SOFF
Systematic Observations Financing Facility

SOFF Investment phase pipeline

São Tomé and Príncipe

Version: May 2025

Systematic Observations
Financing Facility

Weather
and climate
data for
resilience

UN Multi-Partner Trust Fund Office

General Information

Fund	MPTF_00281: The Systematic Observations Financing Facility					
FMP Record	MPTF_00281_00034: SOFF São Tomé and Príncipe Investment Phase					
MPTFO Project Id						
Start Date						
End Date						
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<table>
<tr><td>Description</td><td colspan="4">São Tomé and Príncipe
(STP), an archipelago in Central Africa, is a Small Island Developing State (SIDS) that gained independence in 1975. The country faces distinct challenges related to weather and climate. Situated on the equator in the Gulf of Guinea off West Africa, STP is especially vulnerable to extreme tropical weather events—such as intense convection and tropical storms accompanied by strong winds and heavy rainfall—which pose significant threats to its coastal zones, population, and the sustainable management of both terrestrial and marine resources.

Although its contribution to global warming is negligible, São Tomé and Príncipe bears a disproportionate burden of its impacts, facing high costs as a result of climate change. To effectively address these challenges, the country requires robust partnerships and sustainable interventions that deliver tangible results, particularly in enhancing institutional capacity. The hydrometeorological sector, responsible for monitoring weather and climate data, plays a pivotal role in supporting both local communities and the global climate system.

STP has been classified since 2024 as an FCS by the WBG, as a result of its high level of institutional and social fragility. A recent wave of migration to Europe has exacerbated this situation, creating a technical and institutional vacuum that affect considerably the project management capacity of the national implementing partners. The INM (National Institute of Meteorology - Instituto Nacional de Meteorologia) is among the weakest institutions in the country, with limited technical (to provide full meteorology services in-country or at regional and global level), managerial and fiduciary capacities.

To close the gaps of services nationally needed and compliance with the Global Basic Observing Network (GBON), support from SOFF is instrumental, strengthening national institutions (through infrastructures, specialized human resources, and strategic management).

Building on the SOFF Readiness phase (GBON National Gap Analysis, Country Hydromet Diagnostic, and National Contribution Plan), this Investment Request specifically targets the NHMS' capacity building towards GBON compliance through:

- Reinforcing INM human resources capacity through improved integration of the institution in public finances, hiring of meteorologists and training of the overall team in operating the weather stations and in sharing data

- Updating the 2 automatic weather station AWS

- Equipping the INM with an Upper Air Station</td></tr>
<tr><td rowspan="2">Universal Markers</td><td>Gender Equality Marker</td><td colspan="3">Risk</td></tr>
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<tr><td>EW4All</td><td colspan="3">Early Warnings for All initial focus countries
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• Yes</td></tr>
<tr><td>Peer advisor</td><td colspan="3">Peer advisor
• Royal Netherlands Meteorological Institute (KNMI) [Netherlands]</td></tr>
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<tr><td>• UNDP - UNDP (United Nations Development Programme (UNDP))
• WMO - WMO (World Meteorological Organization)</td><td colspan="2"></td><td></td><td>UNDP Sao Tome</td></tr>
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Programme and Project Cost	**Participating Organization**	**Amount (in USD)**	**Comments**
	Budget Requested		
	UNDP	$2,642,803.70	inclusive of 7% IE fee
	WMO	$264,280.37	inclusive of 7% WMO indirect cost
	Total Budget Requested	**$2,907,084.07**	
	Tranches		

Tranche 1		Tranche 2		Tranche 3	
UNDP (40%)	$1,057,121.48	UNDP (60%)	$1,585,682.22	UNDP (0%)	$0.00
WMO (33.33%)	$88,084.65	WMO (33.33%)	$88,084.65	WMO (33.34%)	$88,111.08
Total:	**$1,145,206.13**	**Total:**	**$1,673,766.87**	**Total:**	**$88,111.08**

	Other Sources (Parallel Funding)		
	Total	**$2,907,084.07**	
Thematic Keywords			
Programme Duration	**Anticipated Start Date**	01-Sep-2025	
	Duration (In months)	60	
	Anticipated End Date	01-Sep-2030	

Narratives

Title	Text

Close the most significant data gaps

Based on the GBON National Gap Analysis, São Tomé and Principe have only a limited surface and upper air weather observation network.

One Upper Air Sounding (UAS) facility exists, in INM's premises near the airport. It has been assessed as totally obsolete by INM and peer advisor. There is thus the necessity to renew it, with benefits for weather prediction at Gulf of Guinea regional level.

Two Surface Automatic Weather Station (AWS), with WMO-IDs, are located at São Tomé and Principe islands respective airports. As their report cycle is of 6 (São Tomé) and 12 hours (Principe), they fail to comply with GBON required hourly data communication standard (for the 6 weather variables - SLP, T, H, W, P, SD).

Based on the assessment made early 2024 in preparation of the NCP, irregular time series of SYNOP messages are communicated by the two synoptic stations (WMO_IDs 61931 and 61934) to the Congo – Brazzaville WMO - RTH[i] and used for aeronautical purposes. Data are currently transferred to the WMO GTS/WIS via the Congo Brazzaville RTH, using a manual messaging protocol and the MESSIR software.

Targets in the GBON National Gap analyses in June 2023 were set on improving 1 AWS and purchasing 1 UAS. In the perspective of closing the gaps of GBON data, the National Institute of Meteorology upon discussion and recommendation from the peer advisor requested to set the target to updating the two AWS, one located in São Tome Island airport (WMO-ID 61931) and the other located on Principe Island's airport (WMO-ID 61934). This decision aims at addressing the challenges associated to the country's topography (2 distant volcanic islands), where 1 AWS alone could not provide sufficient grid coverage for accurate data compliant with GBON requirements.

Table 1 below summarizes the National GBON Contribution Target (# stations), set by the INM of São Tomé and Príncipe.

Type of station	**WMO GBON Global Gap Analysis, June 2023**				**GBON National Contribution Target**	
	Target	**Reporting**	**Gap**		**To improve**	**New**
			To improve	**New**		
	[# of stations]				**[# of stations]**	
Surface (200km)	**1**	**0**	**1**	**0**	**2**	**0**
Upper-air (500 km)	**1**	**0**	**0**	**1**	**0**	**1**
Marine	*when applicable					

Table 1: GBON National Contribution Target of São Tomé and Príncipe

More specifically, this SOFF investment in equipment would translate into the following targeted results, as set in the Gap Analysis (June 2023):

- ***Spatial Coverage of Surface Observations:*** improve and upgrade the two (2) current WMO-ID Surface AWS to GBON compliance status. These two Surface AWS are located near São Tomé Int'l Airport and on Príncipe Island (at domestic airport). With these two GBON Surface stations, INM and São Tomé and Príncipe as beneficiary country will entirely meet the spatial GBON surface coverage requirement (global 200-km grid), as can be seen from Figure 1a.
- ***Data Communication:*** Install a full WIS2.0 communication node to send data to WMO via the new WMO-WIS2.0 data communication system, using FOSS[1] based data protocols;
- ***Temporal Data Requirement of Surface Observations:*** link the two GBON earmarked and current WMO-ID reporting stations to the WIS2.0 system, and also meet the near real time hourly GBON temporal data requirement for the six reporting variables;
- ***Upper Air Soundings & Observations:*** Renew the Upper Air Sounding facility near São Tomé international airport and retake the sounding practices (twice daily) to meet the GBON requirement.
- ***An additional positive result,*** although not highlighted in the Gap Analysis, will be the improved production and sharing of data production, while increasing motivation and efficiency of limited available staff, who would then be available to perform other/additional expertise related tasks. Indeed, up until now, the existing stations, despite producing hourly data, do not transmit automatically. Transmission is done on a manual basis and has not been happening until the present date, due to communication problems that have not been solved. According to the information received from the INM, staff need adequate training to carry out this important step in

	the report cycle. This should be considered as a risk for the project success and mitigation measures (appropriate training module) shall be put in place from the early stages of the implementation. It is important to note that within the hydromet gap assessment lack of national capacities and the need for ongoing trainings and enhancing the general institutional capacity of the INM was considered to be a corner stone for achieving GBON compliance. In this regard the project will focus on equipment while ensuring investment in training, enhancing and expanding national capacities and creating an awareness on how to better ensure funding sources. [1] FOSS: Free and Open-Source Software based standards and protocols
Target easy fixes	To comply with GBON requirements, the identified target fixes are as follows: • Upgrade the current two WMO-ID Surface AWS to GBON compliance status • Install full WIS2.0 communication node to send data to WMO using FOSS based data protocols, to ensure resilience and continuity of the full data processing chain.Currently, the INM (aviation weather forecast unit at the airport) is using a Corobor MESSIR message handling system to report weather data to the Congo-Brazzaville RTH. Airport weather observation staff (São Tomé International airport and main node) perform this process manually to transfer the standard SYNOP messages to the WMO-GTS/WIS. The Corobor MESSIR message handling system is accommodated to communicate to the new WMO WIS. INM will upgrade the main data storage facility including software updates and a full-fledged installation of the WIS2.0 node at the INM HQs main office (or airport forecast unit, manned by INM staff), and organize training to roll-out the use of WIS2.0Box and integrate this in the current data flow and weather and climate data management systems of INM. • Link the two GBON earmarked and current WMO-ID reporting stations to the WIS2.0 system; Meet the near real time hourly GBON temporal data requirement for the six reporting variables; The purchase and installation of the upper air station hasn’t been presented as an easy fix, considering the level of human and financial investment. The UAS will strengthen the overall meteorological system by adding a set of data for analysis at national and Gulf of Guinea level. The start-up investment and activities needed for the rehabilitation of the UAS site are: • Rehabilitation works of the balloon room/building in accordance with international standards and code of practice (incl. Safety regulations) • H2 (hydrogen) generator and storage; Helium (He) gas cylinders (for back-up) • Ground system hardware/software • Consumables (radiosondes, ballons, strings, etc.) Dedicated staff will be hired to operate this equipment. A meteorologist and IT / Data specialist will be hired through the SOFF Investment phase, while the conditions for employment stability in the INM will be reinforced (legal consultancy to work on the improved integration of the INM in public finances).

Create leverage

	AF	CIF	***CREWS***	***GCF***	***GEF***
Sao Tome and Principe	**-**	**-**	**-**	• UNEP - Reduce STP's vulnerability to climate change impacts by strengthening the Country's capacity to implement an integrated approach to adaptation planning (aka Project NAP – National Adaptation Plan) Project budget: 2,963,978 USD • UNECA - Strengthening the institutional capacities of the African Island States Climate Commission (AISCC) member states to manage climate risks and bolster resilience - RESIslands Project (Regional) Project budget: 700,000 USD (readiness proposal approved for 2023-2026) • FAO Enhance capacities of Sao Tome e Principe in addressing the effects of climate change in key sectors of the Blue Economy. Project budget: 999,315.00 (2023-2026)	• UNEP - Umbrella Programme for Preparation of National Communications (NCs) and Biennial Update Reports • Project budget: 500,000 USD • (2020-2025) • UNDP – Programme Enhance the adaptative capacity to floods and water security in Sao Tome and Principe Project budget: 5,329,452 USD Concept Approved (2024-2028)

Various climate and biodiversity related project are being implemented in São Tomé and Principe, mostly aiming at increasing resilience and adaptation capacity of the archipelago, while protecting its exceptional biodiversity.

Among those, we can list those projects with direct relation to the SOFF Investment proposal, as they contribute to strengthening the overall institutional capacity regarding climate.

- Project WACA (West Africa Coastal Areas management program): this regional project encompassing 17 West African countries, now entering its second iteration, is funded by the World Bank. In Sao Tome and Principe, the contribution of WACA focused on repairing 9 coastal AWS and tide gauges. Additionally, the program installed and trained technicians in using the AmbiDS software which facilitates the collect of data from the different stations. That equipment is the basis of the Early Warning System providing data to the CONPREC (National Coordination of Disaster Risk Management in Sao Tome and Principe). The contractor in charge of installing, updating the stations and gauges, Ambimetrics, will ensure maintenance during the next 4 years.

The SOFF Investment will add the installation of Wis2Box that will allow regional transmission of meteorological bulletins, and the inclusion of sensors that are still missing from the synoptic AWS to be in compliance with GBON.

- Project EWS: Implemented by UNDP between 2013 and 2017, the project included an infrastructure strengthening component that invested in twelve hydrometeorological stations, two synoptic stations, eight automated climatological stations (with long-range transmission and data storage capabilities), and 12 manual stations, along with

workstations. Maintenance was planned throughout the project's lifecycle, and the equipment has since been updated and maintained, initially by the General Directorate of Energy and Natural Resources and more recently through the WACA project.

The EWS project laid the foundation for strengthening the hydrometeorological system in São Tomé and Príncipe. Since its completion, the National Institute of Meteorology (INM) has made significant efforts to maintain the equipment.

Gaps in the system (such as the compliance with the GBON, access to financial resources from diverse sources and encompassing O&M costs, strategic planning, regional integration of the INM) have been identified, and international projects subsequent to the EWS are covering part of those issues.

Among the key contributions from the SOFF Investment are the stronger integration the INM into public financial planning, ensuring better allocation of both public and external funding to meet the institution's needs (e.g. O&M), and the reinforced regional cooperation.

- Project “Reduce STP’s vulnerability to climate change impacts by strengthening the Country’s capacity to implement an integrated approach to adaptation planning” (aka Project NAP – National Adaptation Plan): Under implementation by UNEP and funded by the GCF, the project contributes to building institutional capacities, through investment in training (climate modelling, forecasting) and equipment (workstations).

Other projects such as the FAO Blue economy project (various components focused on building up country’s capacity to channel GCF funding), may not include the INM but will support in their attainment of national relevance and support their advocacy for greater investment and need.

Because they reinforce the infrastructure network (e.g. WACA), the long term national financial capacity for climate action (e.g. FAO Blue Economy), and the overall institutional capacities through national plans (e.g. NAP), the SOFF project will pay particular attention to coordinate with the ongoing climate related projects in STP.

UNDP as a strategic choice for this project implementation: With the implementation of the project PIMS5103 “Strengthening climate information and early warning systems in São Tomé and Principe for climate resilient development and adaptation to climate change (aka EWS), UNDP demonstrated its capacity to support institutions in leading their project, through adequate support to procurement, financial management, as well as through coordination and administrative support.

UNDP’s extensive and long-term presence in the country, reinforcing capacities and supporting project and programmes implementation in the most varied areas of sustainable development position UNDP as a strategic and trustworthy partner for the implementation of the SOFF Investment phase. The access to a global network for sustainable procurement practices, through the Office of Procurement based in Denmark will facilitate the procurement of very specialised equipment, through either existing Long Term Agreements (LTAs) with suppliers or international advertising. The positive partnership with the peer advisor KNMI, add to its comparative advantage as implementing entity. In addition, the SOFF investment phase will be overseen by the Assistant Resident Representative Programs, who accompanied the SOFF Readiness Phase, applying technical expertise in meteorology as well as deep knowledge of the INM and São Tomé and Principe institutions.

Maximize delivery capacity

Implementing Entity: UNDP has been a long-standing supporter of the Democratic Republic of São Tomé and Principe.

The Country Office has supported the development and implementation of various project geared toward building up resilience to climate change and strengthening meteorological capacities. Previous climate projects include for example the “Strengthening climate information and early warning systems in São Tomé and Príncipe for climate resilient development and adaptation to climate change aka EWS” (2013-2017) that aimed at developing the national early warning system.

UNDP São Tomé & Príncipe accompanies national institutions through adapted implementation modalities, from direct implementation (UNDP is fully responsible for project execution), to national implementation (UNDP oversees the project fully implemented by national institutions). The relevant modality is determined by UNDP’s rules and regulation, in particular specific tools such as the Partner Capacity Assessment Tool (PCAT) and the Harmonized Approach to Cash Transfer micro-assessment (HACT) covering the areas of a) Programme management, b) organizational structure, c) accounting policies and procedures, d) fixed assets and inventory, e) financial reporting and monitoring, and f) procurement and contract administration. The risk level resulting from this analysis defines the project implementation and cash transfer modalities (see table below), with FCS states usually falling into the ‘significant’ or ‘high’ risk rating category.

Partner Risk Rating	Cash Transfer Modality	Assurance
Low	Direct Cash Transfers Direct Payments or Reimbursements Combination of 3 CTMs	**Assurance activities:** • Programmatic visits • Spot-checks • Scheduled & special audits
Moderate	Direct Cash Transfers (strong assessed areas) Direct Payments or Reimbursement (weak assessed areas)	
Significant	No Direct Cash Transfers No Reimbursements Direct payments (for some specific areas) à DIM or Full CO support to NIM should be applied	
High	DIM or Full CO support to NIM should be applied	

In the context of the SOFF Investment phase in São Tomé and Principe, based on the INM’s HACT micro-assessment rating and the results targeted by the INM through investment and compliance phase, the implementation modality will be DIM.

To pilot the project, a project management unit will be hired, partly based in the INM, composed of:

- a project manager with expertise in meteorology and conversant in project management, whose main value-added will be stakeholders engagement, where coordination with ongoing projects, mobilization of private sector and civil society, and support to the INM’s upper management in advocating for the institution’s development in Government arena will be crucial
- a project associate (25%) who will ensure financial and administrative processing;
- a communication officer (10%), who will contribute to visibility of the project and of the evolution of the institution, while also supporting stakeholders engagement and promotion of meteorology

This approach will ensure the mitigation of implementation delays that are not uncommon in STP. Based in the INM, the PMU will ensure appropriation of the project and stronger engagement of the entity, while reducing the constraints posed by limited staff number including at upper management level. Indeed, the project will need a strong coordination to mobilize stakeholders, planning and follow-up of trainings effort, and additional push for

integration of the institution in public finances (which is key for the sustainability of the institution and the outcomes of SOFF investment). In its current capacity, INM lacks the resources for this, human resources being one of the most critical gap to the NHMS and GBON compliance. The hire of a project management unit will also ensure and boost the integration of the additional staff members hires expected under the SOFF Investment phase.

Beneficiary /Focal Point:

STP NHMS has benefited from SOFF Readiness phase through which were developed a National Gap Analysis (NGA - 2023), a Country Hydromet Diagnosis (CHD - 2024) and a National Contribution Plan (NDC - 2024).

Results from the NGA and CHD are stark. In all 10 categories assessed by the CHD, INM systematically obtained the lowest ranking, 1 out of 10.

Table 1. Maturity levels for São Tomé and Príncipe (CHD, 2024)

Element	Maturity Level Score
1. Governance and institutional environment	1
1. Effective partnerships to improve service delivery	1
1. Observational Infrastructure	1
1. Data & Product Sharing & Policies	1
1. Numerical Weather Forecast Model and Forecast Tool Applications	1
1. Warning and counseling services	1
1. Contribution to climate services	1
1. Contribution to hydrology	1
1. Promotion and dissemination of the product	1
1. Use and national value of products and services	1

The maturity score of the institute resulting from the Hydromet Diagnostic is low (1), demonstrating the overall limited capacity of the INM and reflecting its FCS status and HACT high risk score.

All three SOFF baseline reports allowed to identify where and how to close the gap for INM to be a functional NHMS compliant with GBON, from institutional to infrastructural perspectives.

The INM, under the line Ministry of Infrastructures and Natural resources, has been granted the status of an administrative and financially autonomous institution, with a special private regime for the staff through the approval of the Law - Decree No. 35/2018. However, this regulation has not yet been implemented. As a consequence, every staff in the INM is in a limbo in terms of salaries and social payments. This contributes to creating a negative perception of the institution for students planning their career path (and representing the potential new blood of the INM), and a form of disengagement of current staff, focusing on aviation forecasting (for now the only relatively stable source of revenues).

The Institute is composed of 28 staff, with 4 meteorologists (only 2 working as meteorologists, the other 2 in managerial functions – 3 of them close to or beyond retirement age), 16 meteorological observers (with basic training and some years of experience) and one ICT officer.

As highlighted in the CHD 2024, (p.11) rating INM 1/10 on the Governance and institutional environment scale, this team structure is insufficient to address the responsibilities of the institution and harness the resources needed to operate and maintain the infrastructure.

Under the National Contribution Plan, INM expects an increase and revision of staff structure, in order to be fully functional

Table 4.2: Desired human resource capacity (by INM-STP) – NCP 2024, p.27

Staff functions	Actual #	Recommended	Desired
Meteorology	4	+ 2	6
Hydrology/oceanography	0	+ 1	1
Climate Services / Air quality	0	+ 2	2
Agro-hydrometeorology	0	+ 2	2
ICT specialists	1	+ 3	4
Weather Observer / Meteorological Technician	16	+ 4	20
Geophysics	0	+ 1	1
Administrative/support	7	+1	8
Totals	28	+14	44

As stated in STP's Country Hydromet Diagnostic, the NHMS functions with a very limited budget of around EUR 54. 944,15.0€, 83% of which comes from its services to the aviation sector (ENASA). This budget only allows to pay salaries, but hardly any maintenance or investments in the infrastructure.

The INM has an ongoing partnership with ENASA (Empresa Nacional de Aeroportos e Segurança Aérea), the National Airports and Air Security Company to which INM provides civil aviation meteorological observation services, from which it derives most of its budget used to pay the institute's salaries (95%).

Other existing partnerships target data collection for the hydrological and disaster management. They include:

- the INA (National Water Agency), supervised by the National Direction for Natural Resources and Energy (DGNRE)[1]. The INA operates hydrometrical stations, and shares with INM the associated data.
- the National Council for Disaster Preparedness and Response (CONPREC - Conselho Nacional de Preparação e Respostas às Catástrofes), that gets information from INM, for early warning information to the general public.

The Institute is the Focal point for WMO for São Tomé and Principe, and also hosts the national focal point for UNFCCC.

Despite partnerships with the UN (UNEP/UNDP/WMO), and services provided to public institutions (ENASA, CONPREC, INA), the INM is a relatively isolated institution with limited budget from the Government and low payments for its services to the aviation sector, creating instability in the remuneration of its staff and in the institution's capacity in strengthening its human resources and infrastructure in a systematic manner.

By targeting better integration of the INM in public finances (through support to implementation of the Law - Decree No. 35/2018 through a legal consultancy at the beginning of the project) and reinforcing GBON specific infrastructure (UAS, and synoptic AWS), the SOFF Investment phase will ensure that the NHMS turns compliant with the GBON requirement, and builds in sustainability of its work (through stronger engagement of staff and opening of perspective for new comers, thanks to an enforced legal and financial framework).

[1] DGNRE: Directorate General of Natural Resources and Energy

Sub-regional gains	Although the organization has been engaging with WMO Regional Office in Africa, and through this coordination benefits from support (e.g. ongoing consultancy on the development of the INM strategic plan; Support with transmission of data internationally; ; development of a proposal to AfDB Climate Action Window), INM has currently (2023-24) no immediate direct cooperation in joint meteorological observations with the national meteorological services of neighboring countries i.e., Gabon, Equatorial Guinea, Cameroun, Nigeria, other countries. No cross-border (bilateral or multilateral) cooperation agreements for exchanges of weather information and warnings with neighboring countries seem to exist. Still, as a recommendation expressed in the National Contribution Plan, regional cooperation will play an important role in infrastructure management. Indeed, while re-calibration of equipment would be made by national maintenance teams during their quarterly preventive maintenance rounds on GBON earmarked stations, when anomalies and / or mal-functioning is detected of the GBON Surface AWS, instruments would be sent for inspection and (re-)calibration at one of the RA-1 WMO RIC or Regional Instrument Centres e.g., Nairobi (Kenya), Casablanca (Morocco) or e.g., IPMA (Portugal). For language issues a/o eventual trainings in this respect, the Portuguese national weather service could be useful. The equipment manufacturers will also be involved in designing an equipment maintenance and (re) calibration programs. The INM will cooperate closely with the peer-advisor on maintenance and calibration aspects where needed. Aside from RA-1 WMO and Regional Instrument Centers (RIC), INM considers a marine observation network as important to explore further in a regional context. Investigating cooperation opportunities in the field of collaborative weather maritime observations with neighboring countries e.g., with adjoining EEZ (Extended Economic Marine Zones) with support of international knowledge partners, will be a major focus. INM will engage with SOFF/ GBON counterparts at regional and international levels through regional meetings, partner study visits (e.g., locations and countries, to be decided, e.g., Gabon, Cameroun, a/o PALOP[1] countries: Angola, Brazil, Mozambique, Cabo Verde, Guinee Bissau) or other. [1] “Paises (Africanos) de Lingua Oficial Portuguesa- African Portuguese-speaking countries”

SOFF Beneficiary Country Capacity Assessment

The INM, in the past known as the Meteorological Service of São Tomé and Príncipe, was created in 1950 and transformed into the INM in 1979. The INM is now under the supervision of the Ministry of Infrastructure and Natural Resources (MIRN). INM's legal statute was approved by Law Decree No. 10/2012[1], and its main attributions are:

- to maintain and develop the national meteorological, seismological and air quality information and surveillance systems, issuing severe weather warnings to public and private entities;
- ensure the provision of services in the fields of meteorology, seismology and air quality to the different national and international socio-economic agents,
- promote and ensure study and training at national and international level in the fields of meteorology, seismology and air quality. In terms of air quality, the INM currently does not do any monitoring, although it is mentioned being their mandate.

Currently, INM is the only operator and authorized government institution for acquiring meteorological observations with potential to support GBON.

INM does neither receive nor relies on the aid of international donors and/or projects for its main annual operating budget. Aviation and aeronautical meteorological services cover 83.4% of the annual budget through ENASA (National Company for Airports & Air Traffic & Navigation Safety – STP). Budget is therefore consequently mainly used for aeronautical forecasting purposes (staff salaries). Direct funding from the government is only 16.6%. About 5.3% of private revenues are allocated to small maintenance of equipment.

As a consequence of this heavy reliance on ENASA's payments, INM is in a situation of high vulnerability, with a budget as low as *1,346.131.72* dobras (equi. EUR 54. 950 €), used almost totally (approximately 95%) for staff payroll (as indicated in CHD, p. 11).

INM's human resources base consists of a total of 28 employees[1] (January 2024). The gender ratio of staff is 8 women to 20 men.

	# of Staff	Category	Training
	4	Meteorologist (only 2 working as meteorologists)	Higher level in Meteorology
	16	Meteorological Technician / Observer	Various levels (classes) of meteorological training
	1	ICT Technician – Station Operation & Maintenance	Average level of meteorology and informatics
	2	Administrative assistant*	---
	1	Driver	---
	4	Cleaning**	---
	Total: 28		

Despite, very limited human resources and financial capacities, STP's national institute of meteorology gained over the years significant experience in cooperation in international hydromet-type projects, with financing or project implementation partners e.g., UNDP (project EWS), World Bank (project WACA) and others. Almost the entire AWS network is financed by external cooperation projects.

Other actors, though, are equipped with local weather monitoring equipment, tailored to their specific needs. Among those, were identified:

- Agripalma, oil palm estate in the South of São Tomé Island, operates its own AWS
- INA (National Water Institute) of the DGNRE (General Directorate of Natural Resources and Energy) operates a network of 12[1] hydrometrical flood monitoring stations. These stations are also equipped with AWS. Data are shared with the INM through GSM/GPRS.

In the national meteorological framework, CONPREC (National Coordination for Preparedness and Disaster Risk Reduction), plays a key role in disseminating weather information and early warnings to the general public and local communities. The country has already adopted a Disaster Risk Management (DRM) governance system for prevention, preparedness, emergency response and recovery (ref. Law Decree 17/2011 on Natural Disasters[1]). The system is based on collaboration and partnerships between institutions to facilitate the effective implementation of disaster risk-relevant measures through CONPREC. And obviously, the proper functioning in INM in this context is fundamental, to adequately complement INA and CONPREC's work.

	Results of the SOFF Readiness phase allowed to determine a baseline on which the INM can build its development pathway. The GBON National Contribution Plan and Country Hydromet Diagnostics helped informed where to invest and to start drafting an action plan for enhanced meteorological capacities in São Tomé and Principe. The increasing impacts of climate change, threatening the population and hampering economic opportunities require an accelerated coordinated improvement of the national meteorological system. Although the SOFF investment phase focuses on compliance with GBON, in practice it will create additional results as it reinforces infrastructures, supports institutional reform and strengthens overall capacity through specialized human resources, key to respond to increasing need for accurate and systematic meteorological information countrywide, and at regional and international level. The project will articulate with and build upon other hydromet-type projects, past and ongoing, resulting in synergies covering the overall needs for support of the INM. [1] "Diário da República", 24 May, 2011. Gvt. Decree #17. Creation of CONPREC. https://www.fao.org/faolex/results/details/en/c/LEX-FAOC121605/ (in Portuguese). [1] Hydrometric stations were installed by the UNDP DP Early Warning System project (2013-2017) with 11 monitoring stations on São Tomé and 1 hydrometry station on Príncipe Island [1] Source: National Institute of Meteorology (INM), Jan, 2024. [1] "Diário da República", 21 May, 2012. Gvt. Decree #10. Approval of legal statute of INM https://faolex.fao.org/docs/pdf/sao118129.pdf (in Portuguese). [2] "Diário da República", 10 Nov, 2018. Gvt. Decree #35. INM employee legal status (in Portuguese).
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 have been identified.
Execution model and implementation arrangements	UNDP will be the Implementing Entity (IE) for the Project. Considering the results of the 2024 HACT micro-assessment where the risk rating for the National Institute of Meteorology was High, UNDP's Direct Implementation Modality (DIM) will be used to implement this project. Under DIM, UNDP STP is responsible for the implementation, financial management, evaluation, reporting and closure of the activities of the project. A key feature of this modality is the contracting of a Project Management Unit (PMU) that will be based at the INM premises, working hand in hand with the INM existing team and supporting the integration of the new INM members. Considering the low internal capacity of the INM and the complexities of the project, the PMU, led by an international technical expert is crucial for the success of the project. The INM is the beneficiary focal point of SOFF support in Sao Tome and Principe. Its technical and human resources capacities will be reinforced throughout the project life. The KNMI, as peer-advisor, will provide advice and analysis to support INM and implementing activities especially under outcome 2 and 3. A project board meeting will be convened at least once a year. Its core members will be the INM, UNDP, Ministry of Infrastructures and Natural Resources – DGRNE, and Ministry of Environment, Youth and Sustainable Tourism - Directorate of Environment and Climate Change - DAAC.

Private sector involvement	The financial capacities of INM to carry out GBON compliant operations are very restricted, consisting of very limited governmental funding. INM is currently developing a strategic plan, to establish a development trajectory for the period 2025-2030 which will include the necessary institutional framework to support GBON implementation. Beside infrastructure improvement, this project includes a round of private sector engagement workshops where public-private partnerships will be discussed and developed, integrating a larger array of socio-economic sectors in Sao Tome and Principe i.e., agriculture, water, energy, environment, tourism and maritime sectors. Indeed, apart from an agreement with the public company ENASA for the civil aviation sector, there are currently no formal agreements with the private sector, despite interest and opportunities to collaborate. Limitations to develop public-private partnerships include availability of potential partners and private sector operators, required qualifications, responsibility and liabilities, adequate business models, legal aspects, terms of reference, financial and funding issues, risk management, etc. The INM not being yet accustomed with these management processes and models, it will first focus on building its capacity on the matter, including the screening and evaluation process of possible institutional and business models for the institute, applicable in the national context of STP.
Civil society participation	The first activities to be implemented in the project are geared toward civil society and public institutions engagement. The project proposes to inform and raise awareness about the importance of meteorology both locally and globally, and the possibility for individuals, institutions and CSO to engage in data collection through, for example, the Triple Sensor collocation approach. Following the project's Inception Workshop, it is expected to define the approach and to obtain CSO commitment to the cause. In the sequence of that engagement, at least one meeting per year will be organized for capacity-building, coordination and trouble-shouting. The recommendation is to cooperate closely with Ministry of Health, the Ministry of Agriculture, Rural Development and Fisheries, and the Directorate of Environment and Climate Action, due to the increased attention of health and heat waves and extreme weather events in STP. Public facilities such as health posts or schools, that are situated throughout the national territory, can be used as citizen observation sites, to monitor surface temperature, humidity and rainfall, among others. Since the genesis of climatological observation in STP came from former "Rocas" today owned mainly by CECAB (Cooperativa de Produção e Exportação de Cacau Biológico - Organic Cocoa Production and Export Cooperative), this organization should be involved in the project as partner from CSO. In order to further develop the strategy and upscale CSO inclusion, this proposal includes an investment for stakeholder consultation and mobilization for developing this original weather monitoring strategy with partners, through a round of meetings especially at the beginning of the project, then followed by monitoring and capacity-building annual gatherings. The stakeholders' engagement also has a strong focus on increasing the institute's visibility among Government partners. Indeed, so far, other institutions have a limited understanding of the interest of the meteorology sector for the development of their own activities and of the role that the INM can and should play both globally and locally. To build up this understanding and generate partnerships and synergies, this proposal plans a round of workshops throughout the project, as well as a communications campaign, covering key issues, such as the cooperation between the INM and the Ministry of Education and international education actors; how to better coordinate data collection and sharing between INM and agriculture, fisheries and tourism actors, and how INM contributes to and benefits from the development of the blue economy at national and regional level.

Fiduciary systems	In respect of the INM's HACT micro-assessment (June 2024), rated High risk, and the orientations from the SOFF operational manual, the most adequate implementation approach would be UNDP's Direct Implementation Modality (DIM), where UNDP Sao Tome is responsible for the implementation of activities, and for fiduciary and procurement management. UNDP will deliver the activities and use resources efficiently and appropriately throughout the implementation period, while building up their skills and stakeholders' coordination toward the SOFF compliance phase. UNDP will prepare a Project Document (PRODOC), to be approved and signed by INM, that outlines the work schedule during the implementation phase and the budget allocated for each activity, as approved by SOFF. It will outline the monitoring and evaluation mechanisms to be followed, as well as implementation arrangements. The roles of participating entities, including beneficiaries and national institutions related to the project's objectives will be specified. UNDP will receive funds from MPTF per UNDP Rules and Regulations (https://popp.undp.org/document/operating-guidelines-mptf-projects-implemented-undp-countryoffices) ensuring mechanisms for reporting and tracking of financial resources. To implement any partnership, UNDP ensures that clear and robust fiduciary arrangements are in place before the implementation starts. These include financial management and procurement aspects which enable transparency, accountability, and effectiveness in the utilization of funds mobilized. With regards to the funding allocated to the peer-advisor, it would be preferable that SOFF transfers the funds directly to the KNMI.
Social and environmental safeguards	Based on the UNDP Social and Environmental Standards policy, safeguards will be designed and implemented in line with the following objectives: • Strengthen the quality of programming by ensuring a principled approach • Maximize social and environmental opportunities and benefits • Avoid adverse impacts to people and the environment • Minimize, mitigate, and manage adverse impacts where avoidance is not possible • Strengthen UNDP and partner capacities for managing social and environmental risks • Ensure full and effective stakeholder engagement, including through a mechanism to respond to complaints from project-affected people. To ensure compliance of the project with UNDP SES standards, a social and environmental safeguards screening procedure will be carried out at the beginning of the project, to refine the analysis of risks and mitigation measures associated with this project and inclusion of CSOs, more specifically. Environmental and sustainability considerations will be included in procurement process, as a selection criterion for suppliers. This will enable UNDP and INM to consider opportunities for environmentally sustainable procurement options, ensuring instruments do not contain toxic substances, and careful use of batteries to reduce toxic waste. As part of UNDPs Social and Environmental Safeguard's policy, an Environmental and Social Management Plan will be developed considering local conditions and approaches to minimize the environmental and social impacts of the construction activities. In addition, particular attention will be given to gender balance throughout the project, to further promote and empower women in weather observations, climate services and the SOFF process. In all foreseen and recommended capacity development actions, participation of female personnel and gender equality will be actively pursued. This includes women participation in international exchanges, training and study visits e.g. at WMO-RIC, peer-advisor a/o other centers. In its recruitment process for services and personnel, INM will actively seek to attract female labor force, and aim towards increasing its current gender 30:70 ratio towards a 40:60 and ideally a 50:50 balance. Women's participation will also be promoted (e.g. using where needed local sensibilization mini-workshops) in the work area of "improving observing networks". Here INM is relying on local governmental or private partners, for service agreements or contracts. INM also foresees and will further pursue empowerment of women from CSO's in the participatory 'Triple Sensor' observation approach and information gathering chain.

Dispute resolution mechanism	As Stakeholders engagement activities (particularly, CSO and gender engagement activities) initiate, a Grievance and Redress Mechanism will be developed for the project, based on UNDP's social and environmental policy and project level standards. Initiating from the GBON National Contribution Plan and analysis of stakeholders, a stakeholder analysis and gender-responsive engagement plan, and a grievance mechanism will be developed. UNDP's standard for designing a Grievance and Redress mechanism aims at allowing for stakeholders who may be adversely affected by a project to communicate their concerns about the social and environmental performance of the project through various entry points, scaled appropriately to the nature of the activity and its potential risks and impacts. Potentially affected stakeholders are informed early on about available entry points for submitting their concerns as part of the stakeholder engagement process. The mandate and functions of a project-level grievance redress mechanism could be executed by the Project Board or through an implementing partner's existing grievance redress mechanisms or procedures for addressing stakeholder concerns. Where needed, UNDP and implementing partners will strengthen the implementing partners' capacities to address project-related grievances. In addition, UNDP's Stakeholder Response Mechanism is available to project stakeholders as a supplemental means of redress for concerns that have not been resolved through standard project management procedures. Project-level grievance redress mechanisms and UNDP's Stakeholder Response Mechanism address concerns promptly through dialogue and engagement, using an understandable and transparent process that is culturally appropriate, rights-compatible, and readily accessible to all stakeholders at no cost and without retribution. They are gender- and age-inclusive and responsive and address potential access barriers to women, the elderly, persons with disabilities, youth and other potentially marginalized groups as appropriate to the project. The grievance mechanism and Stakeholder Response Mechanism do not impede access to judicial or administrative remedies as may be relevant or applicable. UNDP seeks to identify, reduce and address the risk of retaliation and reprisals against people who may seek information on and participation in project activities, express concerns and/or access project-level grievance redress processes/mechanisms or UNDPs Stakeholder Response Mechanism or Social and Environmental Compliance Unit.
Additional relevant policies and procedures	As part of the Secretariat, UNDP follows UN policies, rules and regulations.

SDG Targets

Target	Description
Main Goals	
Goal 13. Take urgent action to combat climate change and its impacts2	
TARGET_13.1	13.1 Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
TARGET_13.2	13.2 Integrate climate change measures into national policies, strategies and planning
TARGET_13.3	13.3 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
TARGET_13.b	13.b Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalized communities
Secondary Goals	
Goal 5. Achieve gender equality and empower all women and girls	
TARGET_5.5	5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life

SDG Indicators

Indicator Code	Description
C200304	13.1.2 Number of countries that adopt and implement national disaster risk reduction strategies in line with the Sendai Framework for Disaster Risk Reduction 2015–2030
C130b01	13.b.1 Number of least developed countries and small island developing States that are receiving specialized support, and amount of support, including finance, technology and capacity-building, for mechanisms for raising capacities for effective climate c

Contribution to SDGs

Participating Organization	% TARGET_13.1	% TARGET_5.5	% TARGET_13.2	% TARGET_13.3	% TARGET_13.b	% Total
UNDP	12	18	1	67	2	100
WMO	0	0	0	100	0	100
Total contribution by target	**12**	**18**	**1**	**167**	**2**	
Project contribution to SDG by target	**6**	**9**	**0.5**	**83.5**	**1**	**100**

List of documents

Document	Document Type	Document Source	Document Abstract	Document Date	Classification	Featured	Status	Modified By	Modified On
Annex 4 Peer Advisor terms of Reference.docx	Other Docs	Project		18-Oct-2024	Internal	No	Finalized	sophia.mauline@undp.org	24-Oct-2024 6:19:43 AM
NCP_STP_v3.0.docx	Other Docs	Project		24-Sep-2024	External	No	Finalized	sophia.mauline@undp.org	24-Oct-2024 6:17:29 AM
CHD_STP_v1.0_allcomments_final.docx	Other Docs	Project		09-Jul-2024	External	No	Finalized	sophia.mauline@undp.org	24-Oct-2024 6:12:58 AM

Project Results

Outcome	Output	Description
1. GBON institutional and human capacity developed		
	1.1 National Consultations conducted	National consultations including with CSOs, and other relevant stakeholders conducted.

Outcome	Output	Description
	Activities	

Title	Description	Lead Participating Organization	Participating Organization	Other Organizations
Inception workshop		UNDP - UNDP (United Nations Development Programme (UNDP))	• WMO - WMO (World Meteorological Organization)	National Institute of Meteorology, CSO, representatives of Sao Tome and Principe's Government Private sector
Serie of Awareness raising workshops for public institutions, CSO and private sector engagement in weather and climate to increase understanding on the role of the INM in STP		UNDP - UNDP (United Nations Development Programme (UNDP))		National Institute of Meteorology, CSO, representatives of Sao Tome and Principe's Government
CSO consultations throughout the country and capacity-building and follow-up meetings for CSO on triple sensor approach throughout the project		UNDP - UNDP (United Nations Development Programme (UNDP))	• WMO - WMO (World Meteorological Organization)	National Institute of Meteorology, CSO
Organization of stakeholders and private sector engagement workshops focused on business model design and implementation		UNDP - UNDP (United Nations Development Programme (UNDP))		National Institute of Meteorology, Private Sector, Peer-advisor
Gender Plan action consultations and workshops (2)		UNDP - UNDP (United Nations Development Programme (UNDP))		National Institute of Meteorology, CSO, representatives of Sao Tome and Principe's Government

	1.2 NMHS institutional capacity developed	NMHS institutional capacity required to operate the GBON network developed, and project management unit established.

Outcome	Output	Description

Activities

Title	Description	Lead Participating Organization	Participating Organization	Other Organizations
Establish regional partnerships by participating in activities and workshops targeted for Atlantic SIDS.		UNDP - UNDP (United Nations Development Programme (UNDP))		National Institute of Meteorology
Application of the INM legal framework within public finances to ensure salary security for staff, including equal access to employment for women at the meteorological institute	Hiring of a consultant (jurist) to support integration of meteorology in public finances (to work with Ministry of Finances, Public administration, Court of Auditors, and Ministry of Infrastructures)	UNDP - UNDP (United Nations Development Programme (UNDP))		National Institute of Meteorology
Purchase of vehicle for in-country mobility to facilitate liaison with stakeholders around the different districts		UNDP - UNDP (United Nations Development Programme (UNDP))		National Institute of Meteorology

Outcome	Output	Description			
	Establishment of project management unit	Project management Team: Recruitment of an international technical assistant/project manager 100% Project associate 50% Communication officer 10% Project management Unit: In Year 1, only 6 months of salaries covered to take into account possible recruitment/ inception delays Project Manager has to be a specialist in environmental/climate -meteorology science, but overall an expert manager (project with various stakeholders, international and regional contacts, within a weak institution that targets important growth in a relatively short time) Project associate contributes to adequate administrative and financial management. Communication officer is tied to the CO, and only 10% of her salary is charged to this project. The communication officer will play a key role in the promotion of project's outcomes and in mobilizing stakeholders, thus contributing to creating the conditions for sustainability of project's impact Project Audit Communication costs (Internet and SIM) Mobility lump- sum Furniture for the INM staff and the project team+ admin supplies	UNDP - UNDP (United Nations Development Programme (UNDP))		National Institute of Meteorology
	1.3 NMHS human capacity developed	NMHS human capacity required to operate the GBON network developed.			

Outcome	Output	Description

Activities

Title	Description	Lead Participating Organization	Participating Organization	Other Organizations
Recruitment of 4 INM staff	Reference is made to the Investment phase costs again (NCP, 2024), listing 4 additional staff Table 4.9: SOFF technical personnel capacity requirements and personnel cost for UAS& AWS operation and maintenance - 1 (One) meteorologist (UAS sounding qualified) - 2 (two) meteo-technicians for O&M (UAS/AWS) (*values are just estimate for rough cost) Table 4.10: SOFF technical personnel capacity requirements and personnel cost for ICT – CDMS & DR (5-year, with inflation correction, etc. a> One (1) ICT technician for data communication and database technology (1) In terms of costs, either we hire those staff through the INM regulation (see Decree-law 35/2018, of 19 dezember 2018), which states the salaries per role. To note that integrating inflation and other costs, we may reach 1500/month, at least for meteorologists. During first year, only 6 months of salaries are costed to take into account the possibility of delays in the hiring process.	UNDP - UNDP (United Nations Development Programme (UNDP))		National Institute of Meteorology

Outcome	Output	Description			
	Training courses and CD support program (5-years)	The training costs are extracted from NCP 2024 (estimate investment costs): 1 Table 4.8: Training courses and CD support program (5-years) a> Meteorological Technicians (O&M SOFF infrastructure), -50K USD b> UAS - Upper Air Sounding training - 50K USD c> ToT (Training of Trainers) - 50K USD d> ICT Data Communication, WIS2Box - 100K USD e> Climate Data Management Systems, databases, - Covered by project NAP f> CDMS / Data Rescue / Quality Control (QC). - 50K USD Table 5.2: Training in QMS (quality management systems) applications for meteorological sector 25k$ Those baseline trainings aim at reinforcing the capacity to operate the UAS (starting from installation in year 3), and collect data from AWS (starting from year 1-2).	UNDP - UNDP (United Nations Development Programme (UNDP))	• WMO - WMO (World Meteorological Organization)	National Institute of Meteorology
2. GBON infrastructure in place					
	2.2 Improved land-based stations in place.	Improved land-based stations and related equipment, ICT systems, data management systems and standard operating practices in place.			

<table>
<tr><th>Outcome</th><th>Output</th><th>Description</th></tr>
<tr><td></td><td colspan="2">Activities
<table>
<tr><th>Title</th><th>Description</th><th>Lead Participating Organization</th><th>Participating Organization</th><th>Other Organizations</th></tr>
<tr><td>GBON AWS stations (2) improvement</td><td>The GBON compliant AWS is recommended to improve (where needed and as per state of equipment at the time of project's implementation) existing AWS with civil infrastructure (e.g., electricity, wind mast, etc.) that is reusable or has environment friendly maintenance. With scheduled preventive maintenance and calibration, the lifecycle of sensors will be lengthened as long as appropriate. Solar renewable energy will be used (and in several cases is already used for AWS power supply in STP as appropriate.

Field calibration equipment

ICT hardware

4 workstations (computers, software)</td><td>UNDP - UNDP (United Nations Development Programme (UNDP))</td><td>• WMO - WMO (World Meteorological Organization)</td><td>National Institute of Meteorology</td></tr>
</table></td></tr>
<tr><td></td><td>2.3 New upper-air stations in place.</td><td>New upper-air stations and related equipment, ICT systems, data management systems and standard operating practices in place.</td></tr>
</table>

Outcome	Output	Description

Activities

Title	Description	Lead Participating Organization	Participating Organization	Other Organizations
New Upper-Air Station UAS Renewal, consumables	Purchase of new UAS - This value corresponds to new UAS, manual (or semi-automatic) in current market, based on similar proposals, with 1-year warranty + Consumables for first year of operation Table 3.5 gives the investment requirement and an indicative cost estimate of the UAS upgrade # Item/activity Quantity Unit price Cost estimate (USD) 2 H2 hydrogen generator & storage 1 3 H2 hydrogen storage tank, piping, valves, 1 4 Ground monitoring system hard-/software - Upper-air Ground System - UPS and Desktop PC 1 5 Ground System lease contract for 5-years 1 (5-yr) 6 Consumables: Balloons 400 p.a. for 5-yrs 7 Consumables (radiosondes) 400 p.a. for 5-yrs 7 Helium gas cylinder (backup) 1 per yr. 8 Shipping and transportation (to Sal) Per shipment 9 Import duties, customs clearance Per import	UNDP - UNDP (United Nations Development Programme (UNDP))	• WMO - WMO (World Meteorological Organization)	National Institute of Meteorology

Outcome	Output	Description			
	Reconstruction of the upper-air balloon shed	Rebuilding of the UAS site will also be required, including implementation of safety measures (gas storage etc.), related to UAS operation. The technical and local assessment (Feb and Oct,, 2024) of the Upper-air site, indicated that nothing is left over of the old UAS site. The plan therefore envisages the total renewal and rehabilitation of the balloon room and building in accordance with int'l standards and code of practice (incl. Safety regulations)	UNDP - UNDP (United Nations Development Programme (UNDP))		National Institute of Meteorology
3. Sustained compliance with GBON					
	3.1 GBON land-based stations commissioning period completed.	GBON land-based stations' commissioning period completed, country-specific standard cost for operations and maintenance established, and data sharing verified by WMO Technical Authority			

Activities

Title	Description	Lead Participating Organization	Participating Organization	Other Organizations
Procurement of sensors and spare parts for equipment maintenance Preventive maintenance	Improvement of AWS needs to have a warranty associated to it that will cover the first year (Y2) of preventive maintenance (as per other countries existing practices); starting from Y3, full costs for maintenance will apply	UNDP - UNDP (United Nations Development Programme (UNDP))	• WMO - WMO (World Meteorological Organization)	National Institute of Meteorology
Local technical assistance services, local expenditures and communication costs		UNDP - UNDP (United Nations Development Programme (UNDP))		National Institute of Meteorology

	3.2 GBON upper air stations' commissioning period completed.	GBON upper air stations' commissioning period completed, country-specific standard cost for operations and maintenance established, and data sharing verified by WMO Technical Authority.

Outcome	Output	Description			
	Activities				
	Title	**Description**	**Lead Participating Organization**	**Participating Organization**	**Other Organizations**
	Procurement of consumables (radiosondes and balloons) Back up helium cylinder	Purchase of UAS in first half of Y3 to come with purchase of consumables for a full year and warranty services. But we expect the necessity to purchase consumable in first half of Y4	UNDP - UNDP (United Nations Development Programme (UNDP))	• WMO - WMO (World Meteorological Organization)	National Institute of Meteorology

Signature Indicators

Indicator Title	Component Title	Description	Means of Verification	Category	Cycle	Scope	Value Type	Baseline Value	Baseline Year	Target Value	Target Year	Linked Outcome / Output
No signature indicators available.												

Imported Fund Outcome / Output Indicators

Indicator Title	Component Title	Description	Means of Verification	Category	Cycle	Scope	Value Type	Baseline Value	Baseline Year	Target Value	Target Year	Linked Outcome / Output
Number of land-based stations improved		Number of stations as defined in the National Contribution Plan.	Progress updates/Annual or quarterly reports	Investment	At closure	Country	Number	0	2025	2	2030	
Number of new upper-air stations installed		Number of stations as defined in the National Contribution Plan.	Progress updates/Annual or quarterly reports	Investment	At closure	Country	Number	0	2025	1	2030	
GBON land-based stations' commissioned		Number of stations as defined in the National Contribution Plan.	Progress updates/Annual or quarterly reports	Policy	At closure	Country	Number	0	2025	2	2030	
GBON upper air stations' commissioned		Number of stations as defined in the National Contribution Plan.	Progress updates/Annual or quarterly reports	Policy	At closure	Country	Number	0	2025	1	2030	

Project Indicators

Indicator Title	Component Title	Description	Means of Verification	Category	Cycle	Scope	Value Type	Baseline Value	Baseline Year	Target Value	Targe Year
1. Number of inception workshops conducted		Project inception workshop including relevant stakeholders from public institutions, private sector and CSO	Attendance list; Pictures;	Capacity	At closure	Country	Number	0	2025	1	2030
	% of women participants to the project's inception workshop	Share of women in the total number of participants in workshops held from inception, CSO, public institutions and to private sector encounters	Attendance lists Pictures	Capacity	Yearly	Country	Percentage	0	2025	40	2026
	Gender Action Plan designed	Result of the 2 consultation meetings planned in the project with CSO, INM and other relevant Government representatives (e.g. the Institute for Gender) and academia (e.g. USTP)	GAP Consultations attendance list and minutes Pictures	Beneficiaries	Yearly	Country	Yes/No	0	2025	yes	2026

Indicator Title	Component Title	Description	Means of Verification	Category	Cycle	Scope	Value Type	Baseline Value	Baseline Year	Target Value	Targe Year
2. Number of stakeholder engagement workshops on public institutions, CSO and private sector engagement in weather and climate (awareness raising) conducted			Attendance list; Pictures;	Capacity	Yearly	Country	Number	0	2025	4	2025
	% of women participants in the project's workshops, seminars,	Share of women in the total number of participants in workshops held from inception, CSO, public institutions and to private sector encounters	Attendance list; Pictures;	Capacity	Yearly	Country	Percentage	0	2025	40	2030
3. % of stakeholders who acquired new knowledge of gender-based issues related to meteorology sector and climate change impact		At the occasion of stakeholder engagement workshop, at least one event should discuss the issue of gender sensitivity to climate change and challenges related to female employment in the meteorology sector	Event concept note; End of workshop survey; Attendance list; Pictures	Capacity	At closure	Country	Percentage	0	2025	60%	2030

Indicator Title	Component Title	Description	Means of Verification	Category	Cycle	Scope	Value Type	Baseline Value	Baseline Year	Target Value	Targe Year
	% of female stakeholders who acquired new knowledge of gender-based issues related to meteorology sector and climate change impact		Event concept note; End of workshop survey; Attendance list; Pictures	Capacity	At closure	Country	Percentage	0	2025	40	2030
4. Number of stakeholders engagement workshops targeting private sector and public institutions to build up awareness about meteorology, the INM, and to develop public private partnership(s)			Concept note; Attendance list; Workshop report	Capacity	Yearly	Country	Number	0	2025	3	2030
	No components available.										
5. Number of regional activities and workshops attended.		Participation of INM representatives in regional events targeting the establishment of regional partnerships in the meteorology sector in STP	Mission reports; Pictures	Capacity	Yearly	Country	Number	0	2025	5	2030

Indicator Title	Component Title	Description	Means of Verification	Category	Cycle	Scope	Value Type	Baseline Value	Baseline Year	Target Value	Targe Year
	Number of women participants in regional network building events	Number of female INM staff indicated to participate in regional events targeting the establishment of regional partnerships in the meteorology sector in STP	Mission reports; Pictures;	Capacity	At closure	Country	Number	0	2025	1	2030
8. Application of the INM legal framework within public finances to ensure salary security for staff, including equal access to employment for women at the meteorological institute		The jurist consultancy for improved integration of the INM in public finances is successful.	Staff survey indicating regular and full salary treatment	Policy	Every two years	Country	Yes/No	No	2025	Yes	2030
	No components available.										
6. Number of staff employed through the project		Confirmation that the project hired all 4 staff planned for the INM - excluding PMU	Contracts signed; Project financial report	Capacity	Every two years	Country	Number	0	2025	4	2030
	Share of women hired by the project	excluding PMU Demonstration is made that gender equality was encouraged in the procurement process	Contracts signed;	Capacity	Every two years	Country	Percentage	0	2025	40	2030

Indicator Title	Component Title	Description	Means of Verification	Category	Cycle	Scope	Value Type	Baseline Value	Baseline Year	Target Value	Targe Year
7. Number of trainings benefiting to meteorologists and technicians to build up their capacity to collect, analyze and share data; to manage the AWS and UAS			Attendance list; Pictures; End of training knowledge check	Capacity	Yearly	Country	Number	0	2025	6	2030
	Share of women trained who acquired new knowledge or skills, including in relevant technology use	Among the INM technical team, share of women benefiting from training implemented for this project	Attendance list; Pictures; End of training knowledge check	Capacity	Every two years	Country	Percentage	0	2025	100	2030
8. Number of meetings held for consultation and training of CSO in implementing the Triple Censor approach		CSO consultations throughout the country and capacity-building and follow-up meetings for CSO on triple sensor approach throughout the project	Attendance list; Pictures; End of training knowledge check	Capacity	Yearly	Country	Number	0	2025	8	2030

Indicator Title	Component Title	Description	Means of Verification	Category	Cycle	Scope	Value Type	Baseline Value	Baseline Year	Target Value	Targe Year
	Share of women trained in the Triple Censor Approach	Share of women part of CSO who participate in consultations throughout the country and capacity-building and follow-up meetings for CSO on triple sensor approach throughout the project	Attendance list; Pictures; End of training knowledge check	Capacity	Yearly	Country	Percentage	0	2025	40	2030

Risks

Event	Category	Level	Likelihood	Impact	Mitigating Measures	Risk Owner
Non-compliance with fiduciary and procurement standards in some SOFF activities	• Financial • Operational	Low	Rare	Insignificant	The project is being implemented through the Direct Implementation Modality which means the full mobilization of UNDP's rules and regulations, including UNDP anti-fraud policy.	UNDP
SOFF-funded investments cause environmental or social impacts	• Social and Environmental	Medium	Unlikely	Moderate	Because of the importance of CSO engagement in this project, it is planned to screen the risk (SESP), plan for risks mitigation (ESMP) and implement a stakeholder response mechanism from the start of the project through to its closure, all of which contributing to implementation in accordance with ESS Standards.	UNDP/ CSO

NMHS staff depart after being trained	• Organizational • Operational	High	Possible	Moderate	Evolution of the migration scheme between São Tomé and Portugal has lead in recent years to the departure of qualified workforce in search of better professional prospects. In combination to that dynamic, the lack of equipment for the INM to perform its mission had rendered perspectives in meteorology sector limited. Two key measures of the project are the hiring of a legal consultant to achieve a better integration of INM staff in public finances, resulting in improved stability and security associated to employment in the INM. Second, the 4 GBON related positions in the INM can be hired through the national UNV modality during the life of the project, which would initially be more attractive/ work as a guaranty for applicants, until the institutional framework of the INM is strengthened through strategic plan and improved integration of the INM in public finances. The development of PPP, and technical regional and global partnerships would also contribute to build the INM's financial and technical sustainability and capacity to retain qualified staff.	INM
Slow implementation and delays in procurement, installation and capacity building activities	• Operational • Strategic	High	Likely	Moderate	The risks associated to procurement and installation are a reality, mostly linked to the archipelago's relatively accessibility. The installation and capacity building activities (GBON infrastructures related capacity building) will take place in year 2 and 3, while the process of procurement will be initiated from year 1 (AWS updates) and 2 (UAS), to allow for adaptive management and to mitigate the impact of possible delays.	UNDP/ INM

After the conclusion of the Investment phase, GBON data are not collected or shared or are shared of insufficient quality	• Operational	Medium	Possible	Major	Beyond national necessity for accurate and timely meteorological information, as São Tome and Principe seeks to build up its regional integration, especially regarding meteorology, partnerships will be built that depend on those accurate data sharing. Collection and sharing of data is closely related to the presence of adequate human resources. In addition to measure evoked above (risk related to “NMHS staff depart after being trained“), specialist support will be mobilized to facilitate the capacity building around GBON data collection and sharing, and implementation of SOP that would outlive the project closure. It will be ensured that a National Focal Point on WIS matters is appointed and recorded in the WMO Experts database. Finally, in order to both contribute to global data sharing and analysis, and create an additional revenue stream, the INM will engage in the compliance phase of SOFF. This incentive and institutional strengthening opportunity will contribute to the sustainability of the institute. In that perspective, a technical advisor will be hired under KNMI’s supervision (peer advisor), to accompany the INM during the compliance phase.	INM
Destruction or theft of SOFF-financed equipment and infrastructure	• Social and Environmental • Operational	Medium	Unlikely	Major	The shed for the UAS will be renovated, which will contribute to its safety, against theft and natural hazards. The project includes maintenance costs (preventive and for replacement of parts in case of damage). It is key for INM to rapidly develop the means for its sustainability, through partnerships and resources mobilization that will allow to address those possible issues.	INM

Countries cannot make optimal use of data, including accessing or using improved forecasts products from the Global Producing Centers throughout the hydromet value chain	• Operational • Strategic	Medium	Unlikely	Moderate	As per NCP recommendation, and in line with its regional partnership development perspective, INM would integrate Global Producing Centers (e.g. Pretoria: South African Weather Services - SAWS) and Regional centers (e.g. Brazzaville, Casablanca) in the target partners, in order to broaden understanding of how to make optimal use of data and be part of this data sharing regime. Infrastructure is in place for the transmission of data from AWS to Congo-Brazzaville RTH. The INM (aviation weather forecast unit at the airport) is using a Corobor MESSIR message handling system to report weather data to the Cong-Brazzaville RTH. Airport weather observation staff (São Tomé Int'l airport and main node) perform this process manually to transfer the standard SYNOP messages to the WMO-GTS/WIS. The software is accommodated to communicate to the new WMO WIS. The improvement of the 2 AWS and renewal of the UAS will include the upgrading of software and the provision of training, including related to data quality control, ICT data communication, and WIS2Box and on the utilization of NWP products.	INM
Delays in project initiation associated to international funding and markets instability , increase costs (such as equipment, construction, travel), negatively impacting project's planned budget	• Financial • Operational	High	Possible	Major	Upon approval of the proposal and confirmation of budget transfer timeline, UNDP will develop the PRODOC where will be further detailed implementation timeline and strategies, especially regarding sustainable procurement, and in consultation with the peer-advisor and INM. This PRODC will be approved and shared with all partners. During the life of the project, through agreed upon channel (such as emails, Teams visio calls, etc.) and project reports, progress and challenges will be shared with partners and SOFF sec, through a problem-solving approach.	UNDP, SOFF, INM

Budget by UNSDG Categories: Over all

Budget Lines	Description	UNDP (7%) *	WMO (7%) *	Total
1. Staff and other personnel		$923,550.00	$0.00	$923,550.00
2. Supplies, Commodities, Materials		$45,860.00	$0.00	$45,860.00
3. Equipment, Vehicles, and Furniture, incl. Depreciation		$65,000.00	$0.00	$65,000.00
4. Contractual services		$56,000.00	$246,991.00	$302,991.00
5. Travel		$55,000.00	$0.00	$55,000.00
6. Transfers and Grants to Counterparts		$1,324,500.00	$0.00	$1,324,500.00
7. General Operating and other Direct Costs		$0.00	$0.00	$0.00
Project Costs Sub Total		**$2,469,910.00**	**$246,991.00**	**$2,716,901.00**
8. Indirect Support Costs		$172,893.70	$17,289.37	$190,183.07
Total		**$2,642,803.70**	**$264,280.37**	**$2,907,084.07**

Performance-based Tranches Breakdown

Tranche			Total
Tranche 1	UNDP (40%)	$1,057,121.48	$1,145,206.13
	WMO (33.33%)	$88,084.65	
Tranche 2	UNDP (60%)	$1,585,682.22	$1,673,766.87
	WMO (33.33%)	$88,084.65	
Tranche 3	UNDP (0%)	$0.00	$88,111.08
	WMO (33.34%)	$88,111.08	
			$2,907,084.07

Results based budget

Outcome *	Output *	Agency *	Budget (USD) *
1. GBON institutional and human capacity developed		**Sub Total**	**$1,780,901.00**
	1.1 National Consultations conducted	UNDP (7%)	$48,500.00
	1.2 NMHS institutional capacity developed	UNDP (7%)	$812,410.00
	1.3 NMHS human capacity developed	UNDP (7%)	$673,000.00
	1.3 NMHS human capacity developed	WMO (7%)	$246,991.00
2. GBON infrastructure in place		**Sub Total**	**$720,000.00**
	2.2 Improved land-based stations in place.	UNDP (7%)	$230,000.00
	2.3 New upper-air stations in place.	UNDP (7%)	$490,000.00
3. Sustained compliance with GBON		**Sub Total**	**$216,000.00**
	3.1 GBON land-based stations commissioning period completed.	UNDP (7%)	$36,000.00
	3.2 GBON upper air stations' commissioning period completed.	UNDP (7%)	$180,000.00
Total			**$2,716,901.00**

Programme Outcome Costs

Outcome	Output	Activity	Implementing Agent	Time Frame				
				2025	2026	2027	2028	2029
				1	1	1	1	1
1. GBON institutional and human capacity developed								
	1.1 National Consultations conducted							
		Inception workshop						
			UNDP	☑	☐	☐	☐	☐
			WMO	☑	☐	☐	☐	☐
		Serie of Awareness raising workshops for public institutions, CSO and private sector engagement in weather and climate to increase understanding on the role of the INM in STP						
			UNDP	☐	☑	☑	☑	☑
		CSO consultations throughout the country and capacity-building and follow-up meetings for CSO on triple sensor approach throughout the project						
			UNDP	☐	☑	☑	☑	☑
			WMO	☐	☐	☐	☐	☐
		Organization of stakeholders and private sector engagement workshops focused on business model design and implementation						
			UNDP	☐	☑	☑	☑	☑

Outcome	Output	Activity	Implementing Agent	Time Frame				
				2025	2026	2027	2028	2029
				1	1	1	1	1
		Gender Plan action consultations and workshops (2)						
			UNDP	☐	☐	☐	☐	☐
	1.2 NMHS institutional capacity developed							
		Establish regional partnerships by participating in activities and workshops targeted for Atlantic SIDS.						
			UNDP	☐	☑	☑	☑	☐
		Application of the INM legal framework within public finances to ensure salary security for staff, including equal access to employment for women at the meteorological institute						
			UNDP	☑	☑	☐	☐	☐
		Purchase of vehicle for in-country mobility to facilitate liaison with stakeholders around the different districts						
			UNDP	☑	☑	☑	☑	☑
		Establishment of project management unit						
			UNDP	☑	☑	☑	☑	☑
	1.3 NMHS human capacity developed							
		Recruitment of 4 INM staff						
			UNDP	☑	☑	☑	☑	☑
		Training courses and CD support program (5-years)						
			UNDP	☐	☑	☑	☑	☐
			WMO	☐	☑	☑	☑	☐
2. GBON infrastructure in place								
	2.2 Improved land-based stations in place.							
		GBON AWS stations (2) improvement						
			UNDP	☐	☑	☐	☐	☐
			WMO	☐	☑	☐	☐	☐
	2.3 New upper-air stations in place.							
		New Upper-Air Station UAS Renewal, consumables						
			UNDP	☐	☐	☑	☐	☐
			WMO	☐	☐	☑	☐	☐
		Reconstruction of the upper-air balloon shed						
			UNDP	☐	☑	☐	☐	☐
3. Sustained compliance with GBON								
	3.1 GBON land-based stations commissioning period completed.							
		Procurement of sensors and spare parts for equipment maintenance Preventive maintenance						
			UNDP	☐	☑	☑	☑	☑
			WMO	☐	☑	☑	☑	☑
		Local technical assistance services, local expenditures and communication costs						
			UNDP	☐	☑	☑	☑	☑
	3.2 GBON upper air stations' commissioning period completed.							
		Procurement of consumables (radiosondes and balloons) Back up helium cylinder						
			UNDP	☐	☐	☑	☑	☑
			WMO	☐	☐	☑	☑	☑