

SOFF Readiness Funding Request

Version 1.0

23 February 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	Ecuador
Country Focal Point	Instituto Nacional de Meteorología e Hidrología "INAMHI"
	Bolivar Erazo, Executive Director
Peer advisor	Leading Peer Advisor: Federal Office of Meteorology and
	Climatology MeteoSwiss, Switzerland (hereafter MeteoSwiss)
	Supporting Peer Advisor: Servicio Meteorológico Nacional
	Argentina (hereafter SMN)
Peer advisor Focal Point	Marcel Haefliger, MeteoSwiss
Prospective Implementing Entity	Inter-American Developement Bank (hereafter IADB)
Prospective Implementing Entity Focal Point	Robert Esmeral, IADB
Total budget USD	200'000 \$
Delivery timeframe	From May 2023 to February 2024
Date of approval	30 March 2023
Signature SOFF Steering Com funding request)	mittee co-chairs (after Steering Committee approval of the



2. SOFF Programming criteria

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

Table 1: Programming criteria

Close the most significant data gaps	Based on the WMO Global GBON Gap Analysis for the country, please provide a brief summary of the initial indications regarding the GBON gap in the country.		
	In the climate context, the tropical zone plays a key role in the world climate, for this reason Ecuador is a very interesting and important country if we look at the climate regions: Amazon basin, Andes Mountain range, Galapagos Islands, a unique location in the Pacific. From the size of Ecuador having at least 7 GBON stations is key to the overall improvement of this region.		
	 Ecuador was highlighted as a country with strategic observations not only for weather but also for climate and hopefully through this collaboration and the support of IADB, we can obtain very important observations for the global public good coming from Ecuador Ecuador will have MeteoSwiss as peer advisor but also Argentina supporting. This will serve as a good example of south-south cooperation and peer advisors from the south supporting other countries 		
	INAMHI operates a weather observation network that in the past satisfied the Minimum WMO requirements. Lack of funds, human and technical resources have affected its sustainability, and the new demands of numerical weather forecasting make the current observation network obsolete. According to GBON requirements, the situation is as follows:		
	Surface stations in compliance with GBON: 0 stations Goal: 7 to 26		
	Upper air stations in compliance with GBON: 0 Goal: 2		
	* The mentioned goals are based on an estimated area for Ecuador of 256,370 km2		



	It is important to mention that two regions of Ecuador have particular global relevance in weather, climate and environmental aspects: The Amazon region and the Galapagos Islands. Both regions are plagued by logistical challenges well beyond the capacity of the INHAMI to solve and represent hence a crucial target for SOFF funding.
Target easy fixes	 Based on the WMO Global GBON Gap Analysis, please provide initial indications on the opportunities for rehabilitation and improvement of potential GBON stations in the country. Identify from the network of stations at least 7 stations and assure GBON quality and a sustainable solution for the maintenance data
	 providing. Observation points in which there are INAMHI operational conventional stations report to the WMO, and that already have automatic instruments implemented (network of at least 26 semi-operative stations with minor problems). Existing network of automatic stations, Upgrade the main existing stations with modern stations with their stock of spare parts for the short and medium term Upper air observations have previously been carried out in three representative points of the country (Galápagos, Guayaquil, Nuevo Rocafuerte); therefore, it would be important to resume the observations in these strategic points. Develop systems, programs, and applications to improve the management and efficiency of the national network
Maximize delivery capacity	Outline the capacity of the peer advisor and the prospective Implementing Entity to deliver SOFF support efficiently and effectively in the country. State any ongoing or planned activities in the country for which the peer advisor receives funding from other sources. MeteoSwiss assures up to 40% of an FTE for the SOFF peer review. This person is a promoted climatologist, has experience as a forecaster and was for 16 years in a leading position (Aviation Meteorology). In addition, for special fields of expertise experts form within the organization can be consulted. The weather service of Argentina (SMN) will play a support role to MeteoSwiss, in particular regarding regional aspects and by contributing expertise for in-situ inspections. Likewise, it will allow both parties to exchange knowledge and experiences so that



	INAMHI will improve the monitoring and management of information. Likewise, this project will strengthen communication and cooperation between the SMN and INAMHI for further projects. At the same time, the SMN will gain expertise in the process for further supporting other countries in the region. Regular weekly/biweekly meetings among SMN, INAMHI and MeteoSwiss will take place in order to monitor the progress and support the work. Synergies and coordination with Enhancing Adaptive Capacity of Andean Communities through Climate Services also ENANDES+ in order to avoid duplication of tasks and for making optimum use of the available resources. The project ENANDES+ will be launched on February 2023, and Ecuador will receive 600K CHF for improving capacities for products and services into a pilot area located in the Andes region for 5 years.
Create leverage	 Provide initial indications on opportunities for complementarity of SOFF with previous, ongoing and planned operations by the SOFF Implementing Entities and other funds. 1. There are two (2) diagnoses of the institutional situation of INAMHI, carried out by the WMO (2021) and EUROCLIMA (2019). These two combined constitute a wealth of information that will dramatically simplify the Hydromet study. 2. An investment project with national (Ecuador) funds plans to overhaul surface observation infrastructure, and it will be executed until 2025. Unfortunately, for the 2023 budget, there has been a cut of 4.5M USD (leaving only 1.3M USD for network management). Likewise, the budget that will be allocated for the years 2024 and 2025 is unknown. However, focus on delivery capacity and GBON compliance is unique to SOFF. 3. The project ENANDES+ was launched on February 2023, and Ecuador will receive 600K CHF for improving capacities for products and services into a pilot area located in the Andes region for 5 years. We believe that both projects are
	 Ecuador has two projects financed by UNDP for basin monitoring located on the northern borderline with a total amount of 619K USD until 2024.



	In Ecuador, significant investments have been made to modernize the hydrometeorological observation network in collaboration with different sources of financing, so it is important to continue strengthening it so that these projects have not been in vain. Ecuador was included in the first batch because of an indication by IADB of potential funding for GBON implementation. Depending on the results, IADB will support the implementation of the GBON National Contribution Plan developed in the Readiness Phase.
Sub-regional gains	 Provide initial indications on opportunities to create economies of scale and optimize the design of the observing networks through multi-country/sub-regional SOFF implementation e.g. existing sub-regional cooperation or opportunities for sub-regional procurement and operations and maintenance. Observation networks are not projected to benefit from economies of scale in the short and medium term, due to low demand and a small number of suppliers and manufacturers. So far, no regional or sub-regional initiatives to coordinate the planning of monitoring networks are known. In the context of the Peer Advisory, however, it makes sense to seek exchange with other peer advisors and neighboring countries in order to explore possibilities for a regional or sub-regional approach (ENANDES+).
Ensure country balance	Indicate if the country is a Small Island Developing State, a Least Developed Country, an ODA-recipient country, a Fragile and Conflict- affected State. Ecuador is the only non-SIDS non LDC country included in this first batch for SOFF. It is, however, an ODA-recipient country (upper middle income). Ecuador is the only South American country chosen, particularly for having a low compliance to GBON in the region. However, there are other factors that make it difficult for INAMHI to manage the observation network, such as low funding from the central government, high basic salaries compare to the region, etc.



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 <u>SOFF Operational Manual</u>, 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.

Please indicate the expected time required to deliver the Readiness outputs and the total budget. See example below.

					Tim	eline				
Outputs	Mont h 1	Mont h 2	Mont h 3	Mont h 4	Mont h 5	Mont h 6	Mont h 7	Mont h 8	Mont h 9	Mont h 10
National GBON Gap Analysis										
GBON National Contributio n Plan										
Country Hydromet Diagnostic										
Total budget USD ^[1]					200	'000				

Table 2: outputs, timeline and budget

¹¹ Eligible expenditures are limited to: Staff and consultants; Consultations, national technical workshops, and communications; Travel and transportation costs; Other incidental expenditures.

Due to administrative work to work out agreements between SMN and MeteoSwiss and INAMHI and MeteoSwiss the timeline is prolonged to 10 months.

A visit to Ecuador is scheduled for July 2023, in order to conduct face-to-face interviews with INAMHI staff and where some relevant observation points will also be visited.

Both the National GBON Gap Analysis and Country Hydromet Diagnostics will be carried out at the beginning of the project, with the objective of completing the gap analysis by the end of the third month (July), while the Hydromet analysis is expected to be completed in the fifth month of the project (September). Finally, the final 7 months will be worked on the GBON



National Contribution Plan, with an expected completion date for this product and the entire project in February 2024.

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 review by WMO Technical Authority		
2. GBON National	GBON national contribution plan developed (Y/N)	GBON national contribution plan developed and reviewed by WMO Technical Authority	
Contribution Plan	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

Please provide a brief description of the contextual, institutional, and programmatic risks that might hinder the effective delivery of the Readiness phase outputs.

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	For the Readiness phase, no major political and conflict risks are identified. Politically, the current national government will end its term in 2 years, so there should be no major changes of leadership during this period. However, authorities in Ecuador can be suddenly replaced due to political interests The safety concern is not an issue at most locations, and hence should not be an obstacle to the Readiness phase output. However, insecurity has increased in Ecuador, and especially in the north coast region.	low	The project will include personnel who are not subject to political changes in INAMHI. INAMHI will organize visits to different observation points taking into account the security of the commission as a priority.



Institutional risks Risks related to the beneficiary country's institutions participation in the Readiness phase activities	In general, there is an openness to participation and collaboration on the part of INAMHI as well as related institutions. INAMHI does not have a specialized unit for inter- institutional cooperation and project formulation, so all units and their officials must allocate part of their time to collaborate with the Readiness phase. Finally, it should be noted that INAMHI's technical staff is limited. A possible risk is that other tasks will require a level of resources from the INAMHI SOFF team that will adversely affect the implementation of the SOFF readiness phase.	Iow	In general, no major adjustments are required. However, INAMHI will appoint representatives of the units involved to collaborate with the Readiness phase.
Programmatic risks Risks related to country ownership of the Readiness phase outputs	INAMHI belongs to the central government, and hence its authorities are subject to political changes.	low	INAMHI is open to receiving help from bilateral national and international organizations. For example, in the



There is a risk that the new authorities will not accept the project and the development of the Readiness phase.

In addition, if there are administrative changes, the continuity of the project could be affected causing delays in delivery times, or disagreement with the results obtained

In the past INAMHI has had difficulty in obtaining the financial resources from the government necessary for the operation of measuring networks and associated tasks. Even though SOFF will potentially implement alternative business models, a high degree of ownership on the part of the Ecuador government will be necessary to successfully transfer the findings from the readiness phase to the subsequent phases.

The risk is that INAMHI will not be recent past INAMHI has received support from the WMO, EUROCLIMA, and UNDP.

To ensure the different steps of this project it will be necessary to sign an institutional agreement among all actors involved.

Also, the project will include personnel who are not subject to political changes.

INAMHI will actively participate in the Readiness phase so that the products meet the needs.

Additionally, the diagnoses made by the WMO, EUROCLIMA, and the IADB will be available for analysis, so it is expected that the results will continue to reinforce what was found in these previous studies.



provided with the	
necessary resources.	



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 **MeteoSwiss and SMN** to **INAMHI-Ecuador** 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 <u>SOFF Operational Manual</u>, 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

- MeteoSwiss is responsible for the diligent execution of the peer advisory service and for Readiness Phase outputs in accordance with WMO specifications.
- 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 <u>operational guidance documents</u> 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 INAMHI, MeteoSwiss, and SMN agree to organise a regular virtual exchange via video conference. The frequency of this exchange depends on the progress of the work and the availability of the respective contact persons. At a minimum, however, a short exchange should take place once every two weeks. It is further envisaged that MeteoSwiss and SMN will visit the country at least once during the peer advisory period in order to get an on-site picture of SOFF-relevant aspects.
- Coordination arrangements with the prospective Implementing Entity: It is envisaged that a representative of the Implementing Entity will participate in regular virtual exchanges between INAMHI, MeteoSwiss, and SMN as required and



appropriate to discuss the progress of the work. In the event of a possible country visit, the Implementing Entity ensures that a contact person is available on site to accompany the field mission from the Implementing Entity's point of view.

• In-person or virtual consultation meetings with relevant national and international stakeholders and partners:

As part of the initial work in the SOFF Readiness phase and taking into account the findings from recent projects (EUROCLIMA+), a list of relevant national and international stakeholders will be jointly identified, which are relevant for the implementation of SOFF. At an appropriate time and in coordination among INAMHI, the Implementing Entity, SMN, and MeteoSwiss, a suitable format for consultation with the identified institutions will be defined. Should a trip to the country be undertaken, this exchange may well take place in person, otherwise a virtual format will be used more appropriately.

• Delivery partners that support the peer advisor in the delivery of the outputs, as applicable:

SMN supports MeteoSwiss in the readiness phase. It is planned that SMN will visit the country together with MeteoSwiss. Furthermore, it will support MeteoSwiss by assessing and reviewing the results of the study.

- Peer advisor delivery team and focal point: Federal office of Meteorology and Climatology MeteoSwiss, Marcel Haefliger
- Timeline for the development of the outputs: May 2023 to February 2024. A visit to Ecuador is scheduled for July 2023, in order to conduct face-to-face interviews with INAMHI staff and where some relevant observation points will also be visited. Both the National GBON Gap Analysis and Country Hydromet Diagnostics will be carried out at the beginning of the project, with the objective of completing the gap analysis by the end of the third month (July), while the Hydromet analysis is expected to be completed in the fifth month of the project (September). Finally, the final 7 months will be worked on the GBON National Contribution Plan, with an expected completion date for this product and the entire project in February 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 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
Fichard
22-02-2023
Peer advisor
22.2.2023 Junich
Ce 2
Prospective Implementing Entity
p2-feb-2023