SOFF Investment Phase Funding Request

Maldives

30 October 2023

Systematic Observations Financing Facility

Weather and climate data for resilience

SOFF Investment Phase Funding Request

The SOFF Investment Funding Request template includes the following sections:

1. **Basic Information**
2. **Programming Criteria**
3. **Readiness and Country Context**
4. **Investment Phase Outputs and Budget**
5. **Investment Phase Implementation Arrangements**
6. **Investment Phase Monitoring, Reporting, and Verification**
7. **Investment Phase Risk Management Framework**

The **GBON Gap Analysis**, the **GBON National Contribution Plan** and **Country Hydromet Diagnostic** are included in **Annex 1, 2, 3**.

The **Terms of References** of the advisory services provided by the **SOFF peer advisor** are provided in **Annex 4.**

1. Basic Information

SOFF Beneficiary Country and Focal Point	Maldives - Maldives Meteorological Service Country Focal Point: Mr. Abdulla Wahid, WMO Permanent Representative Email: abdulla.wahid@met.gov.mv			
Country classification	☐ LDC	☒ SIDS	☐ FCS	☒ ODA-recipient
SOFF Implementing Entity and Focal Point	United Nations Environment Programme (UNEP) Mr. Jochem Zoetelief, Head, Climate Services and Capacity Building Unit, Early Warning and Assessment Division Email: jochem.zoetelief@un.org			
SOFF Peer Advisor and Focal Point	Finnish Meteorological Institute, Finland Harri Pietarila, harri.pietarila@fmi.fi			
Total Budget (USD)	Total: **4,876,526** Tranches (excluding peer advisory services): - First tranche: **3,992,873 (90%)** - Second tranche: **443,653 (10%)**			
Delivery timeframe	60 months (5 years)			
Date of Steering Committee Approval				

Signatures

Mr Abdulla Wahid, WMO Permanent Representative, Maldives

26.10.2023

Mr Jochem Zoetelief, Head, Climate Services and Capacity Building Unit, Early Warning and Assessment Division, United Nations Environment Programme

Mr Harri Pietarila, Director of Expert Services, Finnish Meteorological Institute

2. SOFF Programming Criteria (2 pages)

Alignment with the SOFF Programming Criteria	
Close the most significant data gaps	Based on the WMO Global WIGOS Data Quality Monitoring System, there are currently 5 (manual) reporting surface observation stations in Maldives. However, they report every 3 hours, while according to GBON requirements they should report hourly. In addition, some of the equipment is obsolete (for example the mercury thermometers need to be replaced with digital ones, since the spare parts are no longer available). Although on average the GBON standard horizontal density requirements (200 km) are fulfilled, there is a an over 300 km interval between the stations in Hanimaadhoo and Male, which means that an additional station should be installed. To meet the GBON spatial and temporal resolution requirements as well as to replace obsolete technology (especially mercury thermometers), it is proposed to **upgrade and automate 4 of the existing stations**, as well as **install one additional station** (in Maafaru) **as agreed with the WMO Technical Authority in the context of the National Contribution Plan.** The **only upper-air station in the country** (WMO location indicator-43599) **needs to be upgraded**. The current Hydrogen Generator is old and non-functional and needs to be replaced with a new one. The current sounding station was manufactured by the International Met Systems company about 20 years ago. According to the manufacturer, the model is not supported, and the system is therefore obsolete. Furthermore, there is a need for additional ICT infrastructure to run a data management system and store the data. There is also a need for a solution to back up the essential data. MMS is using Corobor data management system which is currently being modernized. To ensure full compliance with WIS 2.0, a provision has been included in this funding request. There is also a need for a separate data collection module for the AWS data, which should be provided by the manufacturer and will be integrated into the overall Corobor data management system.

Type of station	Baseline (Results of the GBON National Gap Analysis)				GBON National Contribution Target	
	Target (# of stations)[1]	GBON-compliant stations (#)	Gap		To improve	New
			New	To improve		
Surface	5	0	1	4	4	1
Upper-air	1	0	0	1	1	0
Marine	*when applicable					

Table1. GBON National Contribution Target

Target easy fixes	One of the easy fixes is **upgrade of the 4 existing surface stations** to meet GBON temporal resolution requirements and replace the obsolete technology. The second one is **upgrading the upper-air station** with the new equipment. An **easy systematic mechanism for instrument sensor calibration** will also be designed as a part of the Investment Phase with technical guidance from the peer advisors.
Create leverage	UNEP is supporting Maldives in developing a GCF project proposal "Toward Risk-Aware and Climate-resilienT communities (TRACT) - Strengthening climate services and impact-based multi-hazard early warning in Maldives", which has been approved at the concept note stage. In this context, UNEP has provided active support and expertise during the first EW4All National Consultation Workshop in Maldives held in July 2023. The second day of the Workshop focused on a comprehensive discussion around the UNEP's funding proposal to GCF. UNEP support for Maldives both as GCF Accredited Entity and SOFF Implementing Entity will enable the proposed project to maximise the use of leverage created by SOFF investments and ensure complementarity between the relevant capacity development efforts. The envisaged result is that of a more coherent and streamlined investment in hydrometeorological sector strengthening in Maldives, which is an important contributor to sustainability in the longer term. Moreover, given that the initial SOFF support would cover surface-based and upper air observations, the

[1] For SIDS, for the WMO GBON Global Gap Analysis in January 2022, the EEZ area has been added to the total surface area which is the basis for the target number of stations. The standard density requirements for SIDS have been calculated with 500 km for surface stations and 1000 km for upper-air stations.

	proposed GCF project could instead focus on equipment investments into marine meteorological stations, which are not the part of the initial SOFF support. Data from these stations will contribute to further enhance Numerical Weather Prediction quality.
Maximize delivery capacity	UNEP has strong expertise and experience in supporting observation and monitoring systems in developing countries. It is currently working on implementing a GCF-funded 5-year project "Enhancing Early Warning Systems to build greater resilience to hydro-meteorological hazards in Timor-Leste" and a GCF-funded 5-year program "Enhancing Climate Information and Knowledge Services for resilience in 5 island countries of the Pacific Ocean" where strengthening observational capacity of the NHMSs is one of the key components. UNEP's Early Warning and Assessment Division has already been working with Maldives through a GCF Readiness project. In addition, UNEP capacity to deliver SOFF support efficiently in Maldives is enhanced through joint work with the Maldives Meteorological Service on developing a proposal for GCF funding for a project on "Strengthening climate services and impact-based multi-hazard early warning in Maldives". UNEP is also actively engaging with Maldives in developing the National Adaptation Plan (NAP) and through the Early Warnings for All Initiative. UNEP is an implementing partner under the Early Warnings for All Initiative (EW4All) and a member of a technical working group under Pillars 1 (Risk Knowledge) and 2 (Observations & Forecasting). Launched by the UN Secretary-General in November 2022 at the COP27, the EW4All Initiative calls for the whole world to be covered by early warning systems by the end of 2027. Maldives is included in the first group of 30 countries that should receive coordinated and targeted support under the EW4All initiative, which will create further opportunities for accelerated implementation of early warning systems in the country. **The SOFF investment funding will represent a major contribution as part of the EW4All overall support to Maldives.** Finally, as part of the UN system, UNEP is represented in the UN Country Team through its Asia-Pacific Regional Office.
Sub-regional gains	MMS is a member of several regional organizations co-operating in the field of hydrometeorology, most importantly the Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES). Its main regional information exchange is related to tsunami warnings, provided through regional centers such as Regional Tsunami Service Providers (RTSPs) in Australia, India & Indonesia. However, as there are no main

	fresh water sources in the Maldives (e.g rivers) besides ground water and rainwater sources, the MMS' engagement in regional hydrological forums is limited. **It is recommended for MMS to engage with RIMES more regularly by sharing more data and regional alerts to strengthen its regional position. Reinforcing regional collaboration could be included in the next strategy of MMS.** It is also recommended to explore capacity development on stations metadata and data quality performance provided by Regional WIGOS Centre RA II. Close collaboration and partnership with the established training centers of WMO in the region, which are hosted by the India Meteorological Department (IMD), China Meteorological Administration (CMA), and Korea Meteorological Administration (KMA), as well as the Agency for Meteorology, Climatology, and Geophysics of the Republic of Indonesia (Badan Meteorologi, Klimatologi, dan Geofisika - BMKG), is also important to explore more opportunities for training programs, knowledge exchange, and technical assistance. By proactively pursuing these strategies and maintaining open lines of communication, MMS can enhance its capacity development efforts and secure additional resources to bolster its hydrometeorological services for the communities' safety and welfare. As the Maldives is quite isolated, optimization of the observing network through sub-regional network design is not plausible and is therefore not applicable. However, there are opportunities for regional collaboration in maintenance and calibration, as well as capacity building: • Calibration of the equipment used by MMS at specialized facilities in the region, such as those of BMKG in Indonesia, who will also be able to provide field calibration packages and associated technical trainings for the MMS staff. This would go beyond the role of BMKG as collaborating peer advisor for this project. • Continued engagement of MMS in the Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES), who can also conduct some of the trainings.

3. Readiness and Country context (1 page)

SOFF Beneficiary Country Capacity Assessment

The MMS is relying strongly on the strategy of the Ministry of Environment, Climate Change and Technology (MoECCT). Yet, to strengthen its operational abilities, it is recommended that **the MMS should have its own organizational strategy** which could, for example, match the 5-year presidential term.

The financing of MMS required to carry out GBON-compliant operations includes governmental budget funding and international development collaboration projects. The MMS budget has increased slightly every year, particularly in terms of capital expenses. The annual budget allocation for repairs and maintenance has also increased annually, however MMS is struggling to spend these funds due to the lack of technicians available. Based on consultations, it became clear that there is no real possibility to outsource technical (preventive and/or malfunction) maintenance of either AWS or the upper-air sounding station to the private sector in the Maldives. Currently the repair & maintenance costs budget line does not include staff costs, which is a significant gap. With no adequate staff and budget for maintenance, there is a risk of not maintaining GBON compliance in the future. **Therefore, 5 new technicians, 3 ICT staff and 2 management staff have been included in this funding request. Additional travel costs related to the GBON attainment have also been included in the budget.**

SOFF Operational Manual defines 4 possible basic business models.

1. **Fully public:** Fully State/NMHS owned and operated GBON infrastructure
2. **Public-Private:** State/NMHS owned and Private Partner operated
3. **Public-Private:** State/NMHS and Private Partner owned
4. **Fully Private:** Owned and operated by a private partner contracted by the State/NMHS

As there are no feasible private partners operating in meteorological field in the Maldives, the current business model of the MMS is **fully public,** and it is recommended that MMS should **continue using this model.** The cost recovery mechanism for MMS services is not currently allowed, but it is in a process of being established. This is strongly encouraged to ensure financial flexibility to independently support and sustain operations, including meteorological observations. The flexibility the cost-recovered income would bring to the MMS would also support the planned investments to remain GBON compliant. It is recommended that **the cost recovery mechanism is included in the next strategy of the MMS. However, this will not be used for GBON data.**

The potential private sector operators to be included in the cost recovery plans should be further analysed when the cost recovery act is approved. There is a strong potential to engage more with the existing partners and end-users, as well as explore some new partnerships opportunities, including:

- Collaboration with Civil Aviation Authority (CAA) in providing Aeronautical Meteorological Services;
- Collaboration with National Disaster Management Authority (NDMA) in providing early warning information and development of impact-based forecasting (IBF);
- Collaboration with Velana International Airport in providing weather and climate information and warning to support airport operations;
- Collaboration with island council in disseminating information to the community;
- Collaboration with water management authority in providing weather prediction related to the harvesting rain water.

Another possibility for cost recovery could be to **implement a data sharing policy with established data pricing procedure**. For example, MMS could work in partnership with the two insurance companies operating in the Maldives, as MMS frequently receives requests for data from them. MSS is encouraged to **review and update the cost recovery recommendations regularly to be able to target other sectors if new opportunities arise.** The proposed GCF-funded project is expected to facilitate cost recovery strategies and private sector engagement.

Investment Phase Alignment with the GBON National Contribution Plan

No differences between the proposed Investment Phase targets and the requirements of the GBON National Contribution Plan are proposed.

4. Investment Phase Outputs and Budget

As reaffirmed by the UN General Assembly in the 2019 Political declaration of the High-Level Meeting to Review Progress Made in Addressing the Priorities of Small Island Developing States through the Implementation of the SIDS Accelerated Modalities of Action (SAMOA) Pathway, SIDS remain a special case for sustainable development as they continue to face the combined challenges arising, in particular, from their geographical remoteness, the small scale of their economies, **high costs and the adverse effects of climate change and natural disasters**.[2] Therefore, the cost of travel, general logistics and transactions in the Maldives are comparatively higher than in many other parts of the world.

In addition, the costs under Output 2 not only include the procurement and shipping of the equipment, but also multiple supplementary costs, which in the context of Maldives include:

- civil works and site preparation (including measures to mitigate the risk of climate-related hazards),
- security of the equipment, including fencing and guarding of the site, as well as protective gear to safeguard against climate-related hazards,
- environmental impact assessment and environmental management plan to minimize environmental risks (especially for new sites);
- standard operating procedures for maintenance of the equipment, including early action protocols in case of climate-related hazards,
- training of operational staff members by vendors,
- backup communications, especially for remote locations,
- IT hardware and software, including the upgrade of the data management system to ensure compliance with WIS 2.0, etc.

The GBON National Contribution Plan provides detailed information on the Investment Phase Outputs (please see Annex 2).

Output 1. GBON institutional and human capacity developed	Main activities	Budget (USD)
1.1 **National consultations** including with CSOs, and other relevant stakeholders conducted	1.1.1. Conducting face-to-face inception workshops engaging multiple stakeholders (including CSO and private sector)	**408,470**

[2] https://undocs.org/pdf?symbol=en/A/74/L.3

	1.1.2. Conducting stakeholder engagement workshops on implementation of the project deliverables (observations data exchange to support weather/climate and water services and products) 1.1.3. Conducting high level dialogues on benefits, co-production, and ownership of the new national GBON infrastructure 1.1.4. Conducting gender workshops to strengthen gender equality in governance, strategy, programmes, and decision making, and facilitate grounds for developing gender policy	
1.2 **NMHS institutional capacity** required to operate the GBON network developed	1.2.1. Drafting an Organizational Strategy, that will clearly outline the action plan for how the MMS will achieve its short and long-term goals and become GBON compliant 1.2.2. Drafting a new organizational Gender Policy, with specific actions that are measurable and regularly monitored, that are based on the WMO Gender Action Plan. 1.2.3. Establishing a stakeholder engagement plan for more systematic engagement of various stakeholders including private sector and CSOs	**340,996**
1.3 **NMHS human capacity** required to operate the GBON network developed	1.3.1. Benchmarking and developing an observation process of upper-air sounding (supported by peer adviser) 1.3.2. Benchmarking good practices on archiving, transfer, and QC/QA, and subsequent SOPs as well as roadmap for QC/QA methods developed (supported by peer adviser) 1.3.3. Training on upper-air system (basic level) and surface weather station (advanced/supplementing) operation and maintenance (vendor, supported by peer adviser) 1.3.4. Benchmarking mature project and portfolio management and coordination culture (supported by peer adviser)	**Peer advisor's budget**
	1.3.6. Recruitment of new technical, IT staff and project management staff for 5 years of the Investment Phase	**1,756,670**

	1.3.7. Participation in regional and international seminars, meetings, forums, workshops and trainings related to data processing, instrumentation, calibration and all SOFF and GBON related activities (e.g., those provided by Regional WIGOS Centre RA II) 1.3.8 Refresher training program on observations, WIS 2.0, WMO station meta data, database and climate data processing quality control and archival process, data assimilation in NWP modelling, instrument calibration and maintenance training programs.	
Output 2. GBON infrastructure in place	**Main activities**	**Budget (USD)**
2.1 **New land-based** stations and related equipment, ICT systems, data management systems and standard operating practices in place	2.1.1. Procurement and installation of sensors and logger in 1 new surface weather station, including relevant civil works for station establishment. 2.1.2. Training of operational staff members by vendor 2.1.3. Supplementary costs for IT infrastructure, including hardware and software	**110,050**
2.2 **Improved land-based** stations and related equipment, ICT systems, data management systems and standard operating practices in place	2.2.1. Procurement and installation of sensors and logger in 4 surface weather stations, including relevant civil works for station rehabilitation/renewal. 2.2.2. Training of operational staff members by vendor. 2.2.3. Supplementary costs for IT infrastructure, including hardware and software	**273,050**
2.3 **New upper-air** stations and related equipment, ICT systems, data management systems and standard operating practices in place	N/A	**N/A**
2.4 **Improved upper-air** stations, related equipment, ICT systems, data management systems and standard operating practices in place	2.4.1. Procurement and installation of one manual upper-air measurement system including ground receiving system, UPS, hydrogen generator, consumables for one year.	**462,050**

	2.4.2. Renovation of the facilities and relevant civil works for the rehabilitation/renewal of the station. 2.4.3. Supplementary costs for IT infrastructure, including hardware and software	
Outcome: Sustained compliance with GBON	**Main activities**	**Budget (USD)**
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	3.1.1. Maintenance and calibration of land-based stations of four-year period. Includes field calibrations and outsourcing laboratory calibrations from BMKG 3.1.2. Supply of spare parts for the surface stations for 1 year	**75,000**
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	3.2.1. Manual upper-air measurement system consumables for 4 years of investment phase	**720,000**
Total for all Outputs		**4,146,286**
Implementing Entity Fee[3]		**290,240**
SOFF peer advisory services		**440,000**
Total funding request		**4,876,526**

Budget breakdown by UNDG category (Excluding SOFF peer advisory services)[4]	**USD**
Staff and personnel costs	**500,800**
Supplies, Commodities and Materials	**310,150**
Equipment, Vehicles, Furniture and Depreciation	**1,330,000**

[3] The implementation fee cannot exceed 7% of the total Investment Phase funding request.

[4] The total budget (excluding the budget for the SOFF peer advisory services) is expected to be disaggregated by UNDG category. It includes direct and indirect costs of the Implementing Entity and beneficiary countries to establish a fully operational observation network, collecting and internationally exchanging data according to GBON requirements. Eligible expenditures are any type of expenditure required to implement the GBON National Contribution Plan, including the requirements of the beneficiary country to manage and administer the day-to-day activities of the Investment Phase. It also includes the budget required for the operation and maintenance of the observing network.

Contractual Services Expenses	**410,068**
Travel	**109,800**
Transfers and Grants	**1,485,468**
General Operating Costs	**290,240**

5. Investment Phase Implementation Arrangements

Execution model and implementation arrangements	UNEP will be the Implementing Entity for the Project and will be responsible for the implementation, financial management, evaluation, reporting and closure of the activities under the Project. UNEP will monitor and supervise the execution of the Project and ensure the proper management and application of SOFF Grant Proceeds. UNEP will ensure that the Grant Proceeds are utilised in accordance with the terms of the current Funding Request and that procurement is carried out according to relevant UN principles: a. Best Value for Money; b. Fairness, integrity, and transparency; c. Effective international competition; d. The interest of the UN.[5] 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. Through its Global Support Services Agreement with UNOPs, UNEP is able to operate at the country level without necessarily having a national office. The Agreement covers the provision of HR and procurement services. UNEP will execute the Project in line with its programme manual and standard business procedures. As a part of its executing functions, UNEP will contract Technical Partner organizations to undertake relevant activities as appropriate. The engagement of Technical Partners with a proven track record in supporting Maldives will contribute to effectiveness, coordination, and sustainability of outcomes. The Maldives Meteorological Service (MMS) under the Ministry of Environment, Climate Change and Technology (MoECCT) will serve as the national Executing Entity (EE). The MMS/ MoECCT 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 the MoECCT/MMS for the execution of the Project. The Project Cooperation Agreement (PCA) will establish clear roles and responsibilities for the delivery of the proposed activities, and the schedule and conditions for instalments, the determination of the prevailing fiduciary standards and the terms and conditions for arbitrations and termination of contract. The PCA will include specific obligations for the national EE on Project execution, financial management, personnel administration and reporting, as well as arbitration and liability terms.

[5] https://www.un.org/Depts/ptd/sites/www.un.org.Depts.ptd/files/files/attachment/page/pdf/pm.pdf

	Upon further consultations with MMS, UNEP in its executing role will engage relevant Technical Partner agencies to conduct activities such as trainings. These might include the Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES) and Agency for Meteorology, Climatology, and Geophysics of the Republic of Indonesia (Badan Meteorologi, Klimatologi, dan Geofisika – BMKG) (beyond its role as a collaborating peer advisor). The peer advisor Finnish Meteorological Institute (FMI) will also continue to be engaged. These partners are highly qualified, internationally recognised professional agencies with many years' experience of partnership in the Asia-Pacific region.
Private sector involvement	Currently there are no private sector operators providing meteorological observations or data services in the Maldives. The current business model of the MMS is **fully public,** and it is recommended that **MMS continues using this model.** The USAID report[6] which analysed present and potential private stakeholders for the MMS in various industries revealed that the nature of collaboration with private sector operators is currently mostly an end-user relationship, where users depend on the services provided by the MMS. Based on stakeholder consultations, it was determined that the users are looking for improved services and accuracy in terms of alert and warning information based on sectoral activity (sector-based and impact-based forecasting). In the area of public-private sector collaboration within MMS, the current landscape is mixed. While formal agreements for service delivery with the private sector are not yet in place, the MMS has established some crucial agreements, particularly in the field of civil aviation. However, formal arrangements regarding the operation and maintenance of networks, as well as the sharing of the observations data with the private sector, are yet to be realized. This absence of a legal framework leaves room for potential future developments in this regard. To further explore the potential to work with various stakeholder and particularly with the private sector and to ensure that future stakeholder engagement is more strategic and systematic, it is proposed to **establish a stakeholder engagement plan** as a part of the Investment Phase. The plan should be **managed and monitored regularly by a designated person, such as a specific Partnerships or New Business Development focal point.**

[6] USAID, July 2023, Potential for Impact Based Forecasting in the Maldives to mitigate climate risks

Civil society participation	MMS collaborates with island communities, NGOs (Red Crescent), local government officials, and disaster management organizations to organize outreach activities. Interaction with stakeholders and end-users also takes place during regional user forums or outreach initiatives undertaken by regional and international partners such RIMES. College students frequently visit MMS as a part of community awareness program. This is also done at the existing observation stations on other islands. In the case there is no local MMS office, the awareness program is carried out virtually upon request. Furthermore, awareness campaigns are carried out regularly in partnership with local CSOs. Several initiatives have been undertaken to utilize media to reach underserved groups like the young generations, the elderly, disabled, and others. In addition, MMS is striving to eliminate language barriers and create sector-based warnings. To ensure that future stakeholder engagement is more strategic and systematic, the Investment Phase will work to: • Establish a stakeholder engagement plan to be managed and monitored regularly by a designated person, such as a specific Partnerships or New Business Development focal point. • Conduct stakeholder engagement workshops on the implementation of the SOFF project deliverables (observational data exchange to support weather/climate and water services and products). • Organise awareness-raising activities for the community by engaging the Red Crescent and other CSOs active in the country, i.a. to prevent vandalism. • Organise high level dialogues on benefits, co-production, and ownership of the new national GBON infrastructure. • Develop and disseminate communication materials (i) highlighting the role of women in meteorology, hydrology and climatology, (ii) promoting female role models, and (iii) advocating for gender responsive weather, hydrological and climate services (5.1.3(c) in WMO Gender Action Plan).
Fiduciary systems	The financial management and procurement within the Project will be guided by the UN financial regulations, rules and practices, as well as UNEP's Project manual. The financial rules of UNEP, which follow International Public Sector Accounting Standards (IPSAS), are promulgated pursuant to the Financial Regulations and Rules of the UN. Within this context, funding allocation mechanisms are managed in accordance with the UN rules and procedures, including eligibility criteria,

	proposal evaluation processes, quality assurance and control, project monitoring and supervision. UNEP is audited annually by the UN Board of Auditors. UN financial regulations and rules require the segregation of duties, and safeguards to ensure compliance with UN financial rules and regulations. Through its Global Support Services Agreement with UNOPs, UNEP is able to operate at the country level without necessarily having a national office. This Agreement covers the provision of HR and procurement services. Generally, UNEP's modality for project implementation results in funds being transferred in tranches to the Executing Entities (EEs) and Technical Partners (TPs) once they have satisfied the conditions that are defined under the legal instrument (Project Cooperation Agreement(s): PCAs to be signed between UNEP and the EEs/TPs. The PCAs will include specific obligations on financial management, reporting and procurement, and will require periodic reporting from the EEs/TPs. MoECCT/Maldives Meteorological Service (MMS) as the national EE follows the Government of Maldives' financial and procurement rules. Similarly, Technical Partners and the Peer Advisors supporting execution in Maldives (including e.g., RIMES, BMKG and FMI), are subject to financial and procurement policies of their governments/Member States.
Social and environmental safeguards	Project activities are subject to national and international law, as well as UNEP's Environmental and Social Safeguard Principles and Standards in accordance with the UNEP Environmental and Social Sustainability Framework (ESSF). The UNEP Environmental and Social Sustainability Framework (ESSF)[7] was approved in February 2020 and has an overall aim to strengthen the sustainability and accountability of UNEP programmes and projects. The framework identifies UNEP's commitment to sustainable development and environmental and social standards that are designed to promote human well-being and the protection of the environment. The framework identifies the following purposes: • To enhance outcomes by systematically integrating environmental, social and economic dimensions in the UNEP-funded programmes and projects. • To strengthen alignment of UNEP's work with the SDGs and other UN entities and partners in addressing the environmental and social sustainability of development efforts.

[7] UNEP Environmental and Social Sustainability Framework (2020); Available at: https://wedocs.unep.org/bitstream/handle/20.500.11822/32022/ESSFEN.pdf?sequence=1&isAllowed=y

	• To set standards of sustainability for UNEP's operations thereby confirming UNEP's accountability to its member States, and other funders. • To enable UNEP to work in a safer and smarter manner, thereby minimizing potential risks and harm to intended beneficiaries while enhancing UNEP's capabilities and credibility. The framework is structured around guiding principles, safeguard standards and related operational modalities. The guiding principles of the framework are derived from the 2030 Agenda for Sustainable Development and include the following: Leave No One Behind, Human Rights and Gender Equality and Women's Empowerment, Sustainability and Resilience and Accountability. The safeguard standards of the framework include the following: • Safeguard Standard 1: Biodiversity, Ecosystems and Sustainable Natural Resource Management • Safeguard Standard 2: Climate Change and Disaster Risks • Safeguard Standard 3: Pollution Prevention and Resource Efficiency • Safeguard Standard 4: Community Health, Safety and Security • Safeguard Standard 5: Cultural Heritage • Safeguard Standard 6: Displacement and Involuntary Resettlement • Safeguard Standard 7: Indigenous Peoples • Safeguard Standard 8: Labour and Working Conditions The following sections set out the overarching approach UNEP will take to operationalize this Framework: a) screening, assessment, management and monitoring of environmental and social risks; and b) steps for ensuring meaningful stakeholder engagement and accountability. To screen projects, UNEP utilizes the Safeguard Risk Identification Form (SRIF). The form is used to identify any potential environmental and social risks and impacts associated with the proposed activities, and to identify opportunities to support other positive changes to the environment and society.

	UNEP's Gender Equality and Environment policy recognizes the role of gender equality as a 'driver of sustainable environmental development.'[8] As the lead organization to coordinate environmental matters within the United Nations System, UNEP has the responsibility to drive the achievement of the System's gender equality mandate in its environmental assessments and analyses, norms, guidelines and methods, for use by stakeholders looking for guidance on how to effectively manage the environment for their sustainable development and economic growth. To that end, UNEP has sought to formalize and bolster agency-wide gender mainstreaming efforts and has the expertise and personnel to support the analytical underpinning of project-level gender mainstreaming during implementation.
Dispute resolution mechanism	As a part of the UNEP's ESS Framework, stakeholders who may be adversely affected by the project can communicate their concerns about the environmental and social performance of the project to UNEP. The Grievance Redress Mechanism has been designed to the extent possible according to the effectiveness criteria for non-judicial grievance mechanisms outlined in the UN Guiding Principles on Business and Human Rights. UNEP's Stakeholder Response Mechanism (SRM) is established through the Independent Office for Stakeholder Safeguard-related Response (IOSSR).[9] The IOSSR serves two functions: 1. Compliance Review: processes for responding to claims by Stakeholders alleging that UNEP activities are not in compliance with the ESS Framework; 2. Grievance Redress: provides access to dispute resolution mechanisms used to address project-related disputes that relate to UNEP's activities. The IOSSR is responsible for the SRM, and thus carries out the following responsibilities: • Receives and screens complaints for eligibility; • Maintains a roster of accredited independent experts related to compliance review and dispute resolution;

[8] UN Environment (2015). "Gender Equality and the Environment: Policy and Strategy". https://wedocs.unep.org/bitstream/handle/20.500.11822/7655/Gender_equality_and_the_environment_Policy_and_strategy-2015Gender_equality_and_the_environment_policy_and_strategy.pdf.pdf?sequence=3&isAllowed=y

[9] UNEP's Environmental and Social Sustainability: Stakeholder Response Mechanism (2020), Available at: https://wedocs.unep.org/bitstream/handle/20.500.11822/32023/ESSFRM.pdf

	• Develops the appropriate TOR for facilitating the compliance review or dispute resolution; • Manages and oversees all experts engaged in compliance review and dispute resolution; • Maintains the IOSSR website that provides the public with access to all relevant documents related to compliance review and dispute resolution; • Issues reports to the UNEP Executive Director with findings and recommendations for compliance reviews, and outcomes for dispute resolution processes; • Monitors the implementation of decisions related to compliance review and grievance redress; • Reports on the IOSSR operations and provides advice based on lessons learned; • Conducts outreach to Stakeholders regarding the IOSSR; • Seeks to minimise risks of retaliation to complainants. Complaints can be filed to the Stakeholder Response Mechanism through the online project concern form, email or mail to the following address: Independent Office for Stakeholder Safeguard-related Response (IOSSR) & Director of Corporate Service Division United Nations Environment Programme Nairobi, Kenya Email: unenvironment-IOSSR@un.org Details are available in the UNEP's SRM Operating Procedures.
Additional relevant policies and procedures	As part of the Secretariat, UNEP follows UN policies, rules and regulations.

6. Investment Phase Monitoring and Reporting

The implementing entity, with the support of the peer advisor, is expected to monitor the implementation of the Investment Phase following an output-based approach. The Investment Phase outputs as well as respective indicators and targets are presented below.

Output 1. GBON institutional and human capacity developed	Indicator	Target Y1	Target Y2	Target Y3	Target Y4	Target Y5
1.1 **National consultations** including with CSOs, and other relevant stakeholders conducted						
• Face-to-face inception workshops engaging multiple stakeholders (including CSO and private sector)	# workshops	**1**	**1**	**1**	**1**	**1**
	% female participating	**50**	**50**	**50**	**50**	**50**
• Stakeholder engagement workshops on the implementation of project deliverables	# workshops		**1**	**1**	**1**	**1**
	% female participating		**50**	**50**	**50**	**50**
• High level dialogues on benefits, co-production, and ownership of the new national GBON infrastructure	# events	**1**				**1**
	% female participating	**50**				**50**
• Gender workshops to strengthen gender equality in governance, strategy, programmes, and decision making, and facilitate grounds for developing gender policy	# workshops		**1**	**1**		
	% female participating		**50**	**50**		
1.2 **NMHS institutional capacity** required to operate the GBON network developed						
• Drafting an Organizational Strategy, that will clearly outline the action plan for how the MMS will achieve its short and long-term goals and become GBON compliant	years in which the Organizational Strategy will be drafted		**X**	**X**	**X**	
• Drafting a new organizational Gender Policy, with specific actions that are measurable and regularly monitored, that are based on the WMO Gender Action Plan	years in which Gender Policy will be drafted			**X**	**X**	
• Establishing a stakeholder engagement plan for more systematic engagement of various stakeholders including private sector and CSOs	years in which stakeholder engagement plan will be drafted		**X**			
1.3 **NMHS human capacity** required to operate the GBON network developed	# staff salaries paid	**9**	**9**	**9**	**9**	**9**
	years in which trainings will be conducted	**X**	**X**	**X**	**X**	**X**

Output 2. GBON infrastructure in place	Indicator	Target Y1	Target Y2	Target Y3	Target Y4	Target Y5
2.1 **New land-based** stations and related equipment, ICT systems, data management systems and standard operating practices in place	# stations as per the GBON National Contribution Plan		**1**			
2.2 **Improved land-based** stations and related equipment, ICT systems, data management systems and standard operating practices in place	# stations as per the GBON National Contribution Plan		**4**			
2.4 **Improved upper-air** stations, related equipment, ICT systems, data management systems and standard operating practices in place	# stations as per the GBON National Contribution Plan			**1**		
Outcome: Sustained compliance with GBON	**Indicator**	**Target Y1**	**Target Y2**	**Target Y3**	**Target Y4**	**Target Y5**
3.1 **GBON land-based stations'** commissioning period[10] completed, country-specific standard cost for operations and maintenance established, and data sharing verified by WMO Technical Authority	# stations as per the GBON National Contribution Plan	**0**	**5**	**5**	**5**	**5**
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	# stations as per the GBON National Contribution Plan	**0**	**0**	**1**	**1**	**1**

[10] The commissioning period is the last year of the Investment Phase. The beneficiary country, supported by the Implementing Entity, must demonstrate the sustained operation of all the SOFF-supported stations according to the GBON compliance.

The implementing entity is expected to report on progress as described below.

- **Quarterly updates** to the SOFF Secretariat: A simple standardized form providing a progress update against the Investment Phase Outputs' indicators (and Outcome, where applicable[11]) and flagging major issues that are delaying implementation, if any.
- **Annual narrative and financial reports** according to the UNMPTF reporting requirements indicated in the legal agreements. The annual narrative report reports on progress on the delivery of the Investment Phase Outputs, measured by the Investment Phase Indicators. It includes also a review of the Investment Phase risks and an update on environmental and social safeguards, including gender.
- **Final narrative and financial reports** according to the UNMPTF reporting requirements indicated in the legal agreements. The final narrative report confirms the completion of all the activities and report on the number of stations that have completed the commissioning period (outcome). The WMO technical authority verifies GBON compliance of the indicated stations and provides a verification report to the SOFF Secretariat. Upon WMO verification, the Investment Phase can be considered completed. The Final Report should describe the Investment Phase results achieved and lessons learned; and it should also specify the long-term institutional arrangements to secure sustained GBON compliance with SOFF Compliance Phase support.

[11] The quarterly reports should also include, when applicable, progress achieved in terms of new or rehabilitated stations that have become operational and are already sharing the data into the WIS 2.0 system as confirmed through the WIGOS Data Quality Monitoring System (WDQMS) web tool.

7. Investment Phase Risk Management Framework

The Investment Phase Risk Management Framework should be based on the SOFF Risk Management Framework, incorporating relevant programmatic risks and including additional country-specific risks. Please follow the methodology established by the Multi-Partner Trust Fund Office (MPTFO) presented below.

		Impact				
		Insignificant (1)	**Minor (2)**	**Moderate (3)**	**Major (4)**	**Extreme (5)**
Likelihood	**Very Likely (5)**	Medium (5)	High (10)	High (15)	Very High (20)	Very High (25)
	Likely (4)	Medium (4)	Medium (8)	High (12)	High (16)	Very High (20)
	Possible (3)	Low (3)	Medium (6)	High (9)	High (12)	High (15)
	Unlikely (2)	Low (2)	Low (4)	Medium (6)	Medium (8)	High (10)
	Rare (1)	Low (1)	Low (2)	Medium (3)	Medium (4)	High (5)

Risk	Risk level	Likelihood	Impact	Risk Mitigation Measures
Non-compliance with fiduciary and procurement standards in some SOFF activities	Medium	Rare	Major	UNEP will undertake an assessment of the financial management capacity of the national Executing Entity (EE) to identify risk elements and to prepare appropriate mitigation measures, including ongoing capacity development support by UNEP. UNEP will also closely monitor the financial management of the Project using the

				established Monitoring and Evaluation procedure and financial reporting mechanism, including an annual audit; and establish internal controls for the Project and project fund management. The Project Cooperation Agreements (PCAs) between UNEP and the national EE and Technical Partners will include warranties and caveats by the EE to inter alia ensure compliance with the Anti-Fraud and Anti-Corruption Framework of the United Nations Secretariat.
SOFF-funded investments cause environmental or social impacts	Medium	Unlikely	Moderate	The potential impacts are likely to be very limited in terms of magnitude and easily avoided by proactive planning. Many of the project activities are related to capacity building and training, which are inherently low-impact activities. While the activities related to infrastructure

				development and installation of new observation equipment will require low-level monitoring, management of environmental and social risks will be a matter of following industry best practice. As a mitigation measure, it is recommended that all contractors involved are made aware of their environmental and social responsibilities, and that professional oversight is engaged where necessary in order to ensure that those responsibilities are upheld.
NMHS staff depart after being trained	High	Possible	Major	To mitigate the risk of the staff departing, the Investment Phase will work on providing additional incentives for the staff including regular opportunities for regional trainings and workshops. It is recommended that the Compliance phase includes budget to cover

				salaries for the new staff, as well as to cover participation in some of the trainings and workshops which would contribute to the staff wellbeing.
Slow implementation and delays in procurement, installation and capacity building activities	Low	Unlikely	Minor	Seamless collaboration between the Implementing Entity, peer advisor, beneficiary country and technical partners will help to ensure that the project activities are executed without any delays.
After the conclusion of the Investment phase, GBON data are not collected or shared or are shared of insufficient quality	Medium	Rare	Moderate	The Investment Phase will include budget operations and maintenance of the equipment to ensure that GBON Infrastructure has been installed and internationally exchanges data. This will also help in smooth transition to the compliance phase. After this the country will receive SOFF support in the compliance phase which will help to ensure that all the

				equipment is properly functioning and sharing data. In addition, trainings held during the Investment Phase will help to ensure that the beneficiary country has the capacity to manage quality of the data.
Destruction or theft of SOFF-financed equipment and infrastructure	Medium	Unlikely	Moderate	The Investment Phase will ensure that all the observation sites will be fenced and guarded to minimize the risk of theft. However, given that Maldives is very vulnerable to the impacts of climate change and might be subject to climate-related disasters, there is a risk that the equipment will be destroyed by a natural hazard. The project will support Standard Operating Procedures (SOPs) for equipment, including early action protocols in case of climate-related hazards. Mitigation measures will be taken as a part of site preparation. The budget for the

				GBON equipment procurement will also cover additional equipment needed to safeguard against the climate-related hazards (such as sheltering, protective covers and clothes, torches etc) to the extent possible.
Countries cannot make optimal use of data, including accessing or using improved forecasts products from the Global Producing Centers throughout the hydromet value chain	Medium	Unlikely	Moderate	To mitigate the risk, it is proposed that the Investment Phase includes extensive and comprehensive training for the MMS staff from the peer advisor and technical partners, including on observations, data management, data processing and impact-based forecasting. This will help to ensure that the country has enough capacity to make the optimal use of data, including accessing or using improved forecasts products from the Global Producing Centers throughout the hydromet value chain.

Annex 1: National Gap Analysis

The National Gap Analysis of Maldives is available here.

Annex 2: National Contribution Plan

The National Contribution Plan of Maldives is available here.

Annex 3: Country Hydromet Diagnostics

The Country Hydromet Diagnostics for Maldives is available here.

Annex 4: Terms of Reference for the provision of technical advisory services during the SOFF Investment Phase

1. Purpose and scope

These Terms of Reference describe the provision of technical advisory services by Finnish Meteorological Institute (FMI) to Maldives to contribute to the delivery of the SOFF Investment Phase outputs as described in Section 3.

The Terms of Reference are based on the SOFF Operational Manual, Section 4.4.3 on the Operational Partners and Section 4.5.2 on the Investment Phase; as well as on the SOFF Investment Framework, Section 4.5 on the Peer Advisors and WMO Technical Authority.

2. Roles and responsibilities

Beneficiary country National Meteorological and Hydrological Service

- Is responsible for implementing the activities of the SOFF Investment Phase activities with the support of the Implementing Entity and the peer advisor.
- Submits the SOFF Investment Phase funding request using the standardized template provided by the SOFF Secretariat, including the Terms of References for the peer advisor's technical advisory services during the Investment Phase.
- Is responsible for collaborating with the Implementing Entity to provide all the necessary information, participate in and facilitate the national activities that the Implementing Entity and peer advisor need to conduct in order to deliver the SOFF Investment Phase outputs.
- Confirms the completion of all the Investment Phase activities and provides comments as needed on the final report prepared by the Implementing Entity.

Peer advisor

- Is accountable to the beneficiary country and the Implementing Entity.
- Is contracted via the WMO pass-through mechanism and operates on a cost-recovery basis.
- Provides technical advisory services to support beneficiary countries and Implementing Entities in the design and implementation of the SOFF Investment Phase activities.
- Contributes to the final report of the SOFF Investment Phase.

Implementing Entity

- Prepares the Investment Phase funding request in collaboration with the beneficiary country and the peer advisor, including the Terms of References for the provision of technical advisory services during the SOFF Investment Phase.
- Manages the Investment Phase activities following the terms specified in the funding request and in collaboration with relevant national partners, including civil society organizations.

- Delivers the Investment phase outputs and is responsible for their quality and timely delivery, in coordination with the country and the peer advisor.
- Provides quarterly updates to the SOFF Secretariat according to a simple standardized form and annual reports according to the United Nations Multi-Partner Trust Fund Office's reporting requirements indicated in the legal agreements.
- Informs the SOFF Secretariat of circumstances that could materially impede the implementation of the Investment phase or any considerable deviation in the conditions of the funding request to achieve its objectives.
- Submits the final report to the SOFF Secretariat including the beneficiary country's comments and the peer advisors' feedback. The final report describes the institutional arrangements to secure sustained operation and maintenance of the investments made.

WMO Technical Authority

- Provides basic on-demand technical assistance to the beneficiary country, Implementing Entity and peer advisor on GBON regulations, including on monitoring and assessing the data-sharing status of the stations using the WDQMS web tool[12]
- Is responsible for the verification of data sharing of the new or rehabilitated surface and upper -air stations as per GBON regulations.
- WMO provides a verification report to the SOFF Secretariat, upon which the Investment Phase can be considered completed.
- Establishes and administers the pass-through mechanism for contracting and funding of the advisory services provided by the peer advisors.

SOFF Secretariat

- Facilitates communication, coordination and collaboration between the beneficiary country, the Implementing Entity, the peer advisor and WMO Technical Authority.
- Reviews the SOFF Investment Phase funding request, including the Terms of Reference for the provision of technical advisory services and provides feedback as needed. Then transmits the funding request to the SOFF Steering Committee for their decision.
- Compiles quarterly updates and annual reports and monitors implementation based on information received from the Implementing entity, the peer advisor and the beneficiary country. Regularly informs the Steering Committee of progress.
- Coordinates regional implementation approaches to the SOFF Investment Phase.
- Confirms receipt of the final report by the Implementing Entity and completion of the Investment Phase based on WMO verification of data sharing.
- Organizes exchange of knowledge and experiences and captures lessons learned.

[12] The WDQMS web tool monitors the availability and quality of observational data based on near -real-time information from the four participating global Numerical Weather Prediction centres: the German Weather Service (DWD), the European Centre for Medium range Weather Forecasts (ECMWF), the Japan Meteorological Agency (JMA) and the United States National Centers for Environmental Pre diction (NCEP). These are four of the ten World Meteorological Centres, designated by WMO to provide global numerical weather prediction products for all WMO Members.

3. Peer advisors' activities during the SOFF Investment Phase

The peer adviser will support investment phase through the following activities:

- Technical support in AWS tender process
- Technical support in radiosounding tender process
- Technical support in IT hardware tender process
- Benchmark portfolio and project management and coordination in FMI
- Organize one gender workshop for Meteo staff
- Support in developing competence building, AWS and radiosounding processes:
    - o Benchmark good practices
    - o Support in preparing process and lifecycle plan for observations
    - o Support in preparing roadmap for competence building process that fits in Maldivian context
    - o Support in preparing/enhancing SOPs
    - o Support in preparing roadmap for implementing QC/QA methods
- Training on AWS and radiosounding lifecycle maintenance and calibration
- Advice in radiosounding and AWS data transfer and processing
- Advice in implementing data management system
- Contribution to final reporting