SOFF Readiness Funding Request Template

Version 1.0

17 January 2023

Systematic Observations Financing Facility

Weather and climate data for resilience

SOFF Readiness Funding Request

The funding request should be prepared by the SOFF beneficiary country in collaboration with the SOFF peer advisor in coordination with the prospective SOFF Implementing Entity. In case of questions on how to complete this template, please contact the SOFF Secretariat at: soffsecretariat@wmo.int.

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	*Papua New Guinea*
Country Focal Point	*Jimmy Gomoga – Director PNG National Weather Service*
Peer advisor	*Australian Government - Bureau of Meteorology*
Peer advisor Focal Point	*Andrew Jones*
Prospective Implementing Entity	*UNDP*
Prospective Implementing Entity Focal Point	*Benjamin Larroquette*
Total budget USD	USD *138,601*
Delivery timeframe	*July 2023 - December 2023*
Date of approval	
Signature SOFF Steering Committee co-chairs (after Steering Committee approval of the funding request)	

2. SOFF Programming criteria

Please provide below an initial short description of the application of the SOFF programming criteria in the country.

Table 1: Programming criteria

<table>
<tr>
<td>Close the most significant data gaps</td>
<td>
The Weather Ready Pacific proposal states that PNG's observational infrastructure is pretty much run down or outdated and in many instances is not functional and therefore compromises the quality of any output product.

There are very few stations (Goroka and Aiyura) in the highlands which is the agriculture hub of the country and where bulk of the population is located (Figure 1). In addition, most stations are aerodrome based and fit for aviation purposes only.
Table 1. Summary of Observations Networks for the PNG National Weather Service
<u>OBSERVATION NETWORKS</u>
<table>
<tr><td>No.</td><td>Type of Observing Network</td><td>No. of sites</td><td>Operational</td></tr>
<tr><td>1</td><td>NWS Telegraphic Manual Stations</td><td>14</td><td>12</td></tr>
<tr><td>2</td><td>NWS Automated Weather Stations</td><td>10</td><td>2</td></tr>
<tr><td>3</td><td>NWS Automated Rain Gauge</td><td>3</td><td>3</td></tr>
<tr><td>4</td><td>NWS Automated Hydro Stations</td><td>3</td><td>2</td></tr>
<tr><td>5</td><td>Upper Air stations</td><td>5</td><td>Nil</td></tr>
<tr><td>6</td><td>Third Party Observations</td><td>37</td><td>37</td></tr>
</table>

The number of stations that send data for global and regional use is quite low and has a very low percentage of delivery, as well as poor quality. Only selected station data is shared internationally, and only at intervals of between three-hourly and daily.
Table 2. Observations reporting internationally
<table>
<tr><td>Station</td><td>Number</td></tr>
<tr><td>Registered in OSCAR/SURFACE</td><td>72</td></tr>
<tr><td>Reporting to GTS (WDQMS)</td><td>4 (35 registered; 4 reporting)</td></tr>
</table>

Currently there are no upper air observations. PNG NWS used to use GPS sondes but these haven’t been flown for more than two years. Consumables (balloons and radiosondes) can’t be sourced in-country and they no longer have the budget for them. PNG NWS had previously had an arrangement with the Bureau and MetService NZ for the supply of these consumables, but this is no longer the case.
</td>
</tr>
</table>

Target easy fixes	1. *Repair/upgrade selected AWS that are not compliant* 2. *Access and share data from AWS that have been installed for non-NMHS purposes* 3. *Refine data transfer/communication systems* 4. *Review and update OSCAR/SURFACE with accurate metadata.* 5. *Provide additional consumables for operational upper-air station.*
Maximize delivery capacity	*The peer advisor has worked extensively in partnership with PNG over many years, on all aspects of meteorological and climatological work including support for infrastructure and training. In recent years this has primarily been through both the Papua New Guinea-Australia Transport Sector Support Program and the Climate and Oceans Support Program in the Pacific. The Australian and PNG governments are currently negotiating a twinning program between the PNG NWS and the Bureau to provide sustainable direct support into the future. SOFF outcomes can leverage this historic and future work, which is managed by the Bureau and funded by the Australian Government. The Bureau has a large number of senior technical experts in all aspects of GBON compliance whose expertise can be deployed in this program.*
Create leverage	*SOFF will contribute a component of the Weather Ready Pacific Program, which is currently under development by the Pacific. The Weather Ready Pacific Program is a decadal program of investment to uplift the capability of Pacific Met Services. It is Pacific designed and Pacific led and will coordinate all future investments in meteorological infrastructure and training. SOFF is an example of a project that will deliver to elements of the overall roadmap and it will be the role of Weather Ready Pacific and the Pacific Meteorological Council to ensure that these efforts are not duplicated by other similar bespoke projects.*
Sub-regional gains	*Economies of scale can be created through working in partnership with the other Pacific SOFF countries and under the guidance of existing Pacific regional architecture such as the Pacific Met Council. A Pacific SIDS program has been proposed by SOFF in response to a request from the Pacific countries to advance sub-regional implementation and maximize the benefits from standardized and coordinated GBON implementation in the region. Sub-regional gains will primarily be in and required training and communication systems and processes given the national focus of infrastructure.*

Ensure country balance	*SIDS*

3. 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					
	July 2023	August 2023	September 2023	October 2023	November 2023	December 2023
National GBON Gap Analysis						
GBON National Contribution Plan						
Country Hydromet Diagnostic						
Total budget USD[1]	***138,601***					

- Project lead: – 6 months at 0.25FTE – $27,619
- Specialist input:
  - International Development Sector Lead – 24 days at 1FTE – $34,796
  - Manager of Data Requirements & Quality – 24 days at 1FTE – $34,796
  - Other specialist input from across the organisation – in kind
- Travel – 3 trips at $6,150 = $18,450
- Workshop costs – $5,120
- Contingency (e.g. for second workshop or outer island travel) – $17,820

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

4. 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	1. Health risks from communicable disease 2. Safety from natural disaster	1. Unlikely 2. Unlikely	1. Travellers will follow well established Australian Government travel safety measures including visiting the travel doctor before travel. 2. Follow procedures outlined through Australian Government processes, and utilise consular services through the Australian High Commission where required.
Institutional risks Risks related to the beneficiary country's institutions participation in the Readiness phase activities	Technical experts and specialist staff in Partner Country agencies not available.	Unlikely	Forward planning by agencies to ensure continuity of activity and transfer of knowledge. Put in place an agreed program of activities

			and leverage off existing relationships.
Programmatic risks Risks related to country ownership of the Readiness phase outputs	1. Political tension 2. Misaligned understanding of Activity objectives	1. Unlikely 2. Unlikely	1. Ensure respective diplomatic organisations are aware of activities and that they are aligned with national objectives 2. Ensure regular communication between the two technical agencies and engagement with Partner Country, with scheduled updates to re-align objective.

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 the Australian Bureau of Meteorology to Papua New Guinea 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 peer advisor in collaboration with the beneficiary country and in coordination with the prospective Implementing Entity should establish the specific activities and consultations needed to complete the outputs. The development of the outputs should include the following:

- Collaboration arrangements between the beneficiary country and the peer advisor, including at least one country visit, unless the country context does not allow it:
    - *First virtual preparatory workshop with PNG NWS, UNDP and WMO in July 2023*
    - *In-country mission to Port Moresby by three BoM staff in July 2023*
    - *Develop GBON National Gap Analysis in August 2023*
    - *Develop Country Hydromet Diagnostic by September 2023*
    - *Follow up virtual preparatory workshop with PNG NWS and UNDP to discuss GBON National Gap Analysis and Country Hydromet Diagnostic in September 2023*
    - *Virtual workshop with PNG NWS, UNDP and WMO to align expectations for drafting the GBON National Contribution Plan in October 2023*
    - *Develop the draft GBON National Contribution Plan by November 2023*
    - *Stakeholder workshop in Port Moresby (if required) in November 2023 to socialise GBON National Contribution plan*
    - *Finalise the GBON National Contribution Plan in December 2023*

- Coordination arrangements with the prospective Implementing Entity: *Implementing entity will be invited to take part in the in-country workshop(s) and each of the virtual meetings.*
- In-person or virtual consultation meetings with relevant national and international stakeholders and partners:
    - *One in-person workshop will take place in July 2023 to understand the needs and gaps from GBON and Hydromet perspective.*
    - *A follow up workshop is tentatively proposed for November 2023 with core partners and a broader stakeholder base (if required)*
    - *Virtual consultation meetings are planned for:*
        - *Preparation ahead of the in-country mission (July 2023)*
        - *Socialisation of mission findings and outputs (September 2023)*
        - *Align expectations for drafting the GBON National Contribution Plan (October 2023)*
        - *As a substitute for the stakeholder workshop to socialise the GBON National Contribution Plan should the in-country workshop not take place (December 2023)*
- Delivery partners that support the peer advisor in the delivery of the outputs, as applicable: *None*
- Peer advisor delivery team and focal point:
    - *Peer advisor focal point: Andrew Jones*
        - *General Manager of International Development at the Bureau of Meteorology. This role builds on 20 years of experience as Andrew has transitioned from published scientist to organisational leader and enabler of science for development. Prior to joining the Bureau, Andrew lived and worked in the Pacific for five years, as the Director of the Geoscience, Energy and Maritime Division of the Pacific Community - SPC, the largest technical division in the Pacific regional organisations.*
    - *Delivery Team:*
        - *Rob Braaten – Data Requirements & Planning Team Leader at the Bureau of Meteorology. Rob is responsible for guiding the planning of the Bureau's observing portfolio to ensure it delivers maximum value for customers. He recently led the analysis and planning for Australia's contribution to the GBON network, and is overseeing the implementation of the Bureau's 10-year roadmap for new observations capability. He also recently led the development of the Bureau's 10-years future strategy for water information drawing extensive engagement with hundreds of customers and data providers across Australia.*
        - *Karl Monnik - Manager of Data Requirements & Quality, Data Program, Bureau of Meteorology. Expertise in Surface observations, Upper Air and weather-watch radar networks and user requirements. Involved in observations policy and strategy for >5 years. Contribute to several WMO Teams including:*
            - *Lead of RA V Working Group for Infrastructure*
            - *Member of Standing Committee on Earth Observing Systems and Monitoring Networks (SC-ON)*
            - *Member of Expert Team on WIGOS Tools*

        - *Member of Expert Team for OSCAR Development*
    - *Adele Crozier – International Development Sector Lead at the Bureau of Meteorology. The International Development Program supports implementation of the Australian Government's foreign policy objectives and delivers social and economic value to Australia and partner governments in the Indo-Pacific region. As International Development Sector Lead, Adele is responsible for understanding the challenges faced by National Meteorological and Hydrological Services in the Pacific.*
    - *The Delivery Team will further call upon the services of specialised technical staff from the following programs within the Bureau as required:*
        - *Observing Systems & Operations*
        - *Service & Infrastructure Management*
        - *Planning & Architecture*
        - *Application Services*
- Timeline for the development of the outputs
    - *GBON National Gap Analysis developed by end of August 2023*
    - *Country Hydromet Diagnostic developed by end of September 2023*
    - *GBON National Contribution Plan developed by end of December 2023*

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 have to 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 DIRECTOR, NATIONAL WEATHER SERVICE PAPUA NEW GUINEA
Peer advisor Peter Stone Peter Stone, Group Executive, Bureau of Meteorology. 10 May 2023
Prospective Implementing Entity DocuSigned by: D2AA1A67F948445... Deputy Resident Representative UNDP Country Office to Papua New Guinea