Systematic Observations Financing Facility

Seventh Steering Committee
21 March 2024

SOFF Investment Phase Funding Requests

Decision 7.6

Systematic Observations
Financing Facility

Weather and climate data for resilience

Decision 7.6: Approval of SOFF Investment funding requests

The SOFF Steering Committee

Approves the Investment Phase funding requests for Bhutan, Cabo Verde, Ethiopia, Solomon Islands and Tanzania with a total budget of USD 35,724,397.

Encourages the SOFF Advisory Board Members to use their respective programmes to maximize country-level synergies and complementarities.

Requests

- Implementing Entities to prepare the required documentation in the SOFF UNMPTF Gateway Platform.
- The UNMPTF Office to disburse the first tranche of the funding requests to the recipient organizations
    - United Nations Development Programme: USD 17,061,470
    - United Nations Environment Programme: USD 6,109,154
    - World Meteorological Organization: USD 1,254,546
- The UNMPTF to disburse the second tranche upon Implementing Entity and peer advisor request and according to implementation progress as reported to the Steering Committee through the regular SOFF Implementation progress information documents and contingent upon additional contributions to the SOFF UNMPTF.
- WMO to issue Assignment Agreements with the peer advisors that include the Terms of Reference as stated in the annex of each funding request.

This document provides an overview and analysis of the SOFF Investment phase funding requests from Bhutan, Cabo Verde, Ethiopia, Solomon Islands, Tanzania with a total amount of USD 35,724,397.

The document outlines key information regarding the budgets, implementation arrangements and summarizes the GBON gaps expected to be closed in the five countries.

Operationalization of the Collaboration Framework between SOFF and the Adaptation Fund, Climate Investment Funds, CREWS, Global Environment Facility and Green Climate Fund in the 5 countries is outlined.

Finally, an overview of risks and the mitigation measures identified are summarised.

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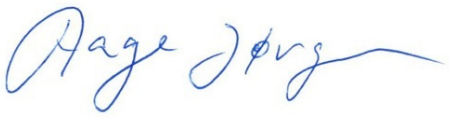
Project Document

Project Title: SOFF Investment funding requests	**Recipient Organizations:** United Nations Development Programme, United Nations Environment Programme, World Meteorological Organization
Project Contact: Markus Repnik SOFF Secretariat 7bis Avenue de la Paix Case postale 2300 Nations, 1211 Genève Telephone: +41797901882	**Project Location:** WMO Secretariat Geneva 7bis Avenue de la Paix Case postale 2300 Nations, 1211 Genève
Project Description: Funding requests for the implementation of the SOFF Investment phase.	**Total Project Cost** USD 35,724,397
	Project Start Date:1 May 2024 **Proposed Project End Date:** 1 May 2029 **Project Duration:** 5 years

For the Recipient Organizations:	Chair of the SOFF Steering Committee:
Prof. Celeste Saulo Secretary-General World Meteorological Organization Signature:  Date:10.04.2024	Aage Jørgensen Nordic Development Fund Co-Chair of the SOFF Steering Committee Signature:  Date: 11.04.2024

SOFF Investment phase funding requests

1. Overview

This document presents an overview of the Investment Phase Funding Requests put forward for consideration to the Seventh SOFF Steering Committee.

All the countries for consideration were programmed in November 2022 (Decision 3.4) and the Readiness Funding Requests were approved in March 2023 (Decision 4.3).

All countries with Investment funding requests for consideration for the 7th Steering Committee meeting (Table 1) have completed the Readiness Phase and submitted all three Readiness Phase outputs, included in the funding request package. Of the five countries, two are part of the Early Warning for All initial focus countries, namely Solomon Islands and Ethiopia. The funding requests are aligned with Implementing Entity priorities and focus on operationalizing the Collaboration Framework between SOFF and multilateral climate funds (presented in detail in section 6).

Table 1: List of SOFF Investment Phase Funding Requests for Seventh SOFF Steering Committee's consideration

No.	Country	Implementing Entity	Peer advisor	Duration (years)	Peer advisor fee	IE funding USD
IPFR 07	Bhutan	UNEP	Finland	5	370,000	4,228,124
IPFR 08	Cabo Verde	UNEP	Netherlands	5	440,000	3,408,318

IPFR 09	Ethiopia	UNDP	Norway – Finland	3	683,505	9,225,452
IPFR 10	Solomon Islands	UNDP	Australia	5	262,500	7,916,074
IPFR 11	Tanzania	UNDP	Denmark	3.5	588,941	8,437,337
Subtotal[1]					2,344,946	33,215,305
WMO indirect support costs (7%)[2]						164,146
TOTAL USD						35,724,397

[1] The subtotal includes the Implementing Entity fee corresponds to 7% of each funding request total budget.
[2] WMO indirect support costs correspond to the 7% of the peer advisory services of all the funding requests.

2. Budget

The total funding requested by the five countries for the implementation of SOFF Investment Phase corresponds to USD 35,724,397. The funding requests range between USD 3,848,318 for Cabo Verde and USD 9,908,957 for Ethiopia.

The budget for each country will be disbursed in two tranches based on Implementing Entities' procedures and arrangements with the beneficiary country. It must be noted that the peer advisor's fee is paid separately through the WMO pass-through mechanism[3], hence it is not included within these tranches, but is accounted for in the total budget.

The distribution of budget across the three SOFF Investment phase outputs and outcomes is presented in Figure 1. Consistent with the first round of funding requests, the budget for the installation and re-habilitation or upgrade of surface land and upper air stations (output 2) comprise the largest proportion of the total budget (58%). The remaining funds are allocated to develop the institutional and human capacity required to ensure sustained operation (21%) and maintenance of observing network in compliance with GBON (21%). It highlights the importance of SOFF investments to support not only infrastructure, but also to invest upfront in the sustainability and long-term availability and quality of observations internationally shared.

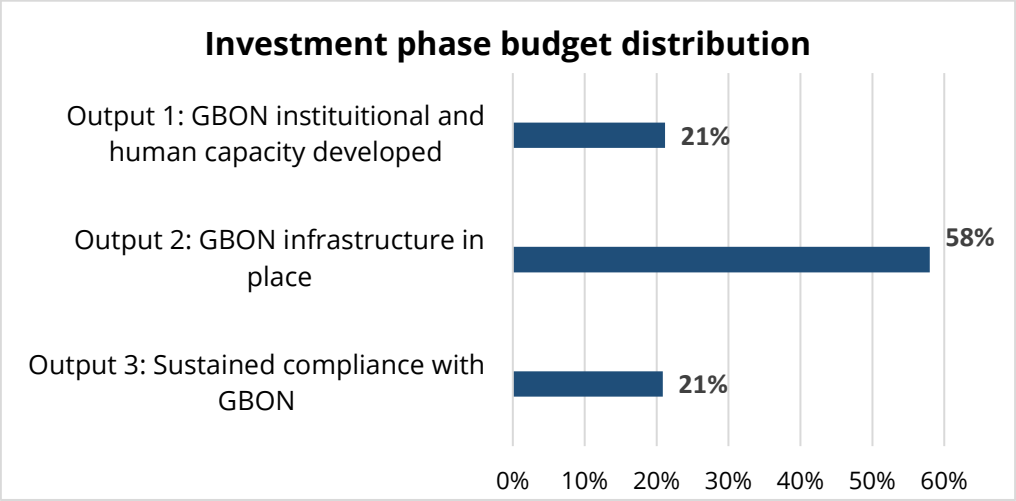


Figure 1. Investment Phase budget distribution across outputs and outcomes

[3] WMO administers a pass-through mechanism for contracting, funding, and receiving reimbursement of unspent funds related to technical assistance provided by the SOFF peer advisors. WMO establishes standardized contractual arrangements, issues contracts, and makes payments to peer advisors based on Steering Committee decisions and upon request from the SOFF Secretariat and per WMO administrative rules and procedures.

3. An output-based approach

The implementation of the Investment Phase follows the provisions indicated in the Operational Manual (Decision 2.2) and the SOFF Investment Phase Framework adopted by the fifth Steering Committee (Decision 5.8).

The Framework is structured around an output-based approach and reflects the nature of SOFF investments which are guided by the standard requirements of the Global Basic Observing Network (GBON).

During the Investment Phase, SOFF funding is used to procure, install, and operate the observation infrastructure, telecommunications, and other equipment needed for GBON stations, as well as strengthen the human and institutional capacity needed to operate, maintain, and share GBON observations. The activities of SOFF investment funding requests remain structured around two standard outputs: 1) GBON human and institutional capacity in place; 2) GBON infrastructure in place; and aim at achieving one outcome: Sustained GBON compliance. (see Table 2). These outputs build on the outputs delivered during the Readiness Phase namely the GBON National Gap Analysis, the GBON National Contribution Plan and the Country Hydromet Diagnostics (CHD).

The outcome of the investment phase is the achievement of sustained GBON compliance. Upon completion of the investment phase activities, the beneficiary country is expected to have developed the capacity to generate and internationally exchange GBON observations sustainably. This is demonstrated during the Commissioning Period, which is the last year of the Investment Phase.

Individual stations are expected to start sharing data before the last year of the Investment Phase. However, it is during the commissioning period[4] that the beneficiary country is expected to fully operate and maintain the network, and ultimately achieve sustained operation of the SOFF-supported stations according to the GBON compliance criteria. In cases of force majeure or unforeseen difficulties preventing the country from achieving GBON compliance of the supported stations, the commissioning period may be extended, or additional investment funding may be requested for consideration of the Steering Committee.

After the completion of the commissioning period, the country will enter the Compliance phase and receive result-based financing to support operation and maintenance of the infrastructure procured during the investment phase.

The table below presents how the outputs and outcome are structured in the Investment Phase Funding Request.

[4] A GBON station commissioning is the process in which GBON data is reliably shared via the WMO Information System 2.0 (WIS 2.0) according to GBON compliance criteria. WIS2 is the framework for WMO data sharing for all WMO domains and disciplines. WMO has developed the open-source software "WIS2 in a box" (https://docs.wis2box.wis.wmo.int) to support LDCs and SIDS in implementing WIS 2.0.

Table 2: SOFF Investment Phase outputs and outcome

Output 1. GBON institutional and human capacity developed
1.1 **National consultations** including with CSOs, and other relevant stakeholders conducted
1.2 **NMHS institutional capacity** required to operate the GBON network developed
1.3 **NMHS human capacity** required to operate the GBON network developed
Output 2. GBON infrastructure in place
2.1 **New land-based** stations and related equipment, ICT systems, data management systems and standard operating practices in place
2.2 **Improved land-based** stations and related equipment, ICT systems, data management systems and standard operating practices in place
2.3 **New upper-air** stations and related equipment, ICT systems, data management systems and standard operating practices in place
2.4 **Improved upper-air** stations, related equipment, ICT systems, data management systems and standard operating practices in place
Outcome: Sustained compliance with GBON
3.1 **GBON land-based stations'** commissioning period completed country-specific standard cost for operations and maintenance established, and data sharing verified by WMO Technical Authority
3.2 **GBON upper air stations'** commissioning period completed, country-specific standard cost for operations and maintenance established, and data sharing verified by WMO Technical Authority

4. Closing the GBON gaps

Aligned with SOFF Programming Criteria, SOFF investments prioritize funding in geographic areas that currently have the poorest observational coverage, where strengthening the observing network would yield the largest results for improvement of the quality of numerical weather prediction products.

4.1 National GBON gap analysis

According to the WMO Global GBON Gap Analysis 2023, the five countries for consideration currently have almost no stations reporting in compliance with GBON (Table 3 under 'Reporting'). The five countries, along with the previously approved six, now totaling eleven countries, represent 20% of the GBON Gap for Surface stations and 18% of the GBON Gap for Upper air stations in LDCs and SIDS.

As stated in Decision 5.7, WMO conducted a GBON Global Gap Analysis based on the June 2023 baseline (INF 6.2), which indicates the target number of GBON stations, the number of reporting stations, and gap for both surface and upper air observations over land in the countries. This report provides a reference for the peer advisors and beneficiary countries to further refine this assessment through the GBON National Gap Analysis.

The GBON gap numbers indicated in the WMO Global Gap Analysis and those included in the GBON National Gap Analysis developed by the countries may differ based on the results of the assessment by SOFF peer advisors. Table 3 below outlines the differences between the GBON Global Gap Analysis and the National Gap Analysis prepared under the SOFF Readiness Phase.

Table 3: Overview of the WMO GBON Global Gap Analysis 2023 (left) in the six countries and National Investment Targets based on in-country assessments by peer advisors during the Readiness Phase (right).

Country	WMO GBON Global Gap Analysis						National Investment Targets[5]			
	Surface stations			Upper air stations			Surface stations		Upper air stations	
	Reporting	Gap New	Gap Improve	Reporting	Gap New	Gap Improve	Gap New	Gap Improve	Gap New	Gap Improve
Bhutan	1	0	0	0	1	0	0	1	1	0
Cabo Verde	0	0	4	0	0	1	1	3	1	0
Ethiopia	0	0	29	0	1	4	13	16	3	2
Solomon Island	0	1	6	0	1	1	0	8	3	0
Tanzania	0	8	16	1	1	2	9	18	4	1

4.2 Applying SOFF flexibility principles

Based on the in-country assessment prepared by the SOFF peer advisor during the Readiness Phase, the result of the National GBON Gap Analysis may differ from the information available in the Global Gap Analysis. This difference may result from changes in the national circumstance since the Global Gap Analysis was prepared, alternatively it may reflect the application of SOFF principles of flexibility. These principles of flexibility are applied in specific circumstances to determine the number of stations to be supported by SOFF.

The WMO technical authority and SOFF Secretariat apply flexibility principles under specific circumstances when reviewing the National Gap Analysis and National Contribution Plan. The first principle is considering the specific topography of the country, for example countries with complex topography such as highly mountainous terrain, multiple microclimates, small islands with isolated and hard to reach areas. The second is considering regional observation coverage. This is applied for example if there are

[5] The National Investment Target is based on the GBON National Contribution Plan and indicates the number of stations that are going to be installed and/or improved to fill the gap toward GBON Compliance.

significantly under-observed regional areas, in particular conflict-afflicted areas, where reaching optimal coverage is not expected to be achieved in the short term.

These principles are applied conservatively upon close review by the WMO technical authority. In such cases, it is proposed to the Steering Committee to allow countries to receive SOFF support for a higher number of stations than the GBON standard density target indicated in the WMO Global GBON gap analysis. Additionally, it is recognized that in some instances it will be practically difficult for countries to install and maintain operational GBON stations in remote areas. In this case WMO Members have the option to claim exemption from meeting GBON Technical Regulations per Article 9 of the WMO Convention.

In the current round of investment funding requests, Solomon Island and Tanzania apply the principle of flexibility in their GBON national gap analysis requesting a higher number of surface and upper air stations. The WMO technical authority approved flexibility for Solomon Islands considering its geographical location as a seafaring country. For the GBON national gap analysis, the water between islands is calculated as land considering the importance of these boat routes as the main mode of transportation. Global NWP depends on the availability of global coverage of observations and the Pacific is one of the regions with significant gaps with the observations. Additionally, the observations in Solomon Islands and its marine, particularly upper air, are critical for forecasting cyclones.

In Tanzania, flexibility is considered due to its specific topography and for regional observation coverage with numerous stations near border with a conflict affected country. The Tanzanian government will co-finance the GBON infrastructure investment which includes 11 improved surface stations and 1 new upper air station. SOFF investment will support the remaining stations to achieve the national investment targets.

5. Implementation arrangements

The implementation arrangements of SOFF investments are defined by the designated Implementing Entity in collaboration with the beneficiary country following the process described in the SOFF Operational Manual and in line with the United Nations Multi-Partner Trust Fund's legal agreements.

5.1 Execution models

The Investment Phase Funding Requests define the execution model and clearly outline the roles and responsibilities of the beneficiary country, the Implementing Entity and any additional Executing Partner(s). Recognizing the diverse profile and needs of SOFF beneficiary countries, the choice of execution model is flexible and dependent on country demand and context. The table below provides a brief overview of the proposed execution models. The full description provided by the Implementing Entities can be found in Section 5 of each funding request.

Table 4: Overview of the execution models

Country	Execution Model
Bhutan & Cabo Verde	**Hybrid** UNEP will deploy a hybrid executing model comprising a National Executing Entity and, at the request of the SOFF Beneficiary Country focal point, limited Executing Entity functions by UNEP itself. UNEP will be responsible for the implementation, financial management, evaluation, reporting and closure of the activities under the project. The National Centre for Hydrology and Meteorology (NCHM) and the Institute National of Meteorology and Geophysics (INMG) will serve as the national Executing Entity (EE) and will be accountable to UNEP as IE for Project execution at the national level and for the effective and efficient use of resources. UNEP will enter into an appropriate agreement (Project Cooperation Agreement) with NCHM and INMG for the execution of the Project. UNEP in its executing role will engage relevant Technical Partner agencies to conduct activities such as trainings.
Solomon Islands	**Implementing Entity-Executed** UNDP will apply the Direct Implementation Model (DIM) supported by a strong Project Management Unit. All complex procurement during the Investment Phase will be managed by the Implementing Entity to avoid delays often faced by the government process for overseas procurement. During project implementation, procurement strategies will be developed in consultation with BOM, SIMS and other relevant partners. The PMU will initiate a micro assessment under the Harmonized Approach to Cash Transfer Framework to identify and develop an assurance plan to strengthen the financial management and procurement systems of MECDM/ SIMS to meet the requirements of MPTF and SOFF. This will allow the establishment of processes

	with the aim of gradually transferring the administrative and procurement functions to SIMS.
Ethiopia	**Hybrid** UNDP will be responsible to lead and coordinate the annual and quarterly planning, implementation, financial management, evaluation, reporting and closure of the activities under the Project, working together with the beneficiary, the Ethiopian Meteorology Institute (EMI). UNDP will monitor and supervise the execution of the Project and ensure the proper management and application of SOFF funding. EMI will ensure that all planned activities are executed as scheduled to achieve the project's objectives. EMI's specific roles and responsibilities in project execution will include supporting stakeholder engagement, preparing and submitting annual and quarterly work plans, and requesting fund disbursements. EMI will also be responsible for promptly submitting narrative and financial reports to UNDP. Additionally, EMI will oversee the operation, maintenance, and calibration of land-based and upper-air stations, as well as handle data collection, analysis, and reporting to ensure compliance with GBON standards.
Tanzania	**Hybrid** The project will be managed jointly by TMA and UNDP with inputs from DMI in its role as peer advisor. The highest project decision body will be a project Steering Committee, comprising of Chief Executive Officers of TMA and UNDP with DMI in an advisory role. The Steering Committee will consider progress on project implementation and make appropriate decisions. Below the Steering Committee, there will be a Project Technical Coordination Committee who will deliberate on project implementation and make recommendations to the Steering Committee. Below the Technical Coordination Committee, there will be a project team which will be formed by Officers and experts from TMA, UNDP and DMI in an advisory role. The day-to-day activities of the project will be coordinated by Project Officers based at TMA, UNDP and DMI who will work with a designated project accountant in the respective organizations. Activities on Monitoring and Evaluation and Communication will be carried out by UNDP in collaboration with TMA.

5.2 Public-private partnerships

The National Meteorological and Hydrometeorological Services (NMHS) in the 5 countries follow a fully public business model. They are government institutions mandated to make meteorological observations and maintain the operations of the network. However, some countries intend to explore opportunities for a private-public partnership.

The countries demonstrate collaboration with other government institutions which perform meteorological observations for specific purposes. In Ethiopia and Tanzania, all meteorological observations data made by other institutions must be shared with NMHS.

In Bhutan, government institutions (GovTech and IT-Centre) oversee and support the ICT in NMHS.

In Cabo Verde, several private sector actors, including from water supply & sanitation and tourism have indicated their interest in engagement with NMHS on meteorological observation. In Ethiopia, collaboration with telecommunication providers has been considered for data transmission.

In Solomon Island, the Civil Aviation Authority of Solomon Islands maintains three automatic weather observing systems at key airports. SIMS is exploring implementation of a cost-recovery scheme from the aviation sector for meteorological services. The private sector will be consulted at the commencement of the SOFF Investment phase to map out roles as potential suppliers as well as users of products to be generated by SOFF investment phase. The dialogue will explore possibilities for the establishment of long-term public-private partnership model for observations network in Solomon Islands.

The NMHSs of the 5 investment requests also have ongoing collaboration with international institutions. Cabo Verde is collaborating with international partners in meteorology on capacity development, Numerical Weather Prediction, and atmospheric research. In Ethiopia, there has been collaboration on maintenance of meteorological equipment and on climate service.

5.3 Regional Implementation

SOFF promotes regional and sub-regional approaches to GBON implementation and encourages countries to explore opportunities to create economies of scale and optimize the design of the observing networks. The objective of SOFF regional engagement is to foster coordinated SOFF implementation, leveraging investments and climate finance opportunities beyond SOFF, and knowledge sharing and consultation on technical issues relevant to the respective regions. Regional benefits in the implementation of the investment phase will also be pursued in collaboration with regional organizations. Table 4 outlines the implementation of regional approach in the 5 funding requests.

Table 5: Overview of regional implementation

Country	Regional Implementation
Bhutan	NCHM is a member of several regional organizations cooperating in the hydrometeorology field, such as International Centre for Integrated Mountain Development (ICIMOD), Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES) and Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC). Many of these organizations focus on research, general co-operation and data exchange. Bhutan recently participated in the South Asia Hydromet Forum in February 2023 and discussed shared challenges and opportunities for SOFF implementation in the region.

	In terms of sensors calibration, NCHM has set up small calibration laboratory which is recommended to be upgraded with SOFF support. There is an opportunity for NHCM to provide calibration support to other neighbouring countries, especially SOFF beneficiary countries.
Cabo Verde	INMG is taking part in an Economic Community of Western African States (ECOWAS) region project "Intra ACP-ClimSA". The project performs diagnostic on meteorological observations and data collection in the Permanent Interstates Committee for Drought Control in the Sahel (CILLS) and ECOWAS region countries. INMG is also cooperating with General Directorate of Meteorology of Morocco (DGM) in manually transferring AWS data to the WIS 2.0 system via a WIS 2.0 web interface and protocol developed by DGM of Morocco. On 16-17 November 2023, a workshop on SOFF Regional Implementation in Atlantic Small Island Developing States (SIDS) took place in Cabo Verde to discuss regional approach for SOFF implementation in three Atlantic SIDS: Cabo Verde, Guinea-Bissau and São Tomé and Príncipe. As part of this workshop they decided to include co-development and shared trainings in funding requests. A strong emphasis was made on the need to facilitate capacity-building sessions in Portuguese language tailored for Portuguese-speaking countries. There is also a suggestion to explore regional collaboration in procurement.
Ethiopia	EMI is in partnership with ICPAC for capacity building workshops for the Greater Horn of Africa. Under ICPAC, data sharing agreement was developed among its 11 member countries. In terms of international data exchange, EMI is collaborating with the Kenya regional hubs for transmitting data internationally
Solomon Islands	Coordination was undertaken with peer advisors for neighbouring countries during development of the National Contribution Plan. The proposed station layout, especially for upper air, considers other regional SOFF activities. The National Contribution Plan has also been structured to be flexible to accommodate future regional coordination initiatives such as regionally focused equipment calibration services, training, procurement of common equipment types, and maintenance services. SIMS will participate in the Regional SOFF coordination workshop on 10-12 April 2024 with the 12 SOFF SIDS Pacific countries to discuss opportunities for regional coordination. They will also engage with ongoing activities in the region including: WMO Regional Association V committee, Pacific Meteorological Council and its committees, South Pacific Regional Environmental Programme and the Pacific Community.
Tanzania	Tanzania has existing bilateral relationships in weather and climate services with countries in the Eastern and Southern Africa Sub-Regions.

	The TMA has been providing technical support to some National Meteorological and Hydrological Services (NMHSs) in these sub-regions. Tanzania serves as a Regional WIGOS Centre, responsible for evaluation data availability and quality in the East African Community countries. Furthermore, TMA has a calibration laboratory, which is used to calibrate TMA observation equipment. TMA is also in the process of expanding the calibration laboratory to make it support National Meteorological and Hydrological Services (NMHSs) of neighbouring countries in the region including in EAC and SADC subregions. TMA has a fabrication facility for some of weather observation equipment. The facility can also be equipped to fabricate equipment for NMHSs of other neighbouring countries in the region, which TMA is already providing technical support.

6. Leveraging investments

SOFF aims to leverage investments and co-financing beyond SOFF resources to ensure larger packages of programmatic support to beneficiary countries. The SOFF Implementing Entities will integrate or align SOFF funding with larger projects and programmes in the beneficiary country and identify opportunities to mobilize additional investments in the other parts of the hydro-meteorological value chain, drawing on their own resources or from the multilateral climate and environment funds. This section outlines how the 5 SOFF funding requests leverage resources from multilateral climate funds as well as other sources.

6.1 Operationalizing the Framework for Collaboration for Enhancing Systematic Observation

SOFF investments aim to create leverage and synergies with major multilateral climate funds, namely the Adaptation Fund (AF), Climate Investment Funds (CIF), Green Climate Fund (GCF), Global Environment Facility (GEF) and the Climate Risk and Early Warnings System (CREWS), to increase the effectiveness and sustainability of investments in systematic observations. At COP28, the SOFF Secretariat, along with the Secretariats of these five funds, signed the jointly developed framework for collaboration for enhancing systematic observation and improving the use of basic weather and climate data for effective climate action. The framework for collaboration intends to further enhance complementarity, leveraging SOFF enhanced observations for better climate information services and early warnings.

The five Investment funding requests exemplify the operationalization of the Collaboration Framework through SOFF investments, as outlined in table 5. Implementing Entities have identified potential areas for further synergies in Section 2 of each funding request.

Table 6: Overview of SOFF funding request for 7th Steering Committee and operationalizing the SOFF Collaboration Framework with 5 multilateral climate funds

Countrv	AF	CIF	CREWS	GCF	GEF
Bhutan				SOFF investment will contribute to sustaining the results of the GCF-funded initiative Bhutan for Life through providing data necessary to forecast weather-related events such as landslides and floods and mitigate their adverse impacts on Bhutan's ecosystems. The UNDP GCF project will leverage to use of SOFF investment phase through the integration of climate risk data into water and land management to support smallholders and reduce the risk and impact of climate change-induced landslides during extreme events that disrupt market access.	The concept-approved UNDP GEF-8 LDCF project, will support development of ancillary rainfall threshold-based flood Early Warning Systems on critical tributaries of Thimphu and Paro River through the centralized data-based management system of National Center for Hydrology and Meteorology (NCHM). The project will build the capacity of the NCHM and the relevant Ministries and its staff enabling them to determine and prepare short-term and long-term models for pluvial water flows within the urban areas.
Cabo Verde	A regional project with IFAD in Cabo Verde Guinea Bissau, Sao Tome and Principe approved in 2023 addresses adaptation		Cabo Verde is part of the ongoing CREWS West Africa project which strengthens regional entities to engage with NMHSs in the region to	A potential GCF Atlantic SIDS Regional Programme is currently being considered by UNEP.	A GEF-FAO project approved in 2023 aims to enhance the resilience of Cabo Verde's agri-food systems and livelihoods. The project activities include strengthening the integration

	for rural people. There is potential to link the activities focused on climate-resilience with the SOFF investment.		improve risk information and early warning services. However, amounting to 3.5 million USD for the whole region, the CREWS project has quite a limited scope. Therefore, there is great opportunity for SOFF to build upon this initiative to enhance country capacity related to basic observations.		of climate information in the planning processes of the AFOLU sector. These have implications for quality climate data and would benefit from SOFF investments to bridge the capacity needs related to accessing, monitoring, and reporting improved weather forecasts.
Ethiopia		SOFF will contribute to the second phase "strategy and project pipeline development" of the CIF Nature, People and Climate project and to the third phase "Implementation roll-out" by closing the GBON data gap and providing access to improved forecast products in designated countries.	CREWS Horn of Africa (total funding USD 5.2 M); allocated for Ethiopia USD 355,000 which will support downstream elements of EW4All in coordination with SOFF support.	An UNDP led GCF Project Preparation Facility (PPF) application was approved in September 2023. PPF resources will be used to prepare a full proposal which accelerates the delivery of the priority actions required to meet the targets of Early Warnings for All (EW4All), including Ethiopia. SOFF is expected to provide co-financing and cover GBON observations.	EMI and UNDP-Ethiopia have longstanding collaboration and the SOFF investment builds upon this progress. In 2013-2017 a GEF/LDCF project supported strengthening of climate information and early warning systems in Ethiopia and was implemented by EMI, UNDP and others. Currently, under the project, Climate Change Adaptation in the Lowland Ecosystems of Ethiopia, UNDP is installing additional 9 AWS which will

					complement the SOFF investment.
Tanzania		SOFF will contribute to the second phase "strategy and project pipeline development" of the CIF Nature, People and Climate project and to the third phase "Implementation roll-out" by closing the GBON data gap and providing access to improved forecast products in designated countries.	CREWS East Africa (total funding allocated USD 7.0M); allocated for Tanzania USD 317,800.	UNDP is actively engaged in the implementation of a GCF Readiness program on the national adaptation plan (NAP), which aims to integrate climate change considerations into development plans and policies. UNDP will collaborate with the government to develop feasible programmes to mobilize resources from various sources to support the scaling-up of activities that will also have implications in advancing EWS in the country.	SOFF investments are aligned with UNDP's ongoing interventions in Tanzania including the Climate Information for Resilient Development in Africa (CIRDA) programme. From 2014 to 2018, the Strengthening Climate Information and Early Warning Systems in Tanzania to Support Climate Resilient Development and Adaptation to Climate Change project procured 36 Automatic Weather Stations integrated into the TMA observation network. Some of these stations are at the end of their operational life span and SOFF investment will upgrade 7 of these stations to be GBON compliant.
Solomon Islands	The Project Enhancing resilience of communities in		CREWS Pacific SIDS 2.0 (total funding allocated USD4.8M); new phase in	Save The Children Australia has recently received USD 25 million from the Green Climate Fund (GCF)	The Solomon Islands Water Sector Adaptation Project (SIWSAP) installed six

	Solomon Islands to the adverse effects of climate change in agriculture and food security supplied six AWS and Automatic Rain Gauges for agriculture purposes.		the pipeline USD 5.5 M (full proposal being developed) synergies will be explored at the SOFF Regional Pacific Workshop. Collaboration between WMO, World Bank and UNDRR will build on its past efforts with SIMS on Impact based Forecasting to prioritize community engagement.	to support Climate Change Knowledge, Action and Sustainability in 185 communities Solomon Islands of which the application of weather and climate data in various social sectors at the community level is the key focus. There are ongoing discussions between SIMS and Save the Children Australia to complement SOFF funded activities.	Hydromet stations to support water resource management in targeted areas. Most of those stations are no longer functioning and need to be replaced particularly in strategic locations such as Mono along the PNG/ Solomon Islands border. A GEF funded project that is currently piloting mini solar grids in off- grid rural areas. Lessons from SPIRES can inform alternative electricity supply for SOFF infrastructure in remote locations.

6.2 Leveraging co-financing, blended finance and other investments

In addition to the Collaboration Framework with the five multilateral climate funds, SOFF activities will also leverage other investments in the beneficiary countries including bi-lateral cooperation activities, the work of technical agencies, and regional programmes. Implementing Entities are expected to further identify and integrate opportunities for SOFF Investment activities to complement or leverage previous, on-going or planned initiatives in other aspects of the hydro-meteorological value chain.

Table 7: Overview of complementary investments beyond the 5 multilateral climate funds

Country	Complementary investments
Bhutan	1. SOFF will support specific upgrades to the calibration lab funded by the JICA Technical Cooperation Project and provide low-cost maintenance support for an additional 5 existing AWS stations as a SOFF easy fix with high impact for increasing national capacity. These stations have the potential to be connected to WIS2.0 and made fully GBON compliant. 2. NCHM is a member of the International Centre for Integrated Mountain Development (ICIMOD), South Asian Hydromet Forum (SAHF) (World Bank), Regional Integrated Multi-Hazard Early-Warning Systems (RIMES) for Africa and Asia, and Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC). Though promoting data access and data exchange, SOFF project would also support the work of these organizations.
Cabo Verde	1. SOFF investments will complement the AWS network enhanced with support of the European Union (EU) through REFLOR-CV (EU) 2. The maritime (and harbour) AWS observation network MARINEMET (AEMET) enhanced with support from Spain (WMO regional cooperation).
Ethiopia	1. Climate Resilient Water, Sanitation and Hygiene (CR-WASH) (World Bank) is installing 12-AWS in locations that do not overlap with GBON station sites 2. 3-Weather Radar, 4-ligtening detection, 10-Air quality station installations will be financed by a Ethio-Finland Project. 3. Many Infrastructure and ICT facilities are initiated under the Flood Management Project (World Bank) . 4. EMI with government budget of about 37 million USD is constructing a facility which will host SOFF central data system and instrument calibration and maintenance facilities, which again leverage AWS operational sustainability.
Tanzania	1. SOFF investments will complement initiatives of the Government of Tanzania to enhance weather and climate services, including modernization of meteorological infrastructure (weather RADARs, AVIMET,

	AWSs and calibration equipment) as well as the rehabilitation of existing stations. 2. Tanzania Meteorological Agency will provide in-kind contribution corresponding to near USD 5M.
Solomon Islands	1. Continued support from the Australian Bureau of Meteorology through initiatives such as the Climate and Ocean Support Program in the Pacific (Australia) which provides ongoing capacity development to SIMS, will complement SOFF in upgrading the data algorithms from the three sea level monitoring stations. 2. Integrated Disaster Risk Management Project (IDRM) (Australia) supported the installation of the four AWS and an Automatic Weather Observation Station at Henderson International Airport in Honiara city, the acquisition of server equipment for data storage, capacity building of the engineering team on managing data from the hydrometeorological stations, and the construction of the National Weather Forecasting Office to accommodate a 24-hour weather observation and early warning services. 3. Weather Ready Pacific (multi-donor) can leverage the improved observations from SOFF investment as part of its broader focus on hydrometeorological services.

7. Risks

Section 7 of the SOFF investment funding request presents the investment risk framework for the investment. Similar risk mitigation measures have been proposed for the current group of Investment countries. Figure 2 illustrates the overall risks and their corresponding risk levels which were mostly rated low-medium.

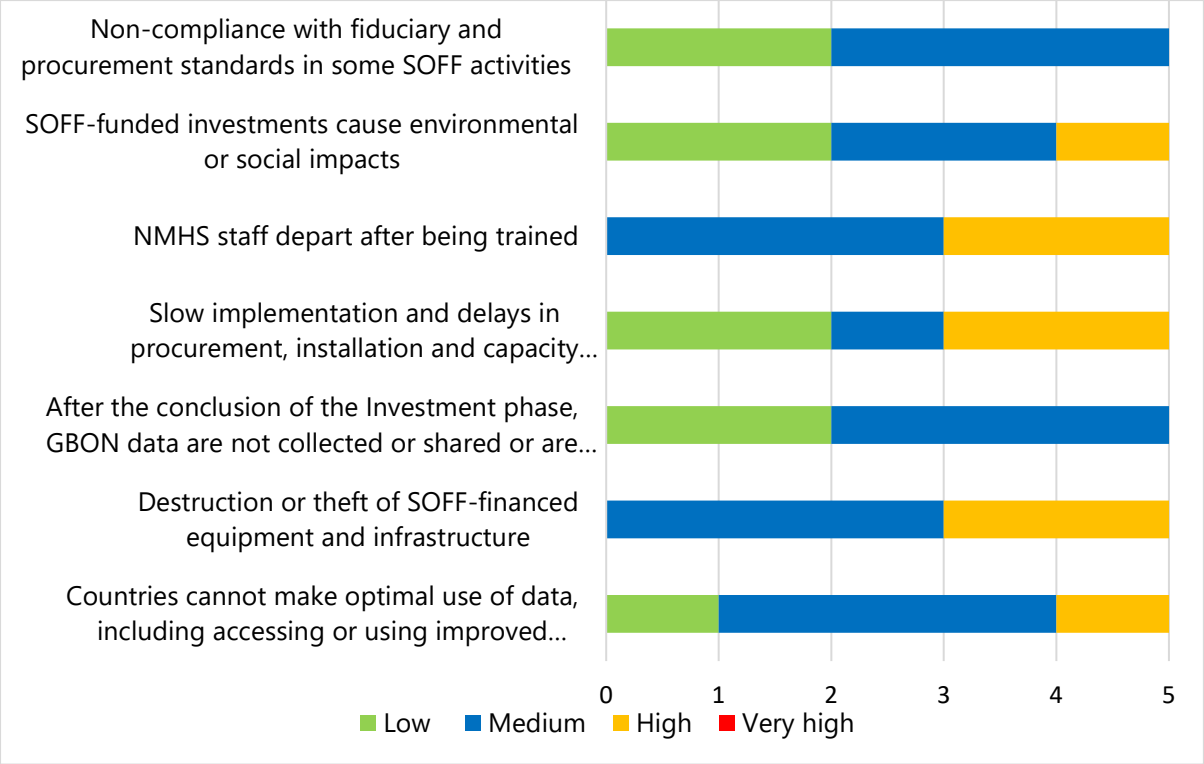


Figure 2: Distribution of risks in the Investment Phase Funding Requests

SOFF Investment phase activities include extensive capacity building for both human resources and institutions, such as trainings, staff salaries and regional workshops, alongside infrastructure investments. These activities address various risks, including issues related to data sharing, data quality, and data flow, as well as staff retention. Workshops with stakeholders, including Civil Society Organizations, help raise awareness and support for the importance of National Meteorological Services, while also serving as protective measures for stations and equipment, particularly in remote areas where risks of destruction or theft exist.

To tackle risks related to fiduciary and procurement standards compliance, the Implementing Entities will evaluate the financial management capacity of national Executing Entities and provide ongoing support for capacity development. Close monitoring of project finances, annual audits, and establishment of internal controls will ensure compliance with anti-fraud and anti-corruption frameworks, along with training on procurement and fiduciary policies. Clear responsibilities will be outlined through MoUs/agreements among parties.

Environmental and Social risks will be addressed through the policies and procedures of the Implementing Entity. Adherence to environmental policies and implementation of site-specific mitigation plans informed by Environment and Social Impact Assessments will ensure responsible project execution.

Effective collaboration between the Implementing Entity, Peer Advisor, and beneficiary countries, along with recruitment of experienced procurement staff and frontloading of

complex procurements within the initial 18 months of implementation, will address risks associated with slow implementation and investment activity delays.

To address the risk of countries not optimally utilizing data, SOFF is partnering with Global Producing Centres, such as the European Centre for Medium-Range Weather Forecasts (ECMWF), to provide free access to improved forecast data and graphical products, along with training programs on their utilization and infrastructure.