SOFF Investment Funding Request

Nepal

Systematic Observations
Financing Facility

Weather and climate data for resilience

UN Multi-Partner Trust Fund Office

General Information

Fund	MPTF_00281: The Systematic Observations Financing Facility
FMP Record	SOFF **Nepal Investment Phase**
MPTFO Project Id	
Start Date	2026
End Date	2031

Applicants

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Description

Nepal is one of the countries in South Asia with extreme geographic and climatic diversity—ranging from the sub-tropical Terai plains below 70 meters above sea level(masl) to the world's highest peaks above 8,848 masl—creates severe exposure to climate-induced hazards such as intense monsoon flooding, landslides, thunderstorms, and high-mountain Glacial Lake Outburst Floods (GLOFs). These risks are further amplified by Nepal's status as a Least Developed Country, where nearly a quarter of the population lives below the poverty line and with limited access to essential services such as electricity, safe water, and resilient infrastructure, which heightens vulnerability. The country's steep terrain and scattered settlements often isolate communities during disasters, delaying relief and compounding economic losses. This challenging context underscores the critical importance of robust and high-quality hydrometeorological observations to strengthen Nepal's early warning system to save lives.

The project aims to strengthen Nepal's hydrometeorological observation capacity by supporting the Department of Hydrology and Meteorology (DHM)—the national authority mandated to monitor all hydrological and meteorological activities across the country. While DHM operates an expanding network of manual and automatic weather stations, significant gaps remain, particularly in high-altitude and upper-air observations essential for accurate forecasting. Limited funding, insufficient human resources, and challenges in maintaining continuous operations have constrained DHM's ability to run radiosonde sites twice daily and ensure uninterrupted transmission of data to the WMO Global Data Exchange systems. The proposed project addresses these systemic challenges by expanding and stabilizing Nepal's observation network in line with Global Basic Observing Network (GBON) requirements, including the establishment of at least five surface AWS stations—two above 3,000 masl and one in remote western Nepal—and two upper-air stations, forming the foundation for enhanced, high-quality climate and weather data.

The project seeks to ensure a sustainable, long-term operation of Nepal's GBON-compliant observation network by strengthening institutional capacity, securing multi-year maintenance contracts, and improving data transmission, quality control, and system reliability. It will enhance coordination among national agencies—including Civil Aviation Authority of Nepal, National Academy of Science and Technology, National Disaster Risk Reduction and Management Authority and provincial/local governments—and promote partnerships with research institutions and the private sector to maximize the use of meteorological infrastructure and co-generate high-altitude and sector-specific climate data. Additionally, the project supports improvements in DHM's ICT backbone by stabilizing the Data Management System (DMS), ensuring reliable backup systems, and clarifying service levels within Nepal's centralized IT architecture. Through these efforts, the project aims to provide continuous, high-quality weather and climate observations that strengthen national forecasting capability, inform disaster risk reduction strategies, and contribute to global weather and climate prediction systems.

To close the gaps of metrological data required to generate effective climate services nationally through GBON-compliant observation

	network, requires strengthening capacities of national institutions in terms of infrastructures, specialized human resources, and data management , for which support from SOFF is instrumental. Building on the SOFF Readiness phase (GBON National Gap Analysis, Country Hydro-met Diagnostic, and National Contribution Plan), this Investment Request specifically targets to upgrade 4 manual weather stations to automatic weather stations (AWS), 1 AWS and 1 upper-air sounding station to meet GBON requirements, and installation of 1 new upper-air sounding station and build DHM (NHMS)'s institutional and human capacity for smooth operation of those stations . Further this Investment Request also targets to support upgradation of data management system to enable data transmission to WIS2.0 and upgradation and establishment of calibration laboratory services, among others.			
Universal Markers	**Gender Equality Marker**	**Risk**		
	GEM1 - The Key Activity contributes to GEWE in a limited way.	Low Risk		
Optional Markers	**WB Income Category**	Lower Middle Income		
	UN LDC	Yes		
	Small Island Developing States (SIDS)	No		
Fund Specific Markers	**SOFF Phases**	**SOFF Phases** • Investment Phase		
	EW4All	**Early Warnings for All initial focus countries** • Yes		
	Fragile and conflict- affected situation	**Fragile and conflict-affected situation** • No		
	Peer advisor	**Peer advisor** • Finnish Meteorological Institute (FMI)		
Geographical Scope	**Geographical Scope**	**Name of the Region**	**Region(s)**	**Country**
	• Country		• Asia	• Nepal
Participating Organizations and their Implementing Partners	**UN Participating Organizations**	**Government/ Multilateral/ NGO/ Other**	**New Entities**	**Implementing Partners**
	• United Nations Development Programme (UNDP) • WMO (World Meteorological Organization)	Please write the name of the IE (if an MDB)		UNDP Nepal
Programme and Project Cost	**Participating Organization**	**Amount (in USD)**	**Comments**	
	Budget Requested			
	• IE	$ 4,654,837.02	Includes the 7% IE fee	
	• WMO	$ 420,664.08	Includes the 7% WMO fee	
	Total Budget Requested	**$ 5,075,501.10**		
	Tranches			

Tranche 1		Tranche 2		Tranche 3	
IE (70%)	$ 3,258,385.91	IE (30%)	$ 1,396,451.10	IE (0%)	$ 0.00
WMO (33.33%)	$ 140,207.34	WMO (33.33%)	$ 140,207.34	WMO (33.34%)	$ 140,249.40
Total:	**$ 3,398,593.95**	**Total:**	**$ 1,536,658.74**	**Total:**	**$ 140,249.40**

Other Sources (Parallel Funding- tentative)		
Department of Hydrology and Meteorology (DHM)	$ 520,569.69	In kind and parallel contribution through regular and project-based activities.
UNDP and DHM (GCF Funded Project)	$ 244,000	Parallel contribution by GCF Funded Project being implemented by UNDP and DHM (Government of Nepal)

	Total	**$ 764,569.70**	
Thematic Keywords	Upper air station, AWS, Data management System, WIS, QC, GBON, calibration, high altitude, Forecast, EWS		
Programme Duration	**Anticipated Start Date**	5 October 2026	
	Duration (In months)	60 Months	
	Anticipated End Date	1 January 2031	

Narratives

Close the most significant data gaps

Nepal's Department of Hydrology and Meteorology (DHM) under the Ministry of Energy, Water Resources and Irrigation is the main body responsible for conducting all hydrological and meteorological activities in the country.

Currently DHM is disseminating surface weather observations to the Global Telecommunication System / WMO Information System (GTS/WIS) from 17 synoptic /aero-synoptic stations (manual), but none of the stations meet the GBON temporal resolution. In addition, DHM is operating more than 100 Automatic Weather Stations (AWS) and several manual stations including 194 precipitation stations, 79 climate stations and 6 agro-meteorological stations. None of them report to GTS/WIS. However, these stations can be upgraded to fulfil the GBON requirements. There is also one upper-air sounding station in Nepal, but soundings have only been conducted once a day at maximum due to budget deficit and poor data dissemination capacity.

According to the WMO GBON Gap Analysis done in June 2023, GBON standard density requirements can be achieved with 4 surface stations and 1 upper-air sounding station. There is also a need to upgrade the data management system to enable data transmission to WMO Information System 2.0 (WIS2.0). However, due to complex mountainous topography, lack of adequate observations in the Himalayan region in general and the need to provide higher altitude observational data (> 3000m) the WMO Technical Authority has endorsed the upgradation of five surface observation stations and two upper-air sounding stations in Nepal. These upgrades have been incorporated and approved in both the GBON National Gap Analysis and the GBON National Contribution Plan.

Accordingly, the SOFF investment phase in Nepal is expected to close the following gaps in the national observing system to ensure full compliance with GBON requirements and to enable data sharing through WIS2.0:

1. Upgrade four manual surface stations to Automatic Weather Stations (AWS) and upgrade one existing AWS to meet GBON specifications.
2. Upgrade one upper-air sounding station to bring it to GBON-compliant status.
3. Install one new upper-air sounding station to meet GBON network requirements.
4. Upgrade the national data management system to ensure reliable, timely transmission of observational data to WIS2.0.

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

Target easy fixes

DHM operates a network of automatic weather stations that require minor upgrades to achieve long-term GBON compliance. These improvements include battery replacement, enhanced security fencing, sensor upgrades and calibrations, and redesigning ICT infrastructure for complete data processing. With these basic enhancements, Nepal can significantly improve several stations identified in the GBON Gap Analysis, alongside the upgradation targeted under SOFF support. Complimentary to SOFF support, the GCF Funded Project on "Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal" will expand hazard monitoring and early warning in GLOF-prone basins by installing few Automatic Weather Stations (AWS) that will meet GBON compliance criteria . Likewise, other projects under DHM may contribute to improving the stations as easy fixes while meeting GBON compliance for data sharing globally.

One key upgrade involves the existing upper-air sounding station, which needs improvements in data communication with WMO system, consumable parts, operational support, and annual maintenance, including labour costs for operators. Surface stations can also be upgraded, provided new sensors are compatible with the current AWS network to maintain operational sustainability. Leveraging the existing network will enable Nepal to achieve higher GBON density in the future, representing another cost-effective solution.

Create leverage

Building on past project experiences regards to establishing and managing a network of weather stations, currently DHM manages several projects in this area and has identified a number of projects in the pipeline, which will together contribute to strengthening the capacity of DHM on data acquisition, analysis and dissemination to serve the need of various sectors. Some of those projects having potential for GBON compliance include:

Relevant Projects Linked to SOFF Investment Phase – Nepal

Funding Source	Project Name	Status / Timeline	Financing (USD)	Key Hydromet / Observation Components	Linkage to SOFF Investment Phase
GCF	Protecting livelihoods and assets at risk from GLOFs and climate change-induced flooding in glacial river basins of Nepal	Ongoing / approved	49.9 Mil	Install 6 base stations, 24 AWS, 9 precipitation gauges (PCP), 27 radar-based water level sensors (RLS); integrate to real-time acquisition for monitoring, glacier modelling and EWS (Marsyangdi, Dudhkoshi, Arun).	Provides systematic observation for Glacier monitoring for hazard monitoring and early warning system and and strengthens EW4ALL synergies.
CREWS/ WMO	CREWS Accelerator (Nepal)	Ongoing	80K	Strengthens multi-hazard EWS and coordination across authorities and communities to advance EW4ALL.	CREWS Accelerator strengthens end-to-end, people-centred multi-hazard early warning systems , focusing on improving warning generation, dissemination, institutional coordination, and last-mile delivery; helps ensure use of GBON data across services and monitoring.
CIF (PPCR) / World Bank	Building Resilience to Climate Related Hazards (BRCH)	Completed (2013–2021)	31.3 Mil	Installed ~88 AWS, ~70 hydrological stations, one C-band radar, one upper-air (Kirtipur), lightning detection, calibration lab, DMS upgrade, 2 river EWS,	Foundational platform for SOFF's GBON compliance and WIS 2.0 enabling (calibration lab, DMS, network).

				NWP with data assimilation, hydromet workstation, websites; modern office building.	
ADB	Priority River Basin Flood Risk Management Project (PRBFRMP)	Ongoing (2021–2027)	6.5 Mil	Install 43 rain gauges, 31 hydrological, 43 meteorological stations; develop 5 FFEWS and upgrade 1 FFEWS; improve maintenance.	Complementary densification: Easy-fix pipeline for GBON compliance
Bilateral (Japan / JICS)	JICS AWS Upgrade	Ongoing (to mid-2026)	1.6 Mil	Upgrade manual stations to AWS and install new AWS (~13 stations total); data into DMS.	Easy-fix pipeline for GBON compliance (sensors, power, fencing, comms).
GEF / UNDP	Developing Climate-Resilient Livelihoods in Vulnerable Watersheds	Completed	6 Mil	5 meteorological + 2 hydrological stations linked to DHM server; data accessible to SCWMO Dharan and 8 municipalities.	Demonstrates multi-level data use; stations candidates for GBON upgrades where feasible.
Bilateral (Japan) / UNDP	Enhancing Human Security through Local Climate Actions	Completed (2023–2024)	1 Mil	Telemetry EWS in Thuli Bheri basin: 1 meteorological (Dalli) + 3 hydrological stations; thresholds established and applied.	End-to-end pipeline precedent (sensors→thresholds→alerts) that SOFF strengthens upstream.
Finland	FNEP3 Exit (and FNEP 1–3)	Completed (FNEP3 Exit 2024)	1.85 Mil	New QC checks in DMS; benchmarking calibration; earlier FNEP phases initiated DHM modernization.	Precursor to SOFF QMS/Calibration, WIS 2.0 integration.
GEF / UNDP	Community-Based Flood and GLOF Risk Reduction (CFGORRP)	Completed	6 Mil	Community-based GLOF EWS around Imja Lake; 18 community EWS stations; sirens; manual gauges; integration to DHM decision support and NEOC comms.	Operational experience with EWS and data workflows; SOFF strengthens upstream observation quality and sharing.
GCF (Pipeline)	Climate Change and Health (working title)	Pipeline	5 Mil	Sectoral integration of climate and health risk management (systemic resilience).	Downstream user of improved observations/indices generated via GBON
Adaptation Fund (AF)	"Building the resilience of persons with disabilities to cope with climate change in Asia"	Pipeline	2 Mil	Installation of Hydro-met stations and establishing EWS targeting for People with disability in Jangaha River Watershed in Mahottari District of Nepal	If AF-funded hydromet/EWS projects exist, they can be aligned for GBON easy-fix;

SOFF-supported GBON-compliant stations will play a catalytic role in Nepal by establishing a nationally standardized, quality-assured, and operationally sustainable observational backbone that reliably supports a wide range of climate and disaster-related investments by ensuring spatial representativeness, continuous data availability thereby securing the long-term effectiveness and scalability of sectoral interventions beyond individual project cycles. Climate investments implemented by sectoral ministries with support from GEF, GCF, Adaptation Fund, ADB, the World Bank, UN agencies, bilateral donors, and domestic budgets depend on weather and climate data for project design, operational decision-making, numerical weather prediction, early warning, monitoring, reporting and verification (MRV), and access to performance-based and loss-and-damage finance. While many of these projects install localized, purpose-specific AWS (e.g., for agriculture, floods, or basin-level early warning), SOFF fills the systemic gap by upgrading priority stations to GBON and WMO standards, ensuring robust sensors, redundancy, uninterrupted data transmission, calibration, quality management, and real-time international exchange through WIS 2.0. SOFF intervention improves the reliability, consistency, and spatial representativeness of data used by ongoing investments, enhances global and regional model performance through sustained data contribution, and enables the preparation of bankable, climate-informed project pipelines aligned with Nepal's NDC 3.0, NAP (2021–2050), and National DRR Strategy, including credible climate attribution and hazard-loss analytics required to access Loss and Damage-related and results-based climate finance. In this way, SOFF acts as a critical enabler that increases the effectiveness, scalability, and long-term sustainability of climate investments across Nepal without duplicating project-specific infrastructure.

Maximize delivery capacity

UNDP Nepal brings decades of experience in implementing complex climate and disaster risk management projects, backed by robust fiduciary systems, procurement standards, and operational procedures aligned with international requirements, including those of SOFF and GCF. Its strong institutional capacity ensures transparent financial management, timely procurement, and effective coordination with national stakeholders. UNDP has successfully delivered large-scale projects involving technical design, installation of hydrometeorological systems, and integration of early warning services, while embedding sustainability through capacity building and institutional strengthening. UNDP Nepal and the Department of Hydrology and Meteorology (DHM) have a longstanding partnership in implementing hydrometeorological and disaster risk management initiatives that directly inform and strengthen the SOFF Investment Phase. Some completed projects include community based early warning systems (e.g., Tsho Rolpa GLOF EWS and CFGORRP at Imja), sector focused observation and EWS initiatives (Enhancing Human Security through Local Climate Actions, 2023–2024), and watershed scale hydromet investments under the GEF-supported Climate Resilient Livelihoods project (2024). Currently, UNDP and DHM are jointly implementing the US$49.9 million GCF-funded GLOF Risk Reduction Project, which will substantially expand observation networks and operational EWS coverage in priority basins. The proposed SOFF investment is fully complementary to the GFC funded project. While the GCF project focuses on GLOF l hazard-specific risk reduction — including glacial lake lowering, ecosystem-based flood mitigation, and the development and operationalization of early warning systems in priority basins — the SOFF initiative will strengthen the foundational hydrometeorological observation network and data governance systems required to sustain these interventions. SOFF will enhance compliance with WMO standards, improve data quality management, and modernize national observation and transmission systems under the DHM. This upstream strengthening of systematic observation capacities will directly reinforce the technical reliability, accuracy, and long-term sustainability of the GCF-supported hazard monitoring and early warning systems, without duplicating structural or basin-specific investments. Together, the two initiatives establish a coherent framework in which SOFF provides the national observation backbone, and the GCF project applies this enhanced data infrastructure to targeted climate risk reduction and community resilience outcomes. Same

	approach is valid for the GCF pipeline project on Climate Change and Health (US$5 million) will further strengthen systemic resilience by integrating health and climate risk management. SOFF and GCF projects will share human resources, e.g . PMU staff including meteorologist. In addition, the communication and reporting officer and M&E officer of GCF Funded project will also provide inputs to the SOFF project officials.. These investments will be directly leveraged during the SOFF Investment Phase, with SOFF strengthening the foundational GBON-compliant observation backbone, data quality management, calibration, and WIS 2.0 data exchange systems required to sustain and scale these downstream applications without overlap. UNDP's role as Implementing Entity (IE)—both in Nepal and in other SOFF partner countries—ensures robust fiduciary management, procurement, and coordination aligned with SOFF operational standards. DHM and FMI have over 20 years of collaboration in the field of modernization of value chain of the hydro-meteorological service process. FMI brings strong continuity and credibility as SOFF Peer Advisor, drawing on its experience supporting GBON readiness and SOFF investment design in multiple countries, and on its role as systems integrator for largescale hydromet modernization projects. FNEP (2010–2024) focused on strengthening DHM's full hydrometeorological value chain and introducing modern technologies across operations. Several systems now being enhanced under SOFF were originally piloted through FNEP before installation in the BRCH. The SOFF project is closely linked to the earlier BRCH project and builds on its results. BRCH established the core infrastructure and systems required for modernization of DHM to meet future compliance with GBON requirements. As such, several SOFF activities are based on the foundational work done under BRCH . Under BRCH, key observation and support infrastructure were installed, including automatic weather stations, an upper-air sounding station, a data management system, and a calibration laboratory which will be upgraded during the SOFF. These systems form the operational backbone of DHM's observation network essential for GBON implementation. However, BRCH's focus was primarily on infrastructure building, with limited scope for capacity development due to resource constraints. As a result, some functionalities, such as the full operationalization of calibration services and sustainable GBON-compliant operations, could not be fully achieved. SOFF will build on existing BRCH-installed systems to upgrade the infrastructure to ensure that GBON requirements are fully met. In addition, SOFF places strong emphasis on capacity development, providing extensive training and institutional support to DHM staff. This training component is critical for ensuring that the systems will be established under SOFF can be operated, maintained, and sustained in the long term in line with GBON expectations. Based on SOFF results, the GBON compliance could be enhanced also in other BRCH stations. The stations planned under JICA and ADB funded projects are specific to meet certain objectives. These stations will contribute to increase the station density and serve as easy-fix pipeline for GBON compliance (sensors, power, fencing, comms). UNDP and FMI have jointly supported DHM in modernizing the full hydrometeorological value chain, including observing networks, data management systems, calibration facilities, and institutional processes. Together, this combination of national ownership by DHM, deep technical continuity from FMI, and implementation experience from UNDP positions Nepal to translate SOFF financing into rapid, high quality GBON compliance. Strengthened GBON capacity under SOFF subsequently enables and amplifies EW4ALL Pillar 2, ensuring that early warning systems are built on reliable, standardized, and sustained observation infrastructure.
Sub-regional gains	Several opportunities for sub-regional collaboration have been identified in the GBON National Contribution Plan: 1. **Network optimization** As mentioned in the GBON National Contribution Plan, SOFF funding has been optimized between neighbouring countries (including Nepal and Bhutan) by taking in account spatial resolution of the existing and planned GBON stations. The GBON compliant networks in India and China have also been taken into account. 2. **Sharing knowledge and experience on common technical systems** Data, knowledge and experience sharing between neighbouring countries using common technical systems is important for effective weather and flood forecasting. Since several countries in the region (Nepal, Bhutan, Bangladesh and Maldives) are using automated weather stations (AWS) produced by the same manufacturer Microstep, it is recommended to organize an informal technical group to share knowledge as well as conduct joint trainings, where possible. Since Finnish Meteorological Institute (FMI) is the peer advisor for all three countries (Nepal, Bhutan, Maldives), regional benchmarking visit to Finland could be organized to enhance regional data sharing. Capacity building development by Regional WIGOS Centre RA II could also be explored. During the investment and compliance phase, the SOFF Programme in Nepal opens a strong opportunities for enhanced regional cooperation, particularly with RIMES and the India Meteorological Department (IMD). Through RIMES, Nepal can benefit from shared expertise, regional training, and technical support for data analysis, impact-based forecasting, and early warning services. Collaboration with IMD enables exchange of upper-air and high-altitude observations, NWP products, and joint forecasting insights, improving accuracy along shared transboundary weather systems. These partnerships will reinforce Nepal's SOFF-supported GBON upgrades and contribute to more consistent and reliable regional climate and weather services. 3. **Calibration** Approved SOFF investment phase funding request for Bhutan includes upgrade of a calibration laboratory. Nepal's calibration facilities are currently only partially operational; however, once Bhutan's calibration lab is ready, Bhutan could offer calibration services to Nepal during the upgrade of Nepal's calibration laboratory to ensure GBON compliance from early stage of the project. However in the long run, Nepal will have its own upgraded calibration laboratory to address the need of GBON Compliance and for larger network in a cost effective and efficient way. This project includes upgrading the calibration facility in Nepal for its sustained services and regional collaboration. 4. **Improvement of Regional Weather Forecast and Climate Services** Two stations in SOFF are from high altitude (>3000masl). Inclusion of weather observation from higher altitude stations and upper air observation stations from western Nepal in GBON will help improve regional NWP forecast not only for Nepal but also for the region.

SOFF Beneficiary Country Capacity Assessment	The **Department of Hydrology and Meteorology (DHM)**, as Nepal's statutory authority for hydrology and meteorology under Ministry of Energy Water Resources and Irrigation and has the mandate from Government of Nepal to monitor all the hydrological and meteorological activities in Nepal. As the meteorological services, currently DHM is operating manual and automatic weather stations to generate the climate data, run the weather model for weather forecast services, analyze the observed data for climate services and also provide the aerodrome meteorological services based on observation and forecast. The operation of DHM is supervised by MoEWRI it receives fund allocated by the Ministry of Finance (MoF) via MoEWRI. Led by MoEWRI the government has recently formulated Hydrology and Meteorology Policy under the leadership of MoEWRI and is in the process of drafting Hydrology and Meteorology Bill. Specific policy and regulations will ensure sustainable operations of weather stations through adequate budget allocation from MoF it is therefore critical to provide necessary technical and financial support to DHM for continuity of hydro-met services. Its role as the national lead for **EW4ALL Pillar 2 – Observations, Detection, Monitoring and Forecasting,** further demonstrates its strategic importance and readiness to implement SOFF-supported activities. UNDP Nepal supports DHM as Co-lead of **EW4ALL Pillar 2 – Observations, Detection, Monitoring and Forecasting.** DHM's institutional framework, combined with its operational experience and collaboration with UNDP, ensures efficient delivery of GBON-compliant infrastructure and services. DHM currently operates more than 100 Automatic Weather Stations (AWS) and disseminates real time data nationwide through its website; however, coverage remains insufficient in high altitude regions. Limited budget and inadequate human resources make it challenging for DHM to operate radiosonde station twice a day and ensure uninterrupted AWS data transmission to WMO's global data servers. At present, only one radiosonde station functions intermittently, and its data are not transmitted to GTS/WIS. Since GBON requires a reliable network of surface and upper air observations that continuously generate and share data to improve global forecasting accuracy, strengthening DHM's institutional capacity is essential. Through the proposed project, DHM will be enabled to meet GBON compliance for at least five AWS surface stations—including two above 3,000 masl and one in a remote western region—and two upper air stations during the Investment Phase. Since the submission of the National Contribution Plan (NCP), the Government of Nepal has made notable progress in strengthening its calibration capacity through establishment of dedicated unit with partial engagement for field exercises, and outsourcing arrangements for operating the existing calibration laboratoryinter□compariso. The project based expert will closely work with the unit. The DHM has assessed its capacity to absorb a significant increase in station density through the GBON National Contribution Plan (NCP) and the SOFF Readiness Phase, which together identify both existing institutional strengths and priority capacity gaps in the context of rapidly expanding observations financed through multiple domestic and international funding sources. DHM has progressively automated its observation networks, expanded the use of a centralized Data Management System, and adopted standardized operating procedures, enabling the scalable management of a growing number of AWS installed under projects funded by vertical funds (GCF, GEF, AF), multilateral Banks (ADB, the World Bank), UN agencies, bilateral partners and the Government of Nepal. Operationally, DHM continuously monitors the performance of AWS installed by various agencies and engages in annual maintenance contracts based on network needs to ensure operational continuity. A critical component of this capacity-absorption strategy is the operationalization and upgrading of the national calibration laboratory, including strengthening in-house calibration skills and procuring essential calibration kits, which will allow DHM to routinely verify sensor accuracy and undertake timely replacement where required. The SOFF Investment Phase builds on this assessed capacity through a phased, risk-managed approach, strengthening human resources, calibration services, supervision of outsourced maintenance, and lifecycle planning, ensuring that increases in station density are matched by consistent institutional and technical capacity building which is the key for the sustainability of the investment for a longer period of time. This enables DHM to sustainably integrate additional stations from multiple funding streams while maintaining data quality, national ownership, and long-term GBON compliance. Under the SOFF Investment Phase, Nepal will further upgrade and reinforce its calibration facility, including enhancements to equipment, operation and maintenance systems, and the development and operationalization of Standard Operating Procedures (SOPs) and quality certification processes. Establishing reliable in-country calibration services is essential to meet the calibration needs of GBON stations and Nepal's expanding national observation network, and the SOFF Programme is designed to build this long-term national capacity. For post-Investment Phase sustainability, provisions for additional trained human resources, continued outsourcing for specialized operation and maintenance, adequate budget allocation, and strict adherence to QMS-based SOPs and guidelines will be emphasized and clearly detailed in the exit strategy to ensure a smooth transition to the Compliance Phase. Regional coordination and cooperation will also remain important—particularly for reference sensor calibration through Regional WMO Centres in China and Japan, as well as for knowledge exchange, technology transfer, and experience sharing with neighboring countries.. Apart from DHM, few other governmental institutions have also installed weather stations for their own purposes. For example, Civil Aviation Authority of Nepal (CAAN) is operating AWOS (Automatic Weather Observation System) at all three international airports. Observations from AWOS installed by CAAN are available for airport met office and are planned to be integrated into centralized database. In addition, CAAN also manages AWOS installed at domestic airports. With PPCR funded project support, DHM have also installed AWOS both at three international airports and domestic airports of Nepal. A possibility to utilize permanent staff of CAAN at the airports for maintenance work is still to be explored. At the same time, Nepal Agricultural Research Council (NARC) and DHM are collaborating in operation of agrometeorological stations. In the same vein, the provincial and local level governments have installed meteorological and hydrological stations for disaster risk management purposes in collaboration with DHM. Though DHM provides technical support for installation these stations, ensuring data quality, and data integration to DHM's systems is still not institutionalized. Further there are few temporary stations installed for research purposes, particularly the high-altitude monitoring stations, which are operated in collaboration with research institutions, universities, and private sector entities. These stations support scientific research, academic studies, and hydropower planning and operations. DHM further expects to strengthen partnership with research institutions and private sectors (tourism, hydro power, agriculture) for installation of new weather stations to support climate research, promotion of tourism and trekking and climate resilient agriculture. DHM has signed MoU with the Nepal Telecommunication (NTC) and mobile service provider NCELL for data communication which allows free data transfer from stations to DHM's server. NCELL is also providing the toll-free number to general public on dissemination of forecast and warning. Most ICT services for the Data Management System (DMS) are centrally hosted at the Government of Nepal's Integrated Data Management Center (IDMC), with DHM maintaining backup servers. However, recurring technical issues at IDMC—highlighted by a major server crash in November 2023—have affected DHM's required service levels. Although DMS maintenance was previously outsourced, there is currently no long-term contract in place. Continuing the centralized ICT service model is recommended to avoid duplication and reduce costs, provided that long-term maintenance arrangements are restored and DHM's critical infrastructure is strengthened with more reliable backups and redundant systems. Under the SOFF Investment Phase, contractual ICT services will support automated QA/QC, hardware and

	software upgrades, WIS 2.0–ready enhancements, and comprehensive operation and maintenance of the DMS. The programme will also reinforce long-term sustainability through improved O&M functions, essential hardware and software provisions, and institutional capacity building within DHM. Project-based staff will further assist with daily system monitoring, troubleshooting, coordination, oversight of the consulting firm, and structured knowledge transfer to ensure a smooth transition to DHM ownershipAlthough DHM manages Nepal's national weather observation network, limited human resources and technical capacity necessitate outsourcing Operation and Maintenance (O&M) to consulting firms Effective station operation and maintenance is essential for ensuring high-quality data collection and achieving GBON compliance throughout the investment and compliance phase. During the Investment Phase, DHM awards annual maintenance contracts to external consulting firms for technical expertise, while DHM itself provides spare parts and oversees O&M performancethrough contractual services on an annual basis. The O&M Consulting Firm will be hired later when the project implementation begins. This will be an open competition and follow UNDP / Govt. of Nepal procurement procedures. The SOFF programme also includes project-based experts/ staff is expected to ensure reliable, continuous network performance and timely data sharing. In line with the GBON National Contribution Plan (NCP) recommendation to use long-term (minimum five-year) contracts for the procurement of goods and operational consultancy services—such as station O&M, and the procurement of spare parts, balloons, and sensors. dedicated to supporting smooth implementation and monitoring for GBON compliance in addition to the PMU Staff. To ensure long-term sustainability, DHM's institutional capacity will be strengthened focusing on digitization, human resources, and system automation—enabling the institution to gradually manage O&M through its own resources, including provisioning spare parts and associated services.
Investment Phase Alignment with the GBON National Contribution Plan	The spare parts including operation and maintainace for AWS stations at UA sounding stations in Kirtipur and Doti have been proposed to support quality control of upper-air observations, and ensure the traceability and reliability required by GBON. Together, surface and upper-air observations form an integrated observing site that maximizes the value of GBON contributions at national and global levels.
Execution model and implementation arrangements	UNDP will manage and execute the implementation of the Investment Phase in collaboration with the beneficiary institution, following the processes outlined in the SOFF Operational Manual, and in line with the SOFF Terms of Reference, the UNMPTF legal agreements, and UNDP 's Programme and Operations Policies and Procedures (POPP). UNDP, as the Implementing Entity, will be responsible for implementation, financial management, evaluation, reporting, and closure of SOFF Programme activities. UNDP will implement the SOFF programme in collaboration with Department of Hydrology & Meteorology (DHM) under Ministry of Energy, Water Resources and Irrigation (MoEWRI) of the Government of Nepal. UNDP will monitor and supervise the overall project execution/implementation and ensure quality of results, efficient management of project finance and risks, and SES compliance as outlined in the Investment Phase Funding Request. The DHM, as a beneficiary institution, will take lead on implementation of specific activities of SOFF programme that will include operation and maintenance services, procurement of consumables for radio sounding, capacity building activities and others as specified in the funding request. DHM will also ensure necessary coordination between federal, provincial, and local governments in project areas and ensure proper information flow with Regional MET Centres and WMO as required. A Project Steering Committee/Project Board, consisting of representatives from UNDP, MoEWRI, DHM, and other relevant government institutions and stakeholders, will be set up to ensure coordination, timely approval of project work plan, quality assurance and resolution of implementation issues. For smooth implementation of the project, a Project Management Unit (PMU) will be set up, to be led by Project Coordinator and other technical and support staff hired by UNDP. The PMU will be further supported by DHM-hired project-based staff including ICT expert, meteorologist and calibration engineers among others. The procurement of goods and services under SOFF programme will primarily be managed by the Implementing Entity, leveraging its extensive experience of national and international procurement including through existing LTAs as well as the beneficiary institution, based on its experiences. The DHM will follow Government of Nepal's standard procurement rules and regulations to procure goods and services pertaining to the activities implemented by DHM, while UNDP will follow its own standard procedures based on the principles of value for money, fairness, integrity, competitiveness and transparency. UNDP may leverage internationally recognized network of professionals and technical agencies to support implementation, particularly to conduct training and assessments in consultation with DHM. UNDP and DHM will prepare joint procurement plan with details on procurement timelines, technical specification, and storage requirement to be approved by the Project Steering Committee /Project Board. With support from the Peer Advisor, DHM will finalize the Terms of Reference (ToRs), technical specification, Bills of Quantity (BoQ), and other related procurement documents. Based on an agreement (Responsible Party Agreement – RPA or Letter of Agreement - LoA) to be signed between UNDP as the Implementing Entity and the DHM as the Beneficiary institution, part of SOFF programme funds will be transferred to DHM to implement project activities reflected in the work plan of the Investment Phase Funding Request. The agreement will specify the provisions of fund disbursement and role of DHM in project implementation, finance management, reporting, risk and asset management, etc. The Peer Advisor for this project is the Finnish Meteorological Institute (FMI, Finland). The role of Peer Advisor, Implementing Entity and Beneficiary Institution, has been articulated in the annex of this Investment funding request.
Private sector involvement	The Department of Hydrology and Meteorology (DHM) currently operates under a fully public business model, in which the government funds and manages the installation, operation, and annual maintenance of land-based and upper-air observation stations, as well as the national database system. The Department of Hydrology and Meteorology (DHM) currently operates under a fully public business model, in which the government funds and manages the installation, operation, and annual maintenance of land-based and upper-air observation stations, as well as the national database system. DHM retains full authority over station establishment, data generation, and the dissemination of observations, forecasts, and warnings. However, some stations operated by research institutions, academia, and private entities are not yet fully integrated into DHM's system, creating challenges for consistent monitoring and quality assurance. DHM must also verify that equipment procured and operated by private entities meets both DHM and WMO standards. While most ICT infrastructure—including the Data Management System (DMS) server—remains centralized within the government, the growing diversity of station ownership highlights the need for a more coordinated model to ensure reliability, data quality, and sustainability. Where appropriate, agreements with public and private sectors will be established to support data collection and transmission under public-private partnership arrangements. Existing collaborations with organizations such as **Nepal Telecommunication Authority, (Service Providers such as NCELL, NTC), and Independent Power Producers Association (IPPAN) of Nepal** will be leveraged to strengthen these efforts as DHM has signed MoU with the Nepal Telecommunication (NTC) and mobile service provider NCELL for data communication which allows free data transfer from stations to DHM's server. NCELL, the private company, is also providing the toll-free number for dissemination of forecast and warning. A public–private partnership approach offers a suitable path forward in a long run in which DHM would continue to own the infrastructure, operate radiosonde and calibration facilities, and supervise system performance, while consulting firms manage the day-to-day Operation and Maintenance (O&M) of the surface network and support DMS upkeep. This approach also aligns with ongoing efforts under the GCF-funded project to engage sectors such as hydropower and tourism in strengthening the national observation system.

	To institutionalize technical standards and ensure operational sustainability, SOFF support is essential for establishing multi-year O&M contracts with consulting firms. Because outsourcing to consulting firms is still part of the fully public model—funded from government resources—DHM must continue this practice; however, it is not sufficient on its own to meet GBON compliance requirements, which require twice-daily upper-air soundings and hourly surface data reporting. Achieving compliance therefore necessitates both outsourced O&M services and the hiring of project-based technical staff who will conduct daily monitoring, quality control, and oversight of contracted firms. Under this structure, responsibilities are clearly separated: consulting firms provide technical operation and maintenance, while project-based staff ensure system monitoring, coordination, and compliance under DHM supervision. The centralized ICT service model needs to be retained to avoid duplication in data collection and optimize resources. A long-term DMS maintenance contract is critical to ensure uninterrupted service. The DMS server at Government Integrated Data Center GIDC then, now it is called "Integrated Data Management Centre (IDMC), crashed in late 2023, causing prolonged service disruptions. Enhancing reliability and robustness of DHM's critical infrastructure, including backups and redundancy, is therefore a priority. DHM plans to strengthen collaboration with private sectors such as telecommunications, tourism, civil aviation, hydropower, and agriculture and works closely with institutions like the Nepal Telecom Authority and Independent Power Producers Association of Nepal (IPPAN). Under this, DHM provides technical specifications, and supports in monitoring and installation, training and data transfer and storage, while IPPAN procures equipment (Rain gauges, Automatic Weather Stations, RLS etc)., and support in operation and maintenance. DHM generates revenue from data sharing which is centrally deposited in a government system as per MoEWRI directives. The proposed Hydro-met Policy/Act will broaden the scope of cost recovery mechanisms for sharing data with government and non-government parties. In addition to sector-specific stations, there are other stations which are temporarily managed by research institutions in collaboration with DHM to support research work such as ICIMOD operated stations in the Himalayas. Likewise, the National Geographic Society, in collaboration with DHM and Tribhuvan University, has been managing five high-altitude stations since 2019. The Central Department of Hydrology and Meteorology of Tribhuvan University and private hydropower companies jointly manage the stations for research and planning purposes. With technical support from DHM in data archiving and dissemination, the Local Government (Municipalities) has installed weather stations, and are involved in operation and maintenance.
Civil society participation	Engaging civil society organizations (CSOs) during and after the SOFF Investment Phase is essential to strengthen ownership, and establish a foundation for sustainable operations and maintenance of the stations. UNDP, as the Implementing Entity, in collaboration with DHM, will organize a series of events designed to ensure local ownership there by engaging respective Local government institutions. To build awareness and generate ownership, **stakeholder engagement workshops** will be organized to present SOFF objectives and expected results. These workshops will encourage CSO participation in project activities, including community awareness campaigns about the value of observation stations and to prevent stations from theft and vandalism. In addition, **high-level dialogues** will be convened to discuss the benefits of GBON infrastructure, co-production of services, and long-term ownership models, including potential joint funding schemes in collaboration with GCF project. CSOs will contribute to these dialogues both as organizers and presenters, sharing their relevant experiences and initiatives. Gender equality will be a key focus throughout the project. In collaboration with the Peer Advisor, CSOs specializing in women's empowerment and advocacy will participate in **dedicated gender workshops**. These sessions will aim to strengthen gender equality in governance, strategy, and decision-making, and lay the groundwork for developing an institutional gender policy. The workshops will also assess gaps in gender balance, identify opportunities, and provide recommendations to address issues such as discrimination and harassment. The project will ensure equal participation of men and women in all capacity-building activities and consultations, targeting at least **40% female participation in training events**. CSOs will also play an important role in project governance. Their networks and federations will be represented in the **Project Steering Committee**, contributing to planning and decision-making. This inclusive approach will ensure that stakeholder perspectives are integrated throughout the programme cycle. DHM's ongoing collaboration with NGOs and research institutions will be reinforced. Data from local stations will continue to be shared with governmental offices as per the need, and partnerships will be expanded through **stakeholder engagement workshops** supported by SOFF during the Investment Phase.
Fiduciary systems	UNDP will establish a legally binding Letter of Agreement (LoA) with DHM that clearly outlines the responsibilities of both parties, including provisions for reporting, monitoring, evaluation, audit, payments, purpose, duration, amendments, and termination for the full period of SOFF financing. The project will be managed using UNDP's existing Direct Implementation Modality (DIM), Project Financial Standard Operating Procedures, already agreed with national partners, including the Ministry of Finance, to ensure strong fiduciary oversight. In line with the UNDP Evaluation Guidelines (2021) and the UNDP Evaluation Policy (2025–2030), the SOFF Project will undergo an external final evaluation and audit to assess its relevance, effectiveness, efficiency, sustainability, and contribution to strengthening Nepal's GBON-compliant hydrometeorological observation system. The evaluation will incorporate gender-responsive analysis, review institutional capacity development, and examine the long-term operational sustainability of observation stations and data-sharing systems. To implement any partnership, UNDP ensures that clear and robust fiduciary arrangements are in place before the implementation starts. These include financial management and procurement aspects which enable transparency, accountability, and effectiveness in the utilisation of funds mobilised. **Financial Management** - UNDP Financial management in fiduciary arrangements typically encompasses the following: **Budgeting** - Setting a clear and detailed budget for the project, which outlines the expected expenses and sources of funds. **Financial Reporting** - Periodic financial reporting to stakeholders, which gives an overview of the funds received, expended, and any discrepancies or issues. **Audits** - Regular audits, both internal and external, are conducted to ensure compliance with financial standards and to detect any anomalies or misuse of funds. **Risk Management** - Risk assessments are conducted to identify any financial risks associated with the project, and mitigation measures are put in place. **Fund Disbursements** - A clear procedure for the disbursement of funds to ensure that money is used for the intended purpose and there is accountability at every level. **Accounting and Record Keeping** - Proper accounting methods are used, and records of all transactions are kept meticulously. **Procurement** - Procurement procedures are put in place to ensure that goods, works, and services are acquired in a transparent, efficient, and cost-effective manner. The main aspects include: **Planning** - Before starting the procurement process, there's a need for clear planning, which defines what is to be procured, why, and

	how. **Sourcing** - Identifying potential suppliers or contractors and evaluating them based on predetermined criteria. **Tendering** - Inviting bids or proposals from potential suppliers. This can be through open tendering, limited tendering, request for quotations, or direct contracting, depending on the nature and value of the procurement. **Evaluation** - Evaluating bids or proposals based on predefined criteria, which could be the lowest cost, best value for money, or other factors. **Contracting** - Once a supplier or contractor is selected, a contract is drawn up which outlines the terms and conditions of the procurement. **Contract Management** - Monitoring the performance of the supplier or contractor, ensuring they meet their obligations as per the contract. **Ethics and Fair Play** - Ensuring that the procurement process is free from corruption, favouritism, and any form of unethical behaviour. **Grievance Redress Mechanism** - A system through which aggrieved bidders can raise complaints and get them addressed. As UNDP collaborates with the DHM to implement SOFF Investment Phase, both entities shall align their fiduciary procedures. This will not only build trust among stakeholders but also ensures the success and sustainability of the projects they undertake together. As required, UNDP will closely work with DHM and Public Procurement Monitoring Office (PPMO) to ensure good governance in procurement system of the Public Entity that is transparent, efficient and free of corruption; using information and communications technology also as a tool for implementation through proper coordination between the Government and its suppliers, contractors, consultants and service providers and build an atmosphere of trust and confidence between the Government and the general public.
Social and environmental safeguards	In addition to following Nepal's Social and Environmental acts and rules, the project will also adhere to UNDPs Social and Environmental Standards- UNDP SES which applies to all UNDP project and programme activities and the required standards will be included in agreements with all cooperating partners. The UNDPs Environmental and Social Safeguards policy framework is based on existing 'do no harm' provisions mandated by UNDPs Environmental Policy and 'Leaving no one behind' of the sustainable development goals (SDGs). The UNDP safeguards 18 framework is fully aligned with the Model Approach to Environmental and Social Standards in UN Programming. **Social safeguards:** The implementation of the SOFF investment phase will be made through taking a note of human rights considerations and making sure that no human rights are violated by any of the activities. In fact, the results of the project will support human well-being and social equity, and further, reduce the environmental risks posed by climate change and natural disasters. **Gender policy:** Peer Advisor, together with UNDP as the Implementing Entity and DHM as the Beneficiary Institution, will promote gender equality by conducting a gender assessment that will inform a gender action plan, and by organizing institutional-level workshops to strengthen gender-responsive practices throughout SOFF activities. **Upper-air radio sounding:** The GBON compliant sounding system is recommended to be located at a site where permanent staff works on a daily basis. This will decrease unnecessary travelling as well as burdening financial and environmental implications when the sounding station requires the attention of staff. The tender process should emphasise quality criteria related to composability in material selection where applicable. The investment in the sounding system is made for 20-30 years, and thus, care must be taken to ensure that annual maintenance is ensured throughout its lifecycle. Generation of hydrogen, needed by balloon, locally at the station will make the operation more environmentally sustainable and independent from importing gas by the 3rd party. **Automatic Weather Stations:** To comply with GBON requirements, SOFF will support the upgrade of the four existing Automatic Weather Stations by replacing old version sensors with modern sensors. There will be no requirement to build new infrastructure which would cause land excavation, destruction of the physical environment and/or biodiversity loss. However, the diodes (which are electronic components) from the replaced sensors are not harmful to the environment by themselves as they are made of materials such as silicon, germanium, or gallium arsenide, which are not toxic or hazardous. All activities involving installation, upgrading, or refurbishment of stations—including any construction or civil works—will fully comply with UNDP Social and Environmental Standards (SES) as well as the relevant policies, strategies, and guidelines of the Government of Nepal. UNDP and the Department of Hydrology and Meteorology (DHM) will work closely with the Ministry of Forests and Environment and its relevant departments to ensure that waste management, material disposal, and site-specific environmental considerations are handled in accordance with existing national standards and regulations. Appropriate social and environmental safeguard measures will be applied throughout planning, implementation, and operation to minimize risks and ensure compliance with national and UNDP requirements.
Dispute resolution mechanism	UNDP ensures full accountability to the people it serves; accountability, participation and empowerment through meaningful and consistent engagement are the key principles for mainstreaming protection. This means ensuring that the affected populations, their families, and diverse community organisations representing young people, elderly, indigenous peoples, people living with HIV/AIDS, and the persons with disabilities participate in the decisions that affect their lives, receive the information they need to make decisions and have access to safe and responsive mechanisms for providing feedback. Effective project management recognizes the importance of addressing complaints and resolving conflicts promptly to maintain stakeholder trust, ensure project sustainability, and achieve desired outcomes. The UNDP, like many development organisations, incorporates mechanisms to manage complaints and resolve conflicts in its projects. Here's an overview of the key elements in project implementation complaints management and conflict resolution: **a) Establishment of a Complaints Management Mechanism (CMM)** **Accessibility:** There should be a clear and easily accessible channel for stakeholders, including project beneficiaries, to raise complaints or concerns. More information can be obtained from the UNDP Social and Environmental Standards. Concerns can be raised through dedicated email addresses, helplines, physical drop boxes, or online platforms. **Anonymity and Protection:** The mechanism should allow for anonymous complaints to ensure the protection of the complainant, especially in sensitive contexts. Whistleblower protections should also be in place. **Categorization of Complaints:** Once received, complaints should be categorised based on their nature, urgency, and impact to ensure an appropriate and timely response. **b) Complaints Handling Process** **Acknowledgment** - Upon receiving a complaint, an acknowledgment of receipt should be sent to the complainant, reassuring them that their concern is being addressed. **Investigation** - A neutral team or individual should investigate the complaint. The depth and method of the investigation would depend on the nature of the complaint. **Feedback** - After the investigation, feedback should be provided to the complainant, detailing the findings and any actions taken. **Redress and Remediation** - If the complaint is validated, appropriate remedial actions should be taken, which might include

	compensation, corrective actions, or other measures. **c) Conflict Resolution Mechanisms** **Preventive Measures** - Awareness and training sessions on conflict sensitivity, cultural awareness, and stakeholder engagement can be conducted to reduce the likelihood of conflicts arising. **Mediation** - Neutral third-party mediators can be involved to facilitate dialogue between conflicting parties and help them reach a consensus. **Arbitration** - If mediation fails, an independent arbitrator can be appointed to hear the grievances and make a binding decision. **Stakeholder Dialogues** - Regular dialogues and forums with stakeholders can be organised to address any potential issues before they escalate into major conflicts. **d) Monitoring and Learning:** **Regular Review** - The effectiveness of the complaints management and conflict resolution mechanisms should be reviewed periodically. **Learning** - Lessons learned from addressing complaints and resolving conflicts should be documented and integrated into future project planning and implementation. **Transparency** - Sharing aggregated data on complaints received, their nature, and the actions taken can enhance transparency and trust among stakeholders. Incorporating the above elements ensures that project implementation remains on track and that any issues or grievances from stakeholders are addressed in a timely and effective manner. This proactive approach not only helps in mitigating risks but also promotes trust, inclusiveness, and ownership among all stakeholders, essential for the success of any project UNDP will leverage the already existing Grievance Redress Mechanism (GRM) that has been proposed for GCF Funded Project on “Protecting livelihoods and assets at risk from Glacial Lake Outburst Floods (GLOFs) and climate change-induced flooding in glacial river basins of Nepal” which has necessary grievances record books and redressal systems on any reported grievances from community and National Level. The GRM system covers all hydro-met installations that DHM installed across project sites. DHM will actively monitor and follow up all recorded grievances and how they have been addressed by the established GRM committees. In addition to the project level GRM, UNDP Nepal has an established Stakeholder Response Mechanism (SRM) since 1 January 2022 which revised and updated in June 2024. This SRM (https://www.undp.org/nepal/srm) is for receiving and addressing grievances related to the social and environmental impacts of any project/program which is implemented by the UNDP in Nepal in a timely and efficient manner. Further, grievances that could not addressed at the GRM and SRM level can also be escalated at the Social and Environmental Compliance Unit (SECU) at the headquarter level. SOFF secretariat will be promptly informed in case of urgent matter otherwise through regular reporting requirements.
Additional relevant policies and procedures	UNDP is accredited entity for accessing vertical fund such as Green Climate Fund, Green Environmental Facility and Adaptation Fund and partners in the EW4ALL global initiative. UNDP has a robust Programme and Operational Policies and Procedures (POPP) framework . This framework provides comprehensive guidance for project and programme implementation, ensuring effectiveness, transparency, and accountability in all operations. When considering the context of implementing entities, especially when UNDP is working in partnership with the DHM the UNDP POPP will guide the SOFF implementation in Nepal.

SDG Targets

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

SDG Indicators

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

Contribution to SDGs

Participating Organization	% TARGET_5.5	% TARGET_13.1	% TARGET_13.2	% TARGET_13.3	% TARGET_13.b	% Total
IE	10%	10%	5%	70%	5%	100
WMO	5%	10%	%	80%	5%	100
Total Contribution by Targets	15%	20%	5%	150%	10%	
Project Contribution to SDGs by target	7.5%	10%	2.5%	75%	5%	100

Project Results / Indicators / Work Plan

Please note that there are different sections for **Project Results**, **Project Indicators** and **Work Plan** in the UN MPTF Gateway. Please refer to the Gateway Manual for guidance on how to fill out these sections.

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 (add rows as needed)																				
	Title	**Description**	**Lead Participating Organization**	**Participating Organization**	**Other Organizations**	**Indicator Title**	**Description**	**Means of Verification**	**Category**	**Cycle**	**Scope**	**Value Type**	**Baseline Value**	**Baseline Year**	**Total Target Value**	**Target Completion Year**	**Annual Targets**					
																	Y1	**Y2**	**Y3**	**Y4**	**Y5**	
	1.1.1 Organize Inception workshop followed by staff orientation		IE	WMO	DHM, MoEWRI	No . of Workshop	1 residential orientation workshop for Project staffs (25 pax) followed by 1 inception workshop to be organized by DHM/UNDP/FMI for around 70 participants	Annual/semi annual progress updates Workshop report Attendance list	Other	At closure	Country	Number	0	2026	2	2026	2					
						% of female participants		Annual/semi annual progress updates Workshop report Attendance list	Other	At closure	Country	Percentage	0	2026	50 %	2026	50 %					
	1.1.2. Organize Stakeholder/CSO Workshops		IE	WMO	DHM, MoEWRI	No. of Workshop	3 workshops- 1 at centre and 2 at regions including CSO	Annual/semi annual progress updates Workshop report Attendance list	Capacity	At closure	Country	Number	0	2026	3	2031		1	1	1		
						% of female participants		Annual/semi annual progress updates Workshop report Attendance list	Other	At closure	Country	Percentage	0	2026	50 %			50 %	50 %	50 %		
	1.1.3. Organize Steering Committee (SC) Meetings		IE	WMO	DHM, MoEWRI	No. of Meetings	Five SC Meetings; one meeting per Year (15 participants)	Annual/semi annual progress updates Meeting Minutes, Meeting Reports	Other	Yearly	Country	Number	0	2026	5	2031	1	1	1	1	1	
	1.1.4. Organize Project Board (PB) Meetings		IE	WMO	DHM, MoEWRI	No. of Meetings	10 PB Meetings, 2 meetings per year (10 participants)	Annual/semi annual progress updates Meeting Minutes,	Other	Twice a year	Country	Number	0	2026	10	2031	2	2	2	2	2	

1.1.5. Participation in Stakeholder Workshops and Steering Committee/ PB meetings		WMO	IE	DHM, MoEWRI	No. of travels	Peer advisor fee including travels (only FMI participation to workshop workshop/ PB/SC meetings)	Annual progress updates Workshop report Attendance list	Other	At closure	Country	Number	0	2026	5	2031	1	1	1	1	1	
1.2 NMHS institutional capacity			NMHS institutional capacity required to operate the GBON network developed																	
Activities (add rows as needed)																				
Title	**Description**	**Lead Participating Organization**	**Participating Organization**	**Other Organizations**	**Indicator Title**	**Description**	**Means of Verification**	**Category**	**Cycle**	**Scope**	**Value Type**	**Baseline Value**	**Baseline Year**	**Total Target Value**	**Target Completion Year**	**Annual Targets**					
																Y1	**Y2**	**Y3**	**Y4**	**Y5**	
1.2.1. Provide Strategic, financial planning and management training for beneficiary officials		IE	WMO	DHM	No. of Workshop	Consultancy firm to provide trainings for 10-20 staffs of Beneficiary Institution (including contract management training)	Annual or Semi annual progress updates Training reports, Attendance list	Capacity	At closure	Country	Number	0	2026	2	2027	1	1				
					% of female participants		Annual/semi annual progress updates Training report Attendance list	Other	At closure	Country	Percentage	0	2026	20 %	2027	20 %	20 %				
1.2.2. Benchmark portfolio and project management and coordination training		IE	WMO	DHM	No. of Training	Travel costs for beneficiary Institution (DHM officials). One week training for 3 persons in Finland. Training will be organized in collaboration with other SOFF countries if possible. For participation of IE Focal Point-CO, travel costs will be covered separately .	Annual or Semi annual progress updates Training reports, Attendance list	Capacity	At closure	Global	Number	0	2026	1	2026		1				
1.2.3. Organize Internal gender workshop for DHM with development of Gender Action Plan		WMO	IE	DHM,	Gender action plan developed	Peer advisor fee including experts, travels and Nepal workshop costs; IE and Beneficiary Institution will collaborate to organize this event.	Annual or Semi annual progress updates Workshop Report, Attendance List, Gender Action Plan,	Policy	At closure	Country	Number	0	2026	1	2031		1				
					% of female participants		Annual/semi annual progress	Other	At closure	Country	Percentage	0	2026	50 %	2026		50 %				

								updates Training report Attendance list													
	1.2.4. Procure special purpose vehicle for field calibration and maintenance		IE	WMO	DHM	No. of Transportation Equipment (vehicle)	One Special purpose customized vehicle (4WD) procurement for field calibration and maintenance. The cost is inclusive of yearly Repair & Maintenance and fuel Cost.	Annual or Semi annual progress updates	Invest ment	At closure	Country	Number	#	2026	1	2026	1					
	1.2.5. Procure the motorbikes for basic trouble shooting and field visits to remote stations		IE	WMO	DHM	No. of Transportation Equipment (vehicle)	2 motorbikes for basic trouble shooting and scheduled visits from nearby Field office of DHM to remote stations. The cost is inclusive of yearly Repair & Maintenance and fuel Cost	Annual or Semi annual progress updates	Invest ment	At closure	Country	Number	#	2026	2	2026	2					
	1.2.6 Procuring the service to prepare QMS Framework; SOP , manual preparation for Quality management system in AWS sensors, Database, Upper air Sounding, Calibration lab		IE	WMO	DHM	No. of Framework & SOPs, manual	QMS Framework; SOP , manual preparation for Quality management system in AWS sensors, Database, Upper air Sounding, Calibration lab operation, including QMS training	Annual or Semi annual progress updates	Policy	At closure	Country	Number	#	2026	1	2031				1		
	1.2.7 Field inter-comparison/calibration visit to AWS stations		IE	WMO	DHM	No. of field-calibrations	Field inter-comparison/calibration (budget includes travel/DSA (5 persons for 6 days each at 6 sites) from Year 3 to Year 5); The cost is proposed for DSA cost of the persons for calibration /field intercomparison of GBON compliance AWS stations using the procured vehicle. It also includes the air travel cost to the remote/high altitude stations (Syanboche and Chhoser) for same	Annual or Semi annual progress updates Vehicle Log book	Capacit y	At closure	Country	Number	#	2026	3	2031			1	1	1	

							purpose. It also has provisions for air rescue in case of any mishaps (Altitude sickness, deteorating weather etc).														
	1.2.8. Preparation of action plan for GBON compliance after the investment phase for smooth transition & dissemination of exit strategy		IE	WMO	DHM	No. of Action plan prepared	Organize Workshop for action plan on smooth transition to compliance phase Preparation of the action plan in 3rd and 4th year and for administer and test in the fifth year	Annual or Semi annual progress updates Workshop report, Action plan	Policy	At closure	Country	Number	#	2026	1	2031				1		
	1.2.9. Establishment of PMU		IE	WMO		No. of PMU Established	1 National Project Coordination Analyst (NPSA 9); 1 Project Operation Associate (NPSA 7) and 2 drivers; Third Party project Mid-term and Terminal Evaluation; Communication and Knowledge management; Office refurbishment, one vehicle for PMU operation and Equipment for staff and the project team+ admin supplies and it also includes technical oversight from UNDP CO to project for project implementation period for technical experts, Communication, GESI, and M&E/Result based Management.	Annual or Semi annual progress updates Refurbishment completed, No. of equipment purchased No. of Evaluation, spot checks	Investment	At closure	Country	Number	#	2026	1	2031		1				
	1.3 NMHS human capacity developed		NMHS human capacity required to operate the GBON network developed																		
	Activities (add rows as needed)																				
	Title	**Description**	**Lead Participating Organization**	**Participating Organization**	**Other Organizations**	**Indicator Title**	**Description**	**Means of Verification**	**Category**	**Cycle**	**Scope**	**Value Type**	**Baseline Value**	**Baseline Year**	**Total Target Value**	**Target Completion Year**	**Annual Targets**					
																	Y1	**Y2**	**Y3**	**Y4**	**Y5**	
	1.3.1 Participate in Regional		IE	WMO	DHM	No. of Training	Travel in regional country for eg..	Annual or Semi annual progress	Capacity	At closure	Global	Number	#	2026	1	2026		1				

	Microstep training (e.g. Bhutan)						Bhutan or other regional country for at least 3 people for the training of troubleshooting, maintenance and configuration of Microstep datalogger and sensors. (Nepal has about 90 stations with Microstep product. At least a station on each districts.)	updates Training Reports												
						% of female participants		Annual/semi annual progress updates Training report Attendance list	Other	At closure	Country	Percentage	0	2026	20 %	2028		20 %				
	1.3.2. Organize Provincial trainings, including on operating Automated Weather Stations (AWS) and data transmission		IE	WMO	DHM	No. of training	6 nos Trainings@6 regional offices (Dharan, Kohalpur, Surkhet, Pokhara, Attariya and Janakpur) for around 70 people in total , for 6 days: including travel of DHM officials from centre. PA will provide the training on Central office.	Annual or Semi annual progress updates, Training Reports, Attendance List	Capacity	At Closure	Country	Number	#	2026	6	2028		3	3			
						% of female participants		Annual/semi annual progress updates Training report Attendance list	Other	At closure	Country	Percentage	0	2026	20 %	2028		20 %	20 %			
	1.3.3. Support in developing competence building, AWS and radiosounding process		IE	WMO	DHM	No. of training	Travel costs for beneficiary (one week, 4 persons) : training in Finland on benchmark on good practices on GBON compliance, prepare process and lifecycle plan for AWS and sounding, enhance roadmap for competence building process for observations, enhance SOP's, enhance implementation of QC/QA method.	Annual or Semi annual progress updates,	Capacity	At Closure	Country	Number	0	2026	1	2031		1				
						% of female participants		Annual/semi annual progress updates	Other	At closure	Country	Percentage	0	2026	20 %	2028		20 %	20 %			

								Training report Attendance list													
	1.3.4. Support in GBON compliance including AWS, sounding, DMS, WIS		WMO	IE	DHM	No. of Trainings	Peer advisor fee including experts for project activities in Finland and Nepal, travel costs to Nepal. Enhancement of sustainability of the SOFF investments by supporting and planning of 1.3 activities and implementation of trainings related to 1.3. activities.	Annual or Semi annual progress updates,	Capacity	At Closure	Country	Number	0	2026	6	2031	2	2	1	1		
	1.3.5. SOFF data integration and utilization		WMO	IE	DHM	data integrated in server	ECMWF data integration. Peer advisor fee including travels	Annual or Semi annual progress updates,	Other	At closure	Country	Yes/No	#	2026	1	2031		1				
	1.3.6. Procure the service of Meteorologist /Hiring of Meteorologist for Monitoring and quality control of the station and data		IE	WMO	DHM	Meteorologist hired	2 Meteorologists for Monitoring and quality control of the station and data (1 staff will be allocated from GCF project to support SOFF Programme). For 12 months in each year for 3 years (as per Government of Nepal Procurement Procedure after the fund is channeled to DHM from IE/UNDP)	Annual or Semi annual progress updates,	Investment	At closure	Country	Number	#	2026	1	2031		1				
	1.3.7. Procure the service of Meteorologist for calibration lab operation		IE	WMO	DHM	Meteorologist hired	1 Meteorologist staff - for calibration lab operation. (as per DHM norms for HR consulting). 12 months in each year for 3 (as per Government of Nepal Procurement Procedure after the fund is channeled to DHM from IE/UNDP)	Annual or Semi annual progress updates,	Investment	At closure	Country	Number	#	2026	1 #	2027		1				
	1.3.8. Procure the service of Assistant meteorologist for sounding station (for Activities 2.3.2 and 3.2.3)		IE	WMO	DHM	Assistant Meteorologist hired	8 upper-air operators (4-Kirtipur (4 years) and 4-Doti (3 years)) for sounding station) (as per DHM norms for HR consulting). 12 months in each year for 2 years for Doti & 3 years for Kirtipur (as per Government of	Annual or Semi annual progress updates,	Investment	At closure	Country	Number	#	2026	8	2031		4	4			

							Nepal Procurement Procedure after the fund is channeled to DHM from IE/UNDP)														
	1.3.9. Procure the service of ICT Engineers for DMS operations, maintenance, monitoring and evaluation		IE	WMO	DHM	ICT engineers hired	2 ICT staff (2) ICT Engineer- 1 for DMS operations, maintenance, monitoring and evaluation (from station to DMS and from DMS to dissemination), software development + 1- for hardware and network handling of server and other ICT facilities) (as per DHM norms for HR consulting). 12 months each for the project period ((as per Government of Nepal Procurement Procedure after the fund is channeled to DHM from IE/UNDP)	Annual or Semi annual progress updates,	Invest ment	At closure	Country	Number	#	2026	2	2031		2				
	1.3.10. Procure the services of Calibration Engineer to operate calibration lab of DHM		IE	WMO	DHM	calibration engineer hired	1 Calibration engineer to operate calibration lab of DHM (as per DHM norms for HR consulting). 12 months in each year (as per Government of Nepal Procurement Procedure after the fund is channeled to DHM from IE/UNDP)	Annual or Semi annual progress updates,	Invest ment	At closure	Country	Number	#	2026	1	2031		1				
	1.3.11. Procure the service of Station Clerk for 2 Upper air stations		IE	WMO	DHM	Clerks hired	Salary of Station clerk for 2 Upper air stations@ 2 shift (as per Government of Nepal Procurement Procedure after the fund is channeled to DHM from IE/UNDP)	Annual or semi-annual progress updates	Invest ment	At closure	Country	Number	#	2026	4	2031		2	2			
	1.3.12. Refresher Calibration Training at WMO Regional Center including calibration of reference sensors (China/Japan)		IE	WMO	DHM	No. of Trainings	Calibration Training to beneficiary country/DHM permanent staff. Roundtrip (Ktm-China/Japan-Ktm) for at least 3 Person	Annual or Semi annual progress updates,	Invest ment	At Closure	Country	Number	#	2026	1	2031			1			
						% of female participants Sex disaggregated data monitored		Annual/semi annual progress updates	Other	At closure	Country	Percentag e	0	2026	20 %	2028			20 %			

								Training report Attendance list													
		1.3.13. Training for operation maintenance of Upgraded 5 land-based Stations to meet GBON Requirements		IE	WMO	DHM	Number of Training	Required training for regional level offices including central level personnel. 20 participants in each 2 training	Annual or Semi annual progress updates, Training Reports	Investment	At closure	Country	Number	0	2026	2	2031		1	1			
							% of female participants Sex disaggregated data monitored		Annual/semi annual progress updates Training report Attendance list	Other	At closure	Country	Percentage	0	2026	20 %	2028		20 %	20 %			
		1.3.14. Hiring of Driver for special purpose vehicle for 4 years		IE	WMO	DHM	Driver for special purpose vehicle hired	1 Driver to be hired to drive special purpose vehicle for 4 years including inflation (as per Government of Nepal HR salary rate. The fund will be transferred to DHM from IE/UNDP.	Annual or semi-annual progress updates	Investment	At closure	Country	Number	#	2026	1	2031		1				

Please list sub-activities

Outcome	Output					Description															
2. GBON infrastructure in place	2.1 New land-based stations in place					New land-based stations and related equipment, ICT systems, data management systems and standard operating practices in place															
	Activities (add rows as needed)																				
	Title	**Description**	**Lead Participating Organization**	**Participating Organization**	**Other Organizations**	**Indicator Title**	**Description**	**Means of Verification**	**Category**	**Cycle**	**Scope**	**Value Type**	**Baseline Value**	**Baseline Year**	**Total Target Value**	**Target Completion Year**	**Annual Targets**				
																	Y1	**Y2**	**Y3**	**Y4**	**Y5**
	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 (add rows as needed)																				
	Title	**Description**	**Lead Participating Organization**	**Participating Organization**	**Other Organizations**	**Indicator Title**	**Description**	**Means of Verification**	**Category**	**Cycle**	**Scope**	**Value Type**	**Baseline Value**	**Baseline Year**	**Total Target Value**	**Target Completion Year**	**Annual Targets**				
																	Y1	**Y2**	**Y3**	**Y4**	**Y5**
	Improvement of existing land-based stations	2.2.1. Site Assessment Visit for finalizing the design and Bills of Quantity (tendering Process)	IE	WMO	DHM	No. of sites visited	Travel & DSA to 5 sites by 3 participants	Annual or Semi annual progress updates, Site Visit/Design Report	Investment	At closure	Country	Number	0	2026	5	2027	3	2			

		2.2.2. Upgrade of 5 land-based Stations to meet GBON Requirements	IE	WMO	DHM	Number of land-based stations improved	Equipment procurement for upgradation of 4 manual stations, and 1 AWS. Duplicated sensors for high mountain station (Syangboche, Chhoser and Thalara), including installation, testing commissioning of 5 GBON Stations (including required softwires and hardware accessories). This also includes air transportation of the equipment to most remote areas of the country without motorable road access, and helicopters are the only feasible mode of transportation.	Annual or Semi annual progress updates, Delivery & acceptance Report	Investment	At closure	Country	Number	0	2026	5	2031		2	3			
		2.2.3. Procurement of spare parts for 5 land-based Stations	IE	WMO	DHM	Number of sets of Spare parts procured	Spare Parts for 5 AWS (40% of the required sensors and parts). Since the high-altitude station has duplicated sensors, the spare requirement is higher.	Annual or Semi annual progress updates, Delivery and acceptance Report	Investment	At closure	Country	Number	0	2026	1	2031				5		
		2.2.4. Spare Parts Management Using Labeled Drawer-Based Storage furniture	IE	WMO	DHM	Number of spare parts management infrastructure (including furniture) built	Spare parts management in the office. Furnishing of spare parts store to well manage and protection from environmental exposure for the spares before deployed to site. Use of different compartments for different sensors with sensor details and calibration details (as per Government of Nepal Procurement Procedure after the fund is channeled to DHM from IE/UNDP)	Annual or Semi annual progress updates, Test Reports	Investment	At closure	Country	Number	0	2026	1	2031		1				
		2.2.5. Site Acceptance Test (SAT) of the installed AWS	IE	WMO	DHM	No. of station with SAT	SAT of 5 AWS station.	Annual or Semi annual progress updates,	Investment	At closure	Country	Number	0	2026	5	2028			2	3		
		2.2.6. Upgradation of Data Management System (DMS) for WIS 2.0 nodes	IE	WMO	DHM	DMS upgraded and WIS 2.0 exchange established	Upgradation of DMS by procuring the hardware Equipment procurement (DMS work may include upgradation of existing DMS to Data warehousing (backup) concept	Annual or Semi-annual progress updates,	Investment	At closure	Country	Number	0	2026	1	2031			1			
		2.2.7. Calibration Lab Upgradation with the procurement of software Version 3.0.0.2 -1 nos; server, Printer, Barcode Reader; Installation and Commissioning;	IE	WMO	DHM	Number of calibration lab upgraded	Upgrade of existing software Version 3.0.0.2 -1 nos; Procurement of server, Printer, Barcode Reader, etc- 1 set, on-site training-1 nos, Installation & Commissioning, Maintain Database for Calibration Information - 1; Operation and maintenance with spare parts and sensor referencing;	Annual or Semi-annual progress updates,	Investment	At closure	Country	Number	0	2026	1	2031			1			

		database for calibration information and System Maintenance;																				
						Number of multiyear contract established	Multi year Maintenance contract of calibration lab for Temperature, Humidity and Pressure calibration system including yearly re-calibration of the reference sensor of lab for GBON compliance.	Annual or Semi-annual progress updates,	Investment	At closure	Country	Number	0	2026	1	2031			1			
		2.2.8. Planning and Technical support in AWS, DMS and IT hardware tender with WIS 2.0 integration	WMO	IE	DHM	Number of land-based stations improved	Peer advisor fee including travels	Annual or Semi annual progress updates,	Investment	At closure	Country	Number	0	2026	4	2031					4	
Select	2.3 New upper-air stations in place			New upper-air stations and related equipment, ICT systems, data management systems and standard operating practices in place																		
	Activities (add rows as needed)																					
	Title	**Description**	**Lead Participating Organization**	**Participating Organization**	**Other Organizations**	**Indicator Title**	**Description**	**Means of Verification**	**Category**	**Cycle**	**Scope**	**Value Type**	**Baseline Value**	**Baseline Year**	**Total Target Value**	**Target Completion Year**	**Annual Targets**					
																	Y1	**Y2**	**Y3**	**Y4**	**Y5**	
	Installation of new upper-air stations	2.3.1. Civil works and site preparation for storage house with residential facility at Doti sounding station	IE	WMO	DHM	Civil works constructed and site prepared for operation of sounding in Doti	Building store and residential house for the operation of sounding in Doti	Annual or Semi annual progress updates,	Investment	At closure	Country	Number	0	2026	1	2031		1				
		2.3.2. Procurement and installation of a new upper-air sounding station with consumables for 1 year	IE	WMO	DHM	Number of consumables for upper air stations	These parts include the installation of sounding infrastructure, Training by the Manufacturer on Upper Air Sounding and Hydrogen generator Operations and Maintenance Including FAT and Sounding consumables 1 year, for Doti Station.	Annual or Semi annual progress updates,	Investment	At closure	Country	Number	0	2026	1	2031		1				
		2.3.3. Site Assessment and Acceptance Test visit for Doti Radio sounding Station	IE	WMO	DHM	No. of visits	Field visit for Site Assessment Test (year 1) and Site Acceptance Test (year 3) for Doti Radio sounding Station	Annual or Semi annual progress updates,	Investment	At closure	Country	Number	0	2026	2	2031	1		1			
		2.3.4 Technical support in new radiosounding tender	WMO	IE	DHM	No. of Travels	Peer advisor fee including travels	Annual or Semi annual progress updates,	Investment	At closure	Country	Number	0	2026	1	2031		1				
	2.4 Improved upper-air stations in place			Improved upper-air stations and related equipment, ICT systems, data management systems and standard operating practices in place																		
	Activities (add rows as needed)																					

	Title	Description	Lead Participating Organization	Participating Organization	Other Organizations	Indicator Title	Description	Means of Verification	Category	Cycle	Scope	Value Type	Baseline Value	Baseline Year	Total Target Value	Target Completion Year	Annual Targets				
																	Y1	Y2	Y3	Y4	Y5
	Improvement of existing upper-air stations	2.4.1. Improvement of sounding infrastructure for Kirtipur Radiosonde station	IE	WMO	DHM	Number of Upper air station improved	Improvement of sounding infrastructure for Kirtipur Radiosonde station (as per Government of Nepal Procurement Procedure after the fund is channeled to DHM from IE/UNDP). This also includes the cost of 1 set of spare parts.	Annual or Semi annual progress updates,	Investment	At closure	Country	Number	0	2026	1	2031		1			
		2.4.2. Improving civil infrastructure for the existing Upper-Air Sounding station at Kirtipur	IE	WMO	DHM	Civil infrastructure improved	Improving civil infrastructure for the existing Upper-Air Sounding station at Kirtipur (as per Government of Nepal Procurement Procedure after the fund is channeled to DHM from IE/UNDP)	Annual or Semi annual progress updates,	Investment	At closure	Country	Number	0	2026	1	2031			1		
		2.4.3 Compliance of SES and implementation of ESMP across the outputs	IE	WMO	DHM	No. of SES/ESMP prepared & implemented	SES assessment, Preparation of ESMF and ESMP, Including SES expert for 75 days spread across the project period for monitoring and validation; including implementation of ESMP	Annual or Semi annual progress updates,	Investment	At closure	Country	Number	0	2026	1	2031	1				
		2.4.4. Monitoring and Evaluation of Outcome 2	IE	WMO	DHM	No. of M&E visits at 7 stations	Joint Monitoring visit by oversight agencies including MoF, line ministry (MoEWRI), and Beneficiary Institution, joint mission with IE and other regular monitoring of field-based activities of output 2, including site visit by M&E officer (IE)	Annual or Semi annual progress updates, M&E reports	Investment	Yearly	Country	Number	0	2026	7	2031	1	2	2	1	1
		2.4.5. Technical support in radiosounding tender	WMO	IE	DHM	Number of Upper air station improved	Peer advisor fee	Annual progress updates	Investment	Yearly	Country	Number	0	2026	1	2031		1			

Investment Outcome	Output	Description
3. Sustained compliance with GBON	3.1 GBON land-based stations commissioning period completed	GBON land-based stations' commissioning period completed, country- specific standard cost for operations and maintenance established, and data sharing verified by WMO Technical Authority

Activities (add rows as needed)

Title	Description	Lead Participating Organization	Participating Organization	Other Organizations	Indicator Title	Description	Means of Verification	Category	Cycle	Scope	Value Type	Baseline Value	Baseline Year	Total Target Value	Target Completion Year	Annual Targets				
																Y1	Y2	Y3	Y4	Y5
Commissioning of land-based	3.1.1. Procure the services of Consulting firm for	IE	WMO	DHM	Number ofland -based station	Operation and Maintenance contract of 5	Annual progress updates	Investment	At closure	Country	Number	0	2026	5	2031					5

	stations	the Operation and Maintenance of the land-based stations				functional to meet GBON compliance as per NCP	AWS stations for 1 year including emergency maintenance visit in the extreme weather conditions. This maintenance service is for after warranty period during investment phase and includes travel & technical expertise	SOFF Compliance tool														
		3.1.2. Knowledge transfer to DHM technicians and staffs about the maintenance skills and problem solving as of activity 3.1.1 and 2.2.2	IE	WMO	DHM	No. of travels	Maintenance visit of DHM technicians with the maintenance expert as of 3.1.1 (1 years) and 2.2.2 (1 year) for sustainability of the project using the maintenance vehicle	Annual progress updates	Investment	At closure	Country	Number	#	2026	2	2031					2	
		3.1.3. Procure the service for Maintenance of Database for the assurance of data transmission from GBON stations and compliance with the WIS 2.0	IE	WMO	DHM	Number of stations with data transmission	Multi Year Maintenance contract for 2 years for the data transmission of the GBON compliance station for the implementation of WIS 2.0	Annual progress updates SOFF Compliance tool	Investment	At closure	Country	Number	#	2026	5	2031					5	
		3.1.4. Technical support for operation of land-based stations including DMS and data exchange	WMO	IE	DHM	No. of travels	Peer advisory fee with travel costs	Annual progress updates	Investment	At closure	Country	Number	#	2026	1	2031				1		
	3.2 GBON upper air stations' commissioning period completed		GBON upper air stations' commissioning period completed, country- specific standard cost for operations and maintenance established, and data sharing verified by WMO Technical Authority																			
	Activities (add rows as needed)																					
	Title	**Description**	**Lead Participating Organization**	**Participating Organization**	**Other Organizations**	**Indicator Title**	**Description**	**Means of Verification**	**Category**	**Cycle**	**Scope**	**Value Type**	**Baseline Value**	**Baseline Year**	**Total Target Value**	**Target Completion Year**	**Annual Targets**					
																	Y1	**Y2**	**Y3**	**Y4**	**Y5**	

	Commissioning of upper-air stations	3.2.1. Procure the service for Maintenance of the upper-air sounding stations in Kirtipur including Hydrogen Generator, Backup system, electrical system	IE	WMO	DHM	Number of Upper Air station maintenance contract operational	Number of upper air stations as defined in the National Contribution Plan Multi year maintenance contract of existing and upgraded Kirtipur upper air sounding station for 2 years after installation.	Annual progress updates GBON Compliance Tools	Investment	At closure	Country	Number	#	2026	1	2031					1	
		3.2.2. Maintenance of the upper-air sounding stations in Doti including Hydrogen Generator, Backup system, electrical system	IE	WMO	DHM	Number of Upper Air station maintenance contract operational	Multiyear maintenance contract of Doti Upper air sounding station for 1 years respectively after installation.	Annual progress updates GBON Compliance tool	Investment	Yearly	Country	Select	#	2026	1	2031					1	
		3.2.3 Consumables of the upper air sounding (testing and commissioning)	IE	WMO	DHM	No. of UA Stations commissioned	DHM will execute this activity as per the Government of Nepal's procurement procedures - procurement of radiosonde sensor, balloons and parachute for Kirtipur (3 years) and Doti (1 years)	Annual progress updates GBON Compliance tool	Investment	At closure	Country	Number	#	2026	2	2031					2	
		3.2.4. Technical support for	WMO	IE	DHM	No. of travels	Peer advisory	Annual progress	Investment	At closure	Country	Number	#	2026	1	2031				1		

		operation of upper-air stations including DMS and data exchange					fee with travels	updates														

Risks

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

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

Event	Category	Level	Likelihood	Impact	Mitigating Measures	Risk Owner
Non-compliance with fiduciary and procurement standards in some SOFF activities	Financial, Operational	Medium	Unlikely	Moderate	To mitigate the risk of non-compliance with fiduciary and procurement standards, UNDP will apply its strict corporate financial, procurement, and fiduciary systems throughout the project. These systems ensure transparency, accountability, and adherence to international best practices. All procurement processes will follow UNDP's established rules and regulations, prioritizing value for money, fairness, and quality assurance in deliverables. Where necessary, UNDP will conduct Procurement Capacity Assessment Tool (PCAT) and Harmonized Approach to Cash Transfers (HACT) assessments for DHM to identify potential gaps and implement recommended risk mitigation measures. This proactive approach will strengthen fiduciary oversight and institutional capacity, ensuring that all SOFF-funded activities meet compliance requirements and maintain the highest standards of integrity.	UNDP
SOFF-funded investments cause environmental or social impacts	Social & Environmental	Low	Unlikely	Minor	The potential environmental and social impacts of SOFF-funded investments are expected to be minimal and can be effectively managed through proactive planning. Most project activities focus on capacity building and training, which are inherently low-impact. Infrastructure development and installation of observation equipment will require basic monitoring, guided best practices. To mitigate risks, all contractors will be informed of their environmental and social responsibilities, and professional oversight will be engaged where necessary to ensure compliance. UNDP's corporate Environmental and Social and Environment Safeguards (SES) policy and SES Toolkit will guide screening and risk management for this initiative. DHM will adopt and implement Environmental and Social Management Plans (ESMPs) for hydromet infrastructure installations in the designated locations. Sustainability considerations will be integrated into supplier selection and construction processes to minimize potential impacts. For sounding sensors and balloons, specific awareness stickers will be developed and attached before the measurement.	UNDP/ Local Government
NMHS staff depart after being trained	Operational and Organizational	High	Possible	Moderate	To reduce the risk of trained staff leaving, the Investment Phase will introduce additional incentives, including regular opportunities for regional training and workshops. It is also recommended that the Compliance Phase allocate budget for new staff salaries and their participation in selected training and capacity-building activities, contributing to staff retention and well-being. UNDP and DHM will work to	DHM

Event	Category	Level	Likelihood	Impact	Mitigating Measures	Risk Owner
					create a positive and supportive working environment by strengthening institutional capacity to mitigate the impact of staff turnover. DHM staff will be engaged throughout the project lifecycle to ensure ownership over the process. DHM will maintain robust Knowledge Management systems to preserve institutional memory, complemented by capacity-building components such as exposure visits, knowledge-sharing platforms, and Communities of Practice (CoP) including for alternate staff	
Operational efficiency risk, causing low implementation and delays in procurement, installation and capacity building activities, resulting in failure of the project	Operational	Medium	Unlikely	Moderate	Effective collaboration among the Implementing Entity, Peer Advisor, beneficiary country, and technical partners will be key to avoiding delays in project execution. UNDP and DHM will prepare a detailed work plan covering all required activities under the initiative. Trainings will be provided to all the concerned officials on contract management, procurement management and overall project management periodically. Robust administrative planning, supported by the UNDP Country Office, will include early-stage procurement of equipment to prevent bottlenecks. Close coordination between UNDP and DHM will ensure timely implementation and address any emerging delays in activities or procurement, including exploring the use of UNDP Global Long-Term Agreement (LTA) holders where necessary.	UNDP/DHM
After the conclusion of the Investment phase, GBON data are not collected or shared or are shared of insufficient quality	Operational	High	Possible	Moderate	The Investment Phase will allocate resources for the operation and maintenance of GBON equipment to ensure full installation and international data exchange, supporting a smooth transition to the Compliance Phase. The action plan for Compliance Phase transition will be prepared and implemented. Training delivered during the Investment Phase will strengthen DHM and the Government of Nepal's capacity to manage data quality effectively. DHM will remain responsible for ongoing maintenance and quality assurance, taking corrective actions to address any challenges that could impact GBON data collection beyond the Investment Phase. Additional capacity-building initiatives will be implemented as needed to guarantee the continuous flow of high-quality GBON data.	DHM
Destruction or theft of SOFF-financed equipment and infrastructure	Operational	Low	Rare	Minor	To minimize the risk of theft, all observation sites will be securely fenced and guarded during the Investment Phase. However, given Nepal's high vulnerability to climate-related disasters, there remains a risk of equipment damage or destruction. To address this, the project will develop Standard Operating Procedures (SOPs) for equipment maintenance, including protocols for disaster response. Site preparation will incorporate mitigation measures, and the procurement budget for GBON equipment will include provisions for additional components to safeguard against climate hazards wherever feasible. Installations will be carried out on secure institutional land with maximum security arrangements in collaboration with Local Government and Civil Society Organization, and all equipment will be enclosed within protective fencing and anti theft sensor will be installed. Furthermore, community awareness campaigns will be conducted to emphasize the importance of the installed infrastructure, helping to prevent vandalism and ensure local support for its protection.	DHM/ UNDP/ Local Government
Countries cannot make optimal use of data, including accessing or using improved forecasts products from the Global Producing Centers throughout the hydromet value chain	Operational	Low	Unlikely	Minor	Data sharing mechanisms, protocols, and agreements will include provisions for technical failures, ensuring backup systems and stakeholder access. The Investment Phase will deliver comprehensive training for DHM staff, supported by the Peer Advisor and technical partners, covering observations, data management, processing, and	DHM/ FMI

Event	Category	Level	Likelihood	Impact	Mitigating Measures	Risk Owner
					impact-based forecasting. This capacity-building will enable optimal use of data and improved forecast products from Global Producing Centers such as CMA, ECMWF, and NOAA across the hydro-met value chain. Additionally, cost recovery measures may be introduced to cover expenses related to database management and tailored product delivery.	
Political instability and regulatory risks which will impact the successful completion of the Investment Phase	Political	Low	Unlikely	Minor	UNDP, DHM, Peer Advisor and technical partners jointly monitor the situation and adopt alternate plan to execute the planned activities.	UNDP, DHM,
Capacity gaps in technical skills after completion of the investment phase	Operational	Medium	Unlikely	Moderate	The staff and service providers will be trained during the Investment Phase and strong institutional mechanism will be kept in place.	DHM
Disasters (Floods, Landslides)	Social and Environmental	Low	Unlikely	Minor	UNDP, DHM, Peer Advisor and technical partners jointly monitor the situation and adopt alternate plan to execute the planned activities. The service providers for Operational and Maintainace will be provisioned for services during such harsh situations. ESMP will be implemented accordingly.	DHM/UNDP
Land ownership: In the past there have been problems with accessing land areas for meteorological observing stations. There is a risk of stations being removed.	Organizational	Low	Rare	Minor	DHM will make sure a sustained solution, either by purchasing a land or with a long term agreement with the owner. DHM will opt for first options primarily to make sure that the land in which the stations are established will be government land.	DHM
Delays in project initiation associated to international funding and markets instability , increase costs (such as equipment, construction, travel), negatively impacting project's planned budget.	Financial and Operational	High	Possible	Moderate	Upon approval of the proposal and confirmation of budget transfer timeline, UNDP will develop the Project Document (PRODOC) where will be further detailed implementation timeline and strategies, especially regarding sustainable procurement, and in consultation with the peer-advisor- FMI and DHM. This PRODOC will be approved and shared with all partners. During the life of the project, status of the project, progress and challenges will be shared with partners and SOFF sec, through appropriate channels with problem solving approach.	UNDP, DHM,
Slow implementation and delays in procurement, installation and capacity building activities	Operational	High	Possible	Major	Effective collaboration among the Implementing Entity, Peer Advisor, beneficiary country, and technical partners will be key to avoiding delays in project execution. UNDP and DHM will prepare a detailed work plan covering all required activities under the initiative. Trainings will be provided to all the concerned officials on contract management, procurement management and overall project management periodically. Robust administrative planning, supported by the UNDP Country Office, will include early-stage procurement of equipment to prevent bottlenecks. Close coordination between UNDP and DHM will ensure timely implementation and address any emerging delays in activities or procurement, including exploring the use of UNDP Global Long-Term Agreement (LTA) holders where necessary	UNDP, DHM

Budget by UNSDG Categories:Over all

Budget Lines	Description	IE	WMO	Total
1. Staff and other personnel		$ 279,878.90	$ 0.00	$ 279,878.90
2. Supplies, Commodities, Materials		$ 10,000	$ 0.00	$ 10,000
3. Equipment, Vehicles, and Furniture, incl. Depreciation		$ 971,649.31	$ 0.00	$ 971,649.31
4. Contractual services		$ 366,420.95	$ 393,144.00	$759,564.95
5. Training /workshops/ Meeting		$ 137,060	$ 0.00	$ 137,060
6. Travel		$ 161,672.46	$ 0.00	$ 161,672.46
7. Transfers and Grants to Counterparts		$ 2,334,491.87	$ 0.00	$2,334,491.87
8. General Operating and other Direct Costs		$ 89,141.48	$ 0.00	$ 89,141.48
Project Costs Sub Total		**$ 4,350,314.97**	**$ 393,144.00**	**$ 4,743,458.97**
9. Indirect Support Costs		$ 304,522.05	$ 27,520.08	$ 332,042.13
Total		**$ 4,654,837.02**	**$ 420,664.08**	**$ 5,075,501.10**

Performance-based Tranches Breakdown

Tranche			Total
Tranche 1	IE (70%)	$ 3,258,385.91	$ 3,398,593.25
	WMO (33.33%)	$ 140,207.34	
Tranche 2	IE (30%)	$ 1,396,451.10	$ 1,536,658.44
	WMO (33.33%)	$ 140,207.34	
Tranche 3	IE (0%)	$0.00	$ 140,249.40
	WMO (33.34%)	$ 140,249.40	
			$ 5,075,501.10

Results based budget

Outcome *	Output *	Agency *	Budget (USD) *
1. GBON institutional and human capacity developed		Sub Total	**$ 1,354,841.31**
	1.1 National Consultations conducted	IE	$ 37,000
		WMO	$ 56,670.00
	1.2 NMHS institutional capacity developed	IE	$ 653,955.59
		WMO	$ 18,645.00
	1.3 NMHS human capacity developed	IE	$ 451,513.72
		WMO	$ 137,057.00
2. GBON infrastructure in place		Sub Total	**$ 2,023,075.06**
	2.1 New land- based stations in place	IE	$ 0
		WMO	$ 0
	2.2 Improved land-based stations in place	IE	$885,441.60
		WMO	$ 66,172.00

Outcome *	Output *	Agency *	Budget (USD) *
	2.3 New upper-air stations in place	IE	$ 741,612.58
		WMO	$ 13,735.00
	2.4 Improved upper-air stations in place	IE	$ 312,103.87
		WMO	$ 4,010.00
3. Sustained compliance with GBON		Sub Total	$ 1,365,542.60
	3.1 GBON land-based stations commissioning period completed.	IE	$ 103,679.60
		WMO	$ 32,285.00
	3.2 GBON upper air stations commissioning period completed.	IE	$ 1,165,008.00
		WMO	$ 64,570.00
Total			**4,743,458.97**

Annexes: Following annexes are attached separately.

Annex 1: National Gap Analysis

Annex 2: National Contribution Plan

Annex 3: Country Hydro-met Diagnostics

All the documents have been submitted to SOFF Secretariat and are in public domain.

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

Annex 5: Co-Financing Contribution (In Kind and Parallel)

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