TC Document

I. Basic information for TC

▪ Country/Region:	Regional
▪ TC Name:	Natural capital study for improved coastal resilience in the Caribbean
▪ TC Number:	RG-T2750
▪ Team Leader/Members:	Team leader: Michele Lemay (CSD/RND); Team members: Jamie Cotta (CSD/RND); Onil Banerjee (CSD/RND); Hori Tsuneki (CSD/RND); Gines Suarez (CSD/CES); Gerard Alleng (CSD/CCS); Lisa Restrepo (CSD/RND); and Escarlata Baza Nunez (LEG/SGO)
▪ Indicate if: Operational Support, Client Support, or Research & Dissemination.	Research & Dissemination
▪ If Operational Support TC, give number and name of Operation Supported by the TC:	N/A
▪ Date of TC Abstract:	February 2016
▪ Beneficiary (countries or entities which are the recipient of the technical assistance):	Countries of Latin America and the Caribbean
▪ Executing Agency and contact name	IDB
▪ Donors providing funding:	Biodiversity and Ecosystem Services Special Program (BIO)
▪ IDB Funding Requested:	US$300,000
▪ Local counterpart funding, if any:	0
▪ Disbursement period (includes execution period):	18 months
▪ Required start date:	June 2016
▪ Types of consultants:	Individual consultants
▪ Prepared by Unit:	CSD/RND
▪ Unit of Disbursement Responsibility:	CSD/RND
▪ Included in Country Strategy (y/n);	N
▪ TC included in CPD (y/n):	N
▪ GCI-9 Sector Priority:	Addressing the needs of small and vulnerable countries, Addressing climate change, renewable energy, environmental sustainability and food security
▪ Related Operations	RG-T2702 (ATN/OC-15354-RG) Knowledge and Innovation: Disaster and Climate-Resilient Coastal Zone Management; BA-T1025 (ATN/OC-13923-BA) Capacity Building for Ecosystem Services Valuation and Best Practices Dissemination; RG-T2489 (ATN/OC-14546-RG) Establishment of the Caribbean Coastal Capital Center of Excellence

II. Objectives and Justification of the TC

2.1. The general objective of this technical cooperation (TC) is to produce state-of-the art knowledge sought by policymakers to inform municipal, regional and national environmental

management policy, planning and investment for improved coastal resilience in the wider Caribbean Region. The specific objective is to complete a flagship study, which will elucidate the factors and enabling conditions that have contributed to the successful integration of natural capital benefits and costs across productive sectors for enhanced ecological and socio-economic resilience outcomes in coastal development and risk management processes. Natural capital is defined in this context as the biodiversity and ecosystem services (ES) provided by natural ecosystems. Coastal resilience here refers to the capacity of human, social, economic and environmental systems to adapt to and recover from coastal hazards including those associated with current climate variability and future climate change.

2.2. The role of natural capital in supporting productive sectors and enhancing coastal protection has been widely documented. Economic valuations and other assessments reveal the importance of fringe landforms such as mangrove forests and coral reefs in supporting nature-based tourism, providing critical nursery habitats for fish, and significantly reducing storm surge and flood damage along the coast; together these services contribute substantial economic and human well-being benefits to coastal communities.[1]

2.3. Caribbean populations and ecosystems are highly vulnerable to climate-related disasters including storms, floods, and droughts. A rapidly changing climate associated with an increase in temperatures and sea level, changing rainfall patterns and amplified drought and storm frequency and intensity[2] poses growing risks to ecosystems and human well-being, including human, infrastructure and other economic losses. In fact, billions of dollars in potential losses due to disaster impacts have been projected in the Caribbean (up to 10% of the regional economy by 2050).[3] Some coastal ecosystems such as mangroves are particularly sensitive to changes in sea-level, temperature, and storm frequency and intensity.[4] The loss of such habitats can be accelerated by human interventions such as urban expansion and poorly planned coastal development,[5] exacerbating impacts of climate-related disasters. In addition, deforestation and other land conversion alter water flow regimes and increase sedimentation and pollution of coastal habitats, and agricultural runoff further pollutes downstream habitats.[6]

2.4. However, in recent decades, emerging approaches have improved valuation of biodiversity and ES to make the benefits provided by nature and, in turn, the costs associated with the degradation and loss of natural resources and ES more visible. Decision-makers are provided a more accurate view of the true costs and benefits associated with various policy,

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1 *Waite et al.2014*. Coastal capital: ecosystem valuation for decision making in the Caribbean.World Resources Institute; *Barbier 2015.*Valuing the storm protection service of estuarine and coastal ecosystems. EcoServ11:32-38.

2 *Marto et al. 2014* Background Paper: LAC Small Island Development States. Interamerican Development Bank

3 *ACS-AEC 2012*. Climate Change in the Caribbean. Association of Caribbean States webpage. http://www.acs-aec.org/index.php?q=disaster-risk-reduction/climate-change-and-the-caribbean

4 *Gilman et al. 2008.* Threats to mangroves from climate change and adaptation options: A review. Aquatic Botany, 89(2):237-250; *Cahoon et al. 2006*. Coastal wetland vulnerability to relative sea-level rise: wetland elevation trends and process controls. In Wetlands and natural resource management, Springer, pp. 271-292.

5 *Lewsey et al. 2004*. Assessing climate change impacts on coastal infrastructure in the Eastern Caribbean. Marine Policy, 28(5):393-409.

6 *Silvestri and Kershaw 2010*. Framing the flow: innovative approaches to understand, protect and value ecosystem services across linked habitats. United Nations Environment Programme (UNEP); *Kroon et al. 2014.* Informing policy to protect coastal coral reefs: Insight from a global review of reducing agricultural pollution to coastal ecosystems. Marine pollution bulletin, 85(1):33-41.

investment, and development scenarios across productive sectors.[7] Accounting of natural capital costs and benefits has already been observed to directly influence policy and investment decisions in the Caribbean, not to mention worldwide. For example, ecosystem services (including tourism, fisheries and shoreline protection benefits) valuation in Belize supported many policy actions including the creation of various fishing regulations and a successful civil society campaign against offshore oil drilling. In the Bahamas, ecosystem services valuation was used to justify the protection of the west side of Andros Island.[8]

2.5. In addition, strides have been made toward managing risks in the Caribbean coastal zone, through innovative processes such as integrated coastal zone management (ICZM) and other ecosystem-based management approaches.[9] These approaches can enhance ecological and socio-economic resilience in coastal settings while mitigating some of the challenges associated with sector-focused management interventions. The success of these land use and development strategies stems from an evolution from sector or species-specific thinking to state-of-the-art combinations of sound coastal science, innovative engineering, and cross-sectoral governance engaging stakeholders across diverse resource user groups and various levels of government.

2.6. Recent studies have indicated that natural capital-inclusive processes, which explicitly incorporate the costs and benefits associated with living and non-living ecosystem elements and processes, constitutes an essential progression in coastal management policies and investments aimed at improving coastal resilience.[10] For example, the installation of hybrid green/grey coastal infrastructure not only enhances adaptability to continuing sea level rise, it reduces long-term maintenance costs in the face of further climate change impacts. Natural capital-inclusive approaches also offer significant potential to achieve environmental and economic co-benefits, which further enhance coastal resilience. For example, mangrove restoration not only mitigates climate change by acting as a carbon sink, it generates economic benefits through its role in shoreline stabilization. Similarly, coral reef restoration increases fisheries production and tourism income, while also enhancing protection against storm impacts.

2.7. There is growing demand from decision-makers for regional expertise and dissemination of best practices in the use of natural capital to increase resilience. However, much remains to be understood in regards to how incorporating natural capital and associated ecological processes in coastal planning and development can translate to genuine improvements in social, economic and ecological components of coastal resilience. Filling this gap will

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[7] *TEEB. 2010*. The Economics of Ecosystems and Biodiversity for Local and Regional Policy Makers; *Rosenthal et al. 2013.* InVEST Scenarios Case Study: Coastal Belize. WWF and Natural Capital Project; *Tallis, et al. 2013.* InVEST 3.0.0 User's Guide: Integrated Valuation of Environmental Services and Tradeoffs. In A Modeling Suite Developed by the Natural Capital Project to Support Environmental Decision-Making, The Natural Capital Project.

[8] Waite. et al. 2014. Coastal capital: ecosystem valuation for decision making in the Caribbean. WRI.

[9] *Mycoo 2014*. Sustainable tourism, climate change and sea level rise adaptation policies in Barbados. Natural Resources Forum, 38:47–57; *UNEP 2011*.Taking Steps toward Marine and Coastal Ecosystem-Based Management - An Introductory Guide. UNEP Regional Seas Reports and Studies No. 18; *PEDRR 2010*. Demonstrating the Role of Ecosystem-based Management for Disaster Risk Reduction. Partnership for Environment and Disaster Risk Reduction; see also Bank project: Ecosystem-Based Development for Andros Island (BH-T1040, ATN/OC-14719-BH).

[10] *CH2M and TNC 2015.* Coastal Risk Reduction. Integrating Natural Defenses into a Sustainable Coastal Risk Management Framework. Report by CH2M and The Nature Conservancy. *Sutton-Grier et al. 2015.* Future of our coasts: the potential for natural and hybrid infrastructure to enhance the resilience of our coastal communities, economies and ecosystems. Environmental Science & Policy, 51:137-148.

provide a critical evidence base to motivate adoption of natural capital-inclusive approaches. Furthermore, in light of the tightly coupled relationships between land-based processes and coastal and marine ecosystems in the region, understanding how natural capital is successfully incorporated into the tourism, transport, agriculture and forestry sectors, will help to contribute to resilience on an even wider scale. Understanding the factors and enabling conditions which have led to improved ES and socio-economic resilience indicators in the Caribbean coastal zone will ultimately enhance sustainable development planning and critical decision making processes for climate change and disaster risk mitigation in the region, with likely replicability across Latin American coastal environments.

2.8. This TC is designed to complement three existing TCs focused on coastal zone management, two of which will provide technical inputs for developing the framework and data collection for the flagship study (Components 1 and 2) and one which will provide a mechanism for dissemination (Component 4) and future implementation of study recommendations. The first TC, ATN/OC-15354-RG (Knowledge and Innovation: Disaster and Climate-Resilient Coastal Zone Management), will provide a historical perspective for the flagship study by analyzing Bank project experience in ICZM. The second TC, ATN/OC-13923-BA (Capacity Building for Ecosystem Services Valuation and Best Practices Dissemination), will provide a country-specific assessment of ICZM best practice in Barbados. The third TC, ATN/OC-14546-RG (Establishment of the Caribbean Coastal Capital Center of Excellence [CCCCE]) aims to develop a mechanism to strengthen Caribbean regional capacity for the monitoring, valuation, assessment and restoration of coastal natural capital. As such, the CCCCE can serve as a valuable vehicle to disseminate and implement the recommendations of the flagship study.

2.9. The proposed TC will contribute to the following GCI-9 lending program priority targets: (i) addressing the needs of small and vulnerable countries as improved natural resource and coastal zone management can lead to greater opportunities for sustainable income generation, particularly for groups directly dependent on the natural resource base; and (ii) addressing climate change, renewable energy, environmental sustainability and food security, since strengthening of the evidence-base will help improve decision making related to overall sustainability and climate change mitigation/adaptation. In addition, the proposed TC will contribute to the Environment and Biodiversity sector priority, “Protect the environment, respond to climate change, promote renewable energy, and ensure food security.” The study, led by the Bank’s Biodiversity and Ecosystem Services (BIO) Program, will build on the rapid assessment carried out by Resources for the Future, “Prioritizing Policies for Biodiversity Conservation in Latin American and the Caribbean,” which informed the mandate and implementation strategy of the BIO Program. Analyses will support recommendations of the Bank’s *Environment and Biodiversity* and *Climate Change* Sector Framework Documents.

III. Description of activities/components and budget

3.1. The primary research question states: What factors, or combination of factors, have enabled or hindered the incorporation of natural capital costs and benefits in policy decisions and investments for improved coastal resilience in the Caribbean?

3.2. To address the above question, the research program will be undertaken in four phases/components: (i) development of analytical framework and background research;

(ii) primary data collection; (iii) data analysis and synthesis of findings; and (iv) reporting and development of knowledge products. These phases are described in turn.

3.3. Component 1: Developing a framework of analysis. This component will lay the groundwork for the flagship study analysis. To address the research question, an expert (contractual) will develop a replicable framework of analysis to assess the impact of specific natural capital-inclusive decision making processes in public and private sectors and from local to national levels on well-defined ecological, economic and human well-being outcome indicators[11] for coastal resilience. The contractual will propose a definition for which decision making processes will be assessed in the study and analyses will ultimately identify enabling (or hindering) factors of positive outcomes for resilience.[12] The framework will build on recent literature assessing incorporation of natural capital benefits and costs in policy making and investment[13] and incorporate up-to-date biodiversity, ES, and well-being indicators.[14]

3.4. The expert will develop and lead a working session held at Bank headquarters in Washington, DC to refine the framework and research approach. The proposed analysis includes a sample of at least five countries from the island nations, Central America, and South America where there is evidence of natural-capital inclusive decision making and investment being realized, however the geographic scope may be adjusted according to data and financial resources available. The research framework, associated data collection methodology and indicators will continue to be refined through an iterative process after work under Component 2 commences.

3.5. Component 2: Data collection to identify natural capital-inclusive investments and policies and positive outcomes for coastal resilience. This component will provide the data required for the proposed flagship study analysis. The expert will mobilize a team in the Caribbean to carry out data collection. This team will identify policies, investments and other conservation and development decisions and activities which incorporate the value of natural capital costs and benefits, particularly ES, in coastal planning and development linked to coastal resilience within the Caribbean. The data collection team will also identify and report any measurable coastal resilience outcome indicators relating to these processes and initiatives. Data will be collected through in-depth literature searches and online database consultation, as well as field visits and stakeholder and expert interviews within the selected countries of study. All data will serve as inputs for the analysis described under Component 3.

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[11] Decision making processes evaluated may include: (i) the implementation of ES-specific legislation at a national, regional or sectoral level, (ii) increased funding allocated to safeguard particular environmental services; and (iii) increased allocation of funding to incorporate green infrastructure in coastal planning and development. Outcome indicators may include: (i) extent or value of flood damage; (ii) area impacted by erosion; (iii) natural capital-based income; and (iv) water quality. Outcomes can include direct, indirect, and unintended results.

[12] Enabling factors may include: (i) building and zoning policies; (ii) amount of funding allocated to incorporate natural capital in planning and development; and (iii) existence of financial incentives to safeguard ES.

[13] *Guerry et al. 2015*. Natural capital and ecosystem services informing decisions: From promise to practice. Proceedings of the National Academy of Sciences, 112(24):7348-7355; *Ruckelshaus et al. 2015.* Notes from the field: Lessons learned from using ecosystem service approaches to inform real-world decisions. Ecological Economics, 115:11-21; *Waite et al. 2014*. Coastal capital: ecosystem valuation for decision making in the Caribbean. World Resources Institute; *Laurans et al. 2013.* Use of ecosystem services economic valuation for decision making: Questioning a literature blindspot. Journal of Environmental Management, 119:208-219.

[14] *Smith et al. 2013.* Relating ecosystem services to domains of human well-being: Foundation for a US index. Ecological Indicators, 28:79-90; *UNEP-WCMC. 2011*. Developing Ecosystem Service Indicators: Experiences and lessons learned from sub-global assessments and other initiatives. CBD Technical Series No. 58. Technical Series No. 58. 118 pp. Secretariat of the Convention on Biological Diversity. Montréal, Canada.

3.6. Component 3. Analysis and synthesis of enabling factors for success in natural capital-inclusive coastal development and planning**.** This component will cultivate state-of-the-art knowledge regarding the incorporation of natural capital and associated ecological processes in policy-making and investment for enhanced resilience in the Caribbean coastal zone. The results generated from the proposed analysis will raise awareness of the benefits of incorporating natural capital and provide insights to ultimately improve policy making and investment in the region. Using data collected in Component 2, the expert will carry out robust analyses to identify and evaluate key enabling factors and constraints for effective incorporation of natural capital for enhanced resilience. Analyses will be organized to provide both a sectoral and cross-sectoral perspective of the research question. Mid-way through implementation of Component 3, the expert will attend a working session at Bank headquarters to review and refine analyses and inform the structure and content of the final synthesis report. The final report detailing key findings and policy recommendations will be incorporated into Knowledge Products (KPs), described below.

3.7. Component 4. KP preparation and dissemination**.** Under Component 4, KPs, particularly the primary synthesis document, a Bank publication, will achieve two objectives: (i) demonstrate to decision-makers concrete positive outcomes of natural capital-inclusive processes; and (ii) provide decision-makers with concrete recommendations to achieve greater impact in future investments and efforts to integrate natural capital in coastal planning, development and climate change mitigation.

3.8. The Bank project team will elaborate all final KPs with input from the expert and other thematic and regional experts. KP planning will begin during implementation of Component 3 and a workshop will be organized at Bank headquarters to finalize KP content and structure during implementation of Component 4. Other policy briefs or decision-maker guidelines will be identified during execution of Components 1 to 3. KPs will be launched through social media, brown bag lunches, and a dissemination workshop in the Caribbean.

Table 1. Indicative Results Matrix

Component	Output	Outcome
General		Increased capacity of decision-makers to enhance coastal resilience and improve sustainable development planning and critical decision making processes for climate change and disaster risk mitigation in the Caribbean.
Component 1: Framework development	Output 1: One report outlining research approach, analytical framework and data collection	A replicable framework to improve ability to understand and analyze natural capital, coastal resilience and related decision making processes.
Component 2: Data collection	Output 2A: One database generated Output 2B: One final report summarizing research activities, data collected, and preliminary findings	Identification of policies, investments and other decision making processes that have successfully (or unsuccessfully) incorporated the value of natural capital in coastal planning and development.
Component 3: Data Analysis and synthesis	Output 3A: One final report of analytical findings and policy recommendations	Increased understanding of key enabling factors and constraints for effective incorporation of natural capital in policy and investment for enhanced coastal resilience.
Component 4: Knowledge Products	Output 4A: One flagship study synthesis document (Bank publication) Output 4B: Other (TBD) policy brief or decision-maker guideline publications Output 4C: One KP dissemination workshop in the Caribbean	Increased awareness among decision-makers to achieve greater impact in future investments and efforts to integrate natural capital in coastal planning, development and climate change mitigation.

3.9. The total budget for this TC has been estimated at US$300,000 as shown in Table 2.

Table 2. Indicative Budget

Activity/ Component	Description	IDB Funding (BIO Fund) US$	Counterpart funding	Total
Project coordination	Project oversight including research guidance, document review, quality control	70,000	---	70,000
	Oversight of dissemination workshop in the Caribbean (IDB BIO program specialist airfare, lodging and meals)	8,000[15]	---	8,000
Component 1: Framework development	Framework development and background research (expert contractual, including travel within the Caribbean)	55,000	---	55,000
	Workshop in D.C. (including travel)	5,000	---	5,000
Component 2: Data collection	Data collection (consultant team, including travel within the Caribbean)	70,000	---	70,000
Component 3: Data Analysis and synthesis	Expert analysis and writing	50,000	---	50,000
	Workshop in D.C. (including travel)	5,000	---	5,000
Component 4: Knowledge Product Preparation and Dissemination	Workshop in D.C. (including travel)	5,000	---	5,000
	Knowledge Product publication	20,000	---	20,000
	Dissemination workshop in the Caribbean (food and other event expenses)	12,000	---	12,000
Total		**300,000**	---	**300,000**

IV. Executing agency and execution structure

4.1 The Bank will execute the TC given the strategic objectives of the TC, and in light of CSD/RND's extensive experience in the area of coastal zone management and recent work with biodiversity and ecosystem services themes in the BIO program. RND operations such as the Coastal Infrastructure Program (CIP - 1386/OC-BA) and the Coastal Risk Assessment and Management Program (CRMP - 2463/OC-BA) have demonstrated the importance of combining regulatory and institutional reforms with up-to-date scientific data on coastal ecosystems and their services along-side coastal protection investments. For example, the CIP contributed to effective erosion control and beach stabilization while meeting the highest international engineering and design standards, through the utilization

[15] This amount includes the costs associated with the travel expenses for the participation of a specialist in the BIO Program, for purposes of monitoring, supervising and assisting consultants during the organization and implementation of the workshop under component 4, to be held in the Caribbean. As part of this activity, the specialist will facilitate: (i) a more effective sectorial and cross-sectorial dialogue with key stakeholders by capitalizing on BIO Program relationships with decision-makers and other stakeholders; and (ii) the dissemination of the results of the flagship study under component 4 with the beneficiaries in each of the TC participating countries. Therefore, the participation of the specialist is essential for achieving the TC objectives, since the specific tasks and functions to be carried out by him are proper and necessary for the implementation of this operation, they do not constitute routine Bank functions or tasks, and their financing does not complement the Bank's administrative budget.

of high quality scientific information and modeling. The CRMP is further advancing this approach by incorporating risk considerations, including climate-related risks in the consolidation of the national ICZM Program. Finally, current RND work in other countries such as The Bahamas (ATN/OC-14250-BH) and Trinidad and Tobago (ATN/OC-13961-TT) is promoting comprehensive approaches to integrated coastal risk management to achieve multiple benefits including improved performance in sectors such as tourism, enhanced climate change adaptation, and disaster risk resilience and management. Furthermore, the Bank has the regional convening capacity for obtaining cooperation and broad consensus from policy makers across the Region on priority knowledge gaps. The Bank also has the capacity to ensure effective regional dissemination of best practices developed by this TC throughout the Region.

4.2 Specialists within the CSD/RND department BIO program at Bank headquarters will be in charge of supervision and control of this operation. This team will actively participate in the development of the research framework and informing the overall analysis, and will be responsible for generating final KPs. Fieldwork and KP preparation will be coordinated with related work under TCs: ATN/OC-15354-RG, ATN/OC-13923-BA, and ATN/OC-14546-RG, to avoid overlap in analytical work and stakeholder consultation. The flagship project coordinator will oversee the development of the KP dissemination workshop to capitalize on and strengthen IDB (particularly CSD/RND) ties to decision-makers and other stakeholders in member countries and to promote uptake of the Bank publication and other KPs, while raising the visibility of ongoing work being carried out by the BIO team. Since the research activities and KP dissemination workshop will take place in the territories of Caribbean member countries, the Bank will obtain a letter of non-objection from the corresponding country prior to initiating any activity in such country. The Bank will hire individual consultants and consulting firms according to current Bank policies and procedures.

V. Major issues

5.1. The primary risk posed relates to the potential for limited data available across the Caribbean for the proposed study analysis. This risk will be mitigated through the contracting of an expert consultant with extensive knowledge of and practical experience with the incorporation of natural capital in coastal planning and development in the region, in order to identify countries for analysis with ample cases of success, as well as failure. An additional risk relates to a lack of interest by policymakers in further assessing natural capital contributions and/or lack of utilization by policymakers of the information generated from the flagship study. This risk will be mitigated by: (i) highlighting the benefits of such information to policymakers at the commencement of the project; (ii) directly involving policymakers in informing the scope and substance of the flagship study; and (iii) widely promoting the study throughout the Region upon its completion.

VI. Exceptions to Bank policy

6.1. None.

VII. Environmental and Social Strategy

7.1. Activities to be financed by this TC are not anticipated to have negative direct or indirect social or environmental effects. According to the Bank's Safeguards Screening Toolkit, this operation is classified with "C": (i) no environmental or social risks; (ii) direct contribution to solve an environmental issue. See Safeguard Policy Report.

Required Annexes:
Annex I: Procurement Plan
Annex II: Terms of Reference - Natural capital study flagship coordinator / Natural capital study flagship expert consultant

NATURAL CAPITAL STUDY FOR IMPROVED COASTAL RESILIENCE IN THE CARIBBEAN

RG-T2750

CERTIFICATION

I hereby certify that this operation was approved for financing under Biodiversity and Ecosystem Services Special Program (BIO) through a communication dated March 25, 2016 and signed by M. Felipe Caicedo (ORP/GCM). Also, I certify that resources from said fund are available for up to **US$300,000** in order to finance the activities described and budgeted in this document. This certification reserves resource for the referenced project for a period of four (4) calendar months counted from the date of eligibility from the funding source. If the project is not approved by the IDB within that period, the reserve of resources will be cancelled, except in the case a new certification is granted. The commitment and disbursement of these resources shall be made only by the Bank in US dollars. The same currency shall be used to stipulate the remuneration and payments to consultants, except in the case of local consultants working in their own borrowing member country who shall have their remuneration defined and paid in the currency of such country. No resources of the Fund shall be made available to cover amounts greater than the amount certified herein above for the implementation of this operation. Amounts greater than the certified amount may arise from commitments on contracts denominated in a currency other than the Fund currency, resulting in currency exchange rate differences, i.e. represent a risk that will not be absorbed by the Fund.

** original signed **
Sonia M. Rivera
Chief
Grants and Co-Financing Management Unit
ORP/GCM

May 19, 2016
Date

Approved: ** original signed **
Pedro V. Martel
Chief
Environment, Rural Development and Risk Management Division
CSD/RND

May 20, 2016
Date

RG-T2750

Annex A: Procurement Plan

PROCUREMENT PLAN FOR NON-REIMBURSABLE TECHNICAL COOPERATIONS										
Country: Regional				**Executing Agency: IDB**					**Public or private sector:** Public Sector	
Project number: RG-T2750				**Title of Project: Natural Capital study for improved coastal resilience in the Caribbean**						
Period covered by the plan: 18 months June 2016 to December 2017										
Item No.	**Ref. AWP**	**Description (1)**	**Estimated contract cost (US$)**	**Procurement Method (2)**	**Review of procurement (ex-ante or ex-post) (3)**	**Source of financing and percentage**		**Estimated date of the procurement notice or start of the contract**	**Technical review by the PTL (4)**	**Comments**
						IDB/MIF %	**Local/other %**			
1		**Individual Consultancy Services**								
1.1		Temporary Term Contractual (TTC) - Coastal Resilience Study Coordinator	70,000	IICQ	Ex-ante	100%	0%	Jun-16	TOR, Resume of Recommended Candidate	
1.2		Expert consultancy (Coastal Resilience Expert/Researcher responsible for data collection, analysis and write-up), plus printing of study results	195,000	IICQ	Ex-ante	100%	0%	Jun-16		
2		**Other Costs**								
2.1		Working session 1 in Washington, DC (consultant airfare, lodging, meals and all other expenses)	5,000	PC	Ex-ante	100%	0%	Jul-16	N/A	
2.2		Working session 2 in Washington, DC (consultant airfare, lodging, meals and all other expenses)	5,000	PC	Ex-ante	100%	0%	Oct-16	N/A	
2.3		Working session 3 in Washington, DC (consultant airfare, lodging, meals and all other expenses)	5,000	PC	Ex-ante	100%	0%	Jan-17	N/A	
2.4		Knowledge Production Dissemination Workshop (food and all other event costs at Caribbean location)	12,000	PC	Ex-ante	100%	0%	May-17	N/A	
2.5		Travel to Dissemination Workshop (airfare, lodging, and meals for IDB project team in Caribbean)	8,000	PC	Ex-ante	100%	0%	May-17	N/A	
May 10. 2016		**Total**	**300,000**	**Prepared by: Jamie Cotta. INE/RND**				**Date: April 28. 2016**		

(1) Grouping together of similar procurement is recommended, such as computer hardware, publications, travel, etc. If there are a number of similar individual contracts to be executed at different times, they can be grouped together under a single heading, with an explanation in the comments column indicating the average individual amount and the period during which the contract would be executed. For example: an export promotion project that includes travel to participate in fairs would have an item called "airfare for fairs", an estimated total value od US$5,000, and an explanation in the Comments column: "This is for approximately four different airfares to participate in fairs in the region in years X and X1".

(2) **Goods and works:** CB: Competitive bidding; PC: Price comparison; DC: Direct contracting.

(2) **Consulting firms:** CQS: Selection Based on the Consultants' Qualifications; QCBS: Quality and cost-based selection; LCS: Least Cost Selection; FBS: Selection under a Fixed Budget; SSS: Single Source Selection; QBS: Quality Based selection.

(2) **Individual consultants:** IICQ: International Individual Consultant Selection Based on Qualifications; SSS: Single Source Selection.

(3) **Ex ante/ex post review:** In general, depending on the institutional capacity and level of risk associated with the procurement, ex post review is the standard modality. Ex ante review can be specified for critical or complex process.

(4) **Technical review**: The PTL will use this column to define those procurement he/she considers "critical"or "complex"that require ex ante review of the terms of reference, technical specifications, reports, outputs, or other items.

ANNEX II-A

REGIONAL

INE/RND

TTC - Natural capital study for improved coastal resilience in the Caribbean (RG-T2750)

TERMS OF REFERENCE

Background

IDB's Biodiversity and Ecosystem Services (BIO) team has laid the groundwork to implement a study under the technical cooperation **"Natural Capital study for improved coastal resilience in the Caribbean"** (RG-T2750), which will contribute state-of-the art knowledge sought by policymakers to inform municipal, regional and national environmental management policy, planning and investment for improved coastal resilience in the wider Caribbean Region. The study will shed light on the factors and enabling conditions that have contributed to the successful integration of natural capital benefits and costs across productive sectors for enhanced ecological and socio-economic resilience outcomes in coastal development and risk management processes.

The role of natural capital in supporting productive sectors and enhancing coastal protection has been widely documented in the Caribbean Region and beyond. Economic valuations and other assessments reveal the importance of fringe landforms such as mangrove forests and coral reefs in supporting nature-based tourism, providing critical nursery habitats for fish reproduction, and significantly reducing storm surge and flood damage along the coast; together these services contribute substantial economic and well-being benefits to coastal communities. [1] [2] [3]

Caribbean populations and ecosystems are highly vulnerable to climate-related disasters including storms, floods, and droughts. A rapidly changing climate associated with an increase in temperatures and sea level, changing rainfall patterns and amplified drought and coastal storm frequency and intensity[4] poses growing risks to ecosystems and human well-being, including human, infrastructure and other economic losses. In fact, billions of dollars in potential losses due to disaster impacts have been projected in the Region (up to 10% of the regional economy by 2050).[5] Some coastal ecosystems such as mangroves are particularly sensitive to changes in sea-level, temperature, and storm frequency and intensity. [6] [7] The loss of such habitats due to these phenomena can be substantially accelerated by human interventions such as coastal development,[8] exacerbating impacts of climate-related disasters. In addition, deforestation or other land conversion can alter water flow regimes and increase sedimentation and pollution of coastal habitats,[9] while agricultural runoff further pollutes downstream habitats.[10]

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[1] Waite et al. 2014 Coastal capital: ecosystem valuation for decision making in the Caribbean. WRI.
[2] De Groot et al. 2012 Global estimates of the value of ecosystems and their services in monetary units. Eco Serv, 1(1):50-61.
[3] Barbier 2015. Valuing the storm protection service of estuarine and coastal ecosystems. Eco Serv 11:32-38.
[4] Marto et al. 2014 Background Paper: LAC Small Island Development States.
[5] ACS-AEC 2012. Climate Change in the Caribbean. Association of Caribbean States webpage. http://www.acs-aec.org/index.php?q=disaster-risk-reduction/climate-change-and-the-caribbean
[6] Gilman et al. 2008. Threats to mangroves from climate change and adaptation options: A review. Aquatic Botany, 89 (2):237-250.
[7] Cahoon et al. 2006. Coastal wetland vulnerability to relative sea-level rise: wetland elevation trends and process controls. In Wetlands and natural resource management, Springer, pp. 271-292.
[8] Lewsey et al. 2004. Assessing climate change impacts on coastal infrastructure in the Eastern Caribbean. Marine Policy, 28 (5):393-409.
[9] Silvestri and Kershaw. 2010. Framing the flow: innovative approaches to understand, protect and value ecosystem services across linked habitats. United Nations Environment Programme (UNEP).

Significant progress has been made over the last few decades toward managing risks in the Caribbean coastal zone, through innovative processes such as integrated coastal zone management (ICZM) and other ecosystem-based management approaches.[11] These approaches can enhance ecological and socio-economic resilience in coastal settings while mitigating some of the challenges associated with sector-focused management interventions. The success of these land use and development strategies stems from an evolution from sector or species-specific thinking to state-of-the-art combinations of sound coastal science, innovative engineering, and cross-sectoral governance engaging stakeholders across diverse resource user groups and various levels of government.

More recently, studies have indicated that natural capital-inclusive processes, which explicitly incorporate the costs and benefits associated with living and non-living ecosystem elements and processes, constitutes an essential progression in coastal management policies and investments aimed at improving coastal resilience.[12] For example, the installation of hybrid green/grey coastal infrastructure not only enhances adaptability to continuing sea level rise, it reduces long-term maintenance costs in the face of further climate change impacts. Natural capital-inclusive approaches also offer significant potential to achieve environmental and economic co-benefits, which further enhance coastal resilience. For example, mangrove restoration not only mitigates climate change by acting as a carbon sink, it generates economic benefits through its role in shoreline stabilization. Similarly, coral reef restoration increases fisheries production and tourism income, while also enhancing shoreline protection against storm impacts.

There is growing demand from decision-makers for regional expertise and dissemination of best practices in the use of natural capital to increase resilience. However, much remains to be understood in regards to how incorporating natural capital and associated ecological processes (as opposed to business-as-usual approaches) in coastal planning and development can translate to genuine improvements in social, economic and ecological components of coastal resilience. Filling this gap will provide a critical evidence base to motivate adoption of natural capital-inclusive approaches. Furthermore, in light of the tightly coupled relationships between land-based processes and coastal and marine ecosystems in the region, understanding how natural capital is successfully incorporated into the tourism, transport, agriculture and forestry sectors, will help to contribute resilience on an even wider scale. Understanding the factors and enabling conditions which have led to improved ES and socio-economic resilience indicators in the Caribbean coastal zone will ultimately enhance sustainable development planning and critical decision making processes for climate change and disaster risk mitigation in the region, with a likelihood of replicability elsewhere in Latin American coastal environments.

The study, led by the Bank's Biodiversity and Ecosystem Services (BIO) Program, will build on the rapid assessment carried out by Resources for the Future, "Prioritizing Policies for Biodiversity Conservation in Latin American and the Caribbean", which informed the mandate and implementation strategy of the BIO Program. Analyses will also support findings and recommendations of IDB's recently approved (2015) Environment and Biodiversity and Climate Change Sector Framework Documents.

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[10] Kroon et al. 2014. Informing policy to protect coastal coral reefs: Insight from a global review of reducing agricultural pollution to coastal ecosystems. Marine pollution bulletin, 85 (1):33-41.

11 *Mycoo 2014*. Sustainable tourism, climate change and sea level rise adaptation policies in Barbados. Natural Resources Forum, 38:47–57; *UNEP 2011*.Taking Steps toward Marine and Coastal Ecosystem-Based Management - An Introductory Guide. UNEP Regional Seas Reports and Studies No. 18; *PEDRR 2010.* Demonstrating the Role of Ecosystem-based Management for Disaster Risk Reduction. Partnership for Environment and Disaster Risk Reduction; ; see also example of ICZM approach in the IDB project: Ecosystem-Based Development for Andros Island (BH-T1040, ATN/OC-14719-BH).

[12] *CH2M and TNC 2015.* Coastal Risk Reduction. Integrating Natural Defenses into a Sustainable Coastal Risk Management Framework. Report by CH2M and The Nature Conservancy. *Sutton-Grier et al. 2015*. Future of our coasts: the potential for natural and hybrid infrastructure to enhance the resilience of our coastal communities, economies and ecosystems. Environmental Science & Policy, 51:137-148.

Consultancy objective
The objective of this consultancy is to coordinate the implementation of a flagship study for the BIO Program, building on the findings of the Environment and Biodiversity Sector Framework Document (SFD) and other relevant guidance.

Main activities

- Monitor progress and conduct technical reviews of deliverables submitted by external consultants during all phases of the flagship study.
- Liaise/collaborate/advise external consultants during study implementation and elaboration of flagship reports/publications.
- Organize/facilitate/lead workshops at IDB headquarters to i) review and refine flagship study research approach and analytical framework, iii) review and guide data analysis and reporting and iii) elaborate final knowledge products based on study findings.
- Develop and supervise the elaboration of final knowledge products based on flagship study findings and recommendations.
- Organize and facilitate, in collaboration with BIO communications specialist, flagship study dissemination workshop in the Caribbean.

Qualifications

- Academic Degree/Level & Years of Professional Work Experience: Master's degree (PhD preferred) in natural resource management, ecology, environmental economics, or equivalent degree related to development, with a minimum of five (5) years of relevant professional experience, including project management, strategy development and assessment, and research. The consultant should have a minimum of two years applied research experience in natural resources management in Latin America and the Caribbean and skills in strategic communications and research.
- Languages: Fluency in English and Spanish is required.
- Areas of Expertise: Environmental and natural resources sciences, biodiversity and ecosystem services.
- Skills: Qualitative and quantitative research, analytical ability to integrate individual outputs to produce well-written documents, data management, project coordination, excellent writing and communication skills. Strong interpersonal skills to engage with a diverse group of researchers, policy makers and other organizations.

Characteristics of the Consultancy

- Consultancy category and modality: Temporary Term Contractual, Monthly
- Contract duration: 18 months starting September, 2016.
- Place of work: This consultancy will be developed from IDB's headquarters. Will travel when required.
- Division Leader or Coordinator: Michele Lemay, Natural Resources Lead Specialist (INE/RND) michelel@iadb.org

Payment and Conditions: Compensation will be determined in accordance with Bank's policies and procedures. In addition, candidates must be citizens of an IDB member country.

Consanguinity: Pursuant to applicable Bank policy, candidates with relatives (including the fourth

degree of consanguinity and the second degree of affinity, including spouse) working for the Bank as staff members or Complementary Workforce contractuals, will not be eligible to provide services for the Bank.

Diversity: The Bank is committed to diversity and inclusion and to providing equal opportunities to all candidates. We embrace diversity on the basis of gender, age, education, national origin, ethnic origin, race, disability, sexual orientation, religion, and HIV/AIDs status. We encourage women, Afro-descendants and persons of indigenous origins to apply.

Annex II-B

REGIONAL

INE/RND

Expert contractual for Natural capital study for improved coastal resilience in the Caribbean (RG-T2750)

TERMS OF REFERENCE

Background

IDB's Biodiversity and Ecosystem Services (BIO) team has laid the groundwork to implement a study under the technical cooperation **"Natural Capital study for improved coastal resilience in the Caribbean"** (RG-2750), which will contribute state-of-the art knowledge sought by policymakers to inform municipal, regional and national environmental management policy, planning and investment. The study will shed light on the factors and environments that have enabled the integration of natural capital in coastal planning and development.

The role of natural capital in supporting productive sectors and enhancing coastal protection has been widely documented in the Caribbean Region and beyond. Economic valuations and other assessments reveal the importance of fringe landforms such as mangrove forests and coral reefs in supporting nature-based tourism, providing critical nursery habitats for fish reproduction, and significantly reducing storm surge and flood damage along the coast; together these services contribute substantial economic and well-being benefits to coastal communities. [1] [2] [3]

Caribbean populations and ecosystems are highly vulnerable to climate-related disasters including storms, floods, and droughts. A rapidly changing climate associated with an increase in temperatures and sea level, changing rainfall patterns and amplified drought and coastal storm frequency and intensity[4] poses growing risks to ecosystems and human well-being, including human, infrastructure and other economic losses. In fact, billions of dollars in potential losses due to disaster impacts have been projected in the Region (up to 10% of the regional economy by 2050).[5] Some coastal ecosystems such as mangroves are particularly sensitive to changes in sea-level, temperature, and storm frequency and intensity. [6] [7] The loss of such habitats due to these phenomena can be substantially accelerated by human interventions such as coastal development,[8] exacerbating impacts of climate-related disasters. In addition, deforestation or other land conversion can alter water flow regimes and increase sedimentation and pollution of coastal habitats,[9] while agricultural runoff further pollutes downstream habitats[10].

[1] Waite et al. 2014 Coastal capital: ecosystem valuation for decision making in the Caribbean. WRI.
[2] De Groot et al. 2012 Global estimates of the value of ecosystems and their services in monetary units. Eco Serv, 1(1):50-61.
[3] Barbier 2015. Valuing the storm protection service of estuarine and coastal ecosystems. Eco Serv 11:32-38.
[4] Marto et al. 2014 Background Paper: LAC Small Island Development States.
[5] ACS-AEC 2012. Climate Change in the Caribbean. Association of Caribbean States webpage. http://www.acs-aec.org/index.php?q=disaster-risk-reduction/climate-change-and-the-caribbean
[6] Gilman et al. 2008. Threats to mangroves from climate change and adaptation options: A review. Aquatic Botany, 89(2):237-250.
[7] Cahoon et al. 2006. Coastal wetland vulnerability to relative sea-level rise: wetland elevation trends and process controls. In Wetlands and natural resource management, Springer, pp. 271-292.
[8] Lewsey et al. 2004. Assessing climate change impacts on coastal infrastructure in the Eastern Caribbean. Marine Policy, 28(5):393-409,
[9] Silvestri and Kershaw. 2010. Framing the flow: innovative approaches to understand, protect and value ecosystem services across linked habitats. United Nations Environment Programme (UNEP).
[10] Kroon et al. 2014. Informing policy to protect coastal coral reefs: Insight from a global review of reducing agricultural pollution to coastal ecosystems. Marine pollution bulletin, 85(1):33-41.

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More recently, studies have indicated that natural capital-inclusive processes, which explicitly incorporate the costs and benefits associated with living and non-living ecosystem elements and processes, constitutes an essential progression in coastal management policies and investments aimed at improving coastal resilience.[12] For example, the installation of hybrid green/grey coastal infrastructure not only enhances adaptability to continuing sea level rise, it reduces long-term maintenance costs in the face of further climate change impacts. Natural capital-inclusive approaches also offer significant potential to achieve environmental and economic co-benefits, which further enhance coastal resilience. For example, mangrove restoration not only mitigates climate change by acting as a carbon sink, it generates economic benefits through its role in shoreline stabilization. Similarly, coral reef restoration increases fisheries production and tourism income, while also enhancing shoreline protection against storm impacts.

There is growing demand from decision-makers for regional expertise and dissemination of best practices in the use of natural capital to increase resilience. However, much remains to be understood in regards to how incorporating natural capital and associated ecological processes (as opposed to business-as-usual approaches) in coastal planning and development can translate to genuine improvements in social, economic and ecological components of coastal resilience. Filling this gap will provide a critical evidence base to motivate adoption of natural capital-inclusive approaches. Furthermore, in light of the tightly coupled relationships between land-based processes and coastal and marine ecosystems in the region, understanding how natural capital is successfully incorporated into the tourism, transport, agriculture and forestry sectors, will help to contribute resilience on an even wider scale. Understanding the factors and enabling conditions which have led to improved ES and socio-economic resilience indicators in the Caribbean coastal zone will ultimately enhance sustainable development planning and critical decision making processes for climate change and disaster risk mitigation in the region, with a likelihood of replicability elsewhere in Latin American coastal environments.

The **study's primary research question** states: What factors, or combination of factors, have enabled or hindered the incorporation natural capital in policy decisions and investments for improved resilience to natural disasters and climate change impacts in the Caribbean? To address this question, the IDB seeks an expert consultant to identify and analyze cases of integration of natural capital in coastal planning and development, assessing which factors or environments have enhanced or diminished coastal resilience.

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11 *Mycoo 2014*. Sustainable tourism, climate change and sea level rise adaptation policies in Barbados. Natural Resources Forum, 38:47–57; *UNEP 2011*.Taking Steps toward Marine and Coastal Ecosystem-Based Management - An Introductory Guide. UNEP Regional Seas Reports and Studies No. 18; *PEDRR 2010*. Demonstrating the Role of Ecosystem-based Management for Disaster Risk Reduction. Partnership for Environment and Disaster Risk Reduction; *Fanning et al. 2009.* Marine Ecosystem-Based Management in the Caribbean: an essential component of Principled Ocean Governance. Report of Caribbean Regional Symposium, University of the West Indies, Cave Hill Campus, Barbados, December 10-12, 2008. CERMES Technical Report No. 17, 44 pp.; see also example of ICZM approach in IDB project: Ecosystem-Based Development for Andros Island (BH-T1040, ATN/OC-14719-BH).

12 *CH2M and TNC 2015.* Coastal Risk Reduction. Integrating Natural Defenses into a Sustainable Coastal Risk Management Framework. Report by CH2M and The Nature Conservancy. *Sutton-Grier et al. 2015*. Future of our coasts: the potential for natural and hybrid infrastructure to enhance the resilience of our coastal communities, economies and ecosystems. Environmental Science & Policy, 51:137-148.

The flagship study is organized according to the following four phases/components: (i) development of analytical framework and background research; (ii) primary data collection; (iii) data analysis and synthesis of findings, and; (iv) reporting and development of knowledge products. An overview of each of the four components follows:

Component 1: The consultant will develop a framework of analysis to assess the impact of specific decision-making processes[13] on ecological, economic and human well-being outcome indicators. With input from the IDB project team, the consultant will ultimately identify enabling (or hindering) factors of positive outcomes for coastal resilience. The framework will build upon recent literature assessing the incorporation of natural capital values in policy making and public investment,[14] [15] [16] and incorporate up-to-date biodiversity, ecosystem service, and well-being indicators. The consultant will develop and lead a working session in at IDB headquarters in month 2 to facilitate a review of the proposed framework with the IDB project team prior to drafting a final framework (month 3). The consultant will also develop a data collection methodology in line with the selected framework, which will be refined as needed in subsequent project phases.

Component 2: Data will be collected in a sample of Caribbean countries to identify policies, investments and other conservation and development decisions and activities incorporating the value of natural capital, particularly ecosystem services, in coastal planning and development. Measurable outcome indicators relating to these processes will also be identified. To carry out all data collection activities, the consultant will be responsible for mobilizing a team of within the Caribbean. The team's specific activities will include desk research, and consultations and interviews with local experts, policy makers and NGO staff. Mid-way through Component 2 (month 5) the consultant will prepare a draft report including all findings and identifying any key data gaps. The consultant's final version of the report will be submitted at the conclusion of Component 3 (month 6), and will serve as the primary input for Component 3.

Component 3: Using the collected data, the consultant will carry out robust analyses to identify and evaluate enabling factors and constraints for effective incorporation of natural capital in policy and investment decisions for enhanced coastal resilience. The consultant will submit a draft report mid-way through the execution of Component 3 (month 8) detailing all research activities, findings, and recommendations to be incorporated into final Knowledge Products (KPs). The consultant will attend a working session at IDB headquarters in month 8 to discuss key findings and refine the analysis if necessary, as well as agree on final report content. The consultant's final report, incorporating input from the IDB project team, will be submitted at the conclusion of Component 3 (month 9).

Component 4: The main knowledge product generated will be a synthesis document providing decision-makers with concrete recommendations to achieve greater impact in future investments and efforts to integrate natural capital in coastal planning, development and climate change mitigation. Other KPs, such as policy briefs or guidelines for decision-makers, will be identified during the execution of the study. The consultant will provide input and recommendations for the content of the final KPs. KPs will be launched at a dissemination workshop in the Caribbean.

[13] Examples of decision-making processes include: (i) ES-specific legislation at various level and (ii) use of ES valuation in decision making. Examples of outcome indicators include: (i) value of flood damage and (ii) natural capital-based income.
[14] Laurans et al. 2013. Use of ecosystem services economic valuation for decision making: Questioning a literature blindspot. Journal of Environmental Management, 119, 208-219.
[15] Ruckelshaus et al. 2015. Notes from the field: Lessons learned from using ecosystem service approaches to inform real-world decisions. Ecological Economics, 115, 11-21.
[16] Guerry et al. 2015. Natural capital and ecosystem services informing decisions: From promise to practice. Proceedings of the National Academy of Sciences, 112 (24):7348-7355.

Consultancy objective
The objective is to provide technical expertise in the form of research framework development, coordination and supervision of data collection, rigorous data analysis, and writing related to the integration of natural capital in investments and decision making processes in the Caribbean.

Main activities
The selected candidate will:

- Submit a workplan and proposed research approach with timeline to the study coordinator for approval (month 1).

Component 1 (months 1-3)

- Develop a framework of analysis to address the research question, with input from the project team.
- Submit a draft report describing the research approach and analytical framework.
- Draft an agenda and lead a working session held at IDB headquarters in Washington, DC to review and revise the research approach and framework of analysis.
- Develop a data collection methodology in line with the selected research framework.
- Submit a final report describing research methods and the approved analytical framework.

Component 2 (months 4-6)

- Mobilize and supervise a team of regional experts that will carry out data collection in a sample of countries across the Caribbean Region.
- Submit professional profiles and qualifications of proposed team members for review and approval by the IDB project team.
- Identify data and sources of information (e.g., academic literature, online sources, expert and stakeholder consultation) that will be used to carry out the study analysis.
- Organize and lead a face-to-face planning session to systematize regional expert data collection.
- With support from the data collection team, consult with and interview local experts, policy makers and NGOs to complement desk research.
- Provide the study coordinator with bi-weekly updates to identify data gaps and questionable information and report on data collection progress and results.
- Submit a draft report including all research activities and findings and highlighting key data gaps for the project team.
- Submit a final report of all research activities, data and findings.

Component 3 (months 7-9)

- Subject to data availability, carry out comprehensive analysis to address the research question.
- Report and discuss analytical results and interpretations of findings in bi-weekly correspondence with the study coordinator and monthly calls with the project team.
- Consult with relevant stakeholders and thought leaders, government agencies and NGOs to inform analysis and final reports, with assistance from regional expert data collection team.
- Submit a draft report summarizing all findings, lessons learned, and present the recommendations for decision-making and investment.

- Participate in a workshop at IDB headquarters to discuss key findings, refine analysis and determine content for the final report to be submitted for incorporation into Knowledge Products.
- Submit a final report summarizing all findings, lessons learned, and present the recommendations for decision-making and investment.

Component 4 (month 10)

- Provide recommendations for the final content of Knowledge Products.

Reports / Deliverables
The contractual will provide all supporting documents, reports, tables, databases used for analyses. The contractual will be responsible for processing and formatting the data and results into the format specified by the study coordinator. Upon request of the study coordinator, electronic copies of cited documents should be submitted in a Zip file.

The contractual will deliver the following reports:

- Interim report 1: proposed workplan, timeline and general methodological approach.
- Component 1 draft report: description of research approach and preliminary analytical framework.
- Component 1 final report: description of research methods, including a detailed assessment of data availability and data collection strategy, and approved analytic framework.
- Component 2 draft report: summary of activities, regional expert profiles, data collection progress report, and research findings, including annexes of all datasets with data sources cited.
- Component 2 final report: summary of activities, expert profiles, data collection report, and research findings, including annexes of all datasets with data sources cited.
- Component 3 draft report: presentation of analytical results and interpretations of findings, including annexes of all datasets and details of analyses performed.
- Component 3 final report: consolidation of all methods and analysis, findings and recommendations, incorporating input from IDB project team and including an inventory of all data compiled.

Every report must be submitted to the Bank in an electronic file. The report should include cover, main document, and all annexes. Zip files will not be accepted as final reports, due to Records Management Section regulations. All products, reports, data and documents resulting from this consultancy will be property of the IDB. The IDB reserves the right to publish final reports, under its own name on its website or in print, with or without changes to the content of the document presented by the contractual.

Payment Schedule
The consultancy includes consulting fees, fares, tolls, taxes and any other costs or expenses necessary for the development of the consultancy, to be paid as follows:

30% upon delivery and acceptance of Component 1 final report.
30% upon delivery and acceptance of Component 2 final report.
40% upon delivery and acceptance of Component 3 final report.

Qualifications
- Academic Degree/Level & Years of Professional Work Experience: PhD and a minimum of ten years of relevant professional experience or the equivalent combination of education and experience. Advanced degree in coastal environmental management and policy, or related field

experience in research or administration of coastal environmental projects, including those integrating disaster risk management and climate change adaptation.
- Languages: Fluency in English and Spanish is required.
- Areas of Expertise: Environmental and natural resources sciences, coastal zone management and policy, natural disaster management and climate change adaptation.
- Skills: Qualitative and quantitative research, data management, project coordination, excellent writing and communication skills. Strong relationships with researchers, policy makers and other organizations.

Characteristics of the Consultancy

- Consultancy category and modality: Products and External Services Contractual, Lump Sum
- Contract duration: 10 months
- Place of work: External consultancy at consultant's place of work, including travel within the Caribbean and three trips to Washington, D.C.
- Division Leader or Coordinator : Michele Lemay, Natural Resources Lead Specialist (INE/RND) michelel@iadb.org along with study coordinator: Jamie Cotta, consultant (INE/RND) jcotta@iadb.org

Payment and Conditions: Compensation will be determined in accordance with Bank's policies and procedures. In addition, candidates must be citizens of an IDB member country.

Consanguinity: Pursuant to applicable Bank policy, candidates with relatives (including the fourth degree of consanguinity and the second degree of affinity, including spouse) working for the Bank as staff members or Complementary Workforce contractuals, will not be eligible to provide services for the Bank.

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