Technical Cooperation Document

I. Basic Information for TC

▪ Country/Region:	BELIZE
▪ TC Name:	Support for SOFF in Belize
▪ TC Number:	BL-T1180
▪ Team Leader/Members:	Alleng, Gerard P. (CSD/CCS) Team Leader; Samayoa Juarez, Jorge Omar (CSD/RND) Alternate Team Leader; Ramsumair-John, Priya Elizabeth (CCB/CTT); Lemos Alves Dos Santos Helder (CSD/CCS); Watson, Brodrick Raylando (VPC/FMP); Salazar, Astrid Danielle (CID/CBL); Blanc Pauline Lola (CSD/CCS); Garcia Cortessi Leonardo (ORP/REM); Isabel Williamson David Alejandro (ORP/GCM); Lunstedt Tapia, Christian (VPC/FMP); Medeiros, Eduardo (CSD/CSD); Gomez, Juan Carlos (CSD/CCS); Landazuri-Levey, Maria C. (LEG/SGO); Sierra Tabora Clara Rocio (CSD/CCS); Angulo Henriquez Daniella Andreina (CSD/CCS)
▪ Taxonomy:	Client Support
▪ Operation Supported by the TC:	N/A
▪ Date of TC Abstract authorization:	08 Oct 2024.
▪ Beneficiary:	National Meteorological Service of Belize
▪ Executing Agency and contact name:	National Meteorological Service Of Belize
▪ Donors providing funding:[1]	Project Specific Contribution Account(PSC)
▪ IDB Funding Requested:	US$753,000.00
▪ Local counterpart funding, if any:	US$0
▪ Disbursement period (Execution period):	36 months
▪ Required start date:	February 2025
▪ Types of consultants:	Individuals and Consulting Firms
▪ Prepared by Unit:	CSD/CCS-Climate Change Solutions Division
▪ Unit of Disbursement Responsibility:	CID/CBL-Country Office Belize
▪ TC included in Country Strategy:	Yes
▪ TC included in CPD:	Yes
▪ Alignment to the Update to the Institutional Strategy 2024-2030:	Gender equality; Gender equality and inclusion of diverse population groups

II. Objectives and Justification of the TC

2.1 The objective of this Technical Cooperation (TC) is to support the implementation of the Systematic Observations Financing Facility (SOFF) program in Belize, enhancing the country's capacity for collecting and exchanging essential weather and climate observation data, thereby contributing to national and global efforts to improve climate resilience and adaptation.

[1] These funds will be administered by the IDB through a Project-Specific grant (PSG). The Systematic Observations Financing Facility (SOFF), will contribute to the Bank USD805,710.00, inclusive of a non-refundable administration fee of 7% of the contribution which is equivalent to US$52,710.00.

2.2 Human-induced climate change, characterized by an increase in the frequency and intensity of extreme weather events, has already inflicted widespread adverse impacts on both people and nature. In 2022 alone, disasters driven by weather- and climate-related hazards cost the global economy over USD 300 billion (Statista, 2023; AON, 2023). Urgent and ambitious action is essential to mitigate the ongoing rise in greenhouse gas emissions worldwide. Given the current global trajectory, adaptation and resilience-building efforts are crucial to reducing the anticipated negative effects of climate change and preventing further loss and damage, particularly for the most vulnerable populations. To significantly enhance both the quantity and quality of investments in adaptation, it is imperative that high-quality weather forecasts and climate predictions are accessible everywhere. Decision-makers, communities and investors require precise information about expected impacts to effectively prioritize their limited resources and take timely, efficient, and effective action, to reduce loss of life, limit the extent of damages and ensure a measure of business continuity.

2.3 The accuracy of weather forecasts and climate predictions fundamentally relies on the quality of the underlying data. For any forecast extending beyond a few days, comprehensive data from around the globe is essential. However, Least Developed Countries (LDCs), Small Island Developing States (SIDS), and Lower Middle-Income Countries currently contribute only seven percent of the internationally agreed and mandated surface-based observation data (SOFF, 2023). This data shortfall presents a significant challenge in making informed and timely climate policy and investment decisions, especially in the areas of mitigation and adaptation. In addition to their critical role in enhancing weather forecast models, data from hydrometeorological stations are vital for establishing climate baselines and monitoring climatic changes over time. The Intergovernmental Panel on Climate Change (IPCC) Sixth Assessment Report highlights the severe difficulties in accurately projecting potential changes in heatwaves, flooding events, and droughts across significant portions of Africa, Latin America, and the Pacific—primarily due to the lack of reliable data.

2.4 The Systematic Observations Financing Facility is a specialized United Nations Multi-Partner Trust Fund (UNMPTF) that provides sustained technical and financial support to countries for the collection and international exchange of essential weather and climate observations. SOFF's activities are guided by an internationally recognized global design and associated metrics, namely the World Meteorological Organization's (WMO) Global Basic Observing Network (GBON). In October 2021, a landmark decision was made by the 193 member countries and territories of the World Meteorological Congress, establishing a new global standard for the mandatory real-time international exchange of basic weather and climate observations. This initiative aims to enhance the accuracy and effectiveness of weather forecast products. GBON clearly defines the commitments of WMO members to acquire and exchange basic surface-based observations in quantitative terms. Through this innovative approach, the basic surface-based observing network is designed, defined, and monitored at a global level, ensuring that data collection meets the highest standards and contributes to improved climate resilience worldwide.

2.5 The SOFF program is to be implemented in three phases—Readiness, Investment and Compliance. Under the Readiness phase, eligible countries are provided resources to undertake a GBON Gap Analysis, GBON National Contribution Plan and a Country HydroMet Diagnostics. These outputs will be the basis of the Investment Phase, which will provide the funding for the observing network infrastructure and development of the human and institutional capacity needed to implement the GBON

National Contribution Plan. The Compliance phase provides results-based finance and technical assistance to beneficiary countries to operate and maintain the surface-based observation network and the international sharing of data.

2.6 In 2023, Belize completed its Readiness Phase and identified that the country requires one surface and one upper air observation station to fulfill GBON standards (Table 1). The National Gap Analysis revealed the necessity for an extra surface observation site in Punta Gorda, located in southern Belize. This additional site is crucial for achieving complete GBON coverage and addressing significant observation gaps in the southern and western regions of the country, especially near the Guatemalan border.

Table 1 WMO GBON gap analysis for Belize (2023)

GBON horizontal resolution requirements	GBON target	Reporting	Gap improved	Gap new	Gap total
Surface stations **Horizontal resolution**: 200km	1	0	1	0	1
Upper-air stations **Horizontal resolution**: 500km	1	1	0	0	0

2.7 The establishment and upgrading of these observation stations in Belize are not just about meeting international standards but also about empowering local communities. Enhanced weather and climate data will enable better preparedness and response strategies for natural disasters, which are becoming increasingly frequent and severe due to climate change. This initiative will also support agricultural planning, water resource management, and public health initiatives by providing accurate and timely weather information. Furthermore, the integration of these new stations into the global network will ensure that Belize contributes valuable data to the international community, fostering global cooperation in climate science and resilience-building efforts. By addressing these critical gaps, Belize can better protect its natural resources, support sustainable development, and safeguard the well-being of its population against the growing threats posed by climate change.

2.8 **Strategic Alignment**. This Technical Cooperation (TC) is well-aligned with the IDB's Institutional Strategy 2024-2030, as it aims to reduce Belize's vulnerability to climate change—an essential step to mitigating the adverse impacts on economic growth and poverty reduction. By enhancing Belize's disaster risk management capacities, this TC supports a comprehensive array of risk management instruments, providing critical tools to help the country build resilience against natural hazards. Additionally, this TC directly aligns with the objectives of the IDB Country Strategy with Belize 2022-2025 (GN-3086) by equipping authorities with the resources and mechanisms necessary for effective disaster risk management and prevention. Furthermore, it is consistent with the IDB Group Climate Change Action Plan 2021-2025 (GN-2848-9), which emphasizes the importance of improving both the quantity and quality of disaster risk information across hazard, exposure, and vulnerability dimensions, while also strengthening clients' capacities to generate, manage, and leverage this data to shape informed development policies. The TC is aligned with the Gender and Diversity Sector Framework Document (GN-2800-10) by promoting inclusive approaches that consider the needs of vulnerable groups in disaster resilience efforts, including integrating gender considerations into all training activities, ensuring gender balance in leadership training, and targeting at least 50% female participation in all training programs. Finally, the TC supports PLAN Belize, the nation's medium-term development strategy for 2022-2026. PLAN Belize outlines key priorities, such as establishing a fully functional national flood early warning network, implementing a drought forecasting system, and developing a comprehensive disaster management policy and strategy.

Through these concerted efforts, this TC will advance both Belize's national goals and broader regional resilience objectives.

III. Description of Activities/Components and Budget

3.1 Component 1. Development of GBON institutional and human capacity (US$400,000). This component aims to increase awareness of the GBON, update the Belize's National Meteorological Service's (NMS) strategic plan, and deliver leadership and staff capacity-building. The activities of the component will be: (i) a national engagement program on HydroMet development that will consist of a series of national consultations with both public and private sector stakeholders, alongside initiatives that will focus on Gender Equality and Social Inclusion (GESI) to ensure inclusive participation. Workshops with community leaders will further promote local understanding and support for GBON objectives; (ii) a set of procedures and instructions to perform during an emergency, and define the roles and responsibilities of authorities, community and other stakeholders; and (iii) a capacity training program for the Belize NMS, which will focus on developing leadership skills, enhancing project management expertise, and building targeted technical competencies. This comprehensive approach seeks to empower NMS personnel to successfully implement and sustain GBON-aligned activities for improved climate resilience in Belize.

3.2 Component 2. Establishment of GBON infrastructure (US$188,000). This component focuses on strengthening infrastructure to enhance the collection of weather and climate data in Belize. The activities of this component are: (i) upgrade program for all land-based observation stations by enhancing equipment, information and communication technology (ICT) systems, data management processes, and operational practices. These improvements aim to ensure the collection of more accurate and reliable data to support weather forecasting and climate analysis; and (ii) upgrade program to upper-air observation stations, including modernizing equipment, ICT systems, and data management protocols. These enhancements will improve data transmission quality and operational consistency, contributing to a more comprehensive and resilient weather and climate monitoring network in Belize.

3.3 Component 3. Sustainability compliance of GBON requirements (US$45,000). The activities of this component are: (i) completion of the commissioning period for both land-based and upper-air observation stations; and (ii) establishment of in -country -specific standards for ongoing operations and maintenance costs. Additionally, it will ensure that data sharing processes meet verification standards set by the WMO Technical Authority, thereby aligning Belize's data practices with international requirements. This approach will not only improve data accuracy and reliability but also support the sustainable management of observation infrastructure, ensuring long-term compliance with global standards.

3.4 Component 4. Project Management (US$120,000). This component will support the formation of a dedicated project management team, equipped with skills in project management, stakeholder engagement, and performance evaluation to ensure effective project delivery. The team will be responsible for overseeing project implementation, coordinating with key stakeholders, and conducting thorough project evaluations to assess outcomes and identify areas for improvement. This approach will strengthen project oversight and enhance collaboration across involved parties, ensuring the project's objectives are met efficiently and sustainably.

3.5 Resources of this project to be received from the United Nations Multi-Partner Trust Fund through a Project Specific Grant (PSG). A PSG is administered by the Bank according to the "Report on COFABS, Ad-Hocs and CLFGS and a Proposal to Unify Them as Project Specific Grants (PSGs)" (Document SC-114). As contemplated in these procedures, the commitment by the United Nations Multi-Partner Trust Fund will be established through a separate Administration Agreement. Under such an agreement, the resources for this project will be administered by the Bank.

3.6 The total estimated cost of this TC is US$753,000, which will be financed with resources from the United Nations Multi-Partner Trust Fund.

Indicative Budget (US$)

Activity/Component Description	IDB Funding	Total
Component 1. Development of GBON institutional and human capacity	400,000	400,000
Component 2. Establishment of GBON infrastructure	188,000	188,000
Component 3. Sustainability compliance of GBON	45,000	45,000
Component 4. Project Management	120,000	120,000
Total	**753,000**	**753,000**

IV. Executing Agency and Execution Structure

4.1 In its request for support (see Annex 1), the Government of Belize has designated its National Meteorological Service as the Executing Agency (EA) for this Technical Cooperation. The NMS is the primary governmental authority on weather and climate in Belize, providing essential meteorological and climate-related products and services to the Belizean public. Its responsibilities include the systematic monitoring and collection of accurate data, performing reliable data analyses and forecasting, and disseminating timely, user-friendly reports and forecasts on weather and climate events and hazards. The NMS also serves as Belize's National Focal Point for the IPCC. As a department within the Ministry of Blue Economy and Disaster Risk Management, the NMS is structured to fulfill its broad mandate through three key technical sections, in addition to an Administrative Section: the Weather Analysis and Forecasting Section, the Climate Services Section, and the Electronics and Information Technology Section.

4.2 Prior Executing Experience. The NMS has collaborated with various implementing partners on projects of similar scale, including the Energy Resilience for Climate Adaptation Project (ERCAP), the Climate Resilient and Sustainable Agriculture Project (CRESAP), and the Resilient Rural Belize (RRB) Program. While the NMS was not the primary executing entity for these initiatives, its personnel worked closely with the main implementers to ensure project deliverables were successfully met. As the NMS continues to leverage project funding to strengthen its capabilities, several pipeline projects are currently under development. These include a technical cooperation agreement with the Caribbean Development Bank (CDB) to pilot Multi-Hazard Impact-Based Forecasting for Belize City and communities along the Belize River; the Climate Risk and Early Warning System (CREWS) project, which aims to assess the socio-economic benefits of the NMS's contributions to Belize; and two regional project proposals for funding from the Green Climate Fund.

4.3 For this project, a Project Management Unit (PMU) will be created, together with a Technical Advisory Committee (TAC) and a Project Steering Committee (PSC), which will provide technical and managerial oversight. The TAC will provide technical

guidance and support to each of the sub/components and will meet semi-annually, while the PSC will provide managerial leadership and support to the program and will meet quarterly. The TAC and PSC shall be established within the first year of disbursement. The NMS will assign a Finance and Accounting Specialist and a Procurement Officer from within its departments to be part of the PMU. The PMU will be further complemented by the hiring of a Monitoring and Evaluation Officer (part-time) and a Project Manager (part-time) using project funds. The establishment of the PMU is required to provide specific support for this project's implementation and ensure that the EA achieves the objectives of the project while complying with the fiduciary requirements of the IDB.

4.4 Condition precedent to the first disbursement of the resources. The EA shall present evidence, to the satisfaction of the Bank of the designation of the key personnel of the PMU including at least a Monitoring and Evaluation Officer (part-time) and a Project Manager (part-time).

4.5 Procurement. Procurement activities will be carried out in accordance with the Policies for the Procurement of Goods and Works financed by the Inter-American Development Bank (GN-2349-15) and the Policies for the Selection and Contracting of Consultants Financed by the Inter-American Development Bank (GN-2350-15). The Procurement Plan contains the details of the acquisitions that will be implemented during project execution.

4.6 Coordination. The Project Steering Committee (PSC) may consist of representatives from: (i) the NMS; (ii) the National Emergency Management Organization; (iii) the National Hydrological Service; (iv) the National Climate Change Office; (v) the Ministry of Economic Development; (vi) the Ministry of Finance; (vii) the Ministry of Blue Economy and Disaster Risk Management; (viii) the Ministry of Agriculture; (ix) the Department of Civil Aviation; and (x) the Ministry of Health. The TAC will be established to help guide the project and may comprise of the representatives from: (i) the NMS; (ii) the National Hydrological Service; (iii) the National Emergency Management Organization; (iv) the Department of Civil Aviation; (v) the Belize Airport Authority; and (vi) the Ministry of Agriculture.

4.7 Responsibility and Monitoring and Evaluation Requirements. The NMS will be responsible for: (i) the project's technical, administrative, and operational management; (ii) the procurement of works, goods, and services; (iii) the preparation of disbursement requests; (iv) the preparation and update of annual work plans and the procurement plan, among others; (v) the submission of project management and fiduciary reports —the Annual Operation Plan, Semi-Annual Progress Reports, Final Evaluation Report, Annual Financial Statements, Final Audited Financial Statements, and any other reporting requirement for the project; (vi) the monitoring, supervision, and inspection of works and service contracts; (vii) the coordination of approvals from key government agencies; and (viii) the overall financial oversight of the project. The Semiannual Progress reports will be submitted within 30 days following the reporting period. The Annual Operation Plan inclusive of the Procurement Plan will be due on November 30 of each year. The Final Evaluation will be due within 90 days after the date of the last disbursement of the project.

4.8 Financial Management. Financial management for this TC will follow the "Financial Management Guidelines for IDB-financed Projects" (OP-273-12), and the financing resources will be transferred to a special bank account opened by the NMS for the project. Financial supervision will be performed through supervision visits, periodic reporting on the project, the submission of Annual Financial Statements, and a Final Audited Financial Report (AFR). Whenever at least 80% of the advance has been

justified, a new disbursement may be requested. The EA will present Annual Financial Statements to the Bank within 90 days after the close of each fiscal year and the Final AFR, audited by external auditors eligible to the IDB, according to the terms of reference agreed with the Bank, within 90 days after the date of the last disbursement of the project.

4.9 Supervision. The Climate Change Division of the IDB (CSD/CCS), with the support of the Country Office in Belize (CID/CBL), will be responsible for the supervision of the TC. The Unit of Disbursement Responsibility (UDR) will be CID/CBL, and the designated focal point for project supervision at the IDB will be the Climate Change Senior Specialist (CSD/CCS), who is the project team leader. This will facilitate the supervision of project implementation, as well as foster good communication with local counterparts. The Bank will perform ongoing technical supervision and alignment of implementation activities and will also use its experience in ongoing operations to provide or facilitate the provision of technical guidance as needed. CSD/CCS, led by the team leader of this TC, and the CBL will work closely with the NMS to ensure that the deliverables of this TC are met within the proposed timeline. Monthly update meetings will be scheduled. The project team will be responsible for the preparation and submission to the donor of the project reporting, in compliance with the stipulations of the Administration Agreement.

V. Important Risks

5.1 A primary risk to achieving the project's objectives is the potential departure of NMS staff following their training. To mitigate this, the project will prioritize raising awareness among government bodies regarding the critical role of the NMS and securing sustained funding support to reinforce staff retention. Additionally, a cadre of personnel will receive thorough technical training to ensure continuity of expertise and project success.

5.2 A second risk involves potential delays in the implementation, procurement, installation, and capacity-building activities. This risk will be mitigated through regular project reporting and coordination meetings to monitor progress closely. The IDB will conduct routine administrative and supervisory missions to help maintain the project's timeline. An Institutional Capacity Assessment of the EA will also be carried out by the IDB to identify organizational strengths and potential areas for improvement in project management.

5.3 A further risk is the potential destruction or theft of SOFF-financed equipment and infrastructure. To address this, the project will implement standard operating procedures, including contingency plans for high-impact weather events and the availability of spare equipment. The GBON station located at the airport is situated in a secure area with minimal risk of theft or vandalism. For the proposed GBON station in Punta Gorda, the NMS will partner with local civil society organizations and community leaders to raise awareness about the station's significance and encourage local commitment to its protection from potential theft and vandalism.

5.4 Intellectual Property. All knowledge products derived from this Technical Cooperation will be the IDB's intellectual property.

VI. Exceptions to Bank policy

6.1 There are no exceptions to Bank policy.

VII. Environmental and Social Aspects

7.1 This Technical Cooperation is not intended to finance pre-feasibility or feasibility studies of specific investment projects or environmental and social studies associated with them; therefore, this TC does not have applicable requirements of the Bank's Environmental and Social Policy Framework (ESPF).

Required Annexes

Request from the Client_93514.pdf

Results Matrix_53355.pdf

Terms of Reference_74895.pdf

Procurement Plan_31348.pdf