TC Document

I. Basic Information for TC

▪ Country/Region:	REGIONAL/CCB - Caribbean
▪ TC Name:	Unleashing New Avenues for Growth by tackling opportunities in the Blue Economy
▪ TC Number:	RG-T3342
▪ Team Leader/Members:	Stevenson, Claudia (IFD/CTI) Team Leader, Schmid, Juan Pedro (CCB/CCB) Alternate Team Leader; Alleng Gerard (CSD/CCS), Alternate Team Leader; Von Horoch, Jorge, Saavedra, Jose Jorge (CCB/CCB); Benavente, Jose Miguel, Dohnert Sylvia, Navarro, Juan Carlos (IFD/CTI), Anta Rafael (EVP/EVP) Grant, Kayla Sharee (IFD/CTI), Lopez, Maria Fernanda (IFD/CTI); Carolina Verissimo Da Silva (LEG/SGO).
▪ Taxonomy:	Research and Dissemination
▪ Date of TC Abstract authorization	September 7th, 2018
▪ Beneficiary:	The Bahamas, Barbados, Guyana, Jamaica, Suriname, and Trinidad and Tobago
▪ Executing Agency:	INTER-AMERICAN DEVELOPMENT BANK
▪ Donors providing funding:	OC Strategic Development Program for Countries – Economic Growth Priority (CTY-ECG)
▪ IDB funding requested:	$600,000.00
▪ Local counterpart funding:	$ 0.00
▪ Disbursement period:	24 months
▪ Required start date:	December 10, 2018
▪ Types of consultants:	Individuals; Consulting Firms
▪ Prepared by Unit:	IFD/CTI, CCB/CCB, CSD/CCS
▪ Unit of Disbursement Responsibility:	CBA/CCB
▪ TC included in Country Strategy (y/n): ▪ TC included in CPD (y/n):	N/A N/A
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Productivity and innovation, cross cutting topic of Environmental Sustainability

II. Objectives and Justification of the TC

2.1. The objective of this Technical Cooperation is to support policy action conducive to broaden and accelerate economic growth and inclusive development in the Caribbean by enhancing the economic potential of the Blue Economy under a sustainable growth framework. It targets the effective implementation of policies in small island states in the Caribbean in an area in which new avenues for growth have been identified and have not yet been exploited to its full potential due to a series of bottlenecks to be further identified.

2.2. **Caribbean countries face Structural Constraints to Growth**.

2.3. The economies of the Caribbean are small, open economies that show persistent sluggish growth rates over time. Although the economies of Caribbean small states[1] grew on average by 0.7% in 2017, productivity has declined over the years. When comparing the performance of the Caribbean private sector to that of the Rest of Small

[1] For the purpose of this document, Caribbean small states are defined as IDB Caribbean country member states: Bahamas, Barbados, Guyana, Jamaica, Suriname, and Trinidad and Tobago.

Economies (ROSE), the Caribbean's productivity[2] limits high levels of economic growth. In addition, economic growth has either concentrated in commodity exports (mainly oil, gas and gold) or in services industry (mainly tourism).

2.4. Caribbean firms face challenges to scale up and to innovate, as they encounter: (i) small domestic markets; (ii) high vulnerability to external shocks; (iii) difficult geographic conditions; (iv) an inadequate Business and Innovation Climate; (v) weak institutions; and (vi) an inadequately trained labor force. Small island states in the Caribbean face further structural limits to growth due to their small size (in terms of both land and population) and geographical and logistic challenges of being surrounded by water. All these factors have contributed to economies that depend either on commodities (Guyana, Trinidad and Tobago and Suriname) or on tourism (The Bahamas, Barbados and Jamaica), resulting in vulnerabilities to external shocks and constraining inclusive and broad development outside those sectors.

2.5. The Caribbean is one of the most vulnerable regions in the world to natural disasters, mostly cyclones and hurricanes. It is estimated that economic damages due to this event could be as high as 5.7% of GDP annually for the 1950-2014 period.[3] Moreover, the region also has to manage the slow onset of or chronic impacts of climate change as these trends (i.e. sea level rise, increased global temperatures) are projected to have greater long-term economic effects on island states.[4] Resilience through economic diversification and sustainable economic growth will be required in order to manage both climate shocks and trends.

2.6. **Potential for the Blue Economy**.

2.7. Recent estimates suggest that oceans contribute between US $1.5 trillion and US $3 trillion each year to the global economic activities, generates around 31 million jobs and its contribution is expected to increase in the medium to longer term.[5] The "Blue Economy"[6] is an evolving concept that takes a step further than the Ocean Economy in its recognition of the need to not only maximize the economic potential presented by the ocean spaces but to also preserve the health, attributes, and environmental sustainability of the ocean's natural assets (OECD 2011). The concept of the Blue Economy includes the simultaneous promotion of economic growth, environmental sustainability, social inclusion and strengthening of oceans ecosystems. For small islands states, although traditional industries and sectors - fisheries, maritime transport and coastal tourism - represent a large portion of economic activity, pursuing the blue economy represents an expansion of the utilization and management of ocean assets and services including marine aquaculture, seabed mining, maritime safety and surveillance, marine biotechnology and bioprospecting, carbon sequestration, biodiversity ocean renewable energy and deep-sea oil and gas production.

2.8. In this regard, the Blue Economy can be interpreted as economic activity that directly or indirectly uses the sea in a sustainable manner as a factor of production for intermediate or final goods and a platform for development (ref). The Blue Economy supports economic growth, environmental and ecological sustainability, social inclusion, the strengthening of oceans ecosystems and innovation. The marine space and the oceans are a factor of supply that may involve fisheries, biotech, energy,

[2] Ruprah, Melgarejo, and Sierra (2014). ROSE refers to countries with less than 3 million population outside the Caribbean.
[3] International Monetary Fund (IMF). 2016. Gone with the Wind: Estimating Hurricane and Climate Change Costs in the Caribbean.
[4] Moody's Investor Service, 2017. Small island credit profiles resilient to nearterm climate shocks, but climate trends pose longer-term risks
[5] Economic Commission for Latina America and the Caribbean (ECLAC). 2018. Caribbean Outlook.
[6] The term was first used during the 2012 United Nations Conference on Sustainable Development.

mineral and tourism. The supply is larger when the marine space is larger. The marine space also allows for output flows from economic activities which should be sustainably managed in accordance with circular economic principles. In this regard, there is consensus over the fact that the potential of oceans as a sustainable and viable avenue for creating more value and long-term economic growth has not been fully explored.[7]

2.9. The exploitation of the ocean space requires an environmentally sustainable approach, as the need to conserve the fragile resources, even for the current economic maritime activities, is a crucial point for this sector. The region's ocean space is vulnerable to the tragedy of the commons (overuse), externalities (pollution) and impacts of climate change. Nevertheless, it is expected that scientific and technological advances as well as behavioral changes can potentially transform the way environmental challenges are addressed and will generate new economic, disruptive activities related to the ocean. Innovation in advanced materials, subsea engineering and technology, remote sensing technologies, big data analytics, biotechnology and nanotechnology will affect every current blue economy activity.[8] Many countries in the region, and outside the region, have been pioneering deep sea exploration searching for new minerals, new biological resources and assets etc. This type of research is very incipient in the Caribbean, further contributing to asymmetries of information due to lack of knowledge of the ocean potential.

2.10. **Blue Economy and the Caribbean**.

2.11. The Caribbean's Ocean Economy, which consists of traditional sectors such as shipping, tourism, oil and gas, fisheries and aquaculture, was estimated to contribute around 18% of GDP in 2012.[9] For Caribbean small island developing states (SIDS), although traditional industries and sectors - fisheries, maritime transport and coastal tourism - represent a large portion of economic activity, pursuing the blue economy also enables diversification into many other new and emerging ocean-based activities and sectors, including marine aquaculture, seabed mining[10], marine biotechnology[11], ocean renewable energy including offshore wind and solar energy[12], deep-sea oil and gas production, deep sea mining, maritime safety and surveillance and high-tech marine services[13].

2.12. The compounded sea zone (exclusive economic zones - EEZs)[14] of Barbados, Bahamas, Jamaica and Trinidad and Tobago (estimated to be 1.439 Million square km) represents a significant amount of development space in comparison to the countries limited land area (379,110 square kilometers) coupled with the existence of a unique biodiversity in terms of marine fauna and flora. In this regard, the marine space can be considered as an input in the production function of the countries, an

[7] Organization for Economic Cooperation and Development (OECD). 2016. The Ocean Economy 2030

[8] Ibid.

[9] World Bank. 2016. Toward a Blue Economy: A Promise for Sustainable Growth in the Caribbean.

[10] Some deep-sea deposits contain ores with up to 10 times the proportion of metal compared to deposits found on land. (Blue Economy Fund)

[11] For instance, the demand for pharmaceuticals from marine species is anticipated to grow to $8.6 billion by 2016. (Blue Economy Fund) The native Caribbean shallow-water sponge, for instance, was used to develop anti-viral and anti-cancer drugs, including the HIV drug AZT, anti-viral drugs to treat herpes, and an anti-leukemia drug (the first marine-drug approved for cancer treatment). For more information, see https://ocean.si.edu/ocean-life/invertebrates/sea-sponge-hiv-medicine

[12] Marine-based renewable sources hold the potential to meet the region's energy needs. On a global basis and over the last few years, wind power has reached 487 GW of capacity (GWEC 2017) with increasing installations of offshore wind power.

[13] UNCTAD. The Oceans Economy. Opportunities and Challenges for Small Islands Developing States. Caribbean Development Bank. 2017. Financing the Blue Economy: A Caribbean Development Opportunity.

[14] The EEZ is the sea area over which a country has exclusive rights regarding the exploration and use of marine resources extending from the country's coast. See World Bank Data.

input that can be more important and relevant than the scarce land space. Yet, marine space is an underexploited growth opportunity, many times because of lack of knowledge due to limited deep-sea exploration. There exists a lack of knowledge on the real value and benefits of blue assets. Aside from lack of information, other market failures have been identified. There is great uncertainty ex-ante about the success of pioneering developments with this factor that has led to inertia as countries wait for others to pioneer a path. Furthermore, the region requires guidance on the key elements and complementary factors that need to be put in place for profitable blue economy activities to emerge and for network economies to arise.

2.13. Mangrove forests are vital for the health of coastal environments, the preservation of biodiversity and the maintenance of coastal ecosystem services. Healthy mangrove forests form a natural coastal defense against storm surge, floods, storms and other natural disasters, thereby supporting resiliency naturally. Furthermore, mangroves support traditional livelihoods and bring important benefits to coastal communities. Mangroves also support the sustainability of our planet by sequestering significant amounts of Carbon, far more per hectare than tropical rainforest and other ecosystems. Unfortunately, more than half of mangrove forests globally have been destroyed over the past century, mainly by human development as their ecosystem functions and services were not adequately valued.[15]

2.14. Some countries in the Caribbean have started policy actions relate to Blue Economy, such as developing integrated marine policies, for example the OECS adopted the Eastern Caribbean Regional Ocean Policy and the Bahamas and Belize are developing integrated marine policy networks, the Bahamas developed an ocean economy road map and Barbados established a Ministry of Blue Economy in 2018. In Latin America, Chile[16] has several institutions whose main goal is to provide knowledge about ocean sustainability such as the Instituto de Fomento Pesquero (IFOP), Centro de Investigación Oceanográfica del Pacifico Sur Oriental (COPAS), and Centro I~Mar. However, the potential of the Blue Economy as an economic driver for the region has not been recognized and integrated into comprehensive policies in the region[17].

2.15. On the other hand, the region does not have a reliable, updated and homogenized source of data for informed decision making. In the countries where the information exists, is usually dispersed under different institutions and there is no Caribbean based information repository at this time.

2.16. The TC is structured around three components: (i) information and data generation for informed decision making; (ii) prospective analysis of technological, industrial and scientific trends in the Blue Economy and country specific sectoral policies to address the bottlenecks in the region and (iii) dialogue and diffusion with stakeholders in the region.

2.17. The program is aligned with the Bank's Institutional Strategy Update 2010-2020 which identifies two structural development challenges in LAC: (i) lagging economic integration, directly related to the first component, maximizing regional synergies, (ii) low levels of productivity and innovation, related to the second component, harnessing modern technologies for a new generation of public policies. The program is also aligned with the cross-cutting theme of climate change and environmental

[15] Alfredo Quatro, "Ecological mangrove restoration: re-establishing a more biodiverse and resilient coastal ecosystem with
community participation.", Sharing Lessons On Mangrove Restoration. Mangrove Action Project, 2012

[16] For more details about the Chilean Ocean Policy and research work see https://minrel.gob.cl/minrel/site/artic/20180309/asocfile/20180309143025/poli__tica_ocea__nica_nacional_de_chile_ok.pdf

[17] Caribbean Development Bank. 2018. Financing the Blue Economy: A Caribbean Development Opportunity

sustainability given the strategic focus of improving climate change adaptation and resilience.

2.18. The project is consistent with the Innovation, Science and Technology Sector Framework Document (GN-2791-5), the Environment and Biodiversity Sector Framework Document (GN-2827-3), and the Integrated Strategy for Climate Change Adaptation and Mitigation. In addition, the topic of economic diversification and private sector development is included in the Country Strategies of all beneficiary countries.

2.19. The TC will complement the IDB's Sustainable Islands Initiative (RG-T2960) which seeks to create a platform for assisting island territories in pursuing sustainability through an innovative approach that applies the principles of the Blue and Circular Economy[18]. Caribbean countries are leading national initiatives to develop the Blue Economy.

III. Description of Activities/Components and Budget[19]

3.1. **Component 1. Information and Data Generation for Informed Decision Making (US$250,000.00)**. This component, based on the definition of the Blue Economy Framework currently being developed[20], includes: (i) the valuation of the Marine space as a factor of the productive function of the countries, including the externalities derived from the environmental vulnerability and scarcity of the resources and the different competing and non-competing uses; (ii) data collection, including identifying current initiatives for spatial mapping[21], identifying data needs and gaps and proposing methodologies for homologation and data sharing; (iii) identification of current research trends in the blue economy topic both in the region and outside the region and identify a research agenda for the Caribbean, focusing on key technological trends in the industry relevant and with potential application for the Caribbean. The outputs of this effort will be (i) a valuation report of the current and potential maritime activities that support closing information asymmetry on the value of the marine space will support policy makers and private sector persons in decision making related to this area; (ii) a dataset (iii) a data visualization tool housed within the IDB (or any regional stakeholder identified during this process) for easy access and use of the data by statistical institutes, academia, and policymakers; and (v) a Geospatial Information System tool to monitor and measure changes in the coastal transition zones where there can be a large exchange of carbon as terrestrial forests transition to marine ecosystems.

3.2. **Component 2. Prospective Studies on Global Industrial and Technological [22]Trends in the Blue Economy and Policies to Promote Growth in the Caribbean (US$250,000.00)**. This component will: (i) identify the main global trends and economic activities that comprise the Blue Economy industry, (ii) determine its growth potential and its applicability for the Caribbean including a gap analysis on the factors that prevent its full exploitation; (iii) prospective studies of its potential for the Caribbean and the current gaps that limit its full exploitation and (iv) identify the main technological, industrial and scientific advances that could disrupt the ocean economy and generate new lines of activities, (v) following research outputs under i through iv and utilizing a participatory approach with counterparts, identify country-specific

[18] A circular economy is one that is restorative and regenerative by design and aims to keep products, components, and materials at their highest utility and value at all times, distinguishing between technical and biological cycles (Ellen MacArthur Foundation,2015). .

[19] Any intellectual property rights that result from the activities financed by this TC will be the property of the Inter-American Development Bank and subject to its privacy policies.

[20] Through the Sustainable Islands Initiative (RG-T2960)

[21] For example, the Mapping Ocean Wealth Initiative in currently taking place in Barbados.

[22] Publications, such as monographs, will be published through the IDB's publications policy and procedures (AM-331) as such it will be available on the IDB's website under an open license. The public availability of information, such as action plans, will adhere to the Bank's Access to Information Policy.

sectors with the greatest economic potential and the development of supportive policy recommendations for addressing bottlenecks to growth of these identified Blue Economy sectors, and (vi) the regulatory, safeguard and environmental framework that Caribbean need to maximize the economic potential while protecting the ocean environment. The outputs under this component include (i) a monograph publication that utilizes the data collected as input for growth accounting, economic valuation of the Blue Economy and identification of bottlenecks to its growth and (ii) country specific policy action plans for Blue Economy growth in sectors with high economic development potential including government actions to assure environmental protection and sustainability.

3.3. **Component 3. Dialogue and Stakeholder Sensitization (US$100,000.00)**. This component will include: (i) the Identification of the main stakeholders that are part of the Blue Economy, including public and private institutions as well as academia, research institutions, civil society, and prospective domestic and foreign investors; (ii) propose coordination mechanisms to be able to develop a regional Blue Economy technological agenda and (iii) engage in dialogue, awareness and diffusion with key stakeholders. The outputs of this component include (i) design and implementation of a dissemination strategy including the design of infographics and a video to promote awareness (ii) the establishment of a network of stakeholders to promote the blue economy and (iii) an end of project event promoting dialogue amongst key stakeholders.

3.4. The total cost of this TC will be US$600,000.00, which will be financed by the Inter-American Development Bank's OC Strategic Development Program for Countries – Economic Growth Priority (CTY-ECG) Fund.

Indicative Budget

Activity/Component	IDB/Fund Funding	Total Funding
Component 1. Information and Data Generation for Informed Decision Making	$ 250,000.00	$ 250,000.00
Component 2. Prospective studies on global industrial and technological trends in the Blue Economy and its potential for the Caribbean	$ 250,000.00	$ 250,000.00
Component 3. Dialogue and Stakeholder Sensitization.	$ 100,000.00	$ 100,000.00

IV. Executing Agency and Execution Structure

4.1. The execution of the TC will be carried out by the Inter-American Development Bank through the Competitiveness, Innovation and Technology Division (CTI) in coordination with the Country Department Caribbean (CCB) and the Climate Change Division of the Climate Change and Sustainable Development Sector (CSD/CCS). The Unit of Disbursement Responsibility will be the Country Office Barbados which will oversee the selection and hiring processes of respective consultants, with the technical support and participation from Competitiveness, Technology, and Innovation Division of the Institutions for Development (CTI/IFD) and in accordance with the policies and procedures in force at the Bank.

4.2. **Procurement.** The activities to be executed are included in the Acquisition Plan (Annex III). The Bank will contract individual consultants, consulting firms and other services in accordance with current Bank procurement policies and procedures as follows: (a) AM-650 of the Administrative Manual "Complementary Workforce" will be applied in the case of individual consultants. (b) the Policy for the Selection and

Contracting of Consulting Firms for Bank-executed Operational Work (GN-2765-1) and its Operational Guidelines (OP-1155-4) for Consulting Firms for services of an intellectual nature and; (c) the Corporate Procurement Policy (GN-2303-20) for logistics and other related services. The Geospatial Information System tool to monitor and measure changes in the coastal transition zones will be contracted to the Department of Geographic Sciences of the University of Maryland according to section 4.1 of GN-2765-1. The reasons for the single source selection are as follows (i) the university has an established partnership with the Biospheric Sciences Laboratory of The National Aeronautics and Space Administration (NASA) and (ii) it has privileged access to specialized and unprocessed remotely sensed imagery from NASA that can accurately capture the structure and function of mangrove forests.[23]

4.3. The Bank, through CTI, CSC and CCB will oversee the operational activities related to the project and will be in charge of the technical content of the activities. The Bank will prepare technical reports every six months with information about activities, products and results achieved over the last period. The reports will include a schedule for using the resources over the next six-month period together with information on lessons learned. Additionally, the technical cooperation will have an external evaluation by an independent consultant, paid by the project, who will certify the fulfillment of the indicators and goals included in the results matrix.

V. Major Issues

5.1. The main risk of this TC is related to ensuring that the content of the knowledge products and activities is relevant for our clients in the region. This risk will be mitigated by engaging in early and constant dialogue with key stakeholders involved in the Blue Economy at the early stage of execution. The project sustainability will be tackled by engaging the different stakeholders in the region in knowledge sharing platform and by getting the buy in from decision makers to move forward with identified actions.

VI. Exceptions to Bank Policy

6.1. There are no exceptions to the bank policy.

VII. Environmental and Social Strategy

7.1. Given the nature of the project, there are no associated environmental or social risks. Based on the Environment and Safeguards Compliance Policy (OP-703) this operation is classified as “C”, meaning that no environmental assessment studies or consultations are required for this category (see Safeguard Policy Filter and Safeguard Screening Form). The concept of blue economy incorporates the economic and social dimension, so it is expected that the outcomes will contribute to improve the awareness of the environmental vulnerability and social impact of the Blue Economy activities, incorporating their economic value.

[23] Though the raw data cannot be shared openly, the consultants are able to openly share the derived data products with the IDB. In addition, the consultants have developed proprietary computer algorithms to rapidly process the raw imagery into a publicly digestible format. The consultants will analyze the data produced by the various maps to develop vulnerability models that can be explored using an interactive web-based tool suite to support coastal and climate resilience on Caribbean islands

REQUIRED ANNEXES:

- Annex I: Results Matrix
- Annex II: Terms of Reference
- Annex III: Procurement Plan