



SOFF Investment phase pipeline

Zambia

Version: February 2025

**Systematic Observations
Financing Facility**

**Weather
and climate
data for
resilience**





General Information

Fund	MPTF_00281: The Systematic Observations Financing Facility					
FMP Record	MPTF_00281_00032: SOFF Zambia Investment Phase					
MPTFO Project Id						
Start Date						
End Date						
Applicants	Status	Contact Type	Name	e-mail	Position	Telephone
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h> D escription	<p>The Systematic Observations Financing Facility (SOFF) initiative is supporting the UN World Food Programme (WFP), Met Office (UKMO), and Zambia Meteorological Department (ZMD) in strengthening the Republic of Zambia's meteorological observation capabilities. Utilizing the National GBON Gap Analysis and the National Contribution Plan, the initiative aims to upgrade and automate existing surface observation stations and install new upper-air observation stations across the country. This will be accompanied by investments in national capacities to ensure consistent operation as well as robust maintenance, repair and calibration of AWS hardware.</p> <p>The project focuses on closing remaining data gaps in Zambia's observational network to achieve Global Basic Observing Network (GBON) standards by the end of the investment period. This includes upgrading and automating 21 existing surface stations, as well as installing four upper-air stations following a phased approach, as proposed in the National Contribution Plan. ZMD's institutional capacity will be strengthened through specialized training of staff and stakeholder engagement workshops, among other capacity strengthening initiatives. Compliance with GBON standards will be ensured through the development of a six-year maintenance plan that guides standard operating procedures for monitoring, maintenance and calibration of GBON network to guarantee sustainability.</p> <p>The project aims to significantly enhance Zambia's meteorological capabilities and climate data accuracy, supporting climate resilience efforts. Strategic partnerships and robust infrastructure development will ensure compliance with GBON standards, providing reliable data for agriculture, water management, disaster risk reduction, and socio-economic development in the country.</p>					
Universal Markers	Gender Equality Marker	Risk				
	<ul style="list-style-type: none">GEM1 - The Key Activity contributes to GEWE in a limited way	<ul style="list-style-type: none">Low Risk				
Optional Markers	WB Income Category	<ul style="list-style-type: none">Lower Middle Income				
	UN LDC	<ul style="list-style-type: none">Yes				
	Small Island Developing States (SIDS)	<ul style="list-style-type: none">No				

Fund Specific Markers	SOFF Phases	SOFF Phases <ul style="list-style-type: none">Investment Phase			
	EW4All	Early Warnings for All initial focus countries <ul style="list-style-type: none">No			
	Fragile and conflict-affected situation	Fragile and conflict-affected situation <ul style="list-style-type: none">No			
	Peer advisor	Peer advisor <ul style="list-style-type: none">Met Office [United Kingdom]			
Geographical Scope	Geographical Scope	Name of the Region	Region(s)	Country	
	<ul style="list-style-type: none">Country	<ul style="list-style-type: none">N/A	<ul style="list-style-type: none">Africa	<ul style="list-style-type: none">Zambia	
Participating Organizations and their Implementing Partners	UN Participating Organizations	Government/ Multilateral/ NGO/ Other	New Entities	Implementing Partners	
	<ul style="list-style-type: none">WFP - WFP (World Food Programme)WMO - WMO (World Meteorological Organization)			WFP	
Programme and Project Cost	Participating Organization	Amount (in USD)	Comments		
	Budget Requested				
	WFP	\$3,189,755.50	including 6.5% Implementing Entity fee		
	WMO	\$437,784.08	including 7% WMO indirect cost		
	Total Budget Requested	\$3,627,539.58			
	Tranches				
	Tranche 1		Tranche 2		Tranche 3
	WFP (70%)	\$2,232,828.85	WFP (30%)	\$956,926.65	WFP (0%) \$0.00
	WMO (33.33%)	\$145,913.43	WMO (33.33%)	\$145,913.43	WMO \$145,957.21
	Total:	\$2,378,742.28	Total:	\$1,102,840.08	Total: \$145,957.21
	Other Sources (Parallel Funding)				
	Total	\$3,627,539.58			
	Thematic Keywords				
Programme Duration	Anticipated Start Date	01-May-2025			
	Duration (In months)	60			
	Anticipated End Date	01-May-2030			

Narratives

Title	Text
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Close the most significant data gaps

Based on the WMO Global WIGOS Data Quality Monitoring System, there are currently 150 surface observation stations in Zambia. none of which are GBON-compliant. Similarly, there are no upper-air stations in Zambia that meet GBON compliance standards.

To meet the GBON spatial and temporal resolution requirements, it is proposed to upgrade and automate 21 of the existing surface stations, as well as install four upper-air stations following a phased approach, as proposed in the National Contribution Plan (NCP). The decision to upgrade 21 GBON surface stations, instead of the initial target of 19, was based on findings from the Gap Analysis and discussions with the peer advisory team and ZMD staff. Two additional stations were included to better meet GBON compliance and optimize the network design:

- Kasempa Station: Added to enhance spatial coverage in central Zambia, ensuring the GBON horizontal resolution requirement of 200 km is fully met.
- Kasama Station: Proposed to align with its role as a radiosonde site, allowing collocation of surface and upper-air measurements for improved data integration and operational efficiency.

Table 1. GBON National Contribution Target.

Type of station	Baseline (Results of the GBON National Gap Analysis)				GBO National Contribution Target	
	Target (# of stations)	GBON-compliant stations (#)	Gap		To improve	New
			New	To improve		
Surface	19	0	0	19	21	0
Upper-Air	4	0	0	4*	0	4*
Marine	*when applicable					

**UA target for Zambia remains 4 stations but a phased approach will be taken with a funding proposal raised for only 1 UA station initially*

The main focus of ZMD has been developing its network of AWS through a number of climate finance and development projects. The most recent and significant is the Transforming Landscapes for Resilience and Development (TRALARD) project which is being delivered through World Bank funding and will deliver 120 AWS across Zambia – this includes an AWS in each of the administrative districts. Previous initiatives, such as the Green Climate Fund (GCF) Strengthening Climate Resilience of Agricultural Livelihoods in Agro-Ecological Regions, I and II in Zambia (SCRALA) project have also invested significantly in AWS capability. This means that AWS hardware does not need to be a focus of SOFF investment, but rather providing strategic support to ZMD geared towards sustainable maintenance plans for existing equipment. The upper-air station gaps will need to be addressed along the SOFF investment phase through hardware procurement.

Hence, the aim is to adopt a strategy for tiering ZMD stations within their SOPs to identify the 21 GBON stations as tier 1, and resources will be allocated to ensure a sustained maintenance routine for these prioritized stations. Beyond this, the SOFF investment phase will aim to support the installation of four upper-air stations following a phased approach to ensure full GBON compliance by the end of the investment period. This initial funding request is only seeking funding for the first upper-air station but if sustainability can be demonstrated a subsequent funding proposal would be expected to reach full GBON compliance.

Target easy fixes	<p>While ZMD has a high-density network of AWS, its main challenge lies in maintaining, calibrating, funding telecommunications, and ensuring the security of more than 150 Campbell Scientific AWS stations. It requires a team of engineers, well-designed processes, a sustainable source of spares, and the ability for engineers to routinely travel to remote sites. The risk associated with having so many AWSs in Zambia is that human resources and spares will be spread thinly and will not be sufficient to maintain all 150 sites. Hence, the SOFF readiness phase identified developing a ZMD strategy of tiered stations within their Strategy & Operation Plan and related standard operating procedures (SOP) as an easy fix entry point for the SOFF investment phase. This entails the identification of 21 prioritized GBON stations which meet the minimum spatial resolution of 200km as tier 1 stations, which will be prioritized in ZMD’s maintenance operations.</p> <p>In addition, reviving a previous radiosonde launch site at the Lusaka Airport was identified as an easy fix for the installation and operation of the first upper-air station under the SOFF investment. 24/7 staffing of military personnel at the airport opens an opportunity to train the personnel to conduct the radiosonde launches twice daily. Located in direct proximity of the ZMD headquarters, the site also offers operational feasibility to ensure close site monitoring, routine inspection, and maintenance, as well as calibration by ZMD staff. Subsequent funding proposals for additional radiosonde stations (to meet the notional GBON target of 4 upper air stations for Zambia) will be conditional to the initial upper-air station installed being compliantly and sustainably operated for a period of a least one year. This will precede a decision point on the initiation of the procurement and installation of the remaining upper-air stations to meet full GBON compliance by the end of the SOFF investment phase.</p>
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Create leverage

Since 2022, WFP has been partnering with ZMD under its disaster risk reduction portfolio on enhancing last-mile early warning dissemination and climate services, which included the installation of 210 manual rain gauges in 16 districts. Further, WFP collaborates with ZMD through the inter-ministerial coordination committee on micro insurance, focusing on the customization of micro insurance triggers. ZMD forms part of the African Risk Capacity (ARC) technical working group, which WFP supports as ARC Replica partner.

Since early 2024, WFP Zambia has been supporting the Government of Zambia in the implementation of the multi-year programme to develop Anticipatory Action systems for climate shocks, such as droughts and floods. This entails dedicated financing to strengthen ZMD’s forecasting capacities and ability to produce accurate climate services that inform ex-ante risk management and mitigatory actions delivered ahead of predictable climate shocks. While the SOFF investment will prioritize achieving GBON compliance with ZMD’s weather and climate observation network, WFP’s anticipatory action programme will complement with enhancing ZMD’s production of climate services tailored to end-user needs to be geared towards informing earlier action and more efficient disaster response.

Given ZMD’s past focus on developing its network of AWS through several development and climate finance projects, SOFF investment can leverage on these initiatives to target sustaining the available network and ensuring robust maintenance and calibration of existent stations.

The observation data collected from improved AWSs supported by SOFF will also support WFP’s parallel investments to improve joint climate services products with ZMD under a multi-year Anticipatory Action programme. Through SOFF, WFP aims to continue assisting ZMD in improving its data management, analysis, and climate services products, while simultaneously linking this to specific end-use cases for anticipatory action through the parallel investment in anticipatory action system building with the Government of Zambia.

Overview of climate finance investments supporting meteorological capabilities:

Funding Mechanism	Project Title	Description	Funding Amount(USD)	Status
Adaptation Fund (AF)	Adaptation to the effects of drought and climate change in Agro-ecological Zone 1 and 2 in Zambia	Developed adaptive capacity of subsistence farmers and rural communities to withstand climate change in Agro-ecological Regions I and II.	\$3,795,000	Completed
Climate Investment Fund (CIE), Source	Strengthening Climate Resilience in the Kafue Sub-Basin	Aimed to reduce poverty and enhance food security of rural communities in the Kafue basin through strengthening their climate change resilience.	\$38,000,000	Completed
Climate Risk and Early Warning Systems (CREWS)	No dedicated CREWS project in Zambia	N/A	N/A	N/A
Green Climate Fund (GCF)	Strengthening Climate Resilience of Agricultural Livelihoods in Agro-Ecological Regions I and II in Zambia (SCRALA)	Aims to increase the climate resilience of smallholder farmers in specified regions of Zambia.	\$32,000,000* _	Ending in 2025
Global Environment Facility (GEF)	Building the Resilience of Local Communities in Zambia through the Introduction of Ecosystem-based Adaptation (EbA)	Strengthens the capacity of government and rural communities living around wetlands and forests to adapt to climate change using EbA.	\$6,185,000	Ongoing

Linkage to CREWS and Other Climate Finance Initiatives

	<p>While Zambia is not currently part of the CREWS initiative, its meteorological capabilities have been enhanced through other regional and national projects. For instance, initiatives like “Strengthening Climate Information and Early Warning Systems in Eastern and Southern Africa,” funded by the Global Environment Facility (GEF) and implemented by UNDP, have significantly improved climate monitoring capacities, early warning systems, and the availability of climate information for adaptation. However, Zambia has no direct engagement with CREWS Caribbean 2.0 or other CREWS projects, as these remain region-specific to other parts of the world.</p> <p>Additional climate finance investments in Zambia include a World Bank project focused on hydrometeorological data collection, which supported the installation of 120 Automatic Weather Stations (AWS) under broader initiatives like the Zambia Integrated Forest Landscape Project. Similarly, the African Development Bank (AfDB) has funded projects aimed at enhancing agricultural sustainability and climate resilience, particularly in rural communities. These initiatives have bolstered Zambia's capacity for climate adaptation and risk management.</p> <p>Aligning SOFF with these existing projects offers Zambia an opportunity to adopt a more integrated and cohesive approach to climate resilience. This alignment can address gaps in human capacity development while ensuring the sustainability of meteorological systems. Investing in capacity building to train and retain skilled personnel capable of managing observational equipment and interpreting data effectively is essential. By leveraging infrastructure investments and integrating data systems, SOFF can strengthen Zambia’s meteorological systems, enhancing the country’s ability to adapt to climate challenges and improve disaster preparedness.</p>
Maximize delivery capacity	<p>ZMD is a department of the Government of Zambia and is part of the Ministry of Green Economy and Environment (MGEE). They have both national and international responsibilities, covering a diverse range of activities, including making GBON and ICAO-compliant observations, provision of forecast and warning services to the public and relevant government agencies, provision of seasonal forecasts, and climate services on behalf of the Government of Zambia. ZMD currently employs 205 staff and is organised as shown in the organisation chart. The SOFF investment phase aims to leverage ZMD's Regional Maintenance Hubs in Lusaka, Mongu, Kasama, and Solwezi, which are currently equipped with teams of 4-6 technical officers responsible for AWS routine inspection, maintenance, fault resolution, and sensor rotation. SOFF investments will be utilized to dismantle blockages faced by the Regional Maintenance Hubs, such as closing staffing gaps and addressing financial and logistics constraints hindering regular site visits. This investment meets ZMD at a moment in which it is initiating a decentralization exercise aimed at enhancing its sub-national structures and staffing.</p> <p>WFP has strong expertise and experience in supporting observation and monitoring systems in developing countries through its vast climate services and anticipatory action global program portfolio. As a SOFF implementing entity, WFP is already successfully supporting a SOFF pilot in Mozambique, which has moved into its investment phases in 2024. WFP is also an implementing partner under the Early Warnings for All (EW4All) Global Action Plan in a contributing role across all four pillars. The SOFF investment funding will represent a major contribution as part of the EW4All overall ambitions in Zambia.</p> <p>WFP Zambia has specialized technical teams for vulnerability assessment and monitoring (VAM), disaster risk finance, social protection, and disaster risk reduction (DRR), who will directly support the SOFF initiative. This is paired with competent supply chain teams, who will supervise SOFF-related procurements during the investment phase. The SOFF initiative in Zambia will additionally be supported by technical advisors on climate services at the regional level (Regional Bureau for Southern Africa) and headquarters. WFP Zambia has an extensive operational presence across the country, with four (04) field offices and a total of twenty-one (21) field-level staff.</p> <p>The Met Office as Peer Advisor (PA) has experience in managing and sustaining its own nation's surface and upper air networks in line with GBON requirements. The PA collaborates with WMO in developing observations network and data management policies, guidelines, and procedures. The PA also works with NMHSs in several countries supporting development activities and has a long and strong relationship with ZMD. In respect to SOFF Zambia, the PA has expert resources prepared to collaborate with ZMD through the investment phase.</p>

Sub-regional gains	<p>WFP co-hosts the Regional Early Warning and Anticipatory Action Working Group with FAO and IFRC, focused on streamlining investments in strengthening climate services for anticipatory action end-use purposes across the SADC region. Under this working group, WFP has launched a sub-technical working group on climate services and trigger development for anticipatory action, which is linked to the SADC Climate Services Centre community of practice.</p> <p>Both the Meteorological Association of Southern Africa (MASA) and the SADC Climate Services Centre (CSC) provide an opportunity for collaborative activity in terms of training, maintenance of equipment, and calibration. The Regional WIGOS Centres for Southern Africa, including the WMO designated regional training center (RTC) is based at South Africa Weather Services in Pretoria. This may provide an opportunity for collaborative training across the range of disciplines required by GBON. WFP has a close partnership with these regional centers through existing regional programmes, such as the Joint Programme on Strengthened Early Warning and Anticipatory Action in Southern Africa implemented jointly with FAO and IFRC. WFP has experience in facilitating regional trainings with SADC CSC and SAWS, such as the upcoming impact-based forecasting and anticipatory action training for SADC member states to be held in April 2024. The inclusion of Regional WIGOS Centres provides an additional layer of coordination, ensuring alignment with global standards and expanding regional capacity-building opportunities. The investment will ensure that ZMD will have the capacity to follow up on incidents assigned by RWC, especially those related to GBON stations.</p> <p>It also makes sense to explore economies of scale with respect to the provision of WIS2.0 capability and tailored training coordinated more centrally at the regional level with further southern Africa SOFF pilots in DRC, Madagascar, Malawi, Mozambique, and Tanzania. WFP plans to engage IEs of southern Africa’s SOFF pilots (namely UNDP and AfDB) to explore co-financing regional training and capacity strengthening through SOFF financing.</p> <p>Next to Zambia, WFP is the SOFF implementing entity in the beneficiary country Mozambique, partnering with the South African Weather Service (SAWS) as a peer advisor. While the SOFF Mozambique investment phase was initiated in early 2024, WFP plans to enable peer learning and South-South and Triangular Cooperation (SSTC) between the two SOFF beneficiary countries. Collaborating with Regional WIGOS Centres will enhance these initiatives, ensuring consistency and quality in training and operations. Where feasible, procurements may be conducted at the regional level covering both SOFF pilots to create economies of scale.</p>
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SOFF Beneficiary Country Capacity Assessment	<p>ZMD is a well-established and well managed National Meteorological Service (NMS) in Southern Africa and member of the World Meteorological Organisation (WMO) and the Meteorological Association of Southern Africa (MASA). They are mandated to provide aviation services, and beyond that, the legislation is pending approval by Parliament. While strong partnerships with key line ministries exist, the CHD assessment confirms that the adoption of the Meteorological Bill by Parliament remains critical to formalizing ZMD’s mandate, enhancing its budget support, and improving service provision. Nevertheless, ZMD’s climate services are trusted and used by relevant line ministries and inform government disaster preparedness and response processes.</p> <p>ZMD is organized by three main units: the forecasting unit, the climatology and advisory services unit and the engineering and computer services unit. The CHD identifies internal training as a challenge due to resource limitations, highlighting a need to enhance capacity through structured support, a gap which will be addressed through the SOFF investment. Currently, only 25% of ZMD’s staff are women – a gender disbalance that the SOFF investment aims to address, as well, through targeted gender analyses and modernization plans toward better inclusion and equality.</p> <p>The government budget allocation to ZMD is sufficient to cover day-to-day staffing costs but currently does not allow for the development and growth of the staff, infrastructure, and service. ZMD has been involved in several internationally funded projects over the past 5 years, including the World Bank-supported TRALARD project financing the installation of 120 AWS, the SCRALA GCF project including the installation of 20 AWS, and a range of projects targeting the enhancement of weather and climate information services, such as the WISER ESA project. The CHD assessment rated ZMD’s infrastructure maturity at Level 2, acknowledging significant challenges in sustaining and scaling infrastructure despite these advancements. As such, ZMD has demonstrated the capacity to allow for timely implementation and impact of large-scale investments and multi-year projects in the past.</p> <p>ZMD has well established and effective service delivery partnerships with many institutions and agencies, both nationally and internationally (<i>CHD maturity level: 4</i>). International partnerships include WMO, MASA, SADC Climate Services Centre, and others. At the national level, ZMD provide guidance to the Disaster Management and Mitigation Unit (DMMU) ahead and during high-impact weather occurrences and generates regular agro-met bulletins for the Ministry of Agriculture (MoA) across several timescales (day-to-day weather forecasts to seasonal predictions). The CHD highlighted that ZMD upholds multiple partnerships with academic institutions, such as IRI Columbia University (ENACTS interface), University of Leeds (WISER Africa), and a range of national universities as a strength but underscores the necessity for formalized agreements, to optimize collaborations further. Under the government’s macro and micro-insurance programmes, ZMD collaborates with insurance companies on weather-based insurance products.</p> <p>ZMD has made excellent progress in establishing a high-density network of more than 150 AWSs across the country. SOFF investment comes at an opportune timing to provide strategic support to ZMD in adopting a tiered approach to network maintenance, focusing resources on 21 GBON sites. With its Regional Maintenance Hubs, ZMD offers decentralised structures that will enable the operationalization of this tiered AWS maintenance plan with SOFF support. The current gap in upper-air stations will be addressed through the SOFF investments, closing a current, critical observation data gap. While <i>ZMD</i> is self-aware that the maintenance of network infrastructure and equipment has been its largest challenge in the past, its management and technical teams are committed to leveraging the multi-year SOFF investment to maximize its sustainability strategy linked to a clear business model, which will ensure ZMD’s robust financial management for equipment maintenance beyond the SOFF pilot.</p>
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Investment Phase Alignment with the GBON National Contribution Plan	<p>The investment phase proposal encompasses all activities and recommendations from the GBON NCP, meaning all identified gaps will be addressed throughout the implementation timeline. As a consensus-based decision between the tripartite SOFF consortium, the following elements were added to the proposal in addition to the NCP recommended activities:</p> <ol style="list-style-type: none">1. Procurement and installation of one upper-air station only initially, as recommended by the NCP. To meet full GBON compliance by the end of the investment phase, a second funding proposal must be raised to gain financial disbursement for the remaining 3 upper-air stations to be implemented. This would be subject to a decision point on the sustainability in GBON-compliant operations being demonstrated for a period of at least one year after implementation and ZMD capacity being sufficient to undertake further capability expansion.2. ZMD business model development: The SOFF consortium would be keen to include further items in the funding request, which are geared towards generating a sustainable ZMD business model to ensure it sustains sufficient resources to finance routine maintenance and calibration practices beyond the investment phase. The business model will include an analysis of ZMD’s current funding structure and identify strategies to diversify revenue sources, including partnerships with private sector entities and introducing fee-for-service mechanisms for specialized services such as aviation weather or hydrometeorological data. SOFF investment will also support capacity-building activities, including workshops and technical assistance, to equip senior management with skills in financial planning and business model implementation.
Execution model and implementation arrangements	<p>WFP will be the Implementing Entity for the SOFF project and will be responsible for the implementation, financial management, evaluation, reporting, and closure of the activities in accordance with pre-agreed delivery timeframes. WFP will monitor and supervise the execution of the project and ensure robust management and application of SOFF Grant Proceeds, following the process described in the SOFF Operational Manual and in line with the SOFF Terms of Reference, and the UNMPTF legal agreements. WFP will ensure that Grant Proceeds are utilised in accordance with the terms of the Funding Request and that procurement is carried out according to relevant UN principles: a. Value for Money; b. Fairness, integrity, and transparency; c. Effective international competition; d. The interest of the UN.</p> <p>A project steering committee between ZMD and WFP will be formed at both strategic and technical levels to ensure regular coordination and alignment. The UK Met Office, in its role as Peer Advisor, will provide technical advisory support but will not serve as part of the steering committee. The technical steering committee will meet monthly, while the strategic steering committee will meet on a quarterly basis to discuss the strategic direction of the SOFF investment phase.</p> <p>The Zambia Meteorological Department (ZMD) will serve as the national Executing Entity (EE). ZMD will be accountable to WFP as IE for project execution at the national level and for the effective use of resources. WFP will enter into an appropriate agreement (project cooperation agreement) with ZMD for the execution of this project, establishing clear roles and responsibilities for the effective delivery of the project, the schedule and conditions of installments, the determination of the prevailing fiduciary standards, and the terms and conditions for arbitrations and termination of the contract.</p> <p>Procurement of assets will be mostly managed by the IE, given WFP’s strong procurement capacities backed by a dedicated country office unit and existing expertise in procurement of specialized goods and services and related importing. At the onset of the investment phase, a joint procurement plan will be developed between ZMD, WFP, and the Peer Advisors to anticipate key milestones for procurements, technical specifications, potentially related logistics (e.g. temporary storage), and procurement lead times. This will be tied to a mapping of suitable suppliers and the possibility of developing longer-term service agreements (e.g. with Campbell Scientific who undertook the TRALARD AWS rollout), which include supply, installation, and maintenance of assets procured. ZMD, with support from PA and IE, will be responsible for the specification of technical requirements of goods and services to be procured. The IE will lead procurement processes following WFP’s supply chain and procurement standards, ensuring transparent, competitive processes.</p> <p>Within ZMD, close collaboration between headquarters in Lusaka and its four Regional Maintenance Hubs will be ensured, creating robust management and feedback lines to effectively oversee SOFF investment activities. Regional Maintenance Hubs will be supported by WFP field offices, ensuring decentralised-level coordination. ZMD carries the responsibility of data transmission to WIS 2.0 in a box, with support provided by the PA and potential service providers.</p>

Private sector involvement	<p>Based on the NCP recommendations and as preferred by the beneficiary country, the investment phase seeks to establish service agreements with private sector suppliers to support asset supply, installation, and maintenance over the investment phase. Under the SOFF investment phase, a service agreement with a suitable supplier as third line support next to the PA will be adopted, focused on the upgrading (to WIS 2.0 connectivity) and maintenance of the selected 21 GBON AWS, supply of spares, conduct of more complex calibration processes of sensors and training for ZMD Regional Maintenance Hub staff.</p> <p>A similar service agreement is planned with a suitable supplier for the upper air station, covering the installation and maintenance of two radiosonde ground systems, including backup power system, installation of a hydrogen generator and radiosonde ground station connection via a mobile modem.</p>
Civil society participation	<p>The upgrading of the 21 GBON AWS network in Zambia will be paired with district-level awareness campaigns to sensitize communities hosting AWS sites on the importance of weather and climate information. This will be integrated, where possible, into WFP's anticipatory action programme, which will conduct community-level consultations for the co-design of actionable climate services linked to operational plans that enable mitigatory risk management. As such, ZMD and WFP plan to strengthen community-level understanding of the value of accurate climate services and how they can be utilized to save lives and livelihoods ahead of climate extremes.</p> <p>As such, significant attention will be allocated to raising awareness of ZMD's mandate, the observation sites, and how they play an important role in the value chain that provides high-impact weather information. Many of the GBON sites proposed in Zambia are in secure locations, but it's not always the case. The less secure sites will require cooperation with CSOs. A consultation and awareness-raising event will be held with CSOs to engage with the CSO sector to mitigate against the risk of theft and vandalism.</p>
Fiduciary systems	<p>WFP and ZMD will undersign a binding Letter of Agreement, outlining the responsibilities of the two parties, including reporting, monitoring, evaluation, audit, payments, purpose, term, amendments, and termination for the duration of the SOFF investment phase.</p>

Social and environmental safeguards	<p>Since 2021, the WFP Environmental and Social Safeguards Framework (ESSF) has been applied to all WFP activities, and the standards are included in agreements with Cooperating Partners. The WFP ESSF is based on existing ‘do no harm’ provisions mandated by the WFP’s Environmental Policy, Climate Change Policy, Policy on DRR and Management, Humanitarian Protection Policy, Statement of Humanitarian Principles, Guidance Note on Prevention of Child Labour, Policy on Building Resilience for Food Security and Nutrition, Gender Policy, Policy on HIV and AIDS, Disability Inclusion Strategy and relevant international agreements and treaties. The WFP ESSF is fully aligned with the Model Approach to Environmental and Social Standards in UN Programming. Regarding cross-cutting issues on human rights, women’s rights and gender equality, disability inclusion, climate/environment, the following applies:</p> <ul style="list-style-type: none">• Climate and environment: The project design adheres to core environmental standards outlined in the WSP ESSF, preventing potential environmental harm and ensuring sustainability. The Environmental and Social Risk Screening Tool is employed to categorize risks, allowing for informed decision-making to mitigate risks. Additionally, the Environmental Management System guides daily operations to ensure environmental sustainability is prioritized over the project’s timespan.• Women’s rights, gender equality, local and indigenous communities: Upholding accountability, inclusion, and non-discrimination principles, the project prioritizes the empowerment and participation of marginalized and vulnerable groups. In line with the UN Declaration on the Rights of Indigenous Peoples, Local and Indigenous Communities' rights are respected. The SOFF investment phase is committed to gender equality and women’s empowerment, aligning with WFP’s Gender Policy (2022) based on gender-transformative approaches. WFP will ensure that women and girls, in addition to men and boys, participate meaningfully throughout the full investment cycle. Activities will respond to beneficiaries’ gender-differentiated needs and interests, paying attention to power dynamics that might increase the risks of gender-based violence (GBV). Further, WFP is fully committed to beneficiaries’ protection from sexual exploitation and abuse (PSEA), as demonstrated by the WFP Executive Director’s Circular (OED2023/011) and WFP’s current role as an Inter-Agency Standing Committee (IASC) Champion for PSEA in 2024. This aligns with ZMD’s recognition of the importance of Gender, Equality, and Social Inclusion (GESI) and the crucial role of the department in addressing the issues of GESI and supporting people and communities disproportionately impacted by extreme weather, seasonal events, and climate change. They recognise the need to proactively support women, girls, and marginalized people who are more likely to be negatively affected by the impacts of climate and weather-related extreme events. It is recommended that ZMD undertake Gender, Equality, and Social Inclusion (GESI) training as part of a broader activity to ensure GESI is mainstreamed in its working practices. Next to WFP’s corporate guidelines and tools for gender, protection, and inclusion, the SOFF investment phase will also integrate UKMO WISER GESI Minimum Standards. At the onset of the SOFF investment phase, a gender and inclusion gap assessment will be conducted, informing a work plan that will outline how project activities will meet GESI Minimum Standards throughout the implementation timeline. In addition, recruitment and training conducted as part of the SOFF investment phase will follow these guidelines: <p>- Women should represent at least 50% of all participants in SOFF-related and supported training;</p> <p>- Women should represent at least 50% of all participants in SOFF consultations, planning workshops, etc.;</p> <p>- Women should represent at least 50% of staff for operating and maintaining GBON stations;</p> <p>- Women should represent at least 50% of decision-making and project management positions where applicable.</p> <p>Based on the gender and inclusion gap assessment, ZMD will with WFP technical support develop a gender transformative action plan to address existing gaps in women’s inclusion and empowerment related to GBON infrastructure management, contributing to an overall improved gender balance within ZMD.</p> <p>On Disability Inclusion, WFP has an important role to play in enhancing disability inclusion given its direct support to millions of individuals and its partnership with governments, civil society, the private sector, and other UN agencies and international organizations. Disability inclusion is very relevant to WFP’s work and mandate because there are two-way links between malnutrition and disability. People with disabilities are more likely to be food insecure, and humanitarian emergencies disproportionately impact people with disabilities.</p> <p>As part of its approach to strengthening disability inclusion, the WFP Executive Board in November 2020 endorsed the Disability Inclusion Road Map to kick-start WFP’s efforts to operationalise the UN Disability Inclusion Strategy (UNDIS). The UNDIS requires WFP to ensure that the rights of persons with disabilities are embedded in all programmes and projects, employing a twin-track approach that both primarily targets persons with disabilities and mainstreams disability inclusion across other areas of work. This will be integrated into the GBON operational framework.</p>
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Dispute resolution mechanism	<p>WFP is first and foremost accountable to the people it serves: ensuring safety, dignity and avoid causing harm; meaningful access; accountability, participation, and empowerment through meaningful and consistent engagement are the key principles for mainstreaming protection. This means ensuring that affected populations, their families, and diverse community organizations representing youth, elderly, Indigenous peoples, people living with HIV/AIDS and persons with disabilities, and other most at-risk groups of communities participate actively in decisions that affect their lives, receive accurate information for decision-making and have access to safe, anonymous and responsive feedback mechanisms. To translate WFP’s commitment to Protection and Accountability, contextual and risk assessment and period monitoring will be conducted, and prevention and mitigation measures will be designed. WFP also puts huge emphasis on robust community feedback mechanisms accessible to diverse groups of populations and providing timely feedback and making informed decisions including adjustments to programmatic needs. WFP implements different channels of feedback mechanisms that include hotline numbers, help/litigation desks, suggestion boxes, and community complaint committees to meet the preferences of diverse groups of the affected populations. For this WFP Zambia has established the digital solution of CFM, called SUGARCRM which enables recording, escalation, and resolution of cases and making regular analysis of feedback for management decisions. The solutions enable to resolve cases on a timely and confidential manner as per the CFM SoP and help to enhance accountability at all levels. The other key area of focus for WFP is the development and implementation of systematic community engagement approaches to all its activities to ensure meaningful involvement of communities at all stages of the programme cycle. It also means rigorous targeting of assistance proportionate to existent humanitarian needs, guided by the priorities and preferences of people reached. WFP sees investing in community engagement through participatory tools and effective communication channels as key to ensuring its acceptance, trust, and unhindered humanitarian access, enabling sustained access to WFP’s services while protecting its staff and assets. Two-way community feedback mechanisms with affected populations will be integrated to monitor community perceptions of field-level SOFF activities. This will be linked to a SOFF investment phase community engagement strategy. Where possible, this will be linked to other ongoing WFP programmes, such as the anticipatory action programme.</p> <p>Ensuring effective community feedback mechanisms (CFM) constitutes one of three pillars of the WFP Community Engagement for Accountability to Affected Populations (AAP) Strategy. WFP’s CFMs are guided by six assurance standards:</p> <ol style="list-style-type: none">1. Reach and accessibility of CFM channels2. Minimum data collection3. Case handling procedures4. Information management (IM) systems5. Feedback analysis, reporting, and tracking6. Quality assurance procedures
Additional relevant policies and procedures	<p>WFP is a Green Climate Fund and Adaptation Fund accredited entity, a Climate Risks & Early Warning Steering Committee member, a member of the Risk-Informed Early Action Partnership (REAP) Secretariat, and a lead partner in the EW4All Global Executive and Africa Action Plan.</p> <p>WFP is a Secretariat Member and co-host of the Regional Anticipatory Action Working Group (RAAWG) and host of the sub-technical working group on climate services and triggers for anticipatory action, linked to the SADC Climate Services Centre community of practice.</p> <p>WFP has corporate supply chain and procurement policies and guidelines that will also apply to relevant activities under this project.</p>

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	

Target	Description
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
No data available.	

Contribution to SDGs

Participating Organization	% TARGET_5.5	% TARGET_13.1	% TARGET_13.2	% TARGET_13.3	% TARGET_13.b	% Total
WFP	20	30	10	30	10	100
WMO	20	30	10	30	10	100
Total contribution by target	40	60	20	60	20	
Project contribution to SDG by target	20	30	10	30	10	100

List of documents

Document	Document Type	Document Source	Document Abstract	Document Date	Classification	Featured	Status	Modified By	Modified On
Gateway annex - Monitoring & Reporting _AY Updat ed.docx	Other Docs	Project		10-Dec-2024	Internal	No	Draft	abdel-lathif.younous@wfp.org	17-Dec-2024 6:44:11 AM
Zambia National Gap Analysis.p df	Other Docs	Project	Zambia GBON NGA	09-Dec-2024	External	No	Finalized	abdel-lathif.younous@wfp.org	16-Dec-2024 3:43:15 PM
CHD- Report- Zambia_FI NAL_zmd _signed_f ully	Other Docs	Project	Zambia GBON CHD	09-Dec-2024	Internal	No	Finalized	abdel-lathif.younous@wfp.org	16-Dec-2024 3:42:22 PM
Zambia National Contributi on Plan.pdf	Other Docs	Project	Zambia GBON NCP	09-Dec-2024	External	No	Finalized	tlhamo@wmo.int	13-Dec-2024 6:11:29 AM
Gateway Annex - Peer Advisor TOR - MO edit.docx	Other Docs	Project		10-Dec-2024	Internal	No	Draft	abdel-lathif.younous@wfp.org	10-Dec-2024 10:22:14 AM
SOFF ZMD FR timeline - MO edit2.docx	Other Docs	Project	Investment Phase Monitoring and Reporting	29-Nov-2024	Internal	No	Draft	abdel-lathif.younous@wfp.org	29-Nov-2024 11:25:51 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.				
	Activities					
	Title	Description	Lead Participating Organization	Participating Organization	Other Organizations	
	Host National High-Level Consultative SOFF Forum and Investment Phase Launch.		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)		
	Organize regular SOFF Project Steering Committee meetings with relevant government entities (quarterly).		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)		
	Conduct district consultation workshops for CSO participation (21 districts of 21 GBON stations.		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)		
	Launch an awareness-raising campaign on the use and value of GBON infrastructure linked to sensitization on the use of climate services for community-led (anticipatory) action (campaign covering 10 provinces).		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)		
	Conduct stakeholder engagement workshops including CSOs, specifically with a focus on women's empowerment.		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)		
		1.2 NMHS institutional capacity developed.	NMHS institutional capacity required to operate the GBON network developed.			

Outcome	Output		Description		
	Activities				
	Title	Description	Lead Participating Organization	Participating Organization	Other Organizations
	Develop SOPs for monitoring, maintenance, and calibration of GBON network for ZMD Regional Maintenance Hubs linked to a 5-year GBON Network sustainability plan (incl. financial sustainability plan).		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Develop a ZMD business model linked to the GBON Network sustainability plan.		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Develop maintenance, calibration, and meta- data logs.		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Develop ZMD GBON quality management system (QMS).		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Conduct a Gender Equality and Social Inclusion (GESI) context analysis for ZMD, including a ZMD GESI self-assessment.		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Develop a ZMD GESI modernization plans, defining clear milestones towards enhanced gender equality and social inclusion within the institutions and its services.		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	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
	Strengthen the capacity of ZMD Management focused on revision of ZMD Strategic & Operational Plans.		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Provide training in management and leadership training, project management training, financial management, and HR.		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Build capacity at ZMD Central on CDMS capability and WIS2.0 in a box within cloud infrastructure, as well as annual refresher training.		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Provide Gender Equality and Social Inclusion (GESI) training for ZMD staff (central-level and Regional Maintenance Hubs) and relevant local partners/CSOs.		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Strengthen the capacity of ZMD Regional Maintenance Hubs on GBON network maintenance, including regular refresher training.		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Train Lusaka Airport military personnel and ZMD staff on upper air station radiosonde launches.		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	
	Recruit technical officers to ensure operational delivery of data to WIS2.0 and establish effective for ZMD Regional Maintenance Hubs.		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)	

Outcome	Output		Description			
	Recruit ZMD SOFF project manager.		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)		
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.			
	Activities					
	Title	Description	Lead Participating Organization	Participating Organization	Other Organizations	
	Upgrade land-based stations and related equipment, ICT systems, data management systems, and standard operating practices in place.	Co-develop terms of reference for the service level agreement to support the surface network and enhance security at the sites.	WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)		
	2.3 New upper-air stations in place.		New upper-air stations and related equipment, ICT systems, data management systems, and standard operating practices are in place.			
	Activities					
	Title	Description	Lead Participating Organization	Participating Organization	Other Organizations	
	Procure and Install of 1 UAS at Lusaka Airport, with two manual radiosonde ground systems used alternately (including power supply and backup systems, computer, and communications peripherals, and a hydrogen generator,		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)		
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.			

Outcome	Output		Description			
	Activities					
	Title	Description	Lead Participating Organization	Participating Organization	Other Organizations	
	Conduct routine maintenance and verification of the GBON network in accordance with the 5-year maintenance plan.		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)		
	Establish SOPs for the ZMD Regional Maintenance Hubs		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)		
	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 the WMO Technical Authority.			
	Activities					
	Title	Description	Lead Participating Organization	Participating Organization	Other Organizations	
	conduct routine inspection and maintenance of the UAS at Lusaka Airport, including calibration checks, fault resolution site visits, sensor rotation/spares, and consumables such as radiosondes, backup hydrogen, and diesel for backup generator.		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)		
	Provide consumables and operating expenses for one autosonde station in Kasama for a duration of two years.		WFP - WFP (World Food Programme)	• WMO - WMO (World Meteorological Organization)		

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
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	21	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	4	2030
GBON land-based stations' commissioned		Number of stations as defined in the National Contribution Plan.		Policy	At closure	Country	Number	0	2025	21	2030
GBON upper air stations' commissioned		Number of stations as defined in the National Contribution Plan.		Policy	At closure	Country	Number	0	2025	4	2030

Project Indicators

Indicator Title	Component Title	Description	Means of Verification	Category	Cycle	Scope	Value Type	Baseline Value	Baseline Year	Target Value	Target Year	Linked Outcon / Output
National High-Level Consultative SOFF Forum and Investment Phase Launch			Progress updates/Annual or quarterly reports	Capacity	At closure	Country	Number	0	2025	3	2030	Outcon : 1. GBON institutional and human capacity developed. Output 1.1 National Consultations conducted.

Indicator Title	Component Title	Description	Means of Verification	Category	Cycle	Scope	Value Type	Baseline Value	Baseline Year	Target Value	Target Year	Linked Outcon / Outpu
	Percentage of female participants	Percentage of female participants in workshops and steering committee meetings	progress updates/Annual or quarterly reports	Capacity	At closure	Country	Percentage	0	2025	50	2030	
Regular SOFF Project Steering Committee meetings with relevant government entities (quarterly).				Capacity	At closure	Country	Number	0	2025	20	2030	Outcon : 1. GBON institutional and human capacity developed. Output 1.1 National Consultations conducted.
	No components available.											
District consultation workshops for CSO participation (21 districts of 21 GBON stations.				Capacity	At closure	Country	Number	0	2025	5	2030	Outcon : 1. GBON institutional and human capacity developed. Output 1.1 National Consultations conducted.
	Percentage target of female participants.	Percentage of female participants in District consultations.		Capacity	At closure	Country	Percentage	0	2025	50	2030	

Indicator Title	Component Title	Description	Means of Verification	Category	Cycle	Scope	Value Type	Baseline Value	Baseline Year	Target Value	Target Year	Linked Outcon / Outpu
Awarene ss raising campaig n on the use and value of GBON infrastruc ture linked to sensitizat ion on use of climate services for communi ty-led (anticipat ory) action (campaig n covering 10 province s)				Capacity	At closure	Country	Number	0	2025	5	2030	Outcon : 1. GBON instituti nal and human capacity develop d. Output 1.1 Nationa Consult ions conduc d.
	Percentage target of female participants.	Percentage of female participants in Awareness raising campaign.		Capacity	At closure	Country	Percentage	0	2025	50	2030	
Stakehol der engagem ent worksho ps including CSOs, specifical ly with focus on women's empower ment				Capacity	At closure	Country	Number	0	2025	3	2030	Outcon : 1. GBON instituti nal and human capacity develop d. Output 1.1 Nationa Consult ions conduc d.
	Percentage target of female participants.	Percentage of female participants in Women's empowerm ent workshops.		Capacity	At closure	Country	Percentage	0	2025	50	2030	

Indicator Title	Component Title	Description	Means of Verification	Category	Cycle	Scope	Value Type	Baseline Value	Baseline Year	Target Value	Target Year	Linked Outcon / Output
Develop ment of SOPs for monitorin g, maintena nce and calibratio n of GBON network for ZMD Regional Maintena nce Hubs linked to a 5- year GBON Network sustaina bility plan (incl. financial sustaina bility plan)				Capacity	At closure	Country	Number	0	2025	1	2030	Outcon : 1. GBON instituti onal and human capacity develop d. Output 1.2 NMHS instituti onal capacity develop d.
	No components available.											
Develop ment of ZMD business model linked to GBON Network sustaina bility plan				Capacity	At closure	Country	Number	0	2025	1	2030	Outcon : 1. GBON instituti onal and human capacity develop d. Output 1.2 NMHS instituti onal capacity develop d.
	No components available.											
Develop ment of maintena nce, calibratio n, and meta- data logs				Capacity	At closure	Country	Number	0	2025	1	2030	Outcon : 1. GBON instituti onal and human capacity develop d. Output 1.2 NMHS instituti onal capacity develop d.
	No components available.											

Indicator Title	Component Title	Description	Means of Verification	Category	Cycle	Scope	Value Type	Baseline Value	Baseline Year	Target Value	Target Year	Linked Outcon / Outpu
Develop ment of a ZMD GBON quality manage ment system (QMS)		Number of training conducted for the developmen t of a ZMD GBON Quality Managemen t System (QMS).		Capacity	At closure	Country	Number	0	2025	1	2030	Outcon : 1. GBON instituti onal and human capacity develop ed. Output 1.2 NMHS instituti onal capacity develop ed.
	No components available.											
Gender Equality and Social Inclusion (GESI) context analysis for ZMD, including a ZMD GESI self-assessm ent				Capacity	At closure	Country	Number	0	2025	1	2030	Outcon : 1. GBON instituti onal and human capacity develop ed. Output 1.2 NMHS instituti onal capacity develop ed.
	No components available.											
Develop ment of ZMD GESI moderniz ation plans, defining clear mileston es towards enhance d gender equality and social inclusion within the institutio ns and its services				Capacity	At closure	Country	Number	0	2025	1	2030	Outcon : 1. GBON instituti onal and human capacity develop ed. Output 1.2 NMHS instituti onal capacity develop ed.
	No components available.											

Indicator Title	Component Title	Description	Means of Verification	Category	Cycle	Scope	Value Type	Baseline Value	Baseline Year	Target Value	Target Year	Linked Outcon / Output
Capacity strengthening of ZMD Management focused on revision of ZMD Strategic & Operational Plans		Number of capacity-strengthening sessions conducted for ZMD management on the revision of ZMD Strategic and Operational Plans.		Capacity	At closure	Country	Number	0	2025	1	2030	Outcon : 1. GBON institutional and human capacity developed. Output 1.3 NMHS human capacity developed.
	No components available.											
Management and leadership training, project management training, financial management and HR training		Number of training sessions conducted on management, leadership, project management, financial management, and HR.		Capacity	At closure	Country	Percentage	0	2025	3	2030	Outcon : 1. GBON institutional and human capacity developed. Output 1.3 NMHS human capacity developed.
	No components available.											
Capacity building at ZMD Central on CDMS capability and WIS2.0 in a box within cloud infrastructure, annual refresher trainings				Capacity	At closure	Country	Number	0	2025	1	2030	Outcon : 1. GBON institutional and human capacity developed. Output 1.3 NMHS human capacity developed.
	No components available.											

Indicator Title	Component Title	Description	Means of Verification	Category	Cycle	Scope	Value Type	Baseline Value	Baseline Year	Target Value	Target Year	Linked Outcon / Outpu
Gender Equality and Social Inclusion (GESI) training for ZMD staff (central-level and Regional Maintenance Hubs) and relevant local partners/ CSOs					At closure	Country	Number	0	2025	1	2030	Outcon : 1. GBON institutional and human capacity developed. Output 1.3 NMHS human capacity developed.
	No components available.											
Training of Lusaka Airport military personnel and ZMD staff on upper air station radios on de launches				Capacity	At closure	Country	Number	0	2025	2	2030	Outcon : 1. GBON institutional and human capacity developed. Output 1.3 NMHS human capacity developed.
	No components available.											
Recruitm ent of technical officers for ZMD Regional Maintenance Hubs				Capacity	At closure	Country	Number	0	2025	2	2030	Outcon : 1. GBON institutional and human capacity developed. Output 1.3 NMHS human capacity developed.
	No components available.											

Indicator Title	Component Title	Description	Means of Verification	Category	Cycle	Scope	Value Type	Baseline Value	Baseline Year	Target Value	Target Year	Linked Outcon / Outpu
Recruitm ent of ZMD SOFF project manager				Capacity	At closure	Country	Number	0	2025	1	2030	Outcon : 1. GBON instituti nal and human capacity develop d. Output 1.3 NMHS human capacity develop d.
	No components available.											
Enhancin g the capacity of ZMD regional maintena nce hubs for GBON network maintena nce, including regular refresher training.		Refresher training on GBON network maintenanc e.	Progress updates/An nual or quarterly reports.	Capacity	At closure	Country	Number	0	2025	5	2030	Outcon : 1. GBON instituti nal and human capacity develop d. Output 1.3 NMHS human capacity develop d.
	No components available.											

Risks

Event	Category	Level	Likelihood	Impact	Mitigating Measures	Risk Owner
Non-compliance with fiduciary and procurement standards in some SOFF activities	<ul style="list-style-type: none">Financial	Medium	Unlikely	Moderate	WFP, as IE, will implement the SOFF project activities as per corporate procurement and fund management regulations, subject to rigorous control .	
SOFF-funded investments cause environmental or social impacts	<ul style="list-style-type: none">Social and Environmental	Medium	Unlikely	Moderate	- Planned SOFF investments target enhancing existing equipment (21 GBON AWS); enhancement is not expected to generate unforeseen environmental or social impacts - The project will follow rigorous environment and social safeguard standards as stipulated in WFP's corporate policies - Feedback mechanisms will ensure community feedback is heard and incorporated early	

NMHS staff depart after being trained	<ul style="list-style-type: none">Operational	High	Likely	Moderate	<ul style="list-style-type: none">Ensure that staff are suitably motivated by their work and understand its global importance.Access additional funding to incentivise key staff.Maintain supplier service agreements, and peer advisor engagement, to ensure ongoing support and training for new staff.	
Slow implementation and delays in procurement, installation and capacity building activities	<ul style="list-style-type: none">Operational	High	Possible	Moderate	<ul style="list-style-type: none">As SOFF IE, WFP will lead on procurements through its country office capacities; where possible, WFP will build on long term agreements (LTAs) with suitable suppliers to expedite procurement.Standing service agreements for AWS and upper air stations will cover installation and maintenance support over the SOFF implementation period.Capacity building will be delivered through SOFF peer advisor, SOFF IE and through service agreements tied to detailed work plans – progress on work plans will be continuously monitored by the IE.	
After the conclusion of the Investment phase, GBON data are not collected or shared or are shared of insufficient quality	<ul style="list-style-type: none">Operational	High	Likely	Major	<ul style="list-style-type: none">In order to mitigate this risk, the SOFF consortium aims at developing a sustainable business model that ensures sufficient resource allocation to the maintenance of the GBON network beyond the investment phaseThis is paired with the development and application of routine maintenance and calibration SOPs, on which ZMD staff a central to decentral level will be trainedSOFF investment will be utilized to develop a robust business model and financial sustainability plan in order to mitigate the risk of SOFF compliance phase funding sustaining SOFF investment’s maintenance and sustainability	

Destruction or theft of SOFF-financed equipment and infrastructure	<ul style="list-style-type: none">Operational	Very High	Very Likely	Extreme	<ul style="list-style-type: none">Utilize the most secure sites (e.g., airports, schools, public offices) while collaborating with Civil Society Organizations (CSOs) to mitigate risks.Ensure site security measures are robust and designed to withstand potential threats, including natural hazards.Engage local communities, with support from CSOs, to promote awareness about the value of sharing data as a public resource and the benefits of enhanced observations for disaster preparedness and resilience in Zambia.	
Maintaining supply of consumables and spares	<ul style="list-style-type: none">Operational	Very High	Very Likely	Extreme	<ul style="list-style-type: none">Maintain ongoing service agreements with suppliers.Keep stock of spares at each of the regional hubs.Install 2 radiosonde ground systems to allow for alternate usage and sufficient maintenance.Have back up plan to procure local hydrogen should generator fail.	
Access to sites for maintenance visits	<ul style="list-style-type: none">Operational	Very High	Very Likely	Extreme	<ul style="list-style-type: none">ZMD Regional Maintenance Centres will be linked to WFP field office fleet management, to ensure access to WFP vehicles and logistics support for routine inspection, maintenance, and fault resolution visits.	
Maintenance of the 21 nominated GBON stations is not prioritized, noting recent installation of 150 stations under TRALARD project and the potential for ZMD to be unable to appropriately maintain all stations.	<ul style="list-style-type: none">Operational	Very High	Very Likely	Extreme	<ul style="list-style-type: none">Adopt a tiered approach to network management, prioritising GBON 21 and a few other key stations over all other requirements.SOFF training component will target ZMD senior management to enhance capacity to prioritize network sustainability over network scale through dedicate management and leadership trainings – SOFF support to the revision of the ZMD Observation Strategy and its translation into Operational Plans (SOP) with SOFF peer advisor support will reinforce the tiered AWS stations operation and maintenance plan.Recruitment of dedicated staff (SOFF project manager) to ensure sustainability of 21 GBON AWS network for GBON compliance.	

Insufficient trained resource to configure data systems	<div><div></div><div>• Operational</div></div>	Very High	Very Likely	Extreme	- Recruit new resource to support the team. - Ensure ongoing service agreement with suppliers covers configuration of WIS2.0 system. - Encourage SOFF to invest in global, or regional, support mechanisms for WIS2.0 in a box.	
Inability to access staff to maintain radiosonde launches	<div><div></div><div>• Operational</div></div>	High	Very Likely	Moderate	- Utilise military personnel available to ZMD at Lusaka City Airport. - Consider auto-sonde as an alternate option should actions proceed.	
Zambia cannot make optimal use of data, including accessing or using improved forecast products from the Global Producing Centers throughout the hydromet value chain.	<div><div></div><div>• Operational</div></div>	Medium	Unlikely	Major	WFP-supported capacity-building activities for ZMD, complementary to the SOFF investment phase, will focus on enhancing ZMD's ability to effectively utilize data in alignment with national policy frameworks for early warning, forecast-based financing, and anticipatory actions.	

Budget by UNSDG Categories: Over all

Budget Lines	Description	WFP (6.5%) *	WMO (7%) *	Total
1. Staff and other personnel		\$565,380.00	\$0.00	\$565,380.00
2. Supplies, Commodities, Materials		\$129,140.00	\$409,144.00	\$538,284.00
3. Equipment, Vehicles, and Furniture, incl. Depreciation		\$1,735,500.00	\$0.00	\$1,735,500.00
4. Contractual services		\$105,000.00	\$0.00	\$105,000.00
5. Travel		\$98,831.29	\$0.00	\$98,831.29
6. Transfers and Grants to Counterparts		\$60,000.00	\$0.00	\$60,000.00
7. General Operating and other Direct Costs		\$301,224.30	\$0.00	\$301,224.30
Project Costs Sub Total		\$2,995,075.59	\$409,144.00	\$3,404,219.59
8. Indirect Support Costs		\$194,679.91	\$28,640.08	\$223,319.99
Total		\$3,189,755.50	\$437,784.08	\$3,627,539.58

Performance-based Tranches Breakdown

Tranche			Total
Tranche 1	WFP (70%)	\$2,232,828.85	\$2,378,742.28
	WMO (33.33%)	\$145,913.43	
Tranche 2	WFP (30%)	\$956,926.65	\$1,102,840.08
	WMO (33.33%)	\$145,913.43	
Tranche 3	WFP (0%)	\$0.00	\$145,957.21
	WMO (33.34%)	\$145,957.21	
			\$3,627,539.58

Results based budget

Outcome *	Output *	Agency *	Budget (USD) *
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1. GBON institutional and human capacity developed.		Sub Total	\$1,237,051.07
	1.1 National Consultations conducted.	WFP (6.5%)	\$390,852.06
	1.2 NMHS institutional capacity developed.	WFP (6.5%)	\$206,040.22
	1.3 NMHS human capacity developed.	WFP (6.5%)	\$231,014.79
	1.3 NMHS human capacity developed.	WMO (7%)	\$409,144.00
2. GBON infrastructure in place.		Sub Total	\$1,074,530.97
	2.2 Improved land-based stations in place.	WFP (6.5%)	\$62,436.43
	2.3 New upper-air stations in place.	WFP (6.5%)	\$1,012,094.54
3. Sustained compliance with GBON		Sub Total	\$1,092,637.54
	3.1 GBON land-based stations commissioning period completed.	WFP (6.5%)	\$655,582.52
	3.2 GBON upper air stations’ commissioning period completed.	WFP (6.5%)	\$437,055.02
Total			\$3,404,219.58

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.							
		Host National High-Level Consultative SOFF Forum and Investment Phase Launch.						
			WFP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
			WMO	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Organize regular SOFF Project Steering Committee meetings with relevant government entities (quarterly).						
			WFP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
			WMO	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Conduct district consultation workshops for CSO participation (21 districts of 21 GBON stations).						
			WFP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			WMO	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Launch an awareness-raising campaign on the use and value of GBON infrastructure linked to sensitization on the use of climate services for community-led (anticipatory) action (campaign covering 10 provinces).						
			WFP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			WMO	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Conduct stakeholder engagement workshops including CSOs, specifically with a focus on women's empowerment.						
			WFP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
			WMO	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	1.2 NMHS institutional capacity developed.							
		Develop SOPs for monitoring, maintenance, and calibration of GBON network for ZMD Regional Maintenance Hubs linked to a 5-year GBON Network sustainability plan (incl. financial sustainability plan).						
			WFP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			WMO	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Develop a ZMD business model linked to the GBON Network sustainability plan.						
			WFP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			WMO	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Develop maintenance, calibration, and meta- data logs.						
			WFP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
			WMO	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Outcome	Output	Activity	Implementing Agent	Time Frame				
				2025	2026	2027	2028	2029
				1	1	1	1	1
		Develop ZMD GBON quality management system (QMS).						
			WFP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			WMO	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Conduct a Gender Equality and Social Inclusion (GESI) context analysis for ZMD, including a ZMD GESI self-assessment.						
			WFP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			WMO	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Develop a ZMD GESI modernization plans, defining clear milestones towards enhanced gender equality and social inclusion within the institutions and its services.						
			WFP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			WMO	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1.3 NMHS human capacity developed.							
		Strengthen the capacity of ZMD Management focused on revision of ZMD Strategic & Operational Plans.						
			WFP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			WMO	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Provide training in management and leadership training, project management training, financial management, and HR.						
			WFP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			WMO	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Build capacity at ZMD Central on CDMS capability and WIS2.0 in a box within cloud infrastructure, as well as annual refresher training.						
			WFP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
			WMO	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Provide Gender Equality and Social Inclusion (GESI) training for ZMD staff (central-level and Regional Maintenance Hubs) and relevant local partners/CSOs.						
			WFP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
			WMO	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Strengthen the capacity of ZMD Regional Maintenance Hubs on GBON network maintenance, including regular refresher training.						
			WFP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
			WMO	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
		Train Lusaka Airport military personnel and ZMD staff on upper air station radiosonde launches.						
			WFP	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			WMO	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Recruit technical officers to ensure operational delivery of data to WIS2.0 and establish effective for ZMD Regional Maintenance Hubs.						
			WFP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			WMO	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
		Recruit ZMD SOFF project manager.						
			WFP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			WMO	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. GBON infrastructure in place.								
	2.2 Improved land-based stations in place.							
		Upgrade land-based stations and related equipment, ICT systems, data management systems, and standard operating practices in place.						
			WFP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
			WMO	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	2.3 New upper-air stations in place.							
		Procure and Install of 1 UAS at Lusaka Airport, with two manual radiosonde ground systems used alternately (including power supply and backup systems, computer, and communications peripherals, and a hydrogen generator,						
			WFP	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			WMO	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Sustained compliance with GBON								

Outcome	Output	Activity	Implementing Agent	Time Frame				
				2025	2026	2027	2028	2029
				1	1	1	1	1
	3.1 GBON land-based stations commissioning period completed.							
		Conduct routine maintenance and verification of the GBON network in accordance with the 5-year maintenance plan.						
			WFP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
			WMO	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Establish SOPs for the ZMD Regional Maintenance Hubs							
			WFP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			WMO	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3.2 GBON upper air stations’ commissioning period completed.							
		conduct routine inspection and maintenance of the UAS at Lusaka Airport, including calibration checks, fault resolution site visits, sensor rotation/spares, and consumables such as radiosondes, backup hydrogen, and diesel for backup generator.						
			WFP	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
			WMO	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
	Provide consumables and operating expenses for one autosonde station in Kasama for a duration of two years.							
			WFP	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
			WMO	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

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

1. Purpose and scope

These Terms of Reference describe the provision of technical advisory services by the [Met Office to the [Zambia Meteorological Department] to contribute to the delivery of the SOFF Investment Phase outputs as described in Section 3.

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

2. Roles and responsibilities

Beneficiary country National Meteorological and Hydrological Service

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

Peer advisor

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

Implementing Entity

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

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

WMO Technical Authority

- Provides basic on-demand technical assistance to the beneficiary country, Implementing Entity and peer advisor on GBON regulations, including on monitoring and assessing the data-sharing status of the stations using the WDQMS web tool¹
- Is responsible for the verification of data sharing of the new or rehabilitated surface and upper -air stations as per GBON regulations.
- WMO provides a verification report to the SOFF Secretariat, upon which the Investment Phase can be considered completed.
- Establishes and administers the pass-through mechanism for contracting and funding of the advisory services provided by the peer advisors.

SOFF Secretariat

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

¹ 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 Prediction (NCEP). These are four of the ten World Meteorological Centres, designated by WMO to provide global numerical weather prediction products for all WMO Members.

3. Peer advisors' activities during the SOFF Investment Phase

The peer advisor will contribute to the delivery of the SOFF Investment Phase outputs as described in the *RBM* section of the SOFF UNMPTF Gateway through the following activities:

Output	Indicator <small>(Please copy the indicators from RBM section of the Investment Funding request.)</small>	Activities conducted / contributions <small>(Please list all activities that will be conducted by the peer advisor relevant to the output. Please add rows if more than one activity will be conducted.)</small>	Implementation plan				
			Y1	Y2	Y3	Y4	Y5
1.1 National consultations , including with CSOs and other relevant stakeholders conducted	National High-Level Consultative SOFF Forum and Investment Phase Launch.	Attend and contribute to the Investment Phase Launch and Consultative Forum	1				
	Regular SOFF project meetings with relevant government entities (quarterly).	Participate in project meetings and in person once per year.	4	4	4	4	4
	District consultation workshops for CSO participation (21 districts of 21 GBON stations)	Contribute to the design of CSO workshop events, and support post event lessons learnt activities.	1	1			
	Awareness raising campaign on the use and value of GBON	Contribute to the design of GBON awareness event campaign and attend initial event.	1	1			

Output	Indicator <small>(Please copy the indicators from RBM section of the Investment Funding request.)</small>	Activities conducted / contributions <small>(Please list all activities that will be conducted by the peer advisor relevant to the output. Please add rows if more than one activity will be conducted.)</small>	Implementation plan				
			Y1	Y2	Y3	Y4	Y5
	infrastructure linked to sensitization on use of climate services for community-led (anticipatory) action (campaign covering 10 provinces)						
	Stakeholder engagement workshops including CSOs, specifically with focus on women's empowerment	Contribute to the design of CSO and GESI workshop events and support post event lessons learnt activities.	1	1			
1.2 NMHS institutional capacity required to operate the GBON network developed	Development of SOPs for monitoring, maintenance and calibration of GBON network for ZMD Regional Maintenance Hubs linked to a 5-year GBON Network sustainability plan (incl. financial sustainability plan)	Co-develop and support implementation of SOPs, processes and associated documentation for monitoring, maintenance and calibration of the GBON surface and upper air network.	1	1	1	1	1

Output	Indicator (Please copy the indicators from RBM section of the Investment Funding request.)	Activities conducted / contributions (Please list all activities that will be conducted by the peer advisor relevant to the output. Please add rows if more than one activity will be conducted.)	Implementation plan				
			Y1	Y2	Y3	Y4	Y5
	Development of ZMD business model linked to GBON Network sustainability plan.	Collaborate with ZMD to develop a business model (commission and SEB analysis of ZMD) and financial plan for sustainability.		1	1		
	Development of maintenance, calibration and meta-data logs.	Co-develop metadata logs and incorporation into QMS.		1			
	Development of a ZMD GBON quality management system (QMS).	Co-develop QMS and support adoption by ZMD management and regional maintenance hubs.		1	1		
	Gender Equality and Social Inclusion (GESI) context analysis for ZMD, including a ZMD GESI self-assessment	N/A	N/A	N/A	N/A	N/A	N/A
	Development of ZMD GESI modernization plans, defining clear milestones	N/A	N/A	N/A	N/A	N/A	N/A

Output	Indicator <small>(Please copy the indicators from RBM section of the Investment Funding request.)</small>	Activities conducted / contributions <small>(Please list all activities that will be conducted by the peer advisor relevant to the output. Please add rows if more than one activity will be conducted.)</small>	Implementation plan				
			Y1	Y2	Y3	Y4	Y5
	towards enhanced gender equality and social inclusion within the institutions and its services						
1.3 NMHS human capacity required to operate the GBON network developed	Capacity strengthening of ZMD Management focused on revision of ZMD Strategic & Operational Plans.	Provide technical support in the drafting of ToRs and reviewing of outputs. Defined management training packages will be delivered by appropriate training consultants, to be identified/tendered during the project – context provided by the peer advisor in consultation with ZMD.	1	1	1		
	Management and leadership training, project management training, financial management and HR training.	Co-develop specification and ToR for management and leadership training. Defined management training packages will be delivered by appropriate training consultants, to be identified/tendered during the project – context and support provided by the peer advisor in consultation with ZMD.	1	1	1		
	Capacity building at ZMD Central on CDMS capability and WIS2.0 in a box within cloud	Co-develop specification and ToR for CDMS and WIS2 training. Defined technical training packages will be delivered by appropriate training consultants, to be identified/tendered during the	1	1			

Output	Indicator <small>(Please copy the indicators from RBM section of the Investment Funding request.)</small>	Activities conducted / contributions <small>(Please list all activities that will be conducted by the peer advisor relevant to the output. Please add rows if more than one activity will be conducted.)</small>	Implementation plan				
			Y1	Y2	Y3	Y4	Y5
	infrastructure, annual refresher trainings.	project – context provided by the peer advisor in consultation with ZMD.					
	Gender Equality and Social Inclusion (GESI) training for ZMD staff (central-level and Regional Maintenance Hubs) and relevant local partners/CSOs	N/A	N/A	N/A	N/A	N/A	N/A
	Enhancing the capacity of ZMD regional maintenance hubs for GBON network maintenance, including regular refresher training.	Co-develop specification and ToR for regional maintenance hub training. Defined technical training packages will be delivered by appropriate training consultants, to be identified/tendered during the project – context provided by the peer advisor in consultation with ZMD.	1	1	1		
	Training of Lusaka Airport military personnel and ZMD staff on upper air	Co-develop specification and ToR for radiosonde training.		1	1		

Output	Indicator <small>(Please copy the indicators from RBM section of the Investment Funding request.)</small>	Activities conducted / contributions <small>(Please list all activities that will be conducted by the peer advisor relevant to the output. Please add rows if more than one activity will be conducted.)</small>	Implementation plan				
			Y1	Y2	Y3	Y4	Y5
	station radiosonde launches.						
	Recruitment of technical officers for ZMD Regional Maintenance Hubs	Co-develop specification and competency profile for recruitment of technical officers.	1 1	1 1			
	Recruitment of ZMD SOFF project manager.	Co-develop specification and competency profile for recruitment of project manager and support staff.	1	1			
2.1 New land-based stations and related equipment, ICT systems, data management systems and standard operating practices in place	# of new stations installed as per the GBON National Contribution Plan	N/A.	N/A	N/A.	N/A	N/A	N/A
2.2 Improved land-based stations and related equipment, ICT systems, data	# of stations improved as per the GBON National Contribution Plan	Contribute to the co-develop of the terms of reference for the service level agreements for the AWS network.	1	1			

Output	Indicator <small>(Please copy the indicators from RBM section of the Investment Funding request.)</small>	Activities conducted / contributions <small>(Please list all activities that will be conducted by the peer advisor relevant to the output. Please add rows if more than one activity will be conducted.)</small>	Implementation plan				
			Y1	Y2	Y3	Y4	Y5
management systems and standard operating practices in place							
2.3 New upper air stations and related equipment, ICT systems, data management systems and standard operating practices in place	# of new stations installed as per the GBON National Contribution Plan	Provide technical advice and specifications for the procurement of the upper air station at Lusaka Airport.	1	1			
2.4 Improved upper air stations and related equipment, ICT systems, data management systems and standard operating practices in place	# of stations improved as per the GBON National Contribution Plan	N/A	N/A	N/A	N/A	N/A	N/A
3.1 GBON land-based stations' commissioning period completed , country-specific standard cost for	# of stations commissioned as per the GBON National Contribution Plan	See 1.2 "Development of SOPs for monitoring, maintenance and calibration of GBON network for ZMD Regional Maintenance Hubs linked to a 5-year GBON Network sustainability plan (incl. financial sustainability plan)" for milestones relating to	1	1.	1	1	1

Output	Indicator <small>(Please copy the indicators from RBM section of the Investment Funding request.)</small>	Activities conducted / contributions <small>(Please list all activities that will be conducted by the peer advisor relevant to the output. Please add rows if more than one activity will be conducted.)</small>	Implementation plan				
			Y1	Y2	Y3	Y4	Y5
operations and maintenance established, and data sharing verified by WMO Technical Authority		ongoing Peer Advisor support to ZMD for 5 year duration of investment phase.					
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	# of stations commissioned as per the GBON National Contribution Plan	See 1.2 "Development of SOPs for monitoring, maintenance and calibration of GBON network for ZMD Regional Maintenance Hubs linked to a 5-year GBON Network sustainability plan (incl. financial sustainability plan)" for milestones relating to ongoing Peer Advisor support to ZMD for 5 year duration of investment phase.	1	1	1	1	1