SOFF
Systematic Observations Financing Facility

**21 February 2024**

# SOFF Investment Phase Funding Request

## Version 2.0

12 September 2023

Systematic Observations Financing Facility

**Weather and climate data for resilience**

# SOFF Investment Phase Funding Request

*The funding request should be prepared by the SOFF beneficiary country in collaboration with the SOFF implementing entity and supported by the SOFF peer advisor. The funding request reflects and is based on the National Contribution Plan. In case of questions on how to complete this template, please contact the SOFF Secretariat at: soffsecretariat@wmo.int.*

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 **GBONNational 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

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| **SOFF Beneficiary Country and Focal Point** | United Republic of Tanzania<br><br>Dr. Ladislaus Benedict Chang'a<br>Acting Director General of Tanzania Meteorological Authority(TMA) and Permanent Representative of Tanzania with WMO,<br>Tanzania Meteorological Authority,<br>University of Dodoma, Administration block, College of Informatics and Virtual Education,<br>1 CIVE Street,<br>P.O. Box 27, 41218,<br>Dodoma, Tanzania.<br>Tel: + 255 26 2962610: Fax: +255 26 2962610<br>Email; met@meteo.go.tz; Website: www.meteo.go.tz | | | |
| **Country classification** | ☒ LDC | ☐ SIDS | ☐ FCS | ☒ ODA-recipient |
| **SOFF Implementing Entity and Focal Point** | United Nations Development Programme (UNDP)<br><br>Ms. Gertrude Lyatuu<br>Assistant Resident Representative and Team Leader Environment, Energy and Climate Change,<br>United Nations Development Programme,<br>PSSSF Building, Plot No. 03 Sam Nujoma Road,<br>P.O Box 9182,<br>Dar-Es-Salaam, Tanzania.<br>Tel: (+255)-22-2195000 /4<br>Fax: (+255) 22 219 5011<br>Email:registry@undp.org | | | |
| **SOFF Peer Advisor and Focal Point** | Danish Meteorological Institute (DMI)<br><br>Mr. Christian Robdrup Johansen,<br>Project Manager, SOFF and Strategic Sector Cooperation,<br>Dep. of Politics, Strategy and Communication,<br>Danish Meteorological Institute (DMI),<br>Lyngbyvej 100,<br>Copenhagen, Denmark | | | |

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| **Total Budget (USD)** | Total:The Total budget for the project is**USD 13,926,170.**The funding requested from SOFF project is **USD 9,026,278.** The in-kind contribution by TMA will be**USD 4,899,892**. Therefore, the ratio of Tanzania contribution is 0.35 (see table on annex 5 to the Funding request).<br>**First tranche[1]:** USD 5,062,402(60%)<br>**Second tranche:** USD 3,374,935 (40%) |
| **Delivery timeframe** | **Start Month:** 1st July 2024<br>**Completion Month:** 31st December 2027 |
| **Date of Steering Committee Approval** | |

SOFF Steering Committee Co-Chairs Signature (signature confirms Steering Committee approval of the funding request)

Signatures

Marianne Thyrring

Director General
Danish Meteorological Institute (DMI)

DocuSigned by:
Sergio Valdini
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Sergio Valdini

Officer-in-Charge
UNDP Tanzania

21-Feb-2024

[1] The tranches exclude peer advisor fee.

## 2. SOFF Programming Criteria (2 pages)

**Alignment with the SOFF Programming Criteria**

*This section should be based on the SOFF Readiness Phase outputs, i.e., the National GBON Gap Analysis and GBON National Contribution Plan, and the Country Hydromet Diagnostic where available.*

**Close the most significant data gaps**

*Please provide a brief summary regarding the GBON gap in the Beneficiary Country.*

According to the GBON National Gap Analysis conducted in Tanzania, to achieve the desired GBON spatial resolution of 200km by 200km, a minimum of 27 surface stations and 5 Upper Air stations are required. To meet the surface station target, nine new stations need to be established, and 18 existing stations need upgrades. Out of these 18 stations, the government of the United Republic of Tanzania has allocated funds to upgrade 11, while the remaining 7 station upgrades are expected to be covered by the SOFF project.O&M for all 18 stations have been included in the SOFF budget.

For Upper Air stations, four new stations are needed, out of these stations; Procurement and installation of one UA station will be funded by TMA while the remaining three are expected to be funded by SOFF project O&M for all four stations have been included in the SOFF project budget. The existing station located at Julius Nyerere International Airport in Dar Es Salaam, currently reports data once a day. This station is also proposed to be upgraded under support of SOFF project, with the main projected cost to be an increase in consumables needed for the station to report twice a day.

**Table 1.** GBON National Contribution Target from Nationalgap analysis

| Type of station | Baseline (Results of the GBON National Gap Analysis) | | | | GBON National Contribution Target | |
|---|---|---|---|---|---|---|
| | Target (# of stations) | GBON-compliant stations | Gap | | New | To improve |
| | | | New | To improve | | |
| Surface | 27 | 0 | 9 | 18 | 9 | 18 |
| Upper-air | 5 | 0 | 4 | 1 | 4 | 1 |

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| | To ensure smooth operation of the stations, homogeneity of data, and timely attendance to downtime, we strongly recommend funds for Operations and Maintenance for all Stations (27 Surface Stations and 5 Upper air Stations) come from SOFF. In order to meet GBON compliancy of two (2) ascends per day, additional ascend at 0300 am local time is required. Operating a night ascend for Upper air is quite a challenge taking into consideration number of staff at night shift, manual filling of hydrogen gas and sometimes with limited visibility. Therefore, to facilitate a night ascend as required by GBON an auto-sonde is required.<br><br>Increase in number of stations, frequency of data transmission and monitoring of the stations will require an upgrade of the existing telecommunication infrastructure to enable reliable data collection, exchange, and storage. Moreover, the expansion of network will require decentralizing operations for enhancing maintenance of stations by establishing cluster zones whereby an engineer will be located to oversee stations within the zone.<br><br>Additionally, the GBON National Contribution Plan for Tanzania emphasizes the importance of capacity building, data communication, dissemination, infrastructure maintenance, and human resources to ensure efficient and sustainable data exchange across all designated GBON stations. The plan also highlights the operational costs that need to be addressed to facilitate the rapid and sustainable exchange of data. |
| **Target easy fixes** | *Please provide an overview of the opportunities for rehabilitation and improvement of existing observing infrastructure in the country and rapid delivery of GBON data sharing.*<br><br>Out of the 27 targeted surface stations, 18 stations currently exist and require upgrades. The government of the United Republic of Tanzania has allocated funds to upgrade 11 of these stations, while the remaining 7 stations are expected to be upgraded through the SOFF project. Additionally, among the 5 targeted Upper Air Stations, one is existing located at Julius Nyerere International Airport in Dar Es Salaam. Currently this station reports data once a day, hence, will require an upgrade to be GBON compliant. This upgrade has been budgeted as part of the SOFF project. One of the four required new stations will be procured and installed through Tanzania government funding. O&M for this station has been budgeted under SOFF. |

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| **Create leverage** | SOFF will complement previous, ongoing, and planned initiatives led by the Government of Tanzania in collaboration with other stakeholders and Partners including UNDP. The government's current initiatives to enhance weather and climate services, managed by the Tanzania Meteorological Authority (TMA), include the modernization of meteorological infrastructure through the procurement of modern meteorological infrastructure (weather RADARs, AVIMET, AWSs and calibration equipment) as well as the rehabilitation of existing stations. These efforts also involve human capacity development, transforming TMA into a fully autonomous institution via the enactment of the Tanzania Meteorological Authority Act No. 2 of 2019, and the development of relevant policies and strategies like the National Climate Change Response Strategy (2021-2026). SOFF investments will complement these initiatives by enhancing TMA capacity to observe, monitor and exchange meteorological data internationally.<br><br>Additionally, SOFF Investments are aligned with UNDP's ongoing interventions in Tanzania as an Implementing Entity. UNDP has been supporting climate information and early warning system projects in 11 African nations, including Tanzania, through its "Climate Information for Resilient Development in Africa (CIRDA)" programme. This support was realized through the "Strengthening Climate Information and Early Warning Systems in Tanzania for Climate Resilient Development and Adaptation to Climate Change" project from 2014 to 2018, which included the procurement of 36 Automatic Weather Stations integrated into the TMA observation network. Some of these stations are at the end of their operational life span, while others need replacement of sensors. SOFF will upgrade 7 of these stations to be GBON compliant. Other Stations are located in geographical location that will not add a value to 200 by 200 km resolution. They might be considered for the future if the resolution will increase to 100 by 100 km.<br><br>This SOFF investment will also leverage and compliment other initiatives including the Nature, People and Climate (NPC) investment program launched by the Climate Investment Funds (CIF). Tanzania’s participation in the programme is through the Africa’s Zambezi River Basin Region, which also includes Malawi, Mozambique, Namibia, and Zambia.<br><br>This SOFF investment will significantly improve Tanzania’s capacity to contribute to global weather forecasting numerical models and benefit from the improved accuracy to issue more accurate weather forecasts and early warnings to its population.<br><br>UNDP played a pivotal role in developing Tanzania's Nationally Determined Contribution (NDC) in collaboration with various partners. This NDC prioritized all sectors vulnerable to climate change impacts. |

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| | Moreover, UNDP provided support to Tanzania in preparing the National Climate Change Response Strategy2021-2026. Currently, 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. This initiative includes plans for enhanced support in disaster risk reduction (DRR), building upon previous efforts in the development of several policy and strategic documents, as well as capacity-building activities within the country. Furthermore, it also includes a component to support building framework for mobilizing climate change financing through the establishment of national climate change mechanisms in the Mainland and Zanzibar. 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. Additionally, SOFF investments will contribute to Tanzania's contribution to the "United Nations Early Warning for All (EW4All)" initiative. |
| **Maximize delivery capacity** | *Please outline the capacity of the Implementing Entity and any Executing Entities to deliver SOFF support efficiently and effectively in the country.*<br><br>UNDP has a proven track record of supporting meteorological activitiesacross many countries globally including through the implementation of the GEF-supported programme titled "Climate Information for Resilient Development in Africa (CIRDA), which was implemented in Tanzania as the "Strengthening Climate Information and Early Warning Systems in Tanzania for Climate Resilient Development and Adaptation to Climate Change" project, from 2014 to 2018. In its role as the designated Implementing Entity for the SOFF project in Tanzania, UNDP brings a wealth of experience and expertise in essential project management areas. Here is a detailed outline of these capabilities:<br><br>**Project Management:** UNDP boasts a dedicated team of project management professionals with a proven track record in the successful execution of complex projects. Their expertise includes project planning, monitoring, and evaluation, ensuring that SOFF activities are meticulously coordinated and delivered in line with the project's objectives and timelines. Project specialists, Project analysts, and Project associates from the Environment, Climate Change and Resilience Pillarat UNDP will be assigned to support project'simplementation.<br><br>**Project Financial Management:** UNDP has a strong financial management system that encompasses budgeting, financial reporting, auditing, and compliance with international financial standards. This ensures that project funds are managed transparently, efficiently, and in accordance with the highest financial governance standards.To oversee the management of the project's funds, a dedicated Finance Associate will be |

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| | assigned. This individual will work collaboratively with the finance focal point from TMA to ensure the effective stewardship of project finances, aligning with established financial protocols and best practices.<br><br>**Procurement:**UNDP's procurement experts possess extensive expertise in managing complex public procurement processes. They operate in strict compliance with UNDP's procurement guidelines and regulations, as well as the applicable national laws. This ensures that all procurement activities related to equipment, services, and infrastructure are conducted equitably, competitively, and with the highest standards of integrity. To streamline and facilitate procurement processes, UNDP's Procurement Unit will provide valuable support, drawing from their wealth of experience gained through previous projects. Additionally, a dedicated Procurement Analyst will be assigned exclusively to this project. This specialized role will focus on overseeing and optimizing the procurement aspects of the project, ensuring efficiency and effectiveness throughout the process.<br><br>**Project Management Support:** UNDP provides comprehensive project management support, encompassing the development of project work plans, risk assessments, and strategic guidance. This support ensures that project activities are aligned with international best practices and tailored to the specific needs and context of Tanzania. An analyst from the Project Management Support Unit will be assigned for the project.<br><br>**Communication:** UNDP recognizes the pivotal role of effective communication in project success. Its communication professionals are skilled in crafting targeted communication strategies, engaging stakeholders, and disseminating project updates and outcomes to a wide audience. This ensures that the SOFF project's objectives, achievements, and impacts are effectively communicated to relevant stakeholders, fostering broader awareness and support. The existing The Communication Unit at UNDP, in collaboration with the Communication focal point at TMA, will play a pivotal role in handling all communication and visibility matters related to the project. |
| **Sub-regional gains** | 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. Additionally, Tanzania collaborates with neighbouring countries in the Eastern and Southern Africa Sub-Regions through various programs and projects led by organizations such as the World Meteorological Organization (WMO), East African Cooperation (EAC), and South African Development Community (SADC).<br><br>These collaborations involve the implementation of projects like the HIGH impact Weather Lake Systems (HIGHWAY) project, in which TMA provided technical support to the Uganda National Meteorological Authority (UNMA), among others. Tanzania currently serves as a WMO Regional |

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| | Specialized Meteorological Centre (RSMC), offering guidance on severe weather for countries around the Lake Victoria Basin, including Rwanda, Burundi, Kenya, and Uganda. Tanzania also operates as a Regional WIGOS Centre, responsible for ensuring data availability and quality in the EAC region.<br><br>Furthermore, TMA has a calibration laboratory, which is used to calibrate TMA observation equipment. TMA is 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 sub-regions. Such calibration laboratory could also support calibration of equipment for NMHSs of neighbouring countries implementing SOFF project. The project has budgeted for a regional capacity development workshop hosted by TMA on calibration of equipment.Additionally, TMA has a fabrication workshopfor some weather observation equipment. The workshop could potentially be equipped to fabricate equipment for NMHSs of other neighbouring countries in the region,to whomTMA is already providing technical support.<br><br>Given these well-established collaborations, the potential for establishing sub-regional cooperation is feasible. This will involve activities such as knowledge sharing, instrument maintenance, and calibration.UNDP Tanzania will also use the global support unit to ensure that all SOFF equipment is procured most effectively. |

## 3. Readiness and Country context (1 page)

**SOFF Beneficiary Country Capacity Assessment**

*This section should summarize existing Beneficiary Country capacity to execute the GBON National Contribution Plan.*

The Tanzania Meteorological Authority (TMA) is a government institution mandated to provide weather and climate services in Tanzania under the Tanzania Meteorological Authority Act No. 2 of 2019. TMA was established by the Tanzania Meteorological Authority Act No. 2 of 2019 through Government Announcement GN 459 dated 14th June 2019. With the responsibility of coordinating, regulating and providing meteorological services. TMA is responsible for providing, regulating, and coordinating all meteorological services in the United Republic of Tanzania, including issuing forecasts, warnings, and advisories regarding severe weather events for the public. TMA also provided tailor-made products for various socio-economic sectors and individual users.

The Authority is based on the fact that the weather agency in Tanzania was established by the law of the Agency (Executive Agency Act) Chapter No. 245 references for the year 2022. Before the weather Agency, weather services in the country were provided by the former (Directorate of

Meteorology), which was established in the year 1977 after the breakup of the former East African Community, with the responsibility of making observation and providing weather information in the country. Before the East African Community, weather services in the country were provided under the Weather Institute which was under the colonial rule.

Administratively, Management of TMA is headed by the Director General, who is supported by other Directors overseeing various functions, including Forecasting Services, Infrastructure and Technical Services, Research and Applied Meteorology, Corporate Services, and the TMA Zanzibar Office. TMA manages meteorological observation network consisting of manned synoptic weather stations, Automatic Weather Stations (AWSs), Rainfall Stations and weather Radars. TMA has a specific Directorate of Infrastructure and Technical Services which oversees all meteorological infrastructure and technical services whereas meteorological observation activities and data exchange are overseen by the Director of Forecasting Services. TMA is divided into eight (8) zones whereby each zone comprises of several regions and has a Zonal Manager who oversees all meteorological stations within a zone. Furthermore, manned stations are supervised by Heads of Stations who have meteorological and other experts under them to carry out meteorological operations twenty-four hours. Station operations include weather observations and data transmission to the TMA headquarters at synoptic hours (after every 3 hours). The real time observations from manned stations are sent at the Central Forecasting Office (CFO), communication section after every three (3) hours through email and telephones as backup. Received observations at CFO are then manually submitted to the Automatic Message Switching System (AMSS) for international exchange through the Global Telecommunication System (GTS). Weather parameters observed at stations are also sent through email and hardcopies to the climate data section for long term storage.

The TMA organizational set up for maintenance of both surface based and upper air stations are based on a decentralized approach. TMA has divided Tanzania into eight cluster zones. Each Zone is manned with a residential engineer who will oversee maintenance in his/her Zone of operation. Additional engineers are based at TMA HQ in Dodoma with the capacity to provide support to the zones. Each cluster has a regional head office which also contains a warehouse. Spare parts and reserve equipment are stored at the warehouse of each cluster zone head office.,

Currently, TMA employs approximately 520 personnel, comprising 400 Meteorological Professionals and 120 supporting staff. Among the Meteorological Professionals, 79% are male, and 21% are female. TMA's staffing is at 76% of its estimated optimal number. Additionally, the institution has 10 ICT experts, including 3 females, and 13 Meteorological engineers. TMA has submitted a proposal for employment of more Meteorological Engineers by the Government through the Public Service Recruitment Secretariat. This indicates strong capacity and experience of TMA to effectively implement and deliver on SOFF project.

**Investment Phase Alignment with the GBON National Contribution Plan**

*Please attach the National GBON Gap Analysis and GBON National Contribution Plan as Annex 1.*

*Please explicitly indicate and justify any differences in the proposed Investment Phase targets and the requirements of the GBON National Contribution Plan approved at the finalization of the Readiness*

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| *Phase.*<br><br>Currently no differences and therefore Not Applicable |

## 4. Investment Phase Outputs and Budget

The GBON National Contribution Plan provides detailed information on the Investment Phase Outputs (please see Annex 1).

*Based on the recommendations and technical specifications provided in the National GBON Gap Analysis and GBON National Contribution Plan, and complemented by the Country Hydromet Diagnostic, please provide the required budget amount for the delivery of the Investment Phase Outputs.*

| Output 1. GBON institutional and human capacity developed | Main activities | Budget (USD) |
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| 1.1 **National consultations** including with CSOs, and other relevant stakeholders conducted | Conduct annual stakeholders' workshop, Continuous assessment of potential private sector collaboration. | **15,000** |
| 1.2 **NMHS institutional capacity** required to operate the GBON network developed | Develop legal agreements and documentation for the timely procurement and clearance of observation infrastructure | **12,000** |
| 1.3 **NMHS human capacity** required to operate the GBON network developed | Gender Awareness raising workshop for stakeholders | **10,000** |
| | Participation in sub-regional GBON collaboration meetings + Sub-regional capacity building workshop on calibration and maintenance | **30,000** |
| | Capacity development for technical staff including:<br>• Training of TMA ICT staff<br>• Training of TMA engineers to assemble/integrate sensors from different manufacturers.<br>Capacity development workshop to strengthen TMA as regional WIGOS centre. | **80,000** |
| | Direct project costs in terms of oversight, procurement support, knowledge management, country coordination,for IE and TMI for duration of project. | **606,922** |

| Sub Total for Output 1 | | 753,922 |
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| **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 | Procurement and installation of new nine (9) land-based stations | **768,000**<br><br>(Refer Table 12 (a) in the National Contribution Plan) |
| | Procurement and installation of data collection system, station monitoring system, backup system, security infrastructure. System includes telecommunication connectivity, and WIS 2.0 alignment | **930,000**<br><br>(Refer Table 24 in the National Contribution Plan) |
| 2.2 **Improved land-based** stations and related equipment, ICT systems, data management systems and standard operating practices in place | Procurement and installation of equipment for upgrading seven (7) land-based stations (Incl. Site survey for new locations, construction of guard houses for stations in new locations | **304,970**<br><br>(Refer Table 12 (b& c) in the National Contribution Plan) |
| | Establish and implement standard operating practices for land-based stations (shall include procurement of mobile and laboratory calibration equipment (for seven zone offices), safety gear, and vehicles (for five zone offices) for field level maintenance and calibration. | **715,000**<br><br>(Refer Table 16 and 17 in the National Contribution Plan) |
| 2.3 **New upper-air** stations and related equipment, ICT systems, data management systems and standard operating practices in place | Carry out Environmental Impact Assessment (EIA) | **1,935,000**<br><br>(Refer Table 21 in the National Contribution Plan) |
| | Construction of buildings for upper air stations (hydrogen generator, gas storage tank cabins) | |
| | Procurement and installation of three(3) new upper air stations (including spare parts, annual maintenance contract) | |
| 2.4 **Improved upper-air** stations, related equipment, ICT systems, data management | Upgrading of upper Air Stations at Julius Nyerere | **320,000**<br>(Refer Table 22 in the |

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| systems and standard operating practices in place | International Airport -JNIA; | National Contribution Plan) |
| **Sub Total for Output 2** | | **4,972,970** |
| **Outcome 3: 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 | Maintenance, calibration, and operationalization of surface observation stations conducted. | **749,470**<br><br>(Table 15 in the National Contribution Plan) |
| 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 | Maintenance, calibration, and operationalization of Upper Air observation stations conducted (including procurement of balloons and radio sondes).<br><br>(Calculation for Radio sondes is 2 per day*2 years*5 stations + 100 spare per station=7800. Unit Price 165 USD) | **1,409,000**<br><br>(Table 23 in the National Contribution Plan) |
| **Sub Total for Output 3** | | **2,158,470** |
| **Sub Total for all Outputs** | | **7,885,362** |
| **Project Management Costs** | **Main activities** | **Budget (USD) – 3 years** |
| **Implementing Entity Fee[2] (7%)** | | **551,975** |
| **SOFF peer advisory services** | | 588,941 |
| **Total funding request** | | **9,026,278** |

| **Budget breakdown by UNDP category (Excluding SOFF peer advisory services)[3]** | **USD** |
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[2] The implementation fee cannot exceed 7% of the total Investment Phase funding request.

[3] 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.

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| Staff and personnel costs (Project Management Unit embedded within TMA (Project Manager, Accountant, Driver) | 220,000 |
| Supplies, Commodities and Materials (including Office costs) | 7,278,440 |
| Travel | |
| Transfers and Grants | |
| General Operating | 938,897 |

## 5. Investment Phase Implementation Arrangements

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| **Execution model and implementation arrangements** | *Based on the Beneficiary Country Capacity Assessment, please detail the proposed Investment Phase execution model, including governance, implementation arrangements, coordination and management and implementation of activities, the roles and responsibilities of each Executing Partner, and the flow of funds (including an overview of relevant legal / financial instrument(s) to distribute the SOFF support).*<br><br>The project will be managed jointly by the three partners (TMA, UNDP and DMI).<br><br>The highest project decision body will be a project Steering Committee, comprising of Chief Executive Officers of TMA, UNDP and DMI who will meet bi-annually to consider progress on project implementation and make appropriate decisions. However, the Steering Committee may convene at any time whenever needs arise.<br><br>Below the Steering Committee, there will be a Project Technical Coordination Committee which will be formed by Project Coordinators at each institution. The Project Technical Coordination Committee will meet quarterly to deliberate on project implementation and make recommendations to the Steering Committee.<br><br>Below the Technical Coordination Committee, there will be a project team which will be formed by Officers and experts from TMA, UNDP and DMI. Theday-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. The project team will meet monthly to discuss progress of the implementation of project activities. The meetings of the project team will be chaired by the Project Coordinator based at TMA. The project Technical CoordinationCommittee will prepare quarterly reports for the Project Steering Committee.<br><br>The flow of funds will follow a structured process, with the UN Multi-Partner Trust Fund Office (UNMPTF) disbursing funds to UNDP. UNDP will then channel these funds to TMA for implementation of agreed activities in accordance with the arrangements specified in the Letter of Agreement (LoA) between TMA and UNDP. For smooth running of the project, UNDP and TMA will sign an LoA which will govern on the modality of executing the project activities, including flow of funds, coordination, and reporting mechanisms. |

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| **Private sector involvement** | *Please indicate the anticipated role of the private sector according to the Business Modelsoutlined in the Operational Manual, including relevant stakeholder engagement processes.*<br><br>Based on the analysis outlined in the National Contribution Plan the most appropriate set up for Tanzania is the SOFF business model 1: a fully funded National Meteorological Institution.<br><br>During the Readiness phase, the partners have not come across any private sector operators providing publicly available meteorological observations and data services in Tanzania. There might be private entities who gather meteorological observations for their own purposes, such as larger scale agricultural entities. It will be relevant to continue assessments during the investment phase to understand if there are potential relevant private sector partners and if other public sector operators can be included in the meteorological network (although unlikely they will be GBON relevant within the proposed project period). |
| **Civil society participation** | *Please indicate the anticipated role of civil society organizations, including relevant stakeholder engagement processes.*<br><br>The SOFF investment phase will actively involve key stakeholders, including Civil Society Organizations (CSOs). While the SOFF project is rather technical, the strengthened meteorological observation network will enable strengthened data for Early Warning and disaster preparedness and response. The civil society organizations are key to achieving last mile provision of such services as well as to ensure community level communication and involvement.In ensuring gender participation in the project, activities such as construction work of stations, security services and cleanliness will give first priority to women and other marginalized groups in the localities. The selection of labourers will be done in consultation with local leaders. The selection for specific locations for construction of stations will also engage local authorities and residents as part of ensuring security of the equipment.<br><br>The project has budgeted for annual workshops with civil society organizations to discuss Early Warning systems and how to the different stakeholders can work together to support a comprehensive Early warning system for Tanzania. |
| **Fiduciary systems** | *Please provide an overview of the Investment Phase fiduciary arrangements, including financial management and procurement.* |

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| | Funds at the national level will be managed by UNDP. The funding process will involve the transfer of funds from the UNMPTF to UNDP, which will subsequently disburse the funds to theTMA based on arrangements outlined in a Letter of Agreement (LoA) between TMA and UNDP to be concluded at a later stage. TMA will take on the responsibility of implementing all project activities, except procurement activities which will be carried out by UNDP in accordance with Tanzanian procurement laws and regulations.UNDP procurement procedures adheres to principles such as Best Value for Money, Fairness, Integrity, and Transparency, Effective International Competition, and acting in the best interest of UNDP and the United Nations. These principles ensure fair and transparent competitive processes, value for money, and adherence to organizational mandates and objectives. |
| **Social and environmental safeguards** | *Please provide an overview of the Investment Phase social and environmental safeguards, including gender policy.*<br><br>The SOFF investment phase will strictly adhere to Tanzanian environmental policies and laws, including the Environmental Management Act of 2004. To ensure full compliance with these regulations, the GBON National Contribution Plan for Tanzania has outlined an activity to conduct an Environmental Impact Assessment before initiating project implementation, which is a legal requirement for new infrastructure development in Tanzania. Furthermore, TMA is committed to promoting gender equality in the delivery of weather and climate services. TMA will actively involve gender considerations in the implementation of the proposed SOFF activities.<br><br>The project will also adhere to UNDPs Social and Environmental Standards **UNDP SES** which applies to all UNDP project and programme activities and the required standards will be included in agreements with all cooperating partners. The UNDPs Environmental and Social Safeguards policy framework is based on existing 'do no harm' provisions mandated by UNDPs Environmental Policy and 'Leaving no one behind' of the sustainable development goals (SDGs). The UNDP safe framework is fully aligned with the Model Approach to Environmental and Social Standards in UN Programming. |
| **Dispute resolution mechanism** | *Please provide an overview of the Investment Phase complaints management and conflict resolution mechanism.*<br><br>Prior to commencing the execution of project activities in the transition to the SOFF investment phase, the TMA will work collaboratively with UNDP |

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| | to develop legal agreements and documentation, which will include a Memorandum of Understanding for the implementation of the SOFF Investment Phase. Nevertheless, it is anticipated that any disputes that may arise during the project implementation will be resolved amicably by the involved parties. |
| **Additional relevant policies and procedures** | *Please state any other policies and procedures that the Implementing Entity applies.*<br><br>Other pertinent policies and laws encompass the Income Tax Act and the Public Procurement Act of 2011. Broadly, these legislations do not pose significant hindrances to the project. However, certain regulations, such as those within the Income Tax Act, stipulate taxation on the importation of meteorological infrastructure. To address these charges, a proposal, and a Memorandum of Understanding (MoU) will be prepared and submitted to the Ministry of Finance to request tax exemptions. |

# 6. Investment Phase Monitoring and Reporting

*Please indicate the implementation targets and adjust the table as needed to reflect the implementation timeline. Years can be added.*

| Output 1. GBON institutional and human capacity developed | Indicator | Target Y1 | Target Y2 | Target Y3 |
|---|---|---|---|---|
| 1.1 **National consultations** including with CSOs, and other relevant stakeholders conducted | - # workshops with stakeholders | 1 | 1 | 1 |
| | of women participating in SOFF consultations with CSOs and the private sector | 50% | 50% | 50% |
| 1.2 **NMHS institutional capacity** required to operate the GBON network developed | - # of TMA Senior Management trained | 0 | 10 | 0 |
| | -#Team members trained in project Management | 5 | 0 | 0 |
| | % of women participating in the capacity-building activities (Target 50%) | 50% | 50% | 50% |
| 1.3 **NMHS human capacity** required to operate the GBON network developed. | - # of TMA Engineers and ICT staff Trained | 15 | 0 | 10 |
| **Output 2. GBON infrastructure in place** | **Indicator** | **Target Y1** | **Target Y2** | **Target Y3** |
| 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 | 0 | 4 | 5 |
| 2.2 **Improvedland-based** stations and related equipment, ICT systems, data management systems and standard operating practices in place | # stations as per the GBON National Contribution Plan | 3 | 6* | 9* |
| 2.3 **Newupper-air** stations and related equipment, ICT systems, data management systems and standard operating practices in place | # stations as per the GBON National Contribution Plan | 0 | 1** | 3** |
| 2.4 **Improvedupper-air** stations, related equipment, ICT systems, data management systems and standard operating practices in place | # stations as per the GBON National Contribution Plan | 0 | 1 | 0 |

| Outcome: Sustained compliance with GBON | Indicator | Target Y1 | Target Y2 | Target Y3 |
|---|---|---|---|---|
| 3.1 **GBON land-based stations'** commissioning period[4] 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 | 10* | 27* |
| 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 | 1 | 5 |

**The target for 2.2 and 3.1 for Y2 and Y3 includes the 11 stations that are currently being upgraded by the Tanzanian Government*

*** The target for 2.3 for Y2 and Y3 includes one upper air station that will be procured by the Tanzanian Government*

For 3.1 and 3.2 the numbers are aggregated, meaning that Y3 describes the total GBON compliance target incl. the previous years.

[4] 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 responsible for reporting progress through the following means:

1) **Quarterly Updates to SOFF Secretariat:** Provide regular updates using a standardized form that tracks progress against the Investment Phase Outputs' indicators and highlights any significant issues causing implementation delays.

2) **Annual Narrative and Financial Reports:** Submit annual reports in accordance with UNMPTF reporting requirements specified in legal agreements. These reports should detail progress in delivering the Investment Phase Outputs, measured through Investment Phase Indicators. They should also include an assessment of Investment Phase risks and updates on environmental and social safeguards, including gender considerations.

3) **Final Narrative and Financial Reports:** As per UNMPTF reporting requirements, submit a final narrative report upon the completion of all activities. This report should confirm the conclusion of the commissioning period for indicated stations (outcome). The WMO, as the technical authority, will verify GBON compliance for these stations and provide a verification report to the SOFF Secretariat. Once WMO verification is obtained, the Investment Phase can be deemed complete. The Final Report should summarize the achieved Investment Phase results, lessons learned, and outline long-term institutional arrangements to ensure sustained GBON compliance with SOFF Compliance Phase support.

## 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) | VeryHigh (25) |
| | **Likely (4)** | Medium (4) | Mediu m (8) | High (12) | High (16) | Very High (20) |
| | **Possible (3)** | Low (3) | Mediu m (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) |

*Please complete the following table.*

**Table 1: Risk Management Framework**

| No | Risk | Risk level | Likelihood | Impact | Risk Mitigation Measures |
|---|---|---|---|---|---|
| | | *Please indicate: Low, Medium, High, Very high* | Please indicate: Rare, Unlikely, Possible, Likely, Very likely | Please indicate: Insignificant, Minor, Moderate, Major, Extreme | *Please indicate risk mitigation measures the project will undertake.* |
| 1. | Failure to comply with legal requirements (e.g. TMA Act No.2 of 2019, Procurement Act, Revenue Act, Finance Act, and associated Regulations etc) | Medium | Unlikely | Major | • Initiate MoU/agreement among parties to have sections signifying necessity for compliance.<br>• Having implementation flow chart(s)/ matrix with clear responsibilities descriptions |
| 2. | Late disbursement of funds | Medium | Possible | Minor | Close follow up on Funds flow and schedule |
| 3. | After the conclusion of the Investment phase, GBON data are not collected or shared or are shared of insufficient quality | Medium | Unlikely | Major | • Ensure effective telecommunication system is in place.<br>• Ensure regular inspection and maintenance of infrastructure.<br>• Ensure availability of skilled personnel in maintenance and conducting meteorological |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | observations. |
| 4. | Destruction/ Theft/Vandalism of SOFF infrastructures | High | Possible | Major | • Employ security personnel.<br>• Engage the Civil Society Organizations (CSOs) and all relevant local authorities from the beginning of the project.<br>• Enter into MoU with Local Government Authorities and Religious Organizations. |
| 5. | Inability to access meteorological data and forecast products | High | Possible | Moderate | • Ensure reliable telecommunication facility.<br>• Provide access to data and products.<br>• Ensure relevant expertise to access the data from global/regional sources. |
| 6. | Price escalation | High | Possible | Moderate | • Ensure budget allocation addresses exchange rate fluctuations<br>• Timely procurement. |
| 7. | Damage of infrastructure by natural hazards | Medium | Unlikely | Moderate | • Locating stations at places not prone to natural hazards like flooding, landslides, etc |
| 8. | SOFF-funded investments | Low | Rare | Insignificant | • Project impacts are anticipated to be |

| | | | | | |
|---|---|---|---|---|---|
| | cause environmental or social impacts | | | | minimal and manageable through proactive planning and adherence to industry best practices.<br>• Environmental and sustainability factors will be integrated into both supplier selection and construction processes to minimize potential impacts. |
| 9. | NMHS staff depart after being trained | Medium | Unlikely | Moderate | • To mitigate the risk of staff turnover, the project will involve and train sufficient staff at NMHS to ensure that capacity is built at institutional level.<br>• NMHS staff will be engaged throughout the project lifecycle to ensure ownership over the process. |
| 10. | Slow implementation and delays in procurement, installation, and capacity building activities | High | Possible | Moderate | • Ensuring close coordination between TMA, DMI and UNDP to ensure project activities remain on-track. Challenges when identified will be addressed in a timely manner. |

# Annex 1: National Gap Analysis

# Annex 2: National Contribution Plan

# Annex 3: Country Hydromet Diagnostics

# Annex 4: Terms of Referencefor the provision oftechnical advisory services during the SOFF Investment Phase

## 1. Purpose and scope

These Terms of Reference describe the provision of technical advisory services by *Danish Meteorological Institute* to *Tanzania Meteorological Authority* 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 with support from the Implementing Entity and the peer advisor.
- Submits the funding request for the SOFF Investment Phase using the provided standardized template from the SOFF Secretariat, which includes the Terms of References for the peer advisor's technical advisory services during the Investment Phase.
- Collaborates with the Implementing Entity to provide all necessary information, participate in, and facilitate national activities required for the Implementing Entity and peer advisor to deliver the SOFF Investment Phase outputs.
- Confirms the completion of all Investment Phase activities and provides any necessary comments on the final report prepared by the Implementing Entity.

**Peer advisor**

- Is accountable to both the beneficiary country and the Implementing Entity.
- Is contracted through the WMO pass-through mechanism and operates on a cost-recovery basis.
- Offers technical advisory services to assist beneficiary countries and Implementing Entities in designing and implementing the SOFF Investment Phase activities.
- Participates in the preparation of the final report for the SOFF Investment Phase.

**Implementing Entity**

- Collaborates with the beneficiary country and the peer advisor to prepare the Investment Phase funding request, which includes the Terms of Reference for technical advisory services during the SOFF Investment Phase.

- Manages the Investment Phase activities, following the terms outlined in the funding request, in partnership with relevant national stakeholders, including civil society organizations.
- Ensures the delivery of Investment Phase outputs in terms of quality and timeliness, in coordination with the country and the peer advisor.
- Provides quarterly updates to the SOFF Secretariat using a standardized form and submits annual reports in accordance with the reporting requirements established by the United Nations Multi-Partner Trust Fund Office.
- Informs the SOFF Secretariat of any circumstances that could significantly hinder the implementation of the Investment Phase or result in substantial deviations from the conditions outlined in the funding request needed to achieve its objectives.
- Submits the final report to the SOFF Secretariat, which includes feedback from the beneficiary country and the peer advisors. This final report outlines the institutional arrangements required to ensure the ongoing 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[5]
- 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.

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[5]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.

- 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.

## 3. Peer advisors' activities during the SOFF Investment Phase

The DMI peer advisor activities have been designed to support accomplishment of the objectives of the SOFF National Contribution Plan for Tanzania. The peer advisor activities include:

- Advisory support to tendering process for procurement of Surface Based and Upper Air Stations (technical specification, service contracts, legal considerations, assessment of incoming bids)
- Advisory support to the design and development of data collection and database management systems.
- Advisory support to tendering process for procurement of data collection and database management systems
- Ongoing technical and strategic support to TMA as needed
- Training of TMA senior Management as per NCP description
- Training of TMA Engineers and ICT Staff as per NCP description
- Support to commissioning of Land Based and Upper Air stations
- Project Coordination with TMA and UNDP incl. Bi-monthly project Management meetings and steering committee meetings
- Coordination with SOFF secretariat and WMO technical units
- Audit of DMI SOFF budget as per Danish Government Financial Regulations

The Peer Advisor budget includes allocations for missions for DMI staff to Tanzania to support TMA, for a TMA visit to DMI, in addition to ongoing online support.

The total peer advisor fee is USD 588,941.00.

Should further need for support be required, which is beyond the scope of the peer support activity, DMI may support, but costs should be covered through the budget managed by the IE.

## Annex 5:Cost estimates for TMA in-kind contribution

| S/N | Item | Quantity | Rate (USD) | No. of months | Total (USD) |
|---|---|---|---|---|---|
| 1 | Salaries for Engineers | 13 | 941 | 36 | 440,388 |
| 2 | Salaries for Project Officer and other project experts | 10 | 980 | 36 | 352,800 |
| 3 | Salary for Observers | 48 | 392 | 36 | 677,376 |
| 4 | Running cost (utilities) | 16 | 98 | 36 | 56,448 |
| 5 | Procurement and installation of new 11 AVIMET | 11 | 239,777 | 1 | 2,637,547 |

| | | | | | |
|---|---|---|---|---|---|
| 6 | Procurement and installation of one Upper Air station | 1 | 718,333 | 1 | 718,333 |
| 7 | In kind contribution for activities | 1 | 17,000 | 1 | 17,000 |
| 9 | **Total in kind contribution (TMA)** | | | | 4,899,892 |
| 10 | **Total Funding Request from SOFF** | | | | **9,026,278** |
| **8** | **Total project budget** | | | | **13,926,170** |
| 10 | Ratio of Tanzania contribution | | | | 0.35 |

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