



Twelfth Steering Committee

29 October 2025

SOFF Compliance Phase Framework

Consultation 12.1

**Systematic Observations
Financing Facility**

**Weather
and climate
data for
resilience**



Purpose of this Document

This document seeks the Steering Committee's guidance on the final design of the SOFF Compliance Phase Framework. It presents the outstanding elements that require direction to complete the Framework.

An inclusive consultation process, as described in INF 8.2 Compliance Phase Framework: Design and consultation process, has been guiding the work.

At its 11th meeting, the Steering Committee agreed that the Compliance Phase Framework would be presented for endorsement at the 13th meeting, with this 12th meeting serving as the final consultation step.

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SOFF Compliance Phase Framework consultation

1. Overview

The SOFF Compliance Phase Framework is the mechanism to sustain the investments made during the Readiness and Investment Phases and to ensure countries continue to meet GBON requirements. A well-designed Compliance Phase is essential for SOFF to deliver on its long-term objectives of sustained global weather and climate data.

The Independent External Review also emphasized the need for broad engagement with SOFF governance and operational partners. Since June 2024, consultations have included:

- Regional workshops with countries and operational partners;
- Regular webinars and meetings with peers and Implementing Entities;
- Close engagement with the WMO Technical Authority;
- Presentations to the Advisory Board and the Steering Committee (see Annex I for full consultation schedule and status).

This 12th Steering Committee meeting is the final consultation with the SOFF Steering Committee. Endorsement of the Framework is planned for the 13th meeting.

SOFF Secretariat is seeking the Steering Committee guidance on the below issues:

Theme	Questions for Steering Committee
Financial elements	1. Should compliance payments cover a country-tailored fixed share of station operating costs, with the remainder met by national co-financing, as applicable? 2. Should SOFF adopt the proposed approach for upper-air stations, allowing payments for up to four quarters of non-compliance before discontinuing compliance payment support, given their importance and higher operating costs? 3. Should SOFF establish an emergency/contingency funding window set aside for the Compliance phase? 4. Should SOFF adopt a simple, tested modality (Managing Agent or pooled fund) for initial implementation of Compliance payments, while in parallel exploring blockchain and other innovative approaches for possible gradual transition?
Non-financial elements	5. Should the Compliance Phase include a regional window of support in addition to national-level compliance payments?
Funding model	6. Should SOFF bank Compliance payments one year in advance of expected disbursements? If agreed, SOFF would begin banking in 2027 to cover the first forecasted payments in 2028.

Overall	7. Does the Steering Committee endorse the overall approach to the SOFF Compliance Phase Framework for finalization and consideration at the 13th meeting?
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Next steps

- 12th Steering Committee: Provide guidance on outstanding design elements.
- Q4: final consultation with countries and partners
- 13th Steering Committee: Consideration and endorsement of the Compliance Phase Framework.
- **Review cycle:** The Framework is expected to be reviewed every three years, starting after the first compliance payments.

2. Background and context

The Compliance Phase is a distinctive and innovative feature of SOFF, created to ensure the long-term sustainability of investments. Experience has shown that without sustained support for the operation and maintenance of hydrometeorological networks, systems often fail and investments are lost. No other multi- or bilateral agency provides such open-ended, results-based support for hydrometeorological networks.

This innovation also brings challenges. With no comparable models to draw on, SOFF must carefully design and implement the Compliance Phase in consultation with all partners. This document presents the outstanding questions requiring Steering Committee guidance for finalizing the Compliance Framework. Annex I summarizes the consultations held to date and the plan through February 2026.

The [SOFF Operational Manual](#) (section 4.5.3) and Steering Committee decision 5.7 *SOFF and GBON Compliance* provide the foundation for the Compliance Phase. They define the requirements, tools and criteria for compliance monitoring, including operational elements and the monitoring, reporting and verification procedures.

The Compliance Phase builds on four key elements:

- **Results-based finance:** Payments are made upon WMO verification of GBON data exchange.
- **Predictable long-term finance:** Continuous financial and technical support enables countries to plan investments and secure the human resources needed for sustained station operations.

- **Technical competency:** Peer Advisors, funded by SOFF on a cost-recovery basis, provide ongoing technical assistance.
- **Performance monitoring:** WMO routinely verifies performance through the WIGOS Data Quality Monitoring System (WDQMS) and the GBON compliance monitoring tool.

Finalizing the updated Compliance Framework requires clarifying how these elements will be implemented in practice. The next sections outline the scope, eligibility and outstanding design questions for consultation with all stakeholders.

2.1. Scope and Eligibility

SOFF is structured around three phases of support: Readiness, Investment and Compliance. At the end of the Investment Phase, a country transitions to the Compliance Phase once it demonstrates capacity to sustain operations of SOFF-funded stations and completes the commissioning period.

Commissioning is the process by which GBON data is reliably shared through WIS 2.0 in line with GBON compliance criteria. During the final year of the Investment Phase, countries must operate and maintain their networks according to these criteria. Performance is monitored jointly by the country and the Implementing Entity, with support from the Peer Advisor and the WMO Technical Authority. A station is formally declared *commissioned* once WMO verifies that it has met the criteria over a continuous three-month period.

The scope of Compliance Phase support is to provide both technical assistance and results-based finance, enabling countries to operate and maintain their national contribution to GBON and to ensure sustainable international data sharing.

Eligibility is currently defined as follows:

- **Small Island Developing States (SIDS) and Least Developed Countries (LDCs):** Eligible for all SOFF phases, including Compliance.
- **Other ODA-eligible developing countries:** Eligible for the Readiness Phase only.
- **Future expansion:** The Steering Committee may open eligibility of Investment and Compliances support to additional countries through future decisions.

Access to Compliance Phase support is subject to the availability of SOFF resources.

2.2. Defining Compliance: technical elements

Clear technical definitions and metrics for compliance are essential to ensure the Compliance Phase operates effectively. This section sets out how compliance is defined at both station and country levels, how it is monitored, and how it is verified and reported.

2.3. GBON Compliance

The definition of GBON compliance includes two parts, namely station-level compliance and Member (country) level compliance. SOFF compliance phase support will be provided based on the station-level compliance, which will be achieved when a given station reports the required measurements, at the required temporal frequency, with the required reporting quality.

SOFF uses the GBON compliance criteria applicable to all WMO Members (193 states and territories) as the basis to plan and implement activities and monitor and verify results. The WMO Technical Authority is responsible for the tools to monitor GBON compliance. Monitoring and data collection are entirely based on the [WIGOS Data Quality Monitoring System \(WDQMS\)](#) webtool. The GBON compliance criteria are defined in the GBON Guide which was approved by the 76th WMO Executive Council (EC-76) and in the WIGOS Manual (WMO-No. 1160). The criteria for station level compliance are defined by the WMO as outlined in [INF6.2](#).

2.4. Compliance monitoring

Monitoring and verification use publicly available data from:

- The **WDQMS web tool**, which provides near-real-time information on the availability and quality of observational data;
- The **GBON compliance app**, which provides quarterly compliance information by country.

Currently, these tools draw on data from four global Numerical Weather Prediction (NWP) centres: Deutscher Wetterdienst (DWD); European Centre for Medium-Range Weather Forecasts (ECMWF); Japan Meteorological Agency (JMA) and United States National Centers for Environmental Prediction (NCEP).

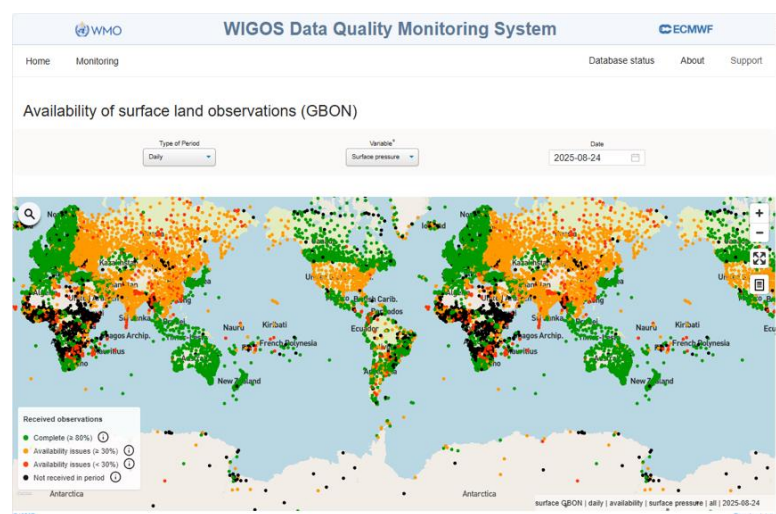


Figure 1: GBON surface station monitoring on WDQMS

In addition, SOFF and WMO are developing a **SOFF GBON compliance monitoring tool** to focus specifically on SOFF-funded stations. This tailored tool will:

- Filter data by SOFF-funded stations;
- Issue alerts when reporting problems arise;
- Help countries and partners quickly identify and resolve performance issues.

2.5. Verification and WMO Annual Compliance Report

Station level compliance will be verified by the WMO technical authority quarterly and annually. WMO will provide SOFF-tailored quarterly GBON compliance reports showing the SOFF funded stations' performance and progress, including the total number of GBON-compliant stations for each SOFF country. Quarterly GBON compliance monitoring reports will be made publicly available on the SOFF website.

These compliance monitoring processes and outputs will be integrated into the SOFF Monitoring, Evaluation, and Learning (MEL) framework, which is currently under consultation.

3. Financial and operational elements of Compliance

The Compliance Phase provides predictable, results-based financing to sustain GBON operations. To implement this effectively, several financial and operational design features must be agreed. This section presents the proposed approach and consultation questions on key elements: fixed costs, co-financing, payment calculation, special considerations for upper-air stations, contingency funding and payment modalities.

3.1. Country level fixed cost of Compliance

Each country will have a fixed cost per station, determined before the end of the Investment Phase. This cost will be determined jointly by the country, the Implementing Entity and the Peer Advisor, with technical input from the WMO Technical Authority.

As part of the Compliance Framework, the SOFF Secretariat and WMO TA will design a simple funding request template for Compliance funding, which will provide guidance for operational partners on what is eligible for compliance payments and what will be the basis for determining the country tailored cost of compliance. The funding requests will:

- Clarify which expenditures are eligible for compliance payments;
- Define the basis for calculating a country's fixed per-station cost;
- Require a short narrative explaining the request, linked to the Investment Phase assessment;
- Require justification for any deviations.

Consultation question for SOFF Steering Committee

The fixed cost approach aims to simplify procedures and minimize overheads:

1. Should compliance payments cover a country-tailored fixed share of station operating costs, with the remainder met by national co-financing, as applicable?

3.2. Country co-financing of Compliance costs

To strengthen ownership, countries would co-finance up to 25% of compliance payments. Initial consultations suggest that while financial contributions may be difficult for some NMHSs, many can provide in-kind contributions.

A country's expected contribution will be based on its ability to pay, calculated from two elements:

- **Responsibility to pay under GBON** – calculated as GDP per surface area (including EEZ for SIDS).

Surface area determines the number of GBON target stations. Countries are grouped into five levels:

- Level I: < 500,000 USD/km²
- Level II: 500,000 – < 1,000,000 USD/km²
- Level III: 1,000,000 – < 1,500,000 USD/km²
- Level IV: 1,500,000 – < 2,000,000 USD/km²
- Level V: ≥ 2,000,000 USD/km²

B. Capacity to pay of the NMHS - assessed through Country Hydromet Diagnostic (CHD) Element 1: *Governance and Institutional Setting*.

This measures mandate, governance, budget security and institutional strength. The final score is the average of the two elements, weighted equally.

Countries are then assigned to categories of expected contribution:

Step	Approach	Scores
Responsibility to pay	Based on GDP per surface area	Level I = 5; Level II = 25; Level III = 50; Level IV = 75; Level V = 100
Capacity to pay	CHD Element 1 assessment (Institutional and budgetary, grouped into five levels)	Level I: 5 Level II: 25 Level III: 50

		Level IV: 75 Level V: 100
Final calculation	Average of both scores → category of contribution	Category I 0-15 = 0% Category II 15-30 = 5% Category III 30-45 = 10% Category IV 45-60 = 15% Category V >60 = 25%

3.3. Calculation of annual Compliance payments

Payments will be made annually, covering the period 1 July to 30 June, following Steering Committee approval at the fall Steering Committee meeting. They will be calculated as:

$$\text{Compliance payment} = \text{Surface station fixed cost (-country contribution)} * \text{Number of compliant quarters} + \text{Upper air fixed cost (-country contribution)} * \text{Number of compliant quarters}$$

The WMO Annual Compliance Report will provide the Secretariat with the number of quarters each SOFF-funded station met GBON compliance requirements.

3.4. Compliance payments special considerations for upper-air stations

Many countries will be operating upper-air stations for the first time. Due to the particular importance of upper-air observations for NWP and the reliance of successful launches on the purchase of consumables for the stations, lack of sufficient resources in early compliance will set up the NMHS for failure to achieve future compliance. To address this challenge, it is proposed to have special considerations for upper-air stations in which payments to be made to countries in the case of non-compliance for 4 full quarters before discontinuing payments. Without support, strict application of compliance could permanently jeopardize operations.

Proposed approach:

- For **surface stations** – payments are made only for compliant quarters.
- For **upper-air stations** – SOFF would provide payments for up to **four quarters of non-compliance**, before discontinuing support.

Consultation question for SOFF Steering Committee

2. Should SOFF adopt the proposed approach for upper-air stations, allowing payments for up to four quarters of non-compliance before discontinuing compliance payment support, given their importance and higher operating costs?

3.5. Emergency/contingency funding window

Stakeholders highlighted the need for flexibility in cases of extraordinary events during the Compliance Phase (e.g. vandalism, excessive damage beyond normal depreciation of equipment, or other damages outside of standard operations). A Compliance phase contingency fund could provide support in such cases. The request for support would require validation by Peer Advisor or independent assessment of station performance and progress, as well as the cause of damage. The Steering Committee would decide on each request individually.

Consultation question for SOFF Steering Committee

3. Should SOFF establish an emergency/contingency funding window set aside for the Compliance phase?

3.6. Payment mechanisms for Compliance payments

Compliance payments will follow a results-based finance model: funds are disbursed only after WMO verification of GBON compliance.

Four modalities are under consideration:

Option	Description	Pros	Cons
1. Direct UNMPTF to national government	Disbursement through the National Coordinating Entity (usually Ministry of Finance)	Lowest administrative costs	Not suitable for small amounts; potential delays; fiduciary risks
2. Managing Agent Modality	UNMPTF → UN entity as managing agent	Builds ownership; sustainable	Requires strong systems; financial feasibility uncertain
3. Pooled fund project	UNMPTF → UN entity project; disburses through country offices	Economies of scale; quick disbursement	Less flexible; oversight costs

4. SDG Blockchain Accelerator	Blockchain-based smart contracts (pilot with UNDP/EMURGO Labs)	Transparent; traceable	Still in pilot stage; lacks infrastructure; legal/policy barriers
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Consultation question for SOFF Steering Committee

4. Should SOFF adopt a simple, tested modality (Managing Agent or pooled fund) for initial implementation of Compliance payments, while in parallel exploring blockchain and other innovative approaches for possible gradual transition?

4. Non-financial elements of Compliance

4.1 Peer Advisory technical support

Peer Advisors provide on-demand GBON operational and maintenance advisory support throughout the Compliance Phase. When issues occur with the performance of SOFF funded stations, or GBON compliance is threatened or compromised, the Peer Advisors are the “first line of defense” and liaise with the NMHS and WMO regional centers, as necessary, to ensure the fastest possible resolution of issues.

A Peer Advisory costs cap is included in the funding request for the Compliance Phase. It is proposed that peer technical assistance is capped at USD 100,000 per country per year, as set out in the [SOFF TORs](#).

4.2 Two-way street

GBON ensures that sufficient observational data reaches global Numerical Weather Prediction (NWP) centres. These centres produce model outputs that benefit all countries by providing forecasts with adequate spatial coverage, frequency and quality.

To ensure reciprocity, SOFF proposes a “two-way street” in the Compliance Phase: countries that share data as a global public good also gain access to improved forecast products. This principle is captured in Output 8 of the SOFF Theory of Change, which states that weather and climate products from WMO Global Producing Centres should be freely available and accessible to all countries.

Document [INF-5.2 ECMWF support to SOFF countries](#) outlines a preliminary package of products and capacity-building opportunities:

Support area	Envisaged support	Status
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	(INF 5.2)	
Access to NWP products	Free and unrestricted access to improved forecast data and graphical products	59 SOFF countries already have early access to ECMWF data; all SOFF countries are expected to have access.
Standard training	The ECMWF basic and standardized training packages are offered free of charge.	Web series together with WMO/WIPPS SOFF tailored webinars
Advanced/tailored training and support	ECMWF tailored in-depth training on use of advanced forecast data and graphical products.	Development of <i>Train the Trainer programme</i> with SOFF Peer Advisors
Use of ECMWF cloud and HPC infrastructure	Potential access on a cost-recovery basis, subject to ECMWF Council decision	To be confirmed

The details and roll out of the two-way-street support during the Compliance Phase are still under discussion. Prior to the finalization of the Compliance framework, the envisioned train-the-trainer programmes with ECMWF and broader NWP support via WMO and other Global Producing Centres will be confirmed.

4.3 Regional window for Compliance

Regional efficiency is a core SOFF principle defined in the SOFF programming criteria (Decision 1.4), specifically the criteria on opportunities to create economies of scale and optimize the design of the observing networks through multi-country/sub-regional implementation. The 2023 Independent External Review of SOFF further emphasized the importance of regional approaches, in particular for coordinated implementation, procurement and sustainability of investments. As in the Readiness and Investment Phases, the Compliance Phase aims to create economies of scale and optimize observing networks through multi-country and sub-regional approaches. Potential areas of regional efficiency include:

- Support through Regional WMO Centres;
- Regional pools of spare parts or operations and maintenance services linked to Investment Phase procurement;
- Shared calibration approaches and plans;
- Regional funding requests for compliance, as an alternative to country-by-country requests.

Consultation question for SOFF Steering Committee

5. Should the Compliance Phase include a regional window of support in addition to national-level compliance payments?

5. Funding the Compliance Phase

The Compliance Phase is a unique feature of SOFF and central to its long-term success. To secure predictable financing, the Steering Committee has proposed that dedicated resources be set aside in advance for future Compliance payments. [Decision 11.6](#) states, Compliance Phase payments are expected to be prioritized, while balancing the needs of investments in Readiness and Investment phases. In order to fully deliver activities across all phases, the Compliance Framework will clearly define the approach for setting aside resources for future Compliance phase payments

Countries will enter the Compliance Phase gradually as they complete their Investment Phases. Based on operational data from 15 countries with approved Investment Phase requests:

- The first Compliance Phase payments are expected in **Q3 2028**, amounting up to estimated **USD 4.4 million**, not considering potential country co-payments
- If **50 countries** were to enter the Compliance Phase, it is estimated that approximately **USD 31 million annually** would be required, not considering potential country co-payments

Final budget estimates depend on Steering Committee decisions regarding the Compliance Phase Framework, including co-financing arrangements, and on country-specific costs for operating and maintaining GBON stations, to be determined at the end of the Investment Phase.

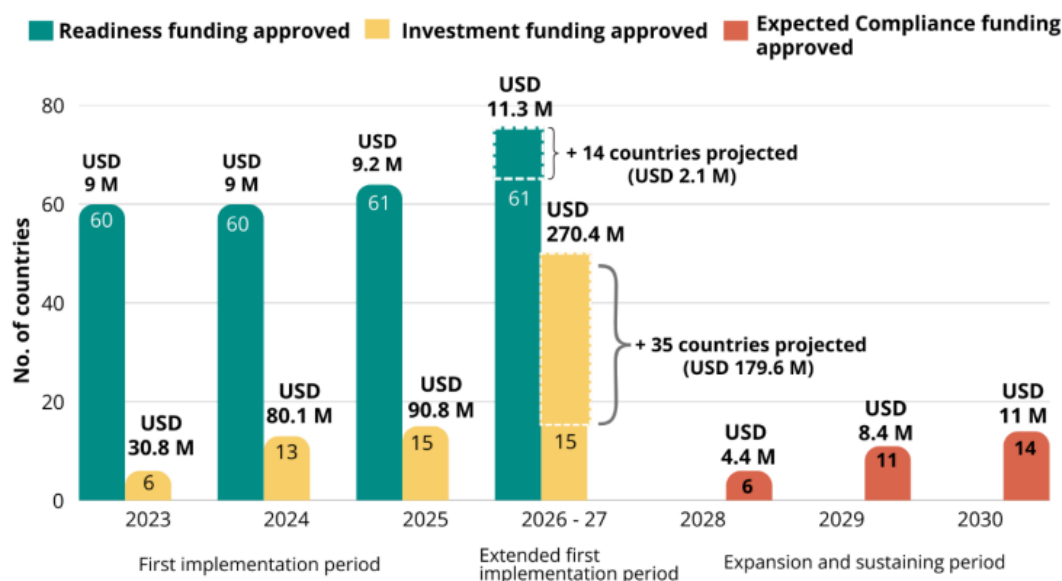


Figure 2. Evolution of the SOFF Readiness (green) and Investment (yellow) portfolio, including expected Compliance Phase payments for the 15 countries with approved Investment Phase funding requests (red).

Consultation question for SOFF Steering Committee

6. Should SOFF bank Compliance payments one year in advance of expected disbursements? If agreed, SOFF would begin banking in **2027** to cover the first forecasted payments in **2028**.

6. Conclusion

The Compliance Phase is a unique and essential feature of SOFF, designed to secure the long-term sustainability of investments and ensure that GBON requirements are met. Extensive consultations with countries and partners have shaped the proposed Framework, which now requires Steering Committee guidance and consultation on the remaining financial and non-financial elements.

Clear guidance at this stage will allow the SOFF Secretariat to finalize a predictable, effective and inclusive Compliance Phase framework that delivers both global and national benefits.

Consultation question for SOFF Steering Committee

7. Does the Steering Committee endorse the overall approach to the SOFF Compliance Phase Framework for finalization and consideration at the 13th meeting?

7. Annexes

Annex I: Consultation schedule and status

Timeline	Event	Stakeholders consulted	Status
Q2 2024	8th SOFF Steering Committee meeting	Steering Committee	Completed
Q3 2024	Regional Workshops WMO led consultations with RWCs	Countries, technical partners, regional organizations and operational partners	Completed
Q4 2024	1st Peer and IE Workshop (Netherlands)	Operational partners	Completed
Q1 2025	SOFF Advisory Board	Advisory Board	Completed
Q2 2025	11th SOFF Steering Committee Regional Workshops	Steering Committee, countries, regional organizations and operational partners	Completed
Q3 2025	WMO and SOFF webinar with HMEI/private sector Survey for countries	Countries, operational partners and private sector	Planned
Q4 2025	2nd Peer and IE Workshop (Morocco) Regional Workshops 12th SOFF Steering Committee Moodle platform	Countries, operational partners regional organizations, international partners and Steering Committee	Planned
Q1 2026	13th SOFF Steering Committee decision	Steering Committee	Planned

Colour legend
Steering Committee
Countries
Operational partners
WMO/technical partners

Annex II: Roles and responsibilities during Compliance

SOFF Countries

Through their NMHSs, SOFF countries are responsible for operating and maintaining GBON stations in line with GBON regulations.

That covers:

- Keep station metadata up to date in OSCAR/Surface to enable online monitoring;
- Maintain GBON designation for all SOFF-funded stations;
- Inform WMO and the SOFF Secretariat if a GBON designation is removed, noting that only designated GBON stations are eligible for Compliance Phase support.

SOFF Peer Advisors

Peer Advisors provide on-demand technical support to SOFF countries, which remain responsible for operating and maintaining their GBON stations in line with GBON regulations.

They act as the first line of support when performance issues occur or GBON compliance is at risk, liaising with Regional WMO Centres (RWCs) and NMHSs to resolve problems quickly and keeping the WMO Technical Authority informed.

Their main functions include:

- Advising National Focal Points (NFPs) for WIGOS, OSCAR/Surface, WDQMS and WIS on GBON implementation;
- Supporting resolution of disputes between SOFF countries and WMO regarding monitoring results and payment triggers;
- Providing technical support under terms of reference (ToR) agreed with countries during the Compliance Phase.

→ Funding and requests

- The Steering Committee approves a cost cap for Peer Advisory services within the Compliance Phase funding request.
- WMO acts as pass-through entity to contract Peer Advisors, who are authorized to spend up to the defined ceiling and bill based on actual requests.
- Countries can request support through the SOFF Secretariat, but responsibility for resolving station issues remains with the NMHS.

- Peer technical assistance is capped at USD 100,000 per country for SOFF's First Implementation Period, as set out in the [SOFF TORs](#).

WMO Technical Authority (WMO TA)

The WMO Technical Authority will:

- Verify the status of GBON compliance after the commissioning period and provide verification for all SOFF Compliance Phase payments;
- Produce a quarterly GBON compliance report, to be shared with the SOFF Secretariat one month before the Steering Committee meeting in May/June;
- Provide technical guidance and support to Members on GBON and compliance requirements, in line with its mandate.

Further details of the WMO TA role will be defined at the 13th Steering Committee.

SOFF Secretariat

The SOFF Secretariat facilitates coordination and collaboration among operational partners during the Compliance Phase. Its responsibilities include:

- Coordinating the review of compliance funding requests and submitting them to the Steering Committee;
- Maintaining the SOFF GBON compliance dashboard, with support from the WMO Technical Authority.