by the German Development Cooperation (GIZ) and USAID. Such station equipment has a life cycle of about ten years.

From the assessment, only Entebbe International Airport is operated 24/7; the others are operated on a 12/7 basis due to a lack of manpower. While the stations are collocated for manual measurements and with an AWS, at this moment the manual measurements are transmitted to the Regional Telecommunication Hub (RTH) due to instability, unreliability, dysfunctional sensors, and the lack of homogenisation analyses between the AWSs and manual measurements. Challenges include operating, maintaining, and repairing the measuring equipment (sensors and data loggers). There are no national calibration facilities in Uganda. A private company performs calibration annually. In some cases, sensors are sent to Nairobi for calibration. It is considered that calibration done in Uganda is more efficient and sustainable on the long run.

Significant capacity gaps were also identified, including the need to:

- Develop training activities and modules under SOFF to support acquiring the minimum required competencies about WMO guidelines.
- Upscale station capacity and resources, including calibration capabilities, to ensure the reliability of data supply under the Systematic Observations Financing Facility (SOFF).

- Enhance UNMA's knowledge and capacity chain related to localised weather forecasting and nowcasting and communicating these products.
- Promote and facilitate intensive regional communication between national hydro-meteorological agencies and offices, e.g., within the East African Society, especially in data exchange, knowledge sharing, capacity building, hardware provision, and calibration facilities.
- Expand cooperative efforts with international stakeholders, including development partners, UN agencies, financial institutions, and NGOs active in meteorology, climatology, climate change, early warning systems, and disaster preparedness, is crucial.
- Total re-tooling of UNMA staff related to technical developments and requirements in data management, -archiving, -storage and -transfer, QA/QC, station and sensor maintenance, sensor calibration, network monitoring and ICT.
- Enhance UNMA's human resource capacity and training, particularly in data and software engineering, station operation and maintenance, and data management. In addition, capacity enhancement should include improving management capacity related to program management, and strategic and financial planning to further enhance full delivery and long-term sustainability of the outcomes of SOFF-funded project.
- Develop a data rescue program to digitise and disseminate historical data records and further support the improvement of computing power for data integration and weather/climate modelling through international cooperation, depending mainly on internet facilities at UNMA HQ and the National Weather Forecasting Centre (NWFC).

	Baseline (Results of the GBON Global Gap Analysis)				GBON national contribution target	
Station type	GBON target of stations	GBON Compliant stations (#)	Stations gap			
			To improve	New	To improve	New
Surface land stations	7*	0	7	0	9	0
Upper-air stations operated from land	1*	0	0	1	1	1

*The GBON global target is based on the following calculations for surface and upper air stations: the target number of stations = the country's surface area in km²/200 km x 200 km (or 500 km x 500 km).

The table above summarises the Gap Analysis report, surface land station requirements, and upper air station requirements for Uganda.

Good arguments exist for including two additional stations above the minimum requirement of seven (7). First, only nine stations can fully cover Uganda's national territory. Second, two stations (Arua and Kasese) are located near the border of the Democratic Republic of the Congo (DRC). In the DRC, armed conflict might disrupt the swift implementation of SOFF, rendering the close-border stations in Uganda of sub-regional importance, as SOFF efforts for this region will increase data density from the conflict area. Thirdly, Kasese is in a mountainous area at an airport serving Uganda's number one tourist attraction. Kasese is the entry point for the mountain gorilla visitors to Uganda.

In summary, nine (9) surface stations are included in the SOFF funding request. These include six (6) stations already reporting to GTS and registered in WIGOS and three (3) existing stations in the UNMA network that are not yet registered in WIGOS. As such, SOFF in Uganda encompasses two (2) stations above the minimum required for GBON (7, see NGA Report). However, this is justified by

	<p>the need for two station locations relatively close to the Ugandan border due to social and political instability in the DRC and South Sudan.</p>
<p>Target easy fixes</p>	<p>The quick wins that could be explored under the SOFF support to close the identified gaps and rapidly deliver on GBON data sharing based on the recommendations from the readiness phase are as follows:</p> <p><u>Infrastructure Development and Upgrade</u></p> <ul style="list-style-type: none"> ○ Fully rehabilitating and upgrading six (6) registered WIGOS Automatic Weather Stations (AWS) to SOFF and GBON qualification standards with GTS and WIS2.0 communication standards. ○ upgrading three (3) existing AWSs (Mubende, Kotido, Kitgum) and registering them in WIGOS/OSCAR to ensure complete national coverage. ○ Rehabilitating the existing Upper Air (UAS) station at Entebbe and initiating a second UAS at Lira or Gulu (to be decided). The rehabilitation of the exiting station should be considered a priority. The proposed AWS stations should be rehabilitated as soon as possible. The Entebbe UAS should be revamped by replacing the hydrogen generator, computer hard drives, and software immediately. ○ Compliance with GBON necessitates immediate upgrades of AWS station connectivity to the Regional Telecommunication Hub (RTH) in Nairobi to meet Uganda’s data transmission limitations on the GTS and to WIS 2.0. <p><u>Institutional and Human Capacity Development</u></p> <ul style="list-style-type: none"> ○ Maintaining station capacity and resources, including calibration capabilities with the development of a calibration lab and training of people to perform the calibrations, to ensure the reliability of data supply under the Systematic Observations Financing Facility (SOFF). UNMA considers this component part of its strategic ambition to improve service- and data quality. All future laboratory calibrations for GBON temperature, humidity, and atmospheric pressure sensors will be conducted at the National Weather Forecasting Centre in Entebbe and field calibration test equipment is needed with a robust field program.

	<ul style="list-style-type: none"> ○ The Uganda National Meteorological Authority (UNMA) must significantly enhance human resource capacity and training, particularly in data and software engineering, station operation and maintenance, and data management. ○ Improving computing power for data integration and weather/climate modelling could be significantly advanced through international cooperation, depending largely on internet facilities at UNMA HQ and the National Weather Forecasting Centre (NWFC). ○ Expanding cooperative efforts with international stakeholders, including development partners, UN agencies, financial institutions, and NGOs active in meteorology, climatology, climate change, early warning systems, and disaster preparedness, is crucial. ○ It is recommended that SOFF-related efforts and national contribution plans promote and facilitate more intensive regional communication between national hydrometeorological agencies and offices, e.g., within the East African Society, especially in data exchange, knowledge sharing, capacity building, hardware provision, and calibration facilities. ○ Additionally, enhancing UNMA's knowledge and capacity chain related to localised weather forecasting and nowcasting and communicating these products could significantly improve services and contribute to end-user demands. This includes everything from weather radar products to improved broadcasting techniques.
<p>Create leverage</p>	<p>The Islamic Development Bank (IsDB) has supported the development of agriculture, water, energy, health, education, and social protection sectors in Uganda. The organisation has initiated various projects and programs in Uganda, such as the Community Agricultural Infrastructure Improvement Program (CAIIP), Enhancing Resilience of Communities to Climate Change through Catchment-Based Integrated Management of Water and Related Resources, the Strengthening the Economic Resilience of the Vulnerable Enterprises (SERVE) Project, Millennium Village Program, and Sustainable Village Programs. These projects have aimed to improve smallholder farmers' productivity, profitability, and sustainability and enhance their access to markets, finance, and extension services. Additionally, these initiatives have</p>

aimed to improve the access, quality, and management of water resources and services, protect, and restore the environment and ecosystems, strengthen the health systems and services, and provide income, consumption support, livelihood, economic opportunities, and protection and empowerment services to the poor and vulnerable groups, such as the elderly, refugees, women, and children.

The SOFF investment is a complementary intervention that aims to provide basic observatory services and subsequently contributing to reducing risks and losses associated with climate change, natural disasters, and conflicts, major threats to Uganda's sectors. The SOFF investment will provide stakeholders with timely and accurate information on weather, climate, hazards, and early warning and action recommendations. Such support will enable them to adopt appropriate coping and adaptation strategies, such as adjusting their business-as-usual patterns, diversifying their livelihoods, and accessing insurance and social safety nets.

The SOFF investment will also strengthen coordination and collaboration among relevant institutions and actors, such as ministries, research institutions, associations, and the private sector involved in these sectors.

The SOFF investment is strategic and innovative provided to Uganda under the SOFF Funding arrangement to be implemented by IsDB. It will contribute to achieving IsDB's vision and mission of promoting comprehensive human development, fostering social and economic inclusion, and enhancing resilience and sustainability. Furthermore, the SOFF project complements the previous, ongoing, and planned operations of IsDB in Uganda. It will create synergies and linkages with IsDB's interventions in the key sectors of agriculture, water, health, education, and social protection, thereby adding value and impact to IsDB's portfolio and partnership in Uganda. Ultimately, this project will bolster the country's development goals and priorities.

	<p>In terms of leverage for future support in Uganda through the Bank's funding, this initial support provided under SOFF has offered foundational support in understanding the gaps and enhancement needed towards ensuring GBON compliance in Uganda. The output from the readiness and investment phases has the potential for further leverage through IsDB's financing and programs such as the Bank's Reverse Linkage, Technical Cooperation Program, and Early Warning Capacity Development Program, and project financing at the request of the Government of Uganda.</p> <p>Furthermore, SOFF is an important pillar for the international project - Water at the Heart of Climate Action, led by the International Federation of Red Cross and Red Crescent Societies (IFRC) Network and funded by the Dutch Government. This project is an initiative to mitigate the impacts of water-related risks and disasters and increase the resilience of vulnerable communities in Ethiopia, Sudan, South Sudan, Uganda, and Rwanda. SOFF, WMO and UNMA activities fit into this regional program's broader context and activities. The project aims to bridge the gap between meteorological expertise and on-the-ground humanitarian response through this collaboration.</p> <p>In addition, although UNMA's resource envelope is not sufficient to meet its needs, it is currently seeking support from CREWS East Africa on human resource capacity development-related support that could be further leveraged alongside the support provided under SOFF for Uganda toward a more enriching outcomes for the beneficiary country.</p>
<p>Maximize delivery capacity</p>	<p>The IsDB has five decades of experience implementing development projects (including managing projects from external funds) across four continents, including the Republic of Uganda. Specifically, the Bank operates a decentralised structure (with a large country office, i.e., the regional hub of Kampala) to serve its clients on the ground effectively and efficiently. The in-country presence gives the IsDB an edge to engage extensively with relevant</p>

	<p>stakeholders and institutions to ensure all issues and guidelines are implemented to the required standards of the donors and recipient country.</p> <p>Moreover, in terms of strategic frameworks, the IsDB has an established climate change policy that recognises the need (i) to build the resilience of member countries toward addressing climate change impact, (ii) to support the transition to a green economy, and (iii) supporting capacity enhancement with the needed enablers to actualised climate goals and targets. In addition, building the resilience of communities and people through the provision of reliable weather and climate data is one of the strategic pillars of the Bank's climate action plan, demonstrating strong alignment between it and the core overarching objectives of SOFF. Additional details on the capacity of the implementing entity are provided under Investment Phase Implementation Arrangements for this project.</p> <p>KNMI is an agency of the Ministry of Infrastructure and the Environment of the Dutch government with a total staff of approximately 500 employees. KNMI advises and warns society to reduce risks in weather, climate and seismology and limit damage and losses. With high-quality knowledge and technology plus an extensive observation network, KNMI offers products and services that contribute to the safety, accessibility, sustainability, and prosperity.</p> <p>During the SOFF Readiness phase, the opportunity emerged to host a KNMI employee at UNMA and the IFRC in Uganda with the aid of the Young Expert Programme. YEP's mission is to create a young, renowned, inspiring international network and build professional expertise in Water, Agrofood and Renewable Energy through organisations operating in developing countries and emerging markets. KNMI will receive funding from YEP for incurred secondment costs and training for the YEP participant.</p>
<p>Sub-regional gains</p>	<p>Regional collaboration can provide significant benefits, e.g., by sharing technical facilities (such as validation, calibration and backup services, software solutions) and expertise. The member countries may also collaborate</p>

in regional capacity-building activities to maintain the instrumentation, data processing and database management.

The Islamic Development Bank currently supports Uganda in small, medium, and large-scale investments across agriculture, water, energy, health, education, and social protection sectors in Uganda. For 2024 to 2025, the IsDB has a pipeline of USD 1.2 billion being processed across multiple sectors. Notable among the investment include Drylands Integrated Development Project in Karamoja Phase II, National Farm Infrastructure for Precision Agriculture Development Project, Bukadea Rural Water and Sanitation Project, Enhancing National Food Security through Rice Production, Uganda Livelihood Support Project, amongst other. There are linkages between these investments and the enabling benefits SOFF investment would provide for broader weather data for informed decisions across these sectors. The Bank is developing its new Country Engagement Framework that would provide a structured and focused engagement across priority areas for a duration of two to four years. In addition, the support provided through SOFF has the potential to benefit from the IsDB Reverse Linkage Program, which aids peer-to-peer learning (on real-time and better forecasting and observatory systems) between countries in the global south, especially between countries in the East Africa sub-region.

East Africa is one of the most vulnerable regions to natural hazards, especially droughts, floods, and epidemics, affecting millions yearly. The support via SOFF can play a vital role in reducing the impacts of these hazards by providing timely and accurate information to decision-makers and communities and facilitating preparedness and response actions. The gap analysis also Identified potential sub-regional collaborations, including:

- Regional Training and Capacity Building: Through the WMO Regional Office for Africa or Regional WIGOS Center (EAC), the WMO Regional Climate Centre (RCC) Intergovernmental Authority on Development (IGAD) facilitation, establish cooperation with the Regional Training Centre in Nairobi, optimise a regional training program that should

	<p>include meteorological background on weather observations (manual and automatic), technical maintenance and data transfer.</p> <ul style="list-style-type: none">○ <u>Instrument Calibration and Knowledge Exchange</u>: In partnership with the WMO Regional Office for Africa or IGAD, an exchange mechanism with Nairobi's Regional Instrument Centre could be established. This initiative could facilitate calibration actions across the network and promote the exchange of technical expertise and best practices.○ <u>Data Sharing and Network Optimization</u>: Procedures could be developed to access and share meteorological data with WIS 2.0, including from neighbouring countries like South Sudan, Rwanda, Kenya, DRC, and Tanzania. Dialogues with these nations and adjacent SOFF countries could include deploying SOFF stations in strategic border areas to enhance network effectiveness.○ <u>East African Community (EAC) Engagement</u>: It is crucial to intensify discussions within the EAC, emphasising data availability and sharing. For Uganda, optimising the GBON network in collaboration with Kenya may be a priority due to Kenya's dense network along Uganda's western border.○ <u>Climate Risk and Early Warning Systems (CREWS) Initiative</u>: CREWS East Africa, which started in early 2023 and has been around for four years, targets EAC members to enhance early warning systems and climate risk management. CREWS is seen as a vital partner in deploying WIS/WIS2-in-a-box, encompassing necessary training for station connectivity and data distribution – key to GBON compliance and international data exchange.○ <u>Resource Optimization through Regional Collaboration</u>: A novel approach to procuring and maintaining GBON stations, including standardising maintenance procedures and acquiring spare parts, is
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	<p>being explored through regional collaboration. This requires detailed exploration and dialogue with neighbouring SOFF-affiliated countries. The SOFF secretariat may facilitate regional discussions and workshops, focusing on joint station purchases, maintenance, and spares.</p> <ul style="list-style-type: none"> ○ <u>Special Focus on Lake Victoria Communities</u>: Enhancing forecasting capabilities for Lake Victoria, particularly for the vulnerable fishing communities, involves optimising near-shore and island-based stations and installing off-shore weather buoys. This targeted improvement could significantly reduce weather-related accidents in the area. ○ <u>Early Warning for All Initiative</u>: The Early Warnings for All (EW4All) initiative, with SOFF's contribution towards hazard detection, observation, monitoring, analysis, and forecasting, aims to address significant GBON gaps in Africa. A specific workshop with EW4All is foreseen to leverage its activities and engage with intergovernmental agencies, regional commissions, and UN entities to support the sustainable operation of the GBON network, laying the groundwork for national early warning systems.
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3. Readiness and Country context (1 page)

SOFF Beneficiary Country Capacity Assessment

The Ugandan National Meteorological Authority (formerly the Department of Meteorology) operates under the Uganda Ministry of Water and Environment. It is a semi-autonomous government institution for weather and climate services (UNMA Act. 2012) and a focal institution for the Inter-Governmental Panel on Climate Change (IPCC). UNMA is responsible for establishing and maintaining the Uganda meteorological observation station network and collecting, analysing, and producing weather and climate information products (including warnings/advisories) to support social and economic development in Uganda. UNMA provides weather and climate information for the public good. The Government of the Republic of Uganda funds UNMA's annual budget.

UNMA is structured into five directorates: the Directorate of Finance and Administration, the Directorate of Training and Research, the Directorate of Applied Meteorology, Data and Climate Services, the Directorate of Forecasting Services, and the Directorate of Station Networks and Observations. The team at UNMA is dedicated to enhancing service delivery and operations to meet the expectations of both national and international stakeholders. To achieve this goal, UNMA is focused on improving early warnings for weather-related events such as winds, thunderstorms, and rainfall, as well as seasonal forecasting for the agriculture industry. The organisation is upgrading the existing observation network and related services in the value chain. With a solid legal framework, a skilled workforce, and a history of successful implementation of similar projects, UNMA and the Government of Uganda can execute the GBON National Contribution Plan.

Specifically, UNMA's Directorate of Finance and Administration is responsible for developing and implementing internal control systems for the day-to-day management of UNMA finances in accordance with the Government of Uganda's Public financial accountability policies, regulations, procedures, and instructions. A director heads the directorate. The senior accountant, an accountant, and two accounts assistants support the Director. A senior procurement officer, a senior internal auditor, and an internal auditor also support the directorate. The procurement is implemented based on the Public Procurement and Disposal of Public Assets Act 1 of 2003.

In terms of capacity to develop, implement and ensure compliance of the funded activities with GBON requirements, UNMA has sufficient capacity to develop and execute projects at varying scales. For instance, between 2017 and 2019, UNMA received US\$8.8 million in funding support to install a radar, and the three radars are currently running and delivering as planned.

Investment Phase Alignment with the GBON National Contribution Plan

Please attach the National GBON Gap Analysis and GBON National Contribution Plan as Annex 1.

N/A

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)
<p>1.1 National consultations, including with CSOs, and other relevant stakeholders conducted.</p>	<p>1.1.1 Conduct one national advocacy campaign for implementing the GBON Plan for Uganda, including engaging with relevant stakeholders (including CSOs) for an enhanced legal framework and support with stakeholder workshops.</p> <p>1.1.2 Conduct one project launch workshop at the national level, including engaging CSOs on their role in implementing the GBON Plan in Uganda.</p> <p>1.1.3 Conduct three UNMA staff sensitisation workshops on the SOFF/GBON network.</p> <p>1.1.4 Conduct a Gender assessment to assess gaps in gender balance and gender opportunities (including gender discrimination and harassment), provide recommendations, accordingly, conduct two gender workshops to strengthen gender equality in governance, strategy, programmes, and decision-making,</p>	<p>\$319,890</p>

	<p>and facilitate grounds for developing gender policy.</p>	
<p>1.2 NMHS institutional capacity required to operate the GBON network developed</p>	<p>1.2.1 Development of training activities for UNMA's staff to support acquiring the minimum required competencies relevant to the quality of the data transmitted to the GTS and WIS 2.0.</p> <p>1.2.2 Recruitment of about twelve (12) new staff to operate surface stations currently inactive; for GBON compliance, these will operate 24 hours a day and transmit data via WIS2.0. This support will be needed during both the investment and compliance phases.</p> <p>1.2.3 Upscale station human capacity and resources, including calibration capabilities with the development of a calibration lab and training of people to perform the calibrations to ensure the reliability of data supply required for calibration.</p> <p>1.2.4 Promote and facilitate intensive regional communication between national hydro-meteorological agencies and offices, e.g., within the East African Society, especially in data exchange, knowledge sharing, capacity</p>	<p>\$1,235,290</p>

	<p>building, hardware provision, and calibration facilities.</p> <p>1.2.5 Expand cooperative efforts with international stakeholders, including development partners, UN agencies, financial institutions, and NGOs active in meteorology, climatology, climate change, early warning systems, and disaster preparedness.</p> <p>1.2.6 Enhancement of the Human capability and capacity of UNMA to monitor the activity and completeness of the incoming data flow of the GBON stations to react adequately to issues as they arise. This includes trainings for National Focal Point on WDQMS</p> <p>1.2.7 Establish a full-staff PMU and a project execution team, including project management and stakeholder management skills to support the execution of the project.</p>	
<p>1.3 NMHS human capacity required to operate the GBON network developed</p>	<p>1.3.1 Total re-tooling of UNMA staff related to technical developments and requirements in data management, archiving, storage and transfer, QA/QC, station and sensor maintenance, sensor calibration, network monitoring and ICT.</p>	<p>\$577,090</p>

	<p>1.3.2 Enhance UNMA's human resource capacity and training, particularly in data and software engineering, station operation and maintenance, and data management. This includes senior management capacity to facilitate SOFF-related program management, and financial planning.</p> <p>1.3.3 Updated SOFF-GBON requirement-level weather station maintenance course.</p> <p>1.3.4 Data communication techniques (WIS2.0 training). Communication with CREWS continues potential synergy for WIS2.0 training. Until then, training will be included in this proposal.</p> <p>1.3.5 Migration to Table-Driven Code Forms and Reviewing and Updating Weather Station Metadata at OSCAR/Surface, including capacity development activity for National Focal Point on OSCAR/Surface and metadata editors.</p> <p>1.3.6 Training UNMA staff on WIGOS standards and Global SOPs on station operations, where relevant for activities under SOFF, in coordination with sub-regional</p>	
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	training activities under SOFF and related programs.	
Output 2. GBON infrastructure in place	Main activities	Budget (USD)
2.1 New land-based stations and related equipment, ICT systems, data management systems and standard operating practices in place.	NA	
2.2 Improved land-based stations and related equipment, ICT systems, data management systems and standard operating practices in place	<p>2.2.1 Rehabilitating and upgrading the nine (9) registered WIGOS Automatic Weather Stations (AWS) to SOFF and GBON qualification standards with GTS and WIS2.0 communication standards.</p> <p>2.2.2 Procurement and Installation of Stations, including spare parts and maintenance and security for the stations.</p> <p>2.2.3 Transport facilities, including two vehicles for rapid restoration and maintenance of weather stations during SOFF implementation.</p> <p>2.2.4 Power backup for the GTS server.</p> <p>2.2.5 Fencing and security of the new facilities.</p>	\$1,216,733.1

	<p>2.2.6 Rehabilitation of Calibration Lab within UNMA including field equipment calibration tools.</p> <p>2.2.7 Support the improvement of computing power for data integration and weather/climate modelling through international cooperation, depending largely on internet facilities at UNMA HQ and the National Weather Forecasting Centre (NWFC).</p>	
<p>2.3 New upper-air stations and related equipment, ICT systems, data management systems and standard operating practices in place</p>	<p>2.3.1 Facility to house the Upper Air (UA) Station.</p> <p>2.3.2 Procurement and installation of the UA system (computer and software).</p> <p>2.3.3 Service Contract.</p> <p>2.3.4 Services for Sounding System</p> <p>2.3.5 Procurement of the Hydrogen Generator.</p> <p>2.3.6 Installations of Hydrogen Generator Plus supervision by the PMU.</p> <p>2.3.7 Procurement and installation of the Hydrogen storage tank (1000l).</p>	<p>\$758,290</p>

	2.3.8 Launching of the Upper Air Station	
2.4 Improved upper-air stations, related equipment, ICT systems, data management systems and standard operating practices in place	<p>2.4.1 Procurement and installation of the hydrogen generator plus supervision.</p> <p>2.4.2 Procurement and installation of the UA system (computer and software).</p> <p>2.4.3 Launching ceremony for the UAS.</p>	\$325,125.8
2.5 New marine-based stations and related equipment, ICT systems, data management systems and standard operating practices in place.	N/A	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	<p>3.1.1 Country-specific standard cost for operations and maintenance established and data sharing for nine (9) stations.</p> <p>3.1.2 Spare parts for three years.</p> <p>3.1.3 Regular supervision/inspection of GBON stations.</p>	\$510,803
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	Two UAS require updating: one rehabilitation generator and one completely new build. Land procurement, housing, equipment, staff and	\$440,083

	<p>staff training, ICT, and connection are also required.</p> <p>3.2.1 Spare parts.</p> <p>3.2.2 Procurement of consumables for Entebbe UAS for three years and the new UAS for one year.</p> <p>3.2.3 Service Contract (priority technical support, software updates, extended warranty, and express spare part delivery).</p> <p>3.2.4 Regular supervision/inspection of GBON upper air stations.</p>	
Total for all Outputs		\$5,383,305
Implementing Entity Fee¹		\$376,831
SOFF peer advisory services		\$520,000
Total funding request		\$6,280,136

Budget breakdown by UNDG category (Excluding SOFF peer advisory services)²	USD
Staff and personnel costs	\$625,290.00
Supplies, Commodities and Materials	\$1,013,534.70

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.

Equipment, Vehicles, Furniture and Depreciation	\$1,643,275.20
Contractual Services Expenses	\$1,608,605.00
Travel	\$120,200.00
Transfers and Grants	\$67,000.00
General Operating Costs	\$305,400.00

5. Investment Phase Implementation Arrangements

<p>Execution model and implementation arrangements</p>	<p><u>Islamic Development Bank (IsDB)</u></p> <p>As the Implementing Entity for the Project, the Islamic Development Bank (IsDB) shall take the lead in coordinating the activities under the project. IsDB shall work closely with the beneficiary, the Uganda National Meteorological Authority, to ensure the proper management and application of SOFF Grant Proceeds. Furthermore, IsDB shall oversee the annual and quarterly planning, implementation, financial management, evaluation, reporting, and project closure. IsDB shall monitor and supervise the execution of the Project to ensure that the Grant Proceeds are utilised in strict accordance with the terms of the current Funding Request and that procurement is carried out in compliance with relevant IsDB procurement procedures and guidelines. In this regard, IsDB shall adhere to its economy, efficiency, fairness, and effectiveness principles throughout the procurement process. To explain, the economy shall dictate that the pricing of goods, works, consultant services and related services shall be limited to the minimum amount of resources required to obtain the agreed output level. <u>Efficiency</u> shall demand the appropriate management of a given amount of resources to achieve the agreed output level in a timely and cost-effective manner. <u>Fairness</u> requires a transparent and impartial procurement process, while effectiveness necessitates achieving specific outcomes considering the beneficiary's development objectives.</p> <p>The IsDB Regional Hub in Kampala and the Uganda National Meteorological Authority will collaborate to create a project execution strategy and plan that outlines the implementation approach. IsDB and UNMA will work together to carry out project activities. The SOFF-funded project will be jointly executed between the implementing entity and the beneficiary country. At the beginning of the project, a project steering</p>
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committee (SC) will be formed, consisting of UNMA, senior IsDB officials, and key stakeholders. The committee will include KNMI in an advisory capacity. The SC will be responsible for providing overall guidance on the execution of the project. A project management unit (PMU) will be established at UNMA's Head Office in Kampala, and different technical task teams (TT) will be formed as required across UNMA's district meteorological service centres. The IsDB Regional Hub in Kampala will lead IsDB's involvement in this project, and the team will comprise a project coordinator, procurement specialist, project management specialist, and financial management specialist. An expert on climate change from the Global Practice of the Bank's headquarters will support the team.

The Uganda National Meteorological Authority (UNMA)

The Uganda National Meteorological Authority (UNMA) is committed to ensuring that all planned activities are executed as scheduled to achieve the project's objectives. To accomplish this, UNMA will be responsible for a range of specific roles and responsibilities, including supporting stakeholder engagement, preparing, and submitting annual and quarterly work plans, and requesting fund disbursements for activities earmarked to be implemented by UNMA. Additionally, UNMA will promptly submit progress and financial reports to the Islamic Development Bank (IsDB). To ensure compliance with Global Basic Observing Network (GBON) standards, UNMA will oversee land-based and upper-air stations' operation, maintenance, and calibration and handle data collection, analysis, and reporting. In collaboration with IsDB, UNMA will work closely to deliver all planned procurement activities.

An indicative list of activities using the IsDB procurement guidelines will be developed as part of the project's procurement strategy. UNMA has drafted specifications and Terms of Reference (TORs) for goods and services under the SOFF investment phase with the support of peer

advisors as part of the National Contribution Plan. These specifications and TORs may be used as technical specifications for procurement and will be updated before the procurement process is initiated. UNMA will have an established Project Management Unit (PMU) within its head office and will play a critical role in updating these specifications and TORs, as well as making technical analysis in the selection of suppliers based on the agreed specifications, TORs, and procurement guidelines.

The Royal Netherlands Meteorological Institute (KNMI)

KNMI will collaborate with IsDB to provide technical advisory services to support the Uganda National Meteorological Authority (UNMA) in implementing the National Contribution Plan and agreed activities for the Investment Phase. During the SOFF Investment Phase, KNMI will also be engaged in the following activities as a peer advisor:

- Technical support in the AWS tender process.
- Technical support in radiosounding tender process.
- Technical support in the IT hardware tender process.
- Benchmark portfolio, project management, and coordination in the KNMI.
- Support in developing competence-building, AWS, and radiosounding processes.
 - Benchmark good practices.
 - Support in the preparation process and lifecycle plans for observations.
 - Support for preparing a roadmap for a competence-building process that fits Uganda's context.

	<ul style="list-style-type: none"> ○ Support for preparation and enhancement of SOPs. ○ Support for preparing a roadmap for implementing QC/QA methods. ▪ Training on AWS and radiosounding lifecycle maintenance and calibration ▪ Advice in radiosounding and AWS data transfer and processing ▪ Advice in implementing a data management system. ▪ Facilitate exchange between international stakeholders in the Water at the Heart of Climate Action project. ▪ Facilitate international exchange with other peer advisors from East African countries and the WMO Regional Climate Center ICPAC ▪ Contribution to final reporting.
<p>Private sector involvement</p>	<p>The private sector can offer valuable resources, expertise, innovation, and networks to enhance the design, implementation, and sustainability of EWS. Moreover, EWS can benefit the private sector by reducing its exposure and vulnerability to hazards, increasing its resilience and competitiveness, and creating new business opportunities and social value.</p> <p>For this project, private sector involvement in SOFF implementation in Uganda would mainly be participating in the open competitive procurement process to carry out some civil works. Nonetheless, as part of the stakeholder's engagement and consultation under SOFF, the project will establish a multi-stakeholder platform or mechanism to facilitate dialogue, communication, and coordination among different actors. In addition, the project will adopt a participatory and inclusive approach to</p>

	<p>the design and implementation of the SOFF project by involving the private sector in the assessment, planning, monitoring, and evaluation of various activities under the project and by ensuring that the needs and preferences of the end-users are considered and addressed. For the SOFF program, private sector involvement may be limited to maintenance services and contracts, and possibly involvement calibration services. However, UNMA is very much oriented towards maintaining these capacities within the organisation. At present, no immediate candidates for such services have been identified by PA or UNMA. Lastly, the SOFF capacity building component will consider strengthening the capacity and skills of different actors by providing training, mentoring, and knowledge exchange opportunities and leveraging each partner's expertise and resources.</p>
<p>Civil society participation</p>	<p>Civil society organisations (CSOs) are vital in promoting people-centred EWS, as they have direct access to and trust in the local communities and expertise and experience in disaster risk reduction (DRR) and humanitarian response. Using adequate, reliable and accessible weather and climate observation data is key in preparing people for weather and climate-related calamities. For this project, CSOs will raise awareness, advocate for policy change, facilitate dialogue, provide technical support, mobilise resources, and deliver services. For this reason, this project will engage civil society organisations during implementation in creating awareness among the public on the importance of weather and climate observations (in general and country-specific). UNMA maintains intensive contacts with CSO on public education on the importance of weather- and climate information and, therefore, the importance of protecting UNMA AWS sites. One CSO is actively watching over AWS stations in remote areas in Uganda. In addition, climate services and early warning systems through a series of workshops are to be conducted, including consultation activities on areas of collaboration for the implementation of the Plan to</p>

	<p>ensure the active participation of CSOs and the promotion of gender mainstreaming, inclusion, and opportunities in the private sector.</p>
<p>Fiduciary systems</p>	<p>As a multilateral development bank, the IsDB is committed to ensuring its operations are conducted with the highest integrity, transparency, accountability, and efficiency standards. To this end, the IsDB has established a comprehensive fiduciary system that covers the entire project cycle, from identification to completion and evaluation. The fiduciary system is designed to safeguard the IsDB's resources, enhance the quality and effectiveness of its interventions, and promote good governance and sound financial management among its beneficiaries.</p> <p>The main objectives of the IsDB's fiduciary system are to:</p> <ul style="list-style-type: none"> ○ Ensure that the IsDB's funds are used for the intended purposes and in accordance with the terms and conditions of the financing agreements; ○ Minimize the risks of fraud, corruption, mismanagement, and inefficiency in the implementation of the IsDB-financed projects; ○ Strengthen the capacity and ownership of the beneficiaries to plan, execute, monitor, and report on the IsDB-financed projects; ○ Enhance the development impact and sustainability of the IsDB-financed projects; ○ Facilitate coordination and harmonisation of the IsDB's fiduciary policies and procedures with other development partners. <p>The IsDB's fiduciary system consists of four interrelated components:</p> <ul style="list-style-type: none"> ○ <u>Procurement</u>: The IsDB's procurement policies and procedures aim to ensure that the goods, works, and services required for the IsDB-financed projects are acquired in a fair, competitive, transparent, and cost-effective manner. The IsDB also supports the

development of the procurement capacity and systems of its beneficiaries and encourages using country systems when they meet the IsDB's minimum requirements.

- **Financial Management**: IsDB's financial management policies and procedures aim to ensure that the IsDB-financed projects are implemented in a sound and efficient manner, with adequate internal controls, accounting, auditing, and reporting systems. The IsDB also supports the development of its beneficiaries' financial management capacity and systems and encourages using country systems when they meet the IsDB's minimum requirements.
- **Disbursement**: The IsDB's disbursement policies and procedures aim to ensure that the funds are released promptly and appropriately based on the progress and performance of the projects it finances. The IsDB also supports modern and efficient disbursement methods and systems, such as direct payments, special accounts, and electronic funds transfers.
- **Supervision and Evaluation**: The IsDB's supervision and evaluation procedures aim to ensure that the IsDB-financed projects are implemented in accordance with the agreed objectives, outputs, and outcomes and that the IsDB's funds are used for the intended purposes and in accordance with the terms and conditions of the financing agreements. The IsDB also supports using participatory and results-based approaches to supervision and evaluation and disseminating the lessons learned and best practices from the IsDB-financed projects.

For the SOFF funding, the financial management and procurement within the project will be guided by IsDB financial regulations, rules, and practices, as well as IsDB procurement guidelines and policies. For activities to be executed by UNMA, the Ugandan Government Procurement guidelines shall fully be applied upon satisfactory assessment by IsDB. There will be

	<p>an agreement to be signed between UNMA and IsDB on details of their responsibilities. Within this context, funding allocation mechanisms are managed in accordance with IsDB rules and procedures, including eligibility criteria, proposal evaluation processes, quality assurance and control, project monitoring and supervision.</p> <p>The Procurement Strategy covers the following areas:</p> <ul style="list-style-type: none"> ○ Identification of the specific project needs ○ Assessment of the operating context and its potential impact on the procurement ○ Assessment of the implementing agency's capacity, resources, and previous experience in procuring these types of activities ○ Assessment of the market's adequacy, behaviour, and capabilities to respond to the procurement. ○ Justifying the proposed procurement arrangements based on market analysis, risk and operating context and the project's circumstances.
<p>Social and environmental safeguards</p>	<p>The Islamic Development Bank (IsDB) is committed to supporting its member countries in achieving their development goals environmentally and socially sustainably. To this end, IsDB has established Environment and Social Safeguards (ESS) systems that apply to all its financing operations. The ESS systems aim to ensure that IsDB projects are designed, implemented, and monitored in accordance with the principles of environmental and social responsibility, accountability, and transparency.</p> <p>The ESS systems have three main components: the Environmental and Social Policy, the Environmental and Social Safeguards Standards, and the</p>

Environmental and Social Safeguards Procedures. These components provide the framework and guidance for identifying, assessing, managing, and reporting on the environmental and social impacts and risks of IsDB projects, as well as for engaging with stakeholders and ensuring compliance and accountability.

The Environmental and Social Policy

The Environmental and Social Policy (ESP) is the overarching policy that defines IsDB's vision, objectives, and principles for environmental and social sustainability. The ESP sets out the expectations and responsibilities of IsDB and its clients when applying the ESS systems to IsDB projects. The ESP also outlines the scope and applicability of the ESS systems, the roles and functions of the Environmental and Social Safeguards Unit (ESSU) within the Climate Change and Environment Division, and the mechanisms for disclosure, consultation, grievance redress, and independent review.

The Environmental and Social Safeguards Standards

The Environmental and Social Safeguards Standards (ESSS) are the operational standards that specify the environmental and social requirements and performance criteria that IsDB projects must meet. The ESSS consist of ten standards that cover the following topics:

- ESS1: Environmental and Social Assessment and Management
- ESS2: Involuntary Resettlement
- ESS3: Indigenous Peoples
- ESS4: Cultural Heritage
- ESS5: Biodiversity Conservation and Sustainable Management of Natural Resources
- ESS6: Climate Change
- ESS7: Pollution Prevention and Resource Efficiency

- ESS8: Occupational Health and Safety
- ESS9: Community Health and Safety
- ESS10: Stakeholder Engagement and Information Disclosure

The ESSS is aligned with international best practices and the relevant conventions and agreements to which IsDB is a party. They also reflect the values and principles of Shariah and the specific needs and contexts of IsDB member countries.

The Environmental and Social Safeguards Procedures

The Environmental and Social Safeguards Procedures (ESSP) are the operational procedures that describe the steps and actions that IsDB and its clients must follow to implement the ESS systems. The ESSP covers the entire project cycle, from screening and categorisation to appraisal and approval, implementation and supervision, and completion and evaluation. The ESSP also provide the tools and templates for conducting environmental and social assessments, preparing environmental and social management plans, conducting stakeholder consultations, disclosing information, monitoring, and reporting on environmental and social performance, and addressing grievances and complaints.

The ESS systems are intended to be flexible and adaptable to the different types and scales of IsDB projects and the varying capacities and regulatory frameworks of IsDB clients. They also promote the use of country systems and harmonisation with other development partners whenever possible and appropriate. The ESS systems are subject to regular review and update to ensure their relevance and effectiveness.

To operationalise the standard, the following social and environmental management system requirements will be applied by the Bank in the process:

- Screening and Categorization.

	<ul style="list-style-type: none"> • Assessment and Management. • Stakeholder Engagement and Response Mechanism. • Access to Information. • Monitoring, Reporting and Compliance.
<p>Dispute resolution mechanism</p>	<p>The IsDB has an established Dispute resolution mechanism as part of its systems. The main objectives of the dispute resolution mechanism are to:</p> <ul style="list-style-type: none"> ○ Provide a fair, transparent, and efficient process for resolving disputes between the IsDB and its member countries, partners, or beneficiaries. ○ Promote the amicable settlement of disputes through dialogue, negotiation, mediation, or conciliation. ○ Avoid escalating disputes and resort to litigation or arbitration, which may be costly, time-consuming, and adversarial. ○ Preserve the good relations and trust between the IsDB and its member countries, partners, or beneficiaries. ○ Enhance the accountability and credibility of the IsDB and its operations. <p>The scope of the dispute resolution mechanism covers any dispute or disagreement that may arise between the IsDB and its member countries, partners, or beneficiaries with:</p> <ul style="list-style-type: none"> ○ The interpretation or application of the IsDB's Articles of Agreement, by-laws, regulations, rules, policies, or procedures. ○ The performance or non-performance of the obligations or commitments under the IsDB's financing agreements, contracts, or grants.

- The eligibility, selection, evaluation, or supervision of the IsDB's projects, programs, or activities.
- The procurement, delivery, or quality of the goods, works, or services financed by the IsDB.
- The environmental, social, or governance impacts or risks of the IsDB's operations.
- Any other matter that may affect the rights or interests of the IsDB or its member countries, partners, or beneficiaries.

The following principles guide the dispute resolution mechanism:

- Voluntary participation: The parties to a dispute must agree to submit their dispute to the dispute resolution mechanism and to abide by its outcome.
- Good faith: The parties to a dispute must act in good faith and cooperate with the dispute resolution mechanism throughout the process.
- Confidentiality: The parties to a dispute must respect the confidentiality of the information and documents exchanged or disclosed during the dispute resolution process unless otherwise agreed or required by law.
- Impartiality: The dispute resolution mechanism must ensure the impartiality and independence of the persons or entities involved in the dispute resolution process and avoid any conflict of interest or bias.
- Flexibility: The dispute resolution mechanism must adapt to the specific circumstances and needs of each dispute and allow the parties to a dispute to choose the most suitable method and format for resolving their dispute.
- Timeliness: The dispute resolution mechanism must resolve the disputes as quickly and efficiently as possible and within

the time limits agreed upon or specified by the parties or the mechanism.

The dispute resolution mechanism consists of the following procedures:

- Dialogue: The parties to a dispute should first attempt to resolve it through direct dialogue and communication and seek a mutually acceptable solution.
- Negotiation: If the dialogue fails or is insufficient, the parties to a dispute may negotiate directly or through their authorised representatives and try to settle their dispute by mutual agreement.
- Mediation: If the negotiation fails or is insufficient, the parties to a dispute may request the assistance of a mediator, who is a neutral third party appointed by the IsDB or agreed by the parties, to facilitate the communication and negotiation between the parties and help them reach a voluntary and consensual resolution.
- Conciliation: If the mediation fails or is insufficient, the parties to a dispute may request the intervention of a conciliator, who is a neutral third party appointed by the IsDB or agreed by the parties, to examine the dispute and propose a non-binding solution or recommendation for the parties to consider and accept.
- Arbitration: If the conciliation fails or is insufficient, and if the parties to a dispute have expressly agreed in writing to submit their dispute to arbitration, they may refer it to an arbitral tribunal. The tribunal comprises one or more arbitrators appointed by the IsDB or agreed upon by the parties, who will render a final and binding decision on the dispute.

The parties to a dispute may choose any of the above procedures, or a combination, to resolve their dispute, subject to the agreement of the IsDB and the other party. They may also terminate or withdraw from any procedure at any time unless they have agreed to arbitration. At their own

	<p>expense, the parties may seek legal advice or representation at any stage of the dispute resolution process.</p> <p>The IsDB's dispute resolution mechanism is valuable for preventing and resolving disputes between the IsDB and its member countries, partners, or beneficiaries. It aims to foster a culture of dialogue, cooperation, and mutual respect and enhance the effectiveness and efficiency of the IsDB's operations. It also reflects the IsDB's commitment to upholding the principles of Shari'ah and the values of Islamic solidarity and cooperation.</p> <p>More information is provided here: IsDB Complaints Management.</p>
<p>Additional relevant policies and procedures</p>	<p>The IsDB's projects and operations are guided by policies reflecting its vision, mission, values, and strategic objectives. These policies also ensure that the IsDB's interventions are aligned with the needs and priorities of its beneficiaries, as well as the best practices and standards of the international development community. The policies also aim to promote transparency, accountability, efficiency, effectiveness, sustainability, and inclusiveness in the IsDB's operations. Depending on the project context, the implementing entity might apply several other policies and procedures during the project implementation phase; they can be found in the IsDB Policies Compendium.</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 Phase following an output-based approach. The Investment Phase outputs and the 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.	Five (5) workshops	2 (launch internal/external)	1 (gender)	1 (stakeholder)	1 (gender)
1.2 NMHS institutional capacity required to operate the GBON network developed. (continued effort during all years)	Develop Training	-	1 course	1 course	
	Staff (12) + PMU	6+PMU	8+PMU	10+PMU	
	Regional communication	-	1 visit installed	-	
	Data flow monitoring	-		-	
1.3 NMHS human capacity required to operate the GBON network developed. (continued effort during all years)	Station operation/maintenance training		1 training 1 training -		
	Sensor maintenance training	-	Training Climsoft	1 training	
	Software upgrade and training (WIS2)	-	-	1 training	
	Re-tooling data management, etc.	Update OSCAR	- WIS2+training QA/QC	- Homogenization	
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	-	-	-	-
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	-	3	6	

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	-	-	1	-
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	-	1	-	-
Outcome: Sustained compliance with GBON	Indicator	Target Y1	Target Y2	Target Y3	Target Y4
3.1 GBON land-based stations' commissioning period ³ 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	-	3	7	9
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	-	1	1	2

³ 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 GBON compliance.

The implementing entity is expected to report 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 applicable⁴) 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 also includes a review of 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 the lessons learned, and it should also specify the long-term institutional arrangements to secure sustained GBON compliance with SOFF Compliance Phase support.

⁴ 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.

		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)

Please complete the following table.

Risk	Risk level	Likelihood	Impact	Risk Mitigation Measures
Non-compliance with fiduciary and procurement standards in some SOFF activities	Medium (8)	Unlikely (2)	Major (4)	<ul style="list-style-type: none"> ○ UNMA will be familiarized with IsDB procurement and financial management guidelines and policy through a start-up workshop to be held in Kampala at UNMA's or IsDB's office immediately this funding request approval is established. ○ In addition, a dedicated



				<p>procurement officer based in Kampala will be appointed in collaboration with the IsDB to work with UNMA to ensure that there is an adequate understanding of the Bank's procurement guidelines.</p> <ul style="list-style-type: none"> ○ In line with the Bank's procurement guidelines, UNMA will continue to implement the Public Procurement and Disposal of Public Assets (PPDA) guidelines and the Quality Management System (QMS); both require thorough documentation to augment the IsDB requirements as may be needed.
<p>SOFF-funded investments cause environmental or social impacts</p>	<p>Low (2)</p>	<p>Unlikely (2)</p>	<p>Insignificant (1)</p>	<ul style="list-style-type: none"> ○ Although most activities to be financed are in existing facilities. Nonetheless, the IsDB's environment and social safeguards policy will be utilised to ensure adequate compliance with the ESS requirements and standards. As part of the start-up workshop for this project, the



				<p>Bank's guidelines on ESS will be included to ensure adequate compliance.</p> <ul style="list-style-type: none"> Specifically, exclusion of mercury-loaded equipment. The installation of meteorological equipment will be done in access-restricted enclosures in already existing infrastructure on Government-owned land.
NMHS staff depart after being trained	Medium (3)	Rare (1)	Moderate (3)	<ul style="list-style-type: none"> UNMA operationalised the Human Resource Manual that envisions human resources retention. Additionally, in Uganda, the specialised nature of the meteorology discipline naturally lowers the turnover rate. Historically, UNMA has little experience with employees leaving the organisation as experience increases. UNMA follows the Public Service Standing Order that inspires the Human Resource Manual that is being utilised to ensure adequate

				human resources retention.
Slow implementation and delays in procurement, installation and capacity-building activities	Medium (6)	Unlikely (2)	Moderate (3)	<ul style="list-style-type: none"> ○ To minimise this risk, this project has considered establishing a dedicated project management unit (PMU) and a project execution team, including project management and stakeholder management skills to support the execution of the project. ○ To further support this project, UNMA will recruit 12 new staff to beef up its activities including the procurement unit.
After the conclusion of the Investment phase, GBON data are not collected or shared or are shared of insufficient quality.	Medium (8)	Unlikely (2)	Major (4)	<ul style="list-style-type: none"> ○ Alongside the investment phase, UNMA plans to acquire message-switching systems and install WIS2.0. Additionally, UNMA tends to play a leading role in the conversation on data sharing.
Destruction or theft of SOFF-financed	Low (4)	Unlikely (2)	Minor (2)	<ul style="list-style-type: none"> ○ The weather stations proposed for rehabilitation/upgrade



<p>equipment and infrastructure</p>				<p>under SOFF are near government facilities such as offices in the aviation sector, district local government, and health facilities. This will continue to be practice. In addition, perimeter fencing is being considered to safeguard the equipment and infrastructure that will be supported. Theft is limited to large-size solar panels; small panels for less energy consuming modern equipment limit theft drastically.</p>
<p>Countries cannot make optimal use of data, including accessing or using improved forecasts products from the Global Producing Centers throughout the hydromet value chain</p>	<p>Low (4)</p>	<p>Unlikely (2)</p>	<p>Minor (2)</p>	<ul style="list-style-type: none"> ○ UNMA is upgrading the existing station whose data can readily be used. ○ The CREWS-East Africa project will support UNMA's ability to ingest new high-quality data. Human resources capacity will cover data assimilation so that locally generated observations are included in initialisation data for operational models. With support from UNDP, the software is



				being developed for the hydrometer community to archive and retrieve meteorological data.
Quality Management Systems certification withdrawn	Medium (6)	Unlikely (2)	Moderate (3)	<ul style="list-style-type: none"> o UNMA will continue to be subjected to internal audits and external surveillance by the Uganda National Bureau of Standards (UNBS) to identify performance gaps, undertake corrective actions, and provide refresher training per the International Civil Aviation Organisation (ICAO) and WMO guidelines.



Annex 1: National Gap Analysis

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



Annex 2: National Contribution Plan

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



Annex 3: Country Hydromet Diagnostics

The Country Hydromet Diagnostics of Uganda is available here:
<https://www.un-soff.org/document/uganda-country-hydromet-diagnostics/>



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 Rubert Konijn from KNMI to Uganda 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 SOFF Investment Phase activities with the support of the Implementing Entity and the peer advisor.
- Submits the SOFF Investment Phase funding request using the standardised 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 and participate in and facilitate the national activities that the Implementing Entity and peer advisor need to conduct to deliver the SOFF Investment Phase outputs.
- Confirms the completion of all the Investment Phase activities and provides comments as needed on the Implementing Entity's final report.

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.
- Provide quarterly updates to the SOFF Secretariat in a simple, standardised form and annual reports according to the United Nations Multi-Partner Trust Fund Office's reporting requirements 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.
- Submit the final report to the SOFF Secretariat, including the beneficiary country's comments and peer advisors' feedback. The final report describes institutional arrangements to secure sustained operation and maintenance of the investments.

WMO Technical Authority

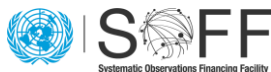
- Provides basic on-demand technical assistance to the beneficiary country, Implementing Entity and peer advisor on GBON regulations, including monitoring and assessing the data-sharing status of the stations using the WDQMS web tool⁵
- It is responsible for verifying the data sharing of the new or rehabilitated surface and upper-air stations as per the 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 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 the WMO Technical Authority.
- Reviews the SOFF Investment Phase funding request, including the Terms of Reference for providing technical advisory services, and provides feedback as needed. Then, the funding request is transmitted 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 inform the Steering Committee for progress.
- Coordinates regional implementation approaches to the SOFF Investment Phase.
- Confirms the implementation entity's receipt of the final report and completion of the Investment Phase based on the WMO verification of data sharing.
- Organise the exchange of knowledge and experiences and capture the lessons learned.

3. Peer advisors' activities during the SOFF Investment Phase

⁵ 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.



During the SOFF Investment Phase, KNMI will engage in the following activities as a peer advisor for the UNMA:

- Technical support in the AWS tender process
- Technical support in the radiosounding tender process
- Technical support in the IT hardware tender process
- Benchmark portfolio and project management and coordination in KNMI.
- Support in developing competence building, AWS and radiosounding processes:
 - Benchmark good practices.
 - Support in preparing process and lifecycle plan for observations.
 - Support preparing a roadmap for a competence-building process that fits Uganda's Context.
 - Support in preparing/enhancing SOPs.
 - Support in preparing a roadmap for implementing QC/QA methods.
- Training on AWS and radiosounding lifecycle maintenance and calibration
- Advice in radiosounding and AWS data transfer and processing
- Advice in implementing a data management system.
- Facilitate exchange between international stakeholders in the project Water at the Heart of Climate Action
- Facilitate international exchange with other peer advisors from East African countries and the WMO Regional Climate Center ICPAC
- Contribution to final reporting.