SOFF
Systematic Observations Financing Facility

SOFF Readiness Funding Request Template

Version 2.0

April 2023

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Weather and climate data for resilience

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SOFF Readiness Funding Request

The SOFF Readiness Funding Request template includes the following sections:

1. **Basic information**
2. **SOFF Programming criteria**
3. **Readiness phase outputs, timeline and budget**
4. **Monitoring**
5. **Readiness Phase Risk Management Framework**

The **Assignment Terms of Reference** are included in **Annex 1**.

1. Basic information

SOFF Beneficiary Country	*The Republic of Mauritius*
Country Focal Point	*Dr Prithiviraj Booneeady* *Acting Director of Mauritius Meteorological Services and Permanent Representative of Mauritius with WMO*
Peer advisor	*South Africa (South African Weather Service) as Lead advisor, supported by India Meteorological Department*
Peer advisor Focal Point	*Francis Mosetlho*
Prospective Implementing Entity	*AFDB*
Prospective Implementing Entity Focal Point	*James Kinyangi*
Total budget USD	*$147 575*
Delivery timeframe	*October 2023 to March 2024*
Date of approval	
Signature SOFF Steering Committee co-chairs (after Steering Committee approval of the funding request)	

1. SOFF Programming criteria

Table 1: Programming criteria

Close the most significant data gaps	*Based on the WMO Global GBON Gap Analysis of January 2022 baseline and assessment of the status of the observational data exchange in the Republic of Mauritius (See 18876/2022/I/WIGOS/ONM/GBON, ANNEX 4), the National Meteorological and Hydrological Service Republic of Mauritius requires 9 terrestrial surface stations and 3 Upper Stations to meet the standard GBON requirement.* *The Republic of Mauritius consists of the main island Mauritius, and several outer islands namely, Rodrigues, Agalega, Cargados Carajos (St Brandon), Tromelin and the Chagos Archipelagos (that includes Diego Garcia atoll).* *The Exclusive Economic Zone (EEZ) of the Republic of Mauritius stretches between latitudes 02 degrees and 24 degrees South and longitudes 52 degrees and 76 degrees East over an area of approximately 2.2 million square kilometres.* *The two islands, notably Agalega and St-Brandon, are quite remote and relay of information from observations in real time is problematic because of absence of appropriate instantaneous communication facilities. Installation of AWS with satellite communication facilities would enable real-time availability of weather observations that could be easily assimilated in NWPs. Another challenge over these two islands is the saline environment which lead to an accelerated deterioration of AWS not made from saline-environment resistant material.* *Both Mauritius and Rodrigues have an upper-air station. However, for a long time the Hydrogen Generators at both sites are out of order and beyond repair. These 2 Hydrogen Generators in Mauritius and Rodrigues have to be replaced as well as the upper air ground receiving stations.* *Most of the* automatic *weather stations work with the Machine-to-Machine sim cards and others use telephone lines for data transmission. Furthermore, not all stations are complete station, 10 of them are only Automatic Rain Gauges. One or two of the remaining 24 automatic weather stations have faulty sensors. Only 9 automatic weather stations provide a full set of measurements for the different meteorological parameters.11 automatic weather stations are more than 15 years old and need to be replaced as no spare parts are available and their performance are oftentimes erratic.* *There are 3 distinct data reception platform for the AWS for which there is an urgent need to update the IT infrastructure. Due to the existing IT constraints, the observation products cannot be broadcasted on the GTS.*

Target easy fixes	*None of the existing surface observation and upper air stations were meeting the minimum threshold to be classified as reporting when performance of the global GBON gap analysis was performed. Furthermore, 6 of the required 9 surface observation stations need to be upgraded to meet the standard GBON requirements and 3 news stations to be rolled out. However, based on the national input, the existing stations need to be assessed for possible upgrade to close the GBON gaps. The Global Gap analysis further suggested that one upper air station over the Republic of Mauritius needs to be upgraded and 2 new stations need to be rolled out, but the national information suggests upgrading of the two existing stations and procurement of a new upper air station to address the upper air GBON gaps.* *MMS aims to have 4 upper air stations, 2 upper stations being auto-sondes which could be deployed over Agalega and St-Brandon while the manned upper air stations be deployed in Mauritius and Rodrigues. Further, having these compliant stations in place will fill the gap in weather observations in the Southwestern Indian Ocean Maritime (SWIO) region. It must be noted that the Republic of Mauritius needs robust and reliable AWSs and upper air systems that could withstand cyclonic winds of the order of 300 km/h.*
Maximize delivery capacity	*The South African Weather Service (SAWS) as lead Peer Advisor supported by India as the support peer Advisor, have experience in managing and sustaining their own nation's surface and upper air networks in line with GBON requirements. The SAWS is one of the first RA I Countries to Implement GBON successfully. Furthermore, the SAWS and India do collaborate with WMO in developing observation networks and data management policies, guidelines, and procedures. The SAWS is hosting the Regional WIGOS Centre for the Southern subregion of the Regional Association I (Africa) on pilot phase and works with NMHSs in several countries supporting institutional capacity development activities without any additional funding to perform this role.* *SAWS do not receive any funding from other sources for activities in the country.* *A team has been created to deliver SOFF support in the country. It comprises of two Regional Managers responsible for infrastructure roll out and maintenance as well as data availability and quality from SAWS infrastructure such as Automatic Weather Stations, Automatic Rainfall Stations, RADAR, Lightning Detection Network, Upper Air, manual climate and rainfall stations. Furthermore, the team have two ICT personnel as well as technical personnel with the ability to address communication of data through the GTS, since Pretoria is the Regional Tele-Communication Hub within RA I. SAWS has successfully installed WIS-2 in a box and is in the testing phase. Included in this team is personnel responsible for the RWC-SA i.e, OSCAR Surface focal point as well as WDQMS focal point.* *This team can call upon resources from operational personnel when required to provide guidance* on restoration of existing observation infrastructure as well as deployment of new infrastructure.

Create leverage	*The Republic of Mauritius is part of a resilience program the African Development Bank(AfDB) is developing for the Southern Indian Ocean Countries and Islands. The program will receive technical support for grants of up to USD 1m to prepare projects to the ADF Climate Action Window this year. Some of the support will also go to strengthen the newly formed Small Island States Commission for the Indian Ocean. In addition, The Republic of Mauritius will benefit from a regional SAP access program that will be launched with GCF during the Africa Climate Week in Nairobi in September. Under this program, Mauritius will be included in the regional component for the development of early warning systems as part of the Early Warning for All Initiative. SOFF investments will be foundational to support early warning services.* *There is also "Towards Hydromet Compact Project" which aims to create the framework for scaled-up, coordinated, sustained, and impactful investments in hydromet and early warning services, furthermore, present a clear value and leverage proposition with respect to existing initiatives, and recognize regional and national contexts, such that investments would support the optimization of national hydromet service delivery across the Global Weather Enterprise (GWE) spectrum of actors. The HYDROMET (IOC/AFD-led) may provide equipment, but IOC has not yet given a final say, mobilization of Technical Assistance is still pending and activities under the project are yet to be finalized and the inception meeting is still awaited. it is therefore uncertain whether MMS might benefit from AWSs or upper-air stations under this project.* *Republic of Mauritius benefitted with 3 AWS from SADC Secretariat under the SARCIS-DR. However, these are erroneous with many discrepancies on accuracy in the observations and MMS has dismantled 2 of them for repairs. The ClimSA Station is a platform for retrieving, processing and visualizing climate and earth observations (EO) datasets for the implementation of climate services. The platform is a full version of the climate station and is being integrated in the Climate Service Information Systems (CSIS) at the regional level and has already been deployed to the National Meteorological and Hydrological Services (NMHSs) of the SADC Member States. Mauritius is already facing some difficulty with the hardware component of the ClimSA station and SADC Secretariat is looking into it with the supplier.* *SOFF Readiness programming for the Republic of Mauritius as one of the projects regionally will leverage on these projects (whose outcome are uncertain) for addressing the GBON gap Nationally.*
Sub-regional gains	Implementation GBON in The Republic of Mauritius regionally will result in enhanced weather observation networks, which are platforms for data collection that is pivotal in improving the Numerical Weather Prediction, provision of improved early warnings and responses to climate, weather, and hydrological events, including tropical cyclones, storm surges, heavy rain and strong wind as well as other climate extremes. In the near future, MMS is planning towards impact-based forecasting, flood warning and drought early

	warning services. Local populations at-risk will benefit through enhanced dissemination of warnings, emergency planning, and response capacities.
Ensure country balance	*The Republic of Mauritius is a Small Island Developing State*

2. Readiness phase outputs, timeline and budget

The Terms of Reference for the development of the SOFF Readiness phase outputs (see Annex I) provide more detailed information. They also summarize the roles and responsibilities, as stated in the SOFF Operational Manual, of the beneficiary country, the peer advisor, the prospective Implementing Entity and WMO Technical Authority for the delivery of the Readiness phase outputs.

The budget for the development of the SOFF Readiness phase outputs by the SOFF peer advisor shall be a lump-sum, fixed cost amount. It shall be calculated using a cost-recovery approach based on the peer advisors' standard cost recovery rates.

Table 2: outputs, timeline and budget

Outputs	Timeline					
	Month 1	Month 2	Month 3	Month 4	Month 5	Month 6[1]
National GBON Gap Analysis	October 2023	November 2023				
GBON National Contribution Plan			December 2024	January2024	February 2024	march2024
Country Hydromet Diagnostic (on demand)	November 2023	December 2023	January 2024			
Total budget USD[2]	*$147 575*					

[1] It is expected that the assignment is completed within six months. If more time is required for exceptional circumstances, please add additional months to the table.

[2] Eligible expenditures are limited to: Staff and consultants; Consultations, national technical workshops, and communications; Travel and transportation costs; Other incidental expenditures.

3. Monitoring

The beneficiary country and peer advisor shall notify the SOFF Secretariat on any delays that may impede the timely delivery of the Readiness phase outputs. If the assignment takes more than six months, the SOFF peer advisor shall submit semi-annual progress reports to the SOFF Secretariat (form to be provided by the SOFF Secretariat) stating the delivery status of the outputs.

The Readiness phase completion will be monitored by the peer advisor and the SOFF Secretariat using the following country-level Results Framework for the Readiness phase.

Table 3: Result framework

Outputs	Indicator	Target
1. GBON National Gap Analysis	GBON gap established and reviewed (Y/N)	GBON gap analysed and reviewed by WMO Technical Authority
2. GBON National Contribution Plan	GBON national contribution plan developed (Y/N)	GBON national contribution plan developed and reviewed by WMO Technical Authority
	GBON National Contribution Plan includes gender considerations (Y/N)	GBON National Contribution Plan includes gender considerations
3. Country Hydromet Diagnostic (on demand)	Country Hydromet Diagnostic developed (Y/N)	Country Hydromet Diagnostic developed

4. Evaluation

An evaluation from both, the beneficiary country and the prospective Implementing Entity on the quality of support received by the peer advisor will be conducted at the end of the Readiness phase and the peer advisor's assignment (form to be provided upon completion of the Readiness phase by the SOFF Secretariat).

5. Readiness Phase Risk Management Framework

Table 3: Risk Management Framework

Risk category	Description	Probability	Mitigation action
Contextual risks Risks related to conflicts, safety and political insecurity jeopardizing the delivery of the Readiness phase outputs	High Impact weather such as tropical cyclones affecting the Seychelles	Most likely	Effective project planning taking into consideration the weather seasons of the Mauritius
	Risks of disease outbreak or natural disasters (e.g., covid-19)	Unlikely	Implementing relevant national and international agencies recommendations on how to deal with the outbreak. Work remotely where possible
Institutional risks Risks related to the beneficiary country's institutions participation in the Readiness phase activities	Limited/ Insufficient human capacity / resources to manage the Readiness phase	likely	Engagement with National stakeholders to share benefits of the project for the Mauritius to solicit support from skills available nationally.
Programmatic risks Risks related to country ownership of the Readiness phase outputs	All Mauritius Meteorological Services entities might not include the project in their top priority list	likely	Sufficient awareness and communication work through workshop on GBON and SOFF to EMI management and staff at all levels.

Annex 1. Assignment Terms of Reference for the development of the SOFF Readiness phase outputs

1. Purpose and scope

The purpose of this Assignment is to provide SOFF peer advisory services by South Africa supported by India to Republic of Mauritius to develop the outputs of the SOFF Readiness phase as described in section 3 of these Terms of Reference.

The provisions defined in the Terms of Reference are based on the SOFF Operational Manual, in particular Section 4.4 on Operational Partners and Section 4.5.1 on the Readiness phase.

2. Roles and responsibilities

Beneficiary country National Meteorological and Hydrological Service

- Is responsible for implementing the activities of the Readiness phase with the support from the peer advisor and the prospective Implementing Entity.
- Prepares the Assignment Terms of Reference following the standard Terms of Reference provided by the SOFF Secretariat, in collaboration with the peer advisor and in coordination with the prospective Implementing Entity.
- Submits the funding request for the SOFF Readiness phase support using the standardized template provided by the SOFF Secretariat.
- Is responsible for collaborating with the peer advisor to provide all the necessary information and participate in and facilitate the national activities the peer advisor needs to conduct in order to develop the Readiness phase outputs.
- Confirms receipt of the peer advisors' report with the Readiness phase outputs and provides comments on the outputs as needed.

Peer advisor

- Is accountable to the beneficiary country.
- In dialogue with the beneficiary country, provides independent technical advice, analysis and recommendations to support the beneficiary country in implementing the activities of the Readiness phase.
- Develops the Readiness phase outputs and is responsible for their quality and timely delivery. Communicates regularly with the beneficiary country and the Implementing Entity.
- Engages with the civil society, including on the identification of stakeholders of relevance for GBON implementation.
- Submits the final report with the Readiness phase outputs to the country for comments and to the prospective Implementing Entity for feedback.
- Submits the final report including the beneficiary country's comments and the prospective Implementing Entity's feedback to the SOFF Secretariat.

- Notifies the SOFF Secretariat and the prospective Implementing Entity of any delays that may impede the timely delivery of the outputs, and for assignments for which the delivery takes more than six months submits a semi-annual progress report.

Implementing Entity

- Participates in the Readiness phase activities and collaborates with the beneficiary country and the peer advisor to ensure a common understanding of the Readiness phase outputs and that they address the technical needs for the design and implementation of the Investment phase.
- Contributes to the definition of the Terms of Reference and provides feedback on the outputs delivered by the peer advisor.
- Based on its experience in the beneficiary country, supports the work of the peer advisor, e.g. by sharing its knowledge and facilitating access to the network of relevant stakeholders.

WMO Technical Authority

- Provides basic technical support to the beneficiary country, peer advisor, and prospective Implementing Entity on GBON regulations.
- Is responsible for the technical screening of the draft GBON National Gap Analysis and the draft GBON National Contribution Plan against the GBON regulations.
- Is responsible for establishing and administering the pass-through mechanism for contracting and funding of the technical assistance provided by the peer advisors.

SOFF Secretariat

- Facilitates communication, coordination and collaboration between the beneficiary country, the peer advisor, the prospective Implementing Entity and WMO Technical Authority.
- Reviews the Readiness funding request, including the Terms of Reference, for compliance and consistency with the information requirements in the template and provides feedback as needed. Transmits the funding request to the SOFF Steering Committee for its decision.
- Confirms receipt of the peer advisors' report with the Readiness phase outputs.
- Organizes exchange of knowledge and experiences and captures lessons learned.

3. Readiness phase outputs

The peer advisor should perform the following tasks following the technical guidance and using the templates provided in the operational guidance documents for each one of the outputs. A summary of the key steps and modules to be conducted for each output is presented below.

3.1 GBON National Gap Analysis

The GBON National Gap Analysis defines the gap between the mandatory requirements of the GBON regulations and the existing country surface and upper-air networks. In other words, it serves as the basis for identifying the number of observing stations that need to be installed or rehabilitated to comply with the mandatory requirements of the GBON regulations.

To develop the GBON National Gap Analysis, the following steps should be followed

- **Step 1** – Country information from the GBON Global Gap Analysis
- **Step 2** – Analysis of existing GBON stations and their status against GBON requirements
- **Step 3** – GBON Gap Analysis results
- **Step 4** – Country endorsement for integration of the GBON National Gap Analysis into the GBON National Contribution Plan

3.2 GBON National Contribution Plan

The GBON National Contribution Plan identifies the infrastructure, human and institutional capacity needed to achieve a progressive target toward GBON compliance, including the sustained operation and maintenance of the national GBON observing network.

To develop the GBON National Contribution Plan, the following modules should be completed

- **Module 1. National target toward GBON compliance:** Establishment of a progressive national target toward GBON compliance
- **Module 2. GBON business model and institutional development**: public-private business model as appropriate; partnerships, institutional and financial arrangements needed to operate and maintain the observing network
- **Module 3. GBON infrastructure development**: Appropriate investments needed to increase or improve the observing network and its Information and Communication Technology (ICT) infrastructure
- **Module 4. GBON human capacity development**: Human technical and managerial capacities required to operate and maintain the observing network
- **Module 5. Risk Management:** Operational risks of the observing network and required mitigation measures
- **Module 6. Transition to SOFF Investment phase:** Support the beneficiary country and the Implementing Entity in preparing the Investment phase funding request (template provided by the SOFF Secretariat).

3.3 Country Hydromet Diagnostics

The Country Hydromet Diagnostic (CHD) complements the GBON National Gap Analysis and the GBON National Contribution Plan. It is a standardized, integrated and operational tool and approach for diagnosing National Meteorological Services across the meteorological value chain, their operating environment, and their contribution to high-quality weather,

climate, hydrological and environmental information services and warnings. Its assessment serves as a basis for investments beyond SOFF, across the whole value chain, by the SOFF Implementing Entity and other development partners.

The peer advisor should **assess the 10 CHD elements** with its respective indicators following the matrix provided in the CHD guidance document.

- Governance and institutional setting
- Effective partnerships to improve service delivery
- Observational infrastructure
- Data and product management and sharing policies
- Numerical model and forecasting tool application
- Warning and advisory services
- Contribution to climate services
- Contribution to hydrological services
- Product dissemination and outreach
- Use and national value of products and services

To develop the Country Hydromet Diagnostic, the following **steps** should be completed.

- Stage 1 – Information gathering. As input, the WMO Monitoring Evaluation Risk and Performance unit will provide available country data structured along the CHD elements and their indicators (performed remotely)
- Stage 2 – Validation and analysis (performed in-country if feasible)
- Stage 3 – Closure

4. Delivery process

The development of the outputs should include the following:

- Collaboration arrangements between the beneficiary country and the peer advisor which will include at least one country visit approximately October 2023, unless the country context does not allow it. This visit will afford the Peer advisor the opportunity to assess the status of the Mauritius Meteorological services infrastructure. There after virtual Meetings will be arranged biweekly (frequency can be adjusted) whilst working on development of the GBON Gap Analysis. The Advisor with always invite the prospective Implementing Entity, AfDB, to attend when feasible meetings through virtual platforms.
- The draft GBON Gap Analysis should be shared with the SOFF secretariat during late November 2023 or early December 2023 for assessment prior commencement of the development of the GBON National Contribution plan in December 2023.
- The development of the Country HydroMet Diagnostic will run concurrently with development of GBON national Gap Analysis and the GBON National Contribution Plan, which will be from November 2023 for January 2024.
- Based on the outcome of the GBON Gap Analysis, the peer advisor might need to revisit the republic Of Mauritius to engage with other stakeholders relevant to the process of rehabilitation or deployment of additional stations to close the observational data gaps in

the Seychelles. Otherwise, virtual consultation meetings with relevant national and international stakeholders and partners, such regular consultations with WMO SOFF secretariat with continue throughout this development stage. Lessons learned in development of the readiness outputs for the Seychelles will be applied when addressing other Islands States.

- The peer advisor delivery team and focal point comprises of Samantha Linnerts, Chista Fereira, Lithakazi Mkatshwa and Francis Mosetlho as the focal person as well as the support for India (Dr Anjit Anjan as nominated by Dr Holsalikar)
- Timeline for the development of the outputs October 2023 to March 2024
- First country visit is planned for October 2023
- Completion of GBON National Gap Analysis approximately end of November 2023
- Completion of the Country HydroMet Diagnostic report approximately end of February 2024
- Completion of GBON National Contribution Plan approximately end of March 2024.

5. Reporting and completion

Reporting. For assignments for which the delivery of advisory services takes more than six months, the SOFF peer advisor shall submit a semi-annual progress report to the SOFF Secretariat (form to be provided by the SOFF Secretariat).

Completion

- **Step 1.** The peer advisor submits the draft GBON National Gap Analysis and the GBON National Contribution Plan reports to WMO Technical Authority and, as applicable, the draft Country Hydromet Diagnostics to the Monitoring Evaluation Risk and Performance unit of the WMO Secretariat. The draft reports must follow the templates provided in the SOFF operational guidance documents.
- **Step 2.** WMO Technical Authority screens the draft GBON National Gap Analysis and the draft GBON National Contribution Plan to ensure consistency with the GBON regulations. The WMO Monitoring Evaluation Risk and Performance unit screens the draft Country Hydromet Diagnostics and provides feedback for revisions as needed.
- **Step 3.** The peer advisor submits the report with the Readiness phase outputs for beneficiary country and prospective Implementing Entity feedback.
- **Step 4.** The peer advisor finalizes the report for confirmation of receipt by the beneficiary country and, as needed, beneficiary country comments. Following beneficiary country receipt of the report, the peer advisor submits the report, including beneficiary country's comments and the prospective Implementing Entity's feedback, to the SOFF Secretariat.
- **Step 5.** The SOFF Secretariat confirms the satisfactory receipt of the report and informs the country and the prospective Implementing Entity accordingly. The SOFF Secretariat authorizes WMO to proceed with the release of the final payment and informs the SOFF Steering Committee of the completion of the SOFF readiness phase.

6. Signatures

By signing this document, the beneficiary country, peer advisor and the prospective Implementing Entity agree with the provisions stated in this Terms of Reference.

Beneficiary country	Dr P. Booneeady (FR of Mauritius) 30/08/23
Peer advisor	DocuSigned by: Ishaam Abader 86EAA2275F1C4C8... Ishaam Abader 30/8/2023 | 6:45 AM SAST
Prospective Implementing Entity	30/8/2023