Systematic Observations Financing Facility

Investment Phase:
Progress Update

Kingdom of Bhutan

January 2026

Systematic Observations
Financing Facility

Weather and climate data for resilience

General Information

Country	Kingdom of Bhutan	
Implementing Entity	United Nations Environment Programme (UNEP)	
Agreement effectiveness date	20 May 2024	
Duration	59.5 months	
Anticipated end date	01 May 2029	
Reporting period	**From:** 30 June 2025	**To:** 31 December 2025
Approved amount	UNEP: USD 4,228,124 WMO: USD 395,900	
Disbursed amount	UNEP: USD 3,382,499 WMO: USD 131,953	

Summary

Highlights of key achievements

Between June and December 2025, implementation of the SOFF Investment in Bhutan continued, with emphasis placed on strengthening institutional arrangements, advancing human capacity development, progressing procurement and preparatory work for forthcoming infrastructure activities. Coordination among the United Nations Environment Programme (UNEP), the Finnish Meteorological Institute (FMI), and the National Centre for Hydrology and Meteorology (NCHM) was maintained through regular technical and administrative exchanges, supporting coherence across project components. During the reporting period, activities focused on reinforcing technical skills, improving operational consistency, and advancing design, procurement, and planning processes for new and upgraded GBON-related infrastructure.

Under Output 1.1 – National consultations, including with civil society organizations and other relevant stakeholders, no additional engagement activities were carried out during the reporting period. As previously reported, the inception workshop, national consultation, and first Project Steering Committee (PSC) meeting took place on 28–29 January 2025. These engagements provided the basis for inclusive planning and coordination and continue to guide the implementation of the SOFF

Investment Phase project in Bhutan. As a subsequent activity, a Procurement Workshop was held from 10 to 13 March 2025 for the Project Manager, Component Managers, and procurement staff of NCHM. The workshop, facilitated by a UNEP technical expert, focused on strengthening procurement-related capacities in support of project implementation. The second PSC meeting is planned for 27 January 2026 and will build on earlier consultations to reinforce alignment with national priorities and partner contributions. A gender workshop is tentatively scheduled for November 2026, with technical support from the peer advisor, FMI. Preparatory discussions for this activity are ongoing among NCHM, FMI, and UNEP. Under Output 1.2, the Project Management Unit (PMU) has been established within NCHM. A designated Project Manager has been recruited, and the PMU is fully functional.

Under Output 1.3 – NMHS human capacity required to operate the GBON network developed, NCHM continued to strengthen human capacity through consultations, training activities, and staffing support. A two-day consultation workshop was held from 13 to 14 May 2025 at the Professional Development Centre in Tsirang, engaging 23 participants, including 12 field technicians and 11 headquarters staff (Technical Standard and Research Division Feedback Form, Workshop Feedback Form). The workshop finalized five technical documents: updated meteorological and hydrological observation manuals, instrumentation guidelines, and a competency-based framework for technicians. These outputs support the standardization of observation practices across the hydrometeorological network and contribute to consistent, high-quality data collection. In addition, participants were introduced to the Royal Government of Bhutan's Performance Management System, moderation processes, and advanced ICT tools, supporting alignment with national approaches to professional development and service delivery.

NCHM has assigned three component managers from within the organization to provide technical supervision in the areas of WIS and ICT, Calibration, Upper Air, and Automated Weather Station (AWS), supporting project implementation across their respective areas. To address operational needs at the Tsirang site, NCHM hired a Junior Engineer, effective 1 July 2025, to manage site-specific activities related to the planned construction of the Upper Air Sounding system and the enhanced Automatic Weather Station.

From 27 May to 4 June 2025, NCHM conducted an eight-day in-house training on AWS configuration, facilitated by a technical expert from MicroStep-MIS (Slovakia). The training engaged 14 officials from various divisions and focused on AWS hardware components, operational procedures, and maintenance. Through hands-on sessions, participants strengthened their capacity to manage AWS installations and undertake

troubleshooting, supporting GBON standards for data quality and system reliability. Completion certificates were awarded to all participants.

Moreover, as reported previously, of the three SmartMet servers procured by NCHM, two are expected to be operationalized in January 2026. In addition, two NCHM professionals participated in hands-on training at FMI focusing on the use of the SmartMet system for forecast product generation, and the resulting products were presented to NCHM management on 23 June 2025. The training supported the development of a range of outputs, including 3-day and medium-range forecasts, rainfall and wind warning maps, observation charts, district forecast images, and forecast verification tools, which are intended for future integration into the updated NCHM website. The activity contributed to improving the accessibility and practical application of weather information across priority sectors such as agriculture, disaster management, and aviation, while strengthening NCHM's capacity to meet GBON objectives related to data dissemination and user engagement.

In addition, AWS operations and maintenance factory training by MicroStep was conducted from 8 to 19 September 2025. The training covered hardware and software aspects of Automatic Weather Stations, including system architecture, manufacturing processes, remote diagnostics, and the use of IMS and CLDB for instrument maintenance, calibration, and data management. Calibration training and testing, along with capacity building and SOP development for calibration, were also conducted during this period. Participants received an overview of radar technology and its products, as well as hands-on training using calibration equipment and proprietary Calilab software. A visit to the Primary Calibration Laboratory at the Slovakia Meteorological Office (SHMÚ) provided insight into metrological traceability standards and reinforced best practices for ensuring sensor accuracy and reliability. Moreover, an instrumentation operation and maintenance workshop for observers is scheduled from 22 to 27 December 2025.

Under Output 2.2 – Improved land-based stations and related equipment, ICT systems, data management systems, and standard operating practices in place, NCHM awarded the contract for the procurement of an AWS to MicroStep-MIS on 20 August 2025. The procurement package includes the supply of AWS components and spare parts, with delivery expected within six months of the contract award. Architectural, structural, electrical, plumbing, and sanitation drawings, together with the bill of quantities, have been completed to support the upcoming civil works for the AWS. Construction is scheduled to commence in January 2026 and conclude by March 2026, enabling installation of the AWS between April and May 2026.

For the IMS server, CDMS server upgrade, AWOS server, NCHM network, and server backup systems, including generators, the procurement process was initiated in December 2025, with submission of the No Objection request to UNEP. Delivery of the equipment is expected in March 2026. For the construction of the calibration laboratory and procurement of calibration equipment, the review of the Bill of Quantities has been completed, and, subject to securing the necessary approvals, tendering is planned for the end of December 2025.

In parallel, NCHM completed open tendering for SmartMet servers, which were installed on 6 July 2025. This upgrade strengthened national infrastructure for weather data processing and dissemination, improving efficiency and reliability across operational systems. Building on this progress, the ICT section is drafting the Terms of Reference (ToR) for the CDMS server upgrades. This activity aims to modernize existing ICT infrastructure to support continuous 24/7 operations across NCHM's network, including regional offices in Wangdue, Bumthang, and Trongsa. Once implemented, the upgrades will improve data integration, accessibility, and storage, supporting real-time forecasting, data sharing, and continued GBON compliance.

Under Output 2.3 – New upper-air stations and related equipment, ICT systems, data management systems, and standard operating practices in place, consultancy services for the planning, design, and cost estimation of the Upper Air Observation infrastructure at Tsirang were awarded to NY Consulting on 4 June 2025. The consultancy completed all assigned deliverables, including the preparation of architectural, structural, electrical, water supply, and plumbing drawings, as well as the Bill of Quantities. These documents were reviewed by Tsirang Dzongkhag, with design approvals confirmed and final construction authorization obtained.

Following this, the bid for the construction of the Upper Air Observation Infrastructure at Tsirang was opened on 11 December 2025. The evaluation report was presented to the NCHM Tender Awarding Committee on 30 December 2025. Contract award is expected on 10 January 2026, and construction is expected to be completed by 10 July 2027.

This activity will establish the essential infrastructure required for upper-air observations, including a hydrogen generator shed, storage facilities for spare parts, and upper-air equipment with one year of consumables. Once operational, the facility will enhance atmospheric data collection capacity, supporting aviation safety, improving weather forecasting accuracy, and strengthening early warning systems. The expansion of upper-air monitoring capacity will contribute to Bhutan's progress toward meeting GBON requirements and strengthening resilience to climate-related hazards.

Progress of implementation

Output	Indicator	Target					Actual					Status	Milestones achieved	Challenges and risks
		Y1	Y2	Y3	Y4	Y5	Y1	Y2	Y3	Y4	Y5			
1. GBON institutional and human capacity developed														
1.1 **National consultations**, including with CSOs and other relevant stakeholders conducted	# of workshops held	1	1	1	1	2	3					On-track	Inception workshop and first PSC meeting completed on Jan 28, 2025; national stakeholder consultation on Jan 29, 2025; Procurement Workshop held Mar 10-13, 2025 The second PSC meeting is planned for 27 January 2026	
	% female participation in the stakeholder workshops	50	50	50	50	50	41					On-track	PSC meeting: 46% were women. Stakeholder Meeting: 41% were women. Procurement Workshop: 40% were women. Onsite Station Configuration: 29% were women Competency Based Workshop: 50% were Women.	
	# of targeted gender workshops		1	1								On-track	Gender workshop is tentatively scheduled for November 2026, with technical support from the peer advisor, FMI. Preparatory discussions for this activity are ongoing among NCHM, FMI, and UNEP.	

Output	Indicator	Target					Actual					Status	Milestones achieved	Challenges and risks
		Y1	Y2	Y3	Y4	Y5	Y1	Y2	Y3	Y4	Y5			
1.2 **NMHS institutional capacity** required to operate the GBON network developed	# of activities for strengthening institutional capacity		1	1				1				On-track	A Project Manager at NCHM has been designated to manage the project's execution, overseeing procurement coordination, capacity development, and stakeholder involvement.	
1.3 **NMHS human capacity** required to operate the GBON network developed	# trainings	2	2	2	2	2	1	3				On-track	A two-day consultation workshop was held from 13 to 14 May 2025 at the Professional Development Centre in Tsirang, engaging 23 participants (Technical Standard and Research Division Feedback Form, Workshop Feedback Form). From 27 May to 4 June 2025, NCHM conducted an eight-day in-house training on AWS configuration, facilitated by a technical expert from MicroStep-MIS (Slovakia). The training engaged 14 officials from various divisions. Two NCHM professionals participated in hands-on training at FMI focusing on the use of the SmartMet system for forecast product generation, and the resulting products were presented to NCHM	

Output	Indicator	Target					Actual					Status	Milestones achieved	Challenges and risks
		Y1	Y2	Y3	Y4	Y5	Y1	Y2	Y3	Y4	Y5			
													management on 23 June 2025. AWS operations and maintenance factory training by MicroStep was conducted from 8 to 19 September 2025.	
	# of recruited staff	4	4	4	4	4	1	2				On-track	A Project Manager has been appointed to manage critical tasks, including procurement coordination, capacity enhancement, and stakeholder collaboration. Supporting this structure, NCHM has assigned three component managers from within the organization to offer technical supervision in the fields of WIS and ICT, Calibration, Upper Air, and AWS, aiding the project's implementation across their respective areas. To address operational needs at the Tsirang site, NCHM has hired a Junior Engineer, effective July 1, 2025, to manage site-specific activities related to the planned construction of the Upper Air Sounding system and the enhanced Automatic Weather Station.	

Output	Indicator	Target					Actual					Status	Milestones achieved	Challenges and risks
		Y1	Y2	Y3	Y4	Y5	Y1	Y2	Y3	Y4	Y5			
2.1 **New land-based stations** and related equipment, ICT systems, data management systems and standard operating practices in place	# of new stations installed as per the GBON National Contribution Plan											Not yet started		
2.2 **Improved land-based stations** and related equipment, ICT systems, data management systems and standard operating practices in place	# of stations improved as per the GBON National Contribution Plan		1									On-track	NCHM awarded the contract for the procurement of an AWS to MicroStep-MIS on 20 August 2025. Construction for AWS is scheduled to commence in January 2026 and conclude by March 2026, enabling installation of the AWS between April and May 2026. NCHM completed open tendering for SmartMet servers, which were installed on 6 July 2025. For the IMS server, CDMS server upgrade, AWOS server, NCHM network, and server backup systems, procurement process was initiated in December 2025 and delivery of the equipment is expected in March 2026. For the construction of the calibration laboratory and procurement of calibration equipment, the review of the Bill of Quantities has been completed, and, subject	The preparation of the ToR for the CDMS servers is taking additional time to ensure that the technical specifications are fully aligned with existing systems, including the AWS, PiB, and IMS datasets. This careful approach is essential to guarantee system compatibility, maintain data integrity, and support long-term operational efficiency, which may extend the overall procurement preparation process.

Output	Indicator	Target					Actual					Status	Milestones achieved	Challenges and risks
		Y1	Y2	Y3	Y4	Y5	Y1	Y2	Y3	Y4	Y5			
													to securing the necessary approvals, tendering is planned for the end of December 2025.	
2.3 **New upper air stations** and related equipment, ICT systems, data management systems and standard operating practices in place	# of new stations installed as per the GBON National Contribution Plan			1								On-track	The bid for the construction of the Upper Air Observation Infrastructure at Tsirang was opened on 11 December 2025. The evaluation report was presented to the NCHM Tender Awarding Committee on 30 December 2025. Contract award is expected on 10 January 2026, and construction is expected to be completed by 10 July 2027.	
3.1 **GBON land-based stations' commissioning period completed**, country-specific standard cost for operations and maintenance established, and data sharing verified by WMO Technical Authority	# of stations commissioned as per the GBON National Contribution Plan					6						Not yet started		
3.2 **GBON upper air stations' commissioning period completed**, country-specific standard cost for operations and maintenance established, and data sharing verified by WMO Technical Authority	# of stations commissioned as per the GBON National Contribution Plan					1						Not yet started		

Attachments:

Bhutan Semi-Annual report July 2025