

## TC ABSTRACT

### I. Basic Project Data

▪ Country/Region:	REGIONAL/IDB
▪ TC Name:	Integrated Sargassum Management for the Wider Caribbean: Mapping, Technological Advancements, and Research Collaborations
▪ TC Number:	RG-T4374
▪ Team Leader/Members:	BUCARAM VILLACIS, SANTIAGO JUNIOR (CSD/RND) Team Leader; GUERRERO COMPEAN, ROBERTO (CSD/RND) Alternate Team Leader; MOREDA MORA, ADELA (CSD/RND) Alternate Team Leader; ROJAS SANCHEZ, LAURA NATALIA (VPS/VPS); GARAY ARMOA, PEDRO VICENTE (CSD/CSD); HINCAPIE SALAZAR, DANIEL (CSD/ACU); BONILLA MERINO ARTURO FRANCISCO (LEG/SGO); DIAZ GILL VIRGINIA MARIA (LEG/SGO); DAMAIS, GILLES GEORGES (CSD/RND); LUIS DE LOS SANTOS (CSD/RND); CHAVEZ, ELIZABETH (CSD/RND); RESTREPO, LISA SOFIA (CSD/RND); RAMIREZ RUFINO, SMELDY; SOARES, YURI SUAREZ DILLON (LAB/STI)
▪ Taxonomy:	Client Support
▪ Number and name of operation supported by the TC:	N/A
▪ Date of TC Abstract:	21 Sep 2023
▪ Beneficiary:	Governments of Mexico and Dominican Republic
▪ Executing Agency:	INTER-AMERICAN DEVELOPMENT BANK
▪ IDB funding requested:	US\$1,000,000.00
▪ Local counterpart funding:	US\$0.00
▪ Disbursement period:	24 months
▪ Types of consultants:	Individuals; Firms
▪ Prepared by Unit:	CSD/RND - Env, Rural Dev & Disaster Risk
▪ Unit of Disbursement Responsibility:	CSD/RND - Env, Rural Dev & Disaster Risk
▪ TC included in Country Strategy (y/n):	No
▪ TC included in CPD (y/n):	No
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Environmental sustainability

### II. Objective and Justification

2.1 The Inter-American Development Bank (IDB) is dedicated to assisting countries in the Wider Caribbean region that are grappling with the proliferation of Sargassum. This technical cooperation project (TC) marks the beginning of a series of TCs addressing the Sargassum challenge. The primary objective of this TC is to promote an integrated and adaptive management approach to the Sargassum issue in the Wider Caribbean Region. It aims to unify regional initiatives systematically, bolster evidence-based research on pelagic sargassum dynamics, advance innovative containment technologies, and formulate strategies and policies that reduce fertilizer usage. The latter is expected to encourage sustainable agricultural practices in the Amazon region. Through these efforts, the IDB seeks to enhance the sustainability of coastal and marine environments, strengthen the resilience of affected communities, and provide stakeholders with the necessary information for evidence-based decision-

making. All these steps aim to mitigate the socio-economic and environmental ramifications of Sargassum blooms in the region.

- 2.2 The Wider Caribbean region, which includes Central America, Mexico, and the Caribbean, with over 86,900 km of coastline, heavily depends on its coastal and marine ecosystems. Coastal areas are critical for the region's GDP growth and population density, primarily because of their economic contributions from fisheries, tourism, and transportation. Notably, in 2019 14% of the Caribbean's total GDP came from tourism, generating USD 61.5BN .2,75 million jobs and 21% of total exports (World Travel and Tourism Council, 2022).
- 2.3 However, since 2011, the Caribbean has been experiencing an influx of pelagic Sargassum, a type of brown algae. In 2018 alone, over 20 million tons of Sargassum inundated the Caribbean Sea. While Sargassum is a natural part of the marine ecosystem, providing food, shelter, and nutrients, its massive accumulation on shores has become a concern.
- 2.4 The reasons for the extraordinary proliferation of Sargassum are multifaceted:
  - a. Increased Nutrient Load from River Basins: Deforestation and urban development in the Amazon and The Orinoco River Basins are leading to higher nutrient levels in the ocean, promoting Sargassum growth.
  - b. Sahara Dust Contribution: The transport of Sahara dust brings essential nutrients to the Caribbean, boosting Sargassum biomass.
  - c. Shifts in Upwelling Patterns: Changes off North-Eastern Africa can lead to higher nutrient availability, supporting Sargassum growth.
  - d. Abnormal Wind Patterns: Changes in the central eastern Atlantic might have created conditions for nutrient accumulation, promoting Sargassum growth.
  - e. Rising Sea Temperatures: Warmer seas can expedite the metabolic rates and growth of Sargassum.
  - f. Changes in Mixed Layer Depth: Alterations can affect nutrient availability, leading to increased Sargassum biomass.
  - g. Overfishing: It can disrupt the marine food chain balance, possibly leading to increased Sargassum growth.
- 2.5 The surge of Sargassum has precipitated environmental and economic crises in the Caribbean:
  - a. Environmental Impacts: Decomposing Sargassum reduces oxygen levels, leading to marine hypoxia, and releases toxic gases, affecting marine life and water quality.
  - b. Economic Impacts: The unsightly appearance of Sargassum on beaches can deter tourism. For instance, in Quintana Roo, Mexico, the presence of Sargassum decreased economic activity by over 11%. The cleanup cost for the Caribbean in 2018 was USD 120 million, with places like Quintana Roo spending up to USD 1.5 million per year.
  - c. Health Concerns: Decaying Sargassum releases harmful gases and fosters bacteria growth, causing respiratory and skin issues.
  - d. Impact on Fishing: Sargassum can hinder fishing activities by clogging fishing gear and making navigation difficult.
  - e. Coastal Erosion: Accumulation on beaches can lead to increased erosion and destabilization of coastal ecosystems.
  - f. Biodiversity Impact: Excessive Sargassum can alter marine ecosystems, causing species composition and diversity shifts.
- 2.6 In conclusion, while Sargassum is naturally occurring and beneficial in balanced quantities, its unprecedented growth and proliferation in the Caribbean have posed

significant challenges. Addressing the root causes and mitigating its impacts require concerted efforts from stakeholders in the region.

### III. Description of Activities and Outputs

- 3.1 **Component I: Mapping and developing Sargassum monitoring and forecasting capabilities in the Wider Caribbean Region.** This component involves: ((1) Mapping Caribbean Sargassum research for cohesive management guidelines, and 2) Examining sargassum dynamic using the “Dr. Jorge Carranza Fraser” vessel for biomass and oceanographic assessment.
- 3.2 **Component II: Advanced technologies for Sargassum containment and resilience.** The objective of this component is to demonstrate and disseminate the use of innovative technologies for the collection, containment, and proper disposal of Sargassum in the Wider Caribbean region as a key element of ICZM.

### IV. Budget

Indicative Budget

Activity/Component	IDB/Fund Funding	Counterpart Funding	Total Funding
Mapping and developing Sargassum monitoring and forecasting capabilities in the Wider Caribbean Region	US\$500,000.00	US\$0.00	US\$500,000.00
Advanced technologies for Sargassum containment and resilience	US\$500,000.00	US\$0.00	US\$500,000.00
<b>Total</b>	<b>US\$1,000,000.00</b>	<b>US\$0.00</b>	<b>US\$1,000,000.00</b>

### V. Executing Agency and Execution Structure

- 5.1 The IDB’s Environment, Rural Development and Disaster Risk Management Division (CSD/RND) will be responsible for the execution of this TC. CSD/RND will be responsible for procurement of the required services. The Bank is proposed as the executing agency because of the geographical scope of the TC which involves several countries in a very large geographical region (i.e., the Wider Caribbean Region) and therefore, for this TC is needed an organization with the capacity to coordinate the activities in various countries of the Wider Caribbean in an efficient manner. It is also needed that the organization be able to agglomerate the lessons learned in all these countries as well as synthesize them to arrive to common conclusions that can be replicated in other Wider Caribbean countries. Consequently, the Bank is the best candidate to perform those tasks.
- 5.2 The IDB has extensive experience and a track record of successfully and efficiently executing this type of technical assistance project. Additionally, it should be emphasized that the Bank has the appropriate systems in place to ensure proper execution of the operation and ensure the sustainability of the project in accordance with Annex 10 of document GN-2629-1. Similarly, the Bank has the necessary experience to ensure compliance with the relevant procurement policies and procedures.

### VI. Project Risks and Issues

- 6.1 The execution of this Technical Cooperation (TC) introduces several challenges: (i) potential diminished engagement from beneficiaries during project undertakings, notably a hesitancy to provide reliable feedback and information; (ii) inadvertently

heightening expectations that transcend the project's capabilities; and (iii) potential convergence with antecedent and contemporaneous initiatives by institutions such as the World Bank, the Global Environment Facility, World Wildlife Fund, among others. To counteract the first challenge, a comprehensive stakeholder's outreach will be mobilized to elucidate the project's intentions and the imperative of the data and information procured. For the second, an in-depth dialogue will be facilitated with stakeholders, defining the project's parameters, and clarifying the intended outcomes of the TC deliverables. To address the latter challenge, a preliminary appraisal of endeavors by the entities will be conducted, bolstered by fostering an unceasing and transparent dialogue with these institutions.

## **VII. Environmental and Social Aspects**

- 7.1 This TC does not have applicable requirements of the Bank's Environmental and Social Policy Framework (ESPF).