

Capacity Building for Ecosystem Services Valuation and ICZM Best Practices Dissemination

I. Basic Information for TC

- Country/Region: **Barbados**
- TC Number: **BA-T1025**
- Associated Loan/Guarantee Name: **Coastal Risk Assessment and Management Program**
- Associated Loan/Guarantee Number: **BA-L1014**
- Team Leader – **Cassandra Rogers** (RND/CBA); Alternate Team Leader – Michele Lemay (INE/RND); Sybille Nuenninghoff (RND/CBL); Duncan Gromko (INE/RND), Roy Parahoo (FMP/CBA); Denise Ann Salabie (FMP/CBA); Janette Archer-Headley (CCB/CBA); Javier Ignacio Bedoya Denegri (LEG/SGO); and Lisa Sofia Restrepo (INE/RND)
- Date of TC Abstract authorization: **April 5, 2013**
- Donors providing funding: **Disaster Prevention Fund**
- Primary Beneficiary: **Ministry of Environment and Drainage through the Coastal Zone Management Unit**
- Final Beneficiary: **Government of Barbados**
- Executing Agency and contact name: **IDB; Cassandra Rogers**
- IDB Funding Requested: **US\$600,000**
- Local counterpart funding, if any: **US\$150,000**
- Execution period: **24 Months**
- Disbursement period (which includes execution period): **24 Months**
- Required start date: **July 2013**
- Types of consultants (firm or individual consultants): **Firms and individual consultants**
- Prepared by Unit: **INE/RND**
- Unit of Disbursement Responsibility: **CCB/CBA**
- TC Included in Country Strategy: n/a; TC included in CPD: **Y**
- GCI-9 Sector Priority: **Supporting development in small and vulnerable countries (GN-2616-1); and climate change and environmental sustainability**

II. Description of the Associated Loan/Guarantee

The Coastal Risk Assessment and Management Program (BA-L1014: 2463/OC-BA), approved in December 2010, is aimed at building resilience to coastal hazards, including those associated with climate change. The program's overall objective is to build capacity in integrated coastal risk management in Barbados by explicitly incorporating disaster risk reduction and climate change adaptation (CCA) in development planning, control and monitoring of the coastal zone. The program has three components. *Component 1: Coastal Risk Assessment, Monitoring and Management* will provide updated and new qualitative and quantitative data on coastal risk, and state-of-the-art tools for the systematic, efficient use of quantitative risk information to support the mainstreaming of disaster risk management (DRM) and CCA in development planning as well as to inform the design of hazard-resilient shoreline infrastructure; and consists of (i) baseline studies of coastal and oceanographic processes; (ii) a comprehensive risk evaluation of the coastal zone; (iii) update of the System of Indicators of Disaster Risk and Risk Management for Barbados; and (iv) the design and implementation of a National Coastal Risk Information and Planning Platform. *Component 2: Coastal Infrastructure* will control shoreline erosion, improve resilience of coastal infrastructure to climate change and other hazards and improve public access to beaches, thereby avoiding damages to shorefront properties and public infrastructure

and enhancing the recreational opportunities offered to tourists and residents. The component includes (i) construction of hazard-resilient shoreline access and stabilization works (the Holetown Waterfront Improvement Project) (ii) improvements to a vessel haul-out area at Tent Bay; (iii) the design and feasibility analysis of new infrastructure projects selected on the basis of technical, environmental and social criteria; and (iv) feasibility study of using coral reef restoration and rehabilitation as an ecosystem-based approach to mitigating the effects of climate change and improving the overall health and well-being of nearshore ecosystems, as a pilot project. Component 3: Institutional sustainability for the Integrated Coastal Risk Management will establish the conditions needed for long term sustainability of the actions and investments carried out under the Program through financing in three areas: (i) policy, regulatory environment, including the update of the national Integrated Coastal Zone Management (ICZM) Plan and the amendment of the Coastal Zone Management (CZM) Act to incorporate DRM and CCA (ii) institutional capacity building and (iii) stakeholder communication and education. The executing agency for the loan is the Ministry of Environment and Drainage¹ through the Coastal Zone Management Unit (CZMU).

III. Objectives and Justification

The general objective of the TC is to strengthen capacity for risk-based ICZM in Barbados. The specific objectives are to (i) enhance capacity of the CZMU in coastal planning using an innovative spatial analysis tool for mapping and valuing ecosystem services, the application of which would inform the updating of the national ICZM plan, as described under Component 3 of the loan BA-L1014; and (ii) document and disseminate best practices and lessons learned in ICZM, coastal planning and in enhancing coastal resilience in Small Island Developing States (SIDS) / low lying coastal states (LLCS) including the Barbados model.

The coastal zone of Barbados is the country's main economic asset as it supports important sectors such as tourism² and fisheries. Sandy beaches, fringing reefs and other coastal ecosystems (such as mangroves, estuaries and sea grass beds) distributed along 97 km of shoreline, provide important ecosystem services (related to recreation, coastal stabilization, flood protection, water quality control, and provisioning services such as fisheries) on which the country's economy depends.

Since 1983, the Bank has provided support in ICZM to Barbados in an effort to safeguard the island's tourism industry. Through several investment programs and technical assistance viz. Diagnostic and Pre-feasibility Study (1983); Coastal Conservation Pre-Investment Program (571/OC-BA; 1991-95); Coastal Conservation Program – Phase I (856/OC-BA; 1994); the Coastal Infrastructure Program (1386/OC-BA; 2001-2009); and Application of the Indicators of Disaster Risk and Risk Management (ATN/MD-11238-RG; 2009), Barbados has (i) established the legal and institutional framework needed to protect its coast, including the establishment of the CZMU as the provider of a permanent CZM function fully integrated in public administration, the approval of a CZM Act and ICZM Plan; (ii) acquired the technical know-how to assess, monitor and manage complex physical processes that shape its shoreline and contribute to the scenic beauty and recreational value of its beaches; and (iii) implemented coastal infrastructure works that have had successfully controlled coastal erosion, stabilized beaches, improved public coastal access; and provided tangible economic and social benefits, both to its international tourism product and to local Barbadians. Today Barbados has one of the most comprehensive coastal and marine management programs in the Caribbean that is a regionally recognized best practice model.

¹ Ministry of Environment, Water Resources and Drainage at the time of loan approval.

² In 2011, tourism accounted for 44% of Gross Domestic Product (GDP), 43% of total export earnings, and 43% of employment.

In 2010, recognizing the threat of climate change, rising sea levels, increased severity of storms and ocean acidification and their implications for the physical and economic viability of the coastal zone and the sustainability of the tourism sector, the CZMU initiated the process of expanding its mandate to adopt an integrated coastal risk management (ICRM) approach as a necessary strategy for sustainable development. This approach incorporates risk management solutions that address current and future vulnerabilities as well as reflect changes in environmental and socio-economic conditions over time into ICZM, and is being implemented primarily through the loan BA-L1014 (see Section II).³

The analysis of ecosystem services has recently gained prominence as decision-makers realize that assigning economic values to ecosystem services can improve investment and policy planning. Once the value of ecosystem services is monetized, it is easier to decide between development tradeoffs and make decisions that maximize utility. Complementing valuation, spatial tools enable the mapping of ecosystem services, which can help to identify priority areas for protection or restoration.

The proposed TC will build on the work being implemented under BA-L1014. Specifically it will support the implementation of Components 2 and 3 of the loan by integrating the analysis of ecosystem services into coral reef restoration and informing the update of the ICZM plan and the amendment of the CZM Act. Analysis of predicted change of ecosystem services should allow Barbados to improve the efficacy of the work done under the loan.

The proposed TC will contribute to the following GCI-9 lending program priority targets: (i) supporting development in small and vulnerable countries (GN-2616-1); and (ii) climate change, sustainable (including renewable) energy, and environmental sustainability. In addition, the proposed TC supports (i) the IDB's Integrated Strategy for Climate Change Adaptation and Mitigation and Sustainable Renewable Energy (GN-2609-1) and its Action Plan (2012-2015 GN-2609-3), specifically its strategic line to strengthen institutional capacity through the economic assessment of climate change vulnerabilities to the Region and benefits of alternative adaptation measures⁴ and (ii) the Bank's Biodiversity and Ecosystem Services program.⁵ The proposed TC is also aligned with the strategic priorities of the Disaster Prevention Fund in that it supports the strengthening of national institutions, capacities, policies and programs for risk management. The proposed TC is included in the 2013 Barbados Country Programming Document.

IV. Description of activities/components and budget

The proposed TC will comprise the following components and associated activities:

Component 1: Capacity building for ecosystems services valuation and coastal spatial planning. This component will enable the CZMU to enhance staff capacity in the valuation of ecosystems services and inform the update of the ICZM Plan and CZM Act. It will involve two activities. First, the development of a customized spatial planning tool that will evaluate a number of ecosystem services, including coastal stabilization, flood protection, water quality control, recreational services and provisioning services such as fisheries. Potential threats to these services (e.g. climate change, erosion, damage from storms,

³ Resources in the amount of US\$405,000 from the MultiDonor Disaster Prevention Fund financed the Technical Cooperation BA-T1014, which was used to prepare the loan.

⁴ <http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=36938123>

⁵ <http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37250949>

unsustainable harvest from fisheries, and coastal development) will be modeled in order to inform ICRM. Furthermore, a number of coastal zone development scenarios will be created and modeled using the spatial tool in order to identify possible policy and investment responses to the identified threats. Second, capacity building and knowledge transfer, to include (i) counterpart training and knowledge transfer for two staff of the CZMU over the course of the development of the customized spatial planning tool, in order that the CZMU has an integral role in the design of the tool and to ensure sustainability of use; and (ii) upon completion of tool development, the hosting of two workshops to be led by trained CZMU staff and the tool developer, in order to build broader capacity within the CZMU.

Component 2: Technical studies and dissemination of ICZM best practice. The objective of this component is to document best practices in ICZM and disseminate the results. This component will involve the following activities: (i) an impact evaluation of climate-resilient coastal infrastructure completed under the Coastal Infrastructure Program (1386/OC-BA); (ii) a technical comparative study on best practices and lessons learned in ICZM in Barbados and in other SIDS/LLCS (including the Bahamas, Belize, Guyana, Jamaica, and Trinidad and Tobago), highlighting the application of science-based, innovative, economically cost effective, climate-resilient and environmentally sustainable approaches; and (iii) hosting of an international conference on coastal planning, hazard resilience and economic development in SIDS/LLCS, in order to disseminate lessons learned from the impact evaluation and comparative study.

Indicative Results Matrix

Project Component	Outputs	Results
General		<i>TC General Outcome: Increased capacity for ICZM that addresses coastal vulnerability including climate change</i>
Component 1: Capacity building for ecosystems services valuation and coastal spatial planning	<p><u>Output 1A:</u> Customized spatial analysis tool for mapping and evaluating ecosystem services and evaluation of coastal development scenarios.</p> <p><u>Output 1B:</u> Two staff trained in ecosystems services valuation and its integration into ICZM plans; and in the development of the customized spatial planning tool.</p> <p><u>Output 1C:</u> <u>8 CZMU staff trained</u> on spatial analysis of ecosystem services and application of the developed tool.</p>	<u>Outcome 1:</u> Ecosystem services spatial analysis and valuation integrated into Barbados's updated ICZM plan.
Component 2: Technical studies and dissemination of ICZM best practice	<p><u>Output 2A:</u> Impact evaluation of climate-resilient coastal infrastructure.</p> <p><u>Output 2B:</u> 1 comparative study on best practices and lessons learned.</p> <p><u>Output 2C:</u> International conference on coastal planning, hazard resilience, and economic development in SIDS/LLCS.</p>	<u>Outcome 2:</u> Increased knowledge and awareness of ICZM best practices, including in ecosystem services valuation for coastal planning.

Indicative Budget ([Detailed Budget](#))

Activity/Component	Description	IDB/Fund Funding US\$	Counterpart Funding (in kind)	Total Funding US\$
COMPONENT 1 : Capacity building for ecosystem services valuation and coastal spatial planning				
1.1 Spatial tool development	Development of a customized spatial analysis tool that maps and evaluates ecosystem services	285,000	70,000	355,000
1.2 Capacity building and workshops	Capacity building of CZMU staff (during the development of the tool and including 2 workshops)	20,700	40,000	60,700
COMPONENT 2 : Technical studies and dissemination of ICZM best practice				
2.1 Technical studies	Impact evaluation of climate-resilient coastal infrastructure; comparative studies in ICZM	81,500	20,000	101,500
2.2 Dissemination	International conference; and preparation of technical publication	58,550	20,000	78,550
Project Administration				
3.1 Consultant/Research Fellow	Technical support to TC	124,250	0	124,250
3.2 Administrative support	Administrative support	30,000	0	30,000
TOTAL		600,000	150,000	750,000

The TC will be financed with resources of the Disaster Prevention Fund. The Eligibility and Strategic Committee of the Disaster Prevention Fund (DPF) and the MultiDonor Disaster Prevention Fund considered alternative sources of financing and recommended eligibility for financing in the amount of US\$600,000 with Ordinary Capital Resources (DPF). Other resources are not available. IDB resources will finance the services of individual consultants/consulting firms, technical visits by two CZMU staff to facilitate knowledge transfer; training workshops and the hosting of a two-day international conference, including support for 35 participants, one feature speaker, logistics and materials. Counterpart resources will finance staff time, office equipment, and materials.

The monitoring and supervision of this technical cooperation will be carried out by the Bank's Country Office in Barbados (CCB/CBA), under the overall guidance of the team leaders and with the technical support of INE/RND.

V. Executing agency and execution structure

The IDB will execute the TC at the request of the Government of Barbados and will be responsible for the administration of the procurement of the consulting services. This arrangement is for the following reasons: (i) current constraints in the institutional capacity of the CZMU, given that staff time is devoted to the execution of the loan BA-L1014 and other projects; (ii) execution by the Bank will enable access to the Bank's highly specialized expertise in ecosystem services mapping and evaluation, disaster risk management and climate change adaptation, which is critical to the achievement of this objectives. It is expected that CZMU capacity in these areas will be developed through the implementation of the loan BA-L1014 as well as the proposed TC; and (iii) to minimize the risk that the TC deliverables that are required to inform the activities under Component 2 and 3 of the loan may not be generated on time, given the existing institutional capacity constraints at the CZMU.

Procurement will be carried out in accordance with the Policies for the Selection and Contracting of Consultants financed by the IDB (GN-2350-9).

VI. Project Risks and issues

As the analysis techniques proposed for application in Component 1 of the TC are relatively new, a risk may exist of a lack of familiarity with ecosystem services valuation and spatial analysis as a method to inform coastal planning. This risk will be mitigated by careful coordination between the firm contracted to conduct the consultancy and the CZMU and the provision of counterpart training and knowledge transfer for two CZMU staff, to be financed as part of TC. An additional risk is that the implementation of either operation (i.e. the TC and the loan BA-L1014) may suffer because of capacity constraints in the CZMU. This risk will also be mitigated by the counterpart training and knowledge transfer to be provided for two CZMU staff; as well as training workshops for eight staff. These activities are designed to enhance the capacity of the CZMU to support the implementation of the TC and to implement the loan in a complementary manner.

VII. Exception to Bank Policy

There are no exceptions to Bank policy.

VIII. Environmental and Social Classification

It is not anticipated that the activities to be financed under this TC will have negative direct or indirect social or environmental effects. Therefore the project team considers that, according to the Bank's Safeguards Screening Toolkit, this operation should be given a classification of "C" because (i) there are no environmental or social risks; (ii) and there is direct contribution to solve environmental issues.

Annexes:

- A. [Letter of Request](#)
- B. [Procurement Plan](#)
- C. Terms of Reference:
 - [Spatial Planning](#)
 - [Impact Evaluation](#)
 - [Comparative Analysis](#)
 - [Research Fellow](#)
- D. [ESR Forms](#)



**GOVERNMENT OF BARBADOS
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OUR REF:

DATE: May 27, 2013

Mr. Joel Branski
The Representative
Inter-American Development Bank
"Hythe", Welches
Maxwell Main Road
CHRIST CHURCH

Dear Sir,

**Request for Approval of Technical Cooperation Grant
to Support the Implementation of the
Coastal Risk Assessment and Management Programme**

In order to support the implementation of the Coastal Risk Assessment and Management Programme (Loan #2463/OC-BA), the Government of Barbados is desirous of receiving grant funding in the amount of US\$600,000 from the Disaster Prevention Fund of the Inter-American Development Bank (IDB) in order to implement a technical cooperation to:

1. Build capacity for spatial coastal planning using an innovative analysis tool that analyses disaster risk, climate change adaptation and informs the Coastal Zone Management Plan; and
2. Document and disseminate best practices and lessons learned in coastal planning.

A recommendation to this effect by the Ministry of Environment and Drainage was approved by the Cabinet at its meeting on Thursday May 23, 2013.

Additionally, in light of current institutional capacity constraints within the Coastal Zone Management Unit, the Government of Barbados requests that the Bank executes the technical cooperation on its behalf, including the procurement of all consultants. In this regard, to facilitate the implementation of the technical cooperation, the Government of Barbados will provide counterpart contribution (in kind) to the value of US\$150,000.

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We appreciate your favourable consideration of this request.

Yours faithfully,

A handwritten signature in dark ink, appearing to read "S. K. Frederick". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

S. K. FREDERICK
for Permanent Secretary
(Investment).

SKF/dh

Enc.

PROCUREMENT PLAN FOR NON-REIMBURSABLE TECHNICAL COOPERATIONS										
Country: Barbados					Executing agency: Ministry of Environment and Drainage through the CZMU					Public or private sector: PUBLIC
Project number: BA-T1025					Title of Project: Capacity Building for Ecosystem Services Valuation and ICZM Best Practices Dissemination					
Period covered by the plan: 24 months (July 2013- June 2015)										
Threshold for ex post review of procurements:				Goods and services (in US\$): 79,250			Consulting services(in US\$): 520,750			
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 %			
		Consulting Services								
1		Component 1								
		Consulting firm: Spatial tool development and capacity building	285,000	FBS	Ex-Ante	100%	0%	Sep-13		
2		Component 2								
		Individual consultant: Consulting firm: Impact evaluation of climate-resilient coastal infrastructure	50,000	IICQ	Ex-Ante	100%	0%	Sep-13		
		Comparative study on best practices and lessons learned	31,500	IICQ	Ex-Ante	100%	0%	Sep-13		
3		Project Administration								
		Research Fellow	124,250	IICQ	Ex-Ante	100%	0%	Aug-13		
		Administrative Assistant	30,000	NICQ	Ex-Ante	100%	0%	Aug-14		
		Non- Consulting Services								
		Component 1								
		CZMU staff technical visits and training workshops	20,700	PC	Ex-Ante	100%	0%	N/A		
		Component 2								
		International Conference - delegates airfare and per diem, logistics, materials; technical publication	58,550	PC	Ex-Ante	100%	0%	N/A		
Total			600,000	Prepared by: Cassandra Rogers, RND/CBA				Date: 6/10/2013		

INDICATIVE TERMS OF REFERENCE

Capacity Building for Ecosystem Services Valuation and Coastal Spatial Planning

I BACKGROUND

- 1.1 Since the 1980s, the Government of Barbados (GOBA) has collaborated with the Inter-American Development Bank (IDB) in integrated coastal zone management (ICZM) in an effort to safeguard the island's tourism industry, which in 2011 accounted for 44% of Gross Domestic Product (GDP), 43% of total export earnings, and 43% of employment.¹
- 1.2 Through IDB support, the GOBA has established the legal and institutional framework needed to protect its coast (including the establishment of the Coastal Zone Management Unit (CZMU) as the provider of a permanent CZM function fully integrated in public administration, approval of a CZM Act and ICZM Plan); acquired the technical know-how to assess, monitor and manage complex physical processes that shape its shoreline and contribute to the scenic beauty and recreational value of its beaches; implemented coastal infrastructure works that have had successfully controlled coastal erosion, stabilized beaches, improved public coastal access; and provided tangible economic and social benefits, both to its international tourism product and to local Barbadians. Today Barbados has one of the most comprehensive coastal and marine management programs in the Caribbean and is a regionally recognized best practice model.
- 1.3 In 2010, in order to address the threat of climate change, rising sea levels, increased severity and frequency of storms, ocean acidification as well as non-climatic hazards, the CZMU initiated the process of expanding its mandate to adopt an integrated coastal risk management approach that explicitly incorporates risk management solutions in ICZM. This approach addresses current and future coastal vulnerabilities as well as reflect changes in environmental and socio-economic conditions over time and is being implemented primarily through the Coastal Risk Assessment and Management Program (BA-L1014; 2463/OC-BA), which was approved by the IDB in 2010. This Program will provide support in three areas: coastal risk assessment, monitoring and management, hazard-resilient coastal infrastructure; and institutional capacity for sustainable coastal risk management.
- 1.4 As part of Component 2 of the loan BA-L1014, the feasibility of using coral reef restoration and rehabilitation as an ecosystem-based approach to mitigating the effects of climate change and improving the overall health and well-being of nearshore ecosystems will be piloted. In addition, under Component 3 of the loan, the national ICZM plan will be updated and the CZM Act amended to incorporate risk reduction and adaptation solutions.
- 1.5 In 2013 the Bank approved the technical cooperation (TC) BA-T1025: *Capacity Building for Ecosystem Services Valuation and ICZM Best Practices Dissemination* in order to

¹ Travel & Tourism Economic Impact 2012: Barbados. World Travel & Tourism Council. 2012.

support the implementation of the loan BA-L1014. The general objective of the TC is to strengthen capacity for risk-based ICZM in Barbados. The specific objectives are to (i) enhance capacity in coastal planning using an innovative spatial analysis tool for mapping and valuing ecosystem services, the application of which would inform the updating of the national ICZM plan; and (ii) document and disseminate best practices and lessons learned in ICZM, coastal planning and in enhancing coastal resilience in Small Island Developing States (SIDS) including the Barbados model.

- 1.6 The consultancy refers to the services of a consulting firm, consortium or specialized research institution to assist in enhancing capacity of the CZMU to use spatial analysis tools for mapping and valuing ecosystems services to inform for coastal planning.

II OBJECTIVES AND DESCRIPTION

- 2.1 The objectives of the consultancy are (i) to develop a customized spatial analysis tool for mapping and valuation of priority ecosystem services in Barbados; and (ii) to train CZMU staff in its use.
- 2.2 The CZMU will have an integral tool in the design of the spatial analysis tool in order to ensure its sustainability of use. Accordingly, the tool will be designed in direct and continuous consultation and coordination with the CZMU, its key strategic partners and other stakeholders (including other government actors, civil society, and local communities). Stakeholder engagement will include a process of identifying beneficiaries and the ecosystem services from which they benefit. A number of ecosystem services, such as coastal stabilization, flood protection, water quality control, recreational services, and provisioning services such as fisheries, will be mapped, valued and prioritized. The priority identification process will take into account the dependency of Barbados' economy on these services. Additionally, threats (e.g. climate change, erosion, damage from storms, unsustainable harvest from fisheries, and coastal development) will be identified.
- 2.3 Based upon identified priorities and threats, the consultant, in close collaboration with the CZMU, will design a number of alternative development scenarios. Scenarios will depend on stakeholder input and should consider potential impacts from different climate change scenarios and various possible responses by the CZMU. Scenarios should also include tradeoffs between "grey" and "green" infrastructure and help to prioritize spatially-explicit investment decisions. Modeling and valuation of ecosystem services in each scenario will allow the GOBA to weight tradeoffs in policy and investment decisions.
- 2.4 Concurrent to the execution of this contract, the CZMU is implementing as part of BA-L1014, an ecosystem-based adaptation pilot project, whose primary objective is to establish the feasibility of using coral reef restoration and rehabilitation as an approach for adapting to climate change. This activity will identify at least 10 potential locations for consideration as coral reef rehabilitation sites. These sites and their predicted impact on ecosystem services should be considered in developing scenarios.

- 2.5 The spatial analysis will also be informed by data to be generated under Component 1 of the BA-L1014, where available. These include: updated studies of operational and design wave conditions (Nearshore Wave Study); current patterns, water quality and sediment transport characteristics (Circulation, Water Quality and Sedimentation Study); bathymetric and topographic data (Coastal Zone LIDAR Survey); characteristics of sand movement (Sediment Transport Study); information on shoreline movement (Shoreline Change Study); and coastal and inland flooding and hurricane wind, wave and storm surge data (Hazard and Risk Assessment Study).

III CHARACTERISTICS OF THE CONSULTANCY

- 3.1 *Type of Consultancy and Duration:* International consulting firm, consortium, non-profit organization, or specialized research/training institution with a duration of 12 months.
- 3.2 *Qualifications:* Demonstrated experience and in-depth expertise in topics related to biodiversity conservation, economics, economic valuation tools, and natural resources and the environment, particularly in LAC. Experience in the Caribbean will be an asset. This includes aspects related to: (i) ecosystem services modeling, (ii) valuation, (iii) mapping, (iv) alternative scenario design and analysis, (v) coastal zone management and (vi) disaster risk management. Previous experience with multilateral institutions and projects is desirable in addition to experience designing and executing trainings. Extensive knowledge of the regional context for biodiversity and ecosystem services including is necessary.
- 3.3 Expertise required on team: Expert(s) in natural resource/environmental economics, ecology, or related science; expert(s) in identifying and mapping ecosystem services, expert(s) in the economic valuation of biodiversity and ecosystem services; and expert(s) in measuring the stocks and flows of ecosystem services; and expert(s) in training, capacity building and facilitating.

IV TASKS

- 4.1 In direct coordination and consultation with CZMU staff, the consultant will:
- (i) Identify priority ecosystem services for analysis and modeling within alternative development scenarios, based upon the needs of identified stakeholders.
 - (ii) Assess the data that the CZMU already has in its database in order to identify data gaps. In cooperation with CZMU staff, the consultant will collect biophysical data as needed to complement existing ICRM data. Where feasible, economic data on the value of ecosystem services identified in 4.1.i will also be collated in order to enable valuation of ecosystem services. Research and a benefit-transfer approach will be used to fill data gaps where appropriate.
 - (iii) Design a number of alternative coastal development scenarios.
 - (iv) Customize existing spatial analysis models to suit the requirements of the CZMU.

- (v) Through an iterative process of scenario development design and data collection, provide spatial and economic analysis of the ecosystem services identified in activity 4.1.i.
- (vi) Build the capacity of two staff of the CZMU in spatial analysis throughout the execution of the consultancy. This shall include facilitating two technical visits by the identified staff to the consultant's place of work in order to provide counterpart training and knowledge transfer in ecosystems services valuation and its integration into ICZM plans; and in the development of the customized spatial planning tool.
- (vii) Prepare a report of the results of the spatial analysis.
- (viii) On completion of the spatial analysis, conduct two training workshops in Barbados for eight (8) additional CZMU staff on spatial analysis of ecosystem services and application of the developed tool. The training is to be conducted by the consultant and the two staff trained under (vi) above.

V DELIVERABLES

5.1 The consultant will produce the following products:

- (i) Inception report outlining the proposed methodology for completion of the consultancy and work plan, within two weeks of the start of the consultancy.
- (ii) Draft Customized tool for mapping and valuing coastal ecosystem services, within 10 months of the start of the consultancy.
- (iii) Draft report on the results of the spatial analysis within 10 months of the start of the consultancy
- (iv) Final report within 12 months of the start of the consultancy. The report will include:
 - a. Introduction to the approach of mapping and valuing ecosystem services;
 - b. Justification for why the priority ecosystem services were selected and discussion of affected beneficiaries;
 - c. Identification of threats, including climate change;
 - d. Description of the alternative development scenarios;
 - e. Cost/benefit analysis of scenarios;
 - f. Discussion of results;
 - g. Broader conclusions and possible implications for other coastal zones.
- (v) Two capacity-building workshops for the CZMU staff, within 12 months of the start of the consultancy. All software, presentation materials etc. are to be submitted.

VI. PAYMENTS

6.1 Payments will be made according to the following schedule:

- 25% on approval of the inception report;
- 35% on submission of the draft evaluation report;
- 40% on approval of the final report.

VII SUPERVISION AND COORDINATION

- 7.1 Cassandra Rogers, Disaster Risk Management Lead Specialist (RND/CBA) and Michele Lemay, Natural Resources Lead Specialist (INE/RND) will supervise the consultancy with the support of Duncan Gromko, Biodiversity Analyst (INE/RND) and with administrative and coordination support of the IDB Country Office in Barbados.

INDICATIVE TERMS OF REFERENCE

Impact Evaluation of Barbados' Coastal Zone Infrastructure Investments

I BACKGROUND

- 1.1 Since the 1980s, the Government of Barbados (GOBA) has collaborated with the Inter-American Development Bank (IDB) in integrated coastal zone management (ICZM) in an effort to safeguard the island's tourism industry, which in 2011 accounted for 44% of Gross Domestic Product (GDP), 43% of total export earnings, and 43% of employment.¹
- 1.2 Through IDB support, the GOBA has established the legal and institutional framework needed to protect its coast (including the establishment of the Coastal Zone Management Unit (CZMU) as the provider of a permanent CZM function fully integrated in public administration, approval of a CZM Act and ICZM Plan); acquired the technical know-how to assess, monitor and manage complex physical processes that shape its shoreline and contribute to the scenic beauty and recreational value of its beaches; implemented coastal infrastructure works that have had successfully controlled coastal erosion, stabilized beaches, improved public coastal access; and provided tangible economic and social benefits, both to its international tourism product and to local Barbadians. Today Barbados has one of the most comprehensive coastal and marine management programs in the Caribbean and is a regionally recognized best practice model.
- 1.3 Between 2002 and 2009 the GOB implemented the Coastal Infrastructure Program (CIP; 1386/OC-BA). The principal objective of the CIP was to ensure a healthy environment and continued economic development of Barbados through improved management and conservation of the coast zone. The Program had four specific objectives: (i) to create and/or enhance the amenity value of beaches for local and tourist use through the implementation of shoreline stabilization and erosion control projects; (ii) to restore and protect affected ecosystems through the implementation of coastal infrastructure recovery projects; (iii) to encourage safe and increased access to the waterfront through coastal access improvement projects; and (iv) to upgrade capabilities and support the process of innovating coastal management, through the implementation of institutional strengthening activities for the CZMU. Among the Program's outputs are coastal infrastructure works on the south (Rockley) and west coast (Holetown) of the island.
- 1.4 In 2010, in order to address the threat of climate change, rising sea levels, increased severity and frequency of storms, ocean acidification as well as non-climatic hazards, the CZMU initiated the process of expanding its mandate to adopt an integrated coastal risk management approach that explicitly incorporates risk management solutions in ICZM. This approach addresses current and future coastal vulnerabilities as well as reflect changes in environmental and socio-economic conditions over time and is being implemented primarily through the Coastal Risk Assessment and Management Program

¹ Travel & Tourism Economic Impact 2012: Barbados. World Travel & Tourism Council. 2012.

(BA-L1014; 2463/OC-BA), which was approved by the IDB in 2010. This Program will provide support in three areas: coastal risk assessment, monitoring and management, hazard-resilient coastal infrastructure; and institutional capacity for sustainable coastal risk management.

- 1.5 As part of Component 2 of the loan BA-L1014, the feasibility of using coral reef restoration and rehabilitation as an ecosystem-based approach to mitigating the effects of climate change and improving the overall health and well-being of nearshore ecosystems will be piloted. In addition, under Component 3 of the loan, the national ICZM plan will be updated and the CZM Act amended to incorporate risk reduction and adaptation solutions.
- 1.6 In 2013 the Bank approved the technical cooperation (TC) BA-T1025: *Capacity Building for Ecosystem Services Valuation and ICZM Best Practices Dissemination* in order to support the implementation of the loan BA-L1014. The general objective of the TC is to strengthen capacity for risk-based ICZM in Barbados. The specific objectives are to (i) enhance capacity in coastal planning using an innovative spatial analysis tool for mapping and valuing ecosystem services, the application of which would inform the updating of the national ICZM plan; and (ii) document and disseminate best practices and lessons learned in ICZM, coastal planning and in enhancing coastal resilience in Small Island Developing States (SIDS) including the Barbados model.
- 1.7 This consultancy refers to the services of an individual consultant to prepare an impact evaluation of the coastal infrastructure investments completed under the Coastal Infrastructure Program (CIP; 1386-OC/BA).

II OBJECTIVES AND DESCRIPTION

- 2.1 The general objective is to evaluate the effectiveness of coastal infrastructure works completed under the CIP in Barbados. The specific objective is to design and execute a quasi-experimental, ex-post impact evaluation of the coastal infrastructure financed under the loan.
- 2.2 The consultancy will determine the nature of the impacts (social, economic and environmental) of the infrastructure investments made under 1386-OC/BA in the context of coastal resilience (coastal erosion, shoreline stability and other hazards), public access to beaches, beach enhancement, institutional strengthening) and to quantify the magnitude of impact using ex-post, quasi-experimental econometric analysis. The evaluation will consider methodologies such as OLS, instrumental variables, propensity-score matching, or use of panel data to determine the impact of IDB-supported investments.
- 2.3 Coastal resilience is the capacity of humans and ecosystems to withstand and recover from the likely impacts of coastal hazards (including those associated with climate change). The challenge in impact evaluations is to identify a group of people, communities, or places who did not participate, but closely resemble the participants – a counterfactual. This challenge applies across impact evaluations, but may be particularly

acute in evaluations relating to the environment. Two IDB technical notes provide guidelines for econometric methods of determining the environmental impact of a project in the absence of a counterfactual.² These two technical notes consider different sectors (agriculture and forestry), but their econometric guidelines will be applicable to the impact evaluation.

- 2.4 Coastal environments offer unique challenges in this regard as positive effects from “treatment” areas can spill over into “control” areas, complicating the task of isolating the effect of the intervention. The impact evaluation should account for this possibility.
- 2.5 The impact evaluation should take into account the heterogeneous outcomes for beneficiaries from the IDB’s investments in order to evaluate the cost-effectiveness of IDB-supported investments and to understand the causal channels of change. The impacts of most projects are heterogeneous, which creates challenges for experimental and econometric methods. This impact evaluation should take into account the impacts on multiple outcomes.
- 2.6 Another challenge for the evaluating the effectiveness of coastal investments is that most interventions have a longer development period than the life of the project. The long-term expected outputs and outcomes may occur after the completion of the impact evaluation. Given these challenges, the IDB has relied on a reflexive methodology based on a System of Indicators of Disaster Risk and Risk Management developed by the IDB in 2005.³ Where appropriate, the consultancy should refer to this methodology.

III CHARACTERISTICS OF THE CONSULTANCY

- 3.1 *Type of consultancy and duration:* Individual consultant; 50 days.
- 3.2 *Qualifications and experience:* A master or PhD in Economics or Applied Economics with 10 years demonstrated experience and in-depth expertise in impact evaluation of topics related to biodiversity conservation, coastal infrastructure and natural resources and the environment, particularly in LAC.

IV TASKS

- 4.1 The consultancy will complete the following tasks:
 - (i) Select appropriate output and outcome indicators to measure the effectiveness of climate-resilient infrastructure. The consultancy will first evaluate the pros and cons of different sets of output and outcome indicators that are related to climate change and disaster risk management in order to measure the impact of Barbados’ climate-resilient coastal infrastructure. Output indicators should directly measure actions taken by the CZMU, such as the construction of infrastructure. Outcome

² Blackman, Allen. Ex-post Evaluation of Forest Conservation Policies Using Remote Sensing Data: An Introduction and Practical Guide. Impact-Evaluation Guidelines. Technical notes, No. IDB-TN-392, March 2012. And Winters, Paul et al. Designing Impact Evaluations for Agricultural Projects. Impact-Evaluation Guidelines. Technical notes, No. IDB-TN-198, December 2010.

³ Inter-American Development Bank, 2005. Indicators of Disaster Risk and Risk Management.

indicators should measure the impact of climate-resilient coastal infrastructure on Barbados's coastal area and the resulting changes to ecosystem services. Indicators from the IDB's System of Indicators of Disaster Risk and Risk Management will also be included.⁴ Indicator selection must take into consideration the availability of existing data and the ease of filling data gaps.

- (ii) Identify potential data sources and collect data for selected indicators. Activities supported under 1386/OC-BA have already collected data that will support the impact evaluation, including: updated studies of operational and design wave conditions (Nearshore Wave Study); current patterns, water quality and sediment transport characteristics (Circulation, WQ and Sedimentation Study); bathymetric and topographic data (Coastal Zone LIDAR Survey); characteristics of sand movement (Sediment Transport Study); information on shoreline movement (Shoreline Change Study); coastal and inland flooding and hurricane wind, wave and storm surge data (Hazard and Risk Assessment Study). Based upon indicators identified in Component 1, the consultancy will collect additional data to support the impact evaluation.
- (iii) Evaluate the impact of Barbados's climate-resilient infrastructure on the (i) protection of coastal area in terms of coastal erosion and shoreline stability; (ii) increasing the amenity value of beaches and (iii) public coastal access.
- (iv) In order to communicate the outcomes of the analysis, the consultancy will prepare a report with results, conclusions, and implications for coastal zone investment in Barbados. As outlined in the section V, an initial draft report will be prepared, followed by a final report taking into consideration comments from IDB and CZMU. The report will include the following sections: (i) list of output and outcome indicators used for analysis and justification for the selection of indicators; (ii) discussion of data used to complete impact evaluation and any data gaps that may limit the analysis; (iii) discussion and justification of econometric and other methodologies used for isolating the impact of the interventions considered in the evaluation; (iv) summary and analysis of results; (v) summary of limitations that hinder the analysis; and (vi) lessons learned and suggestions for similar investments in the future.
- (v) Present the results of the evaluation to the Bank and the CZMU.

V DELIVERABLES

5.1 The consultancy will submit the following products:

- a) Inception report outlining the proposed methodology for the evaluation and including work plan and timeline for developing indicators, collecting data, within two weeks of the start of the consultancy.
- b) Draft impact evaluation report with the sections detailed in Section 4.1.iv, within 5 weeks of the start of the consultancy.
- c) Final report, within 7 weeks of the start of the consultancy.

⁴ Inter-American Development Bank, 2005. Indicators of Disaster Risk and Risk Management.

VI PAYMENTS

6.1 Payments will be made according to the following schedule:

- 25% on approval of the inception report;
- 35% on submission of the draft evaluation report;
- 40% on approval of the final report.

VII SUPERVISION AND COORDINATION

7.1 Cassandra Rogers, Disaster Risk Management Lead Specialist (RND/CBA) and Michele Lemay, Natural Resources Lead Specialist (INE/RND) will supervise the consultancy with the support of Duncan Gromko, Biodiversity Analyst (INE/RND) and with administrative and coordination support of the IDB Country Office in Barbados.

INDICATIVE TERMS OF REFERENCE

Comparative Analysis of Best Practice Coastal Zone Management

I BACKGROUND

- 1.1 Since the 1980s, the Government of Barbados (GOBA) has collaborated with the Inter-American Development Bank (IDB) in integrated coastal zone management (ICZM) in an effort to safeguard the island's tourism industry, which in 2011 accounted for 44% of Gross Domestic Product (GDP), 43% of total export earnings, and 43% of employment.¹
- 1.2 Through IDB support, the GOBA has established the legal and institutional framework needed to protect its coast (including the establishment of the Coastal Zone Management Unit (CZMU) as the provider of a permanent CZM function fully integrated in public administration, approval of a CZM Act and ICZM Plan); acquired the technical know-how to assess, monitor and manage complex physical processes that shape its shoreline and contribute to the scenic beauty and recreational value of its beaches; implemented coastal infrastructure works that have had successfully controlled coastal erosion, stabilized beaches, improved public coastal access; and provided tangible economic and social benefits, both to its international tourism product and to local Barbadians. Today Barbados has one of the most comprehensive coastal and marine management programs in the Caribbean and is a regionally recognized best practice model.
- 1.3 In 2010, in order to address the threat of climate change, rising sea levels, increased severity and frequency of storms, ocean acidification as well as non-climatic hazards, the CZMU initiated the process of expanding its mandate to adopt an integrated coastal risk management approach that explicitly incorporates risk management solutions in ICZM. This approach addresses current and future coastal vulnerabilities as well as reflect changes in environmental and socio-economic conditions over time and is being implemented primarily through the Coastal Risk Assessment and Management Program (BA-L1014; 2463/OC-BA), which was approved by the IDB in 2010. This Program will provide support in three areas: coastal risk assessment, monitoring and management, hazard-resilient coastal infrastructure; and institutional capacity for sustainable coastal risk management.
- 1.4 As part of Component 2 of the loan BA-L1014, the feasibility of using coral reef restoration and rehabilitation as an ecosystem-based approach to mitigating the effects of climate change and improving the overall health and well-being of nearshore ecosystems will be piloted. In addition, under Component 3 of the loan, the national ICZM plan will be updated and the CZM Act amended to incorporate risk reduction and adaptation solutions.
- 1.5 In 2013 the Bank approved the technical cooperation (TC) BA-T1025: *Capacity Building for Ecosystem Services Valuation and ICZM Best Practices Dissemination* in order to

¹ Travel & Tourism Economic Impact 2012: Barbados. World Travel & Tourism Council. 2012.

support the implementation of the loan BA-L1014. The general objective of the TC is to strengthen capacity for risk-based ICZM in Barbados. The specific objectives are to (i) enhance capacity in coastal planning using an innovative spatial analysis tool for mapping and valuing ecosystem services, the application of which would inform the updating of the national ICZM plan; and (ii) document and disseminate best practices and lessons learned in ICZM, coastal planning and in enhancing coastal resilience in Small Island Developing States / low-lying coastal states (SIDS/LLCS) including the Barbados model.

- 1.6 This terms of reference refers to the services of an individual consultant to conduct a comparative study on best practices and lessons learned in ICZM in Barbados and in other SIDS/LLCS.

II OBJECTIVES

- 2.1 The objective of the consultancy is to conduct a comparative analysis of best practices in ICZM in Barbados and in other SIDS/LLCS, including several Caribbean states, highlighting the application of science-based, innovative, economically cost effective, climate-resilient and environmentally sustainable approaches to effective ICZM.

III CHARACTERISTICS OF THE CONSULTANCY

- 3.1 *Type of Consultancy and duration:* International individual consultant; 48 days.
- 3.2 *Qualifications and experience:* A minimum of a Master's degree in coastal zone management, environmental science, economics, natural resources management, disaster risk management, climate change adaptation with at least 10 years of demonstrated relevant experience and in-depth expertise in coastal zone management, comparative analysis. Experience in the Caribbean and in SIDS/LLCS will be an asset.
- 3.3 *Place of Work:* Barbados, two additional countries in the Caribbean and the consultant's place of work.

IV TASKS

- 4.1 The consultant shall:
- (i) Establish criteria for best practice in ICZM and prepare a best practice template;
 - (ii) Based on a desk study and in-depth interviews with the CZMU and its key stakeholders² apply the template to the ICZM program in Barbados, in order to highlight ICZM best practices implemented or under implementation by the

² Town and Country Development Planning Office (TCDPO), Department of Emergency Management (DEM), Ministry of Environment, Water Resources and Drainage through its Policy, Planning and Research Unit, Environmental Protection Division and Drainage Division; and Soil Conservation Unit.

CZMU since its inception, and lessons learned. The best practices and lessons learned should relate to and are not limited to the following:

- a. ICZM policy and legislation, including compliance;
 - b. Institutional sustainability, including institutional arrangements; capacity and resources for coastal management; coordination with strategic partners and other stakeholders;
 - c. Availability and use of coastal geospatial data and data management systems;
 - d. Incorporation of social science data and tools;
 - e. Coastal hazard protection, including existence, quality and application of risk reduction and adaptation policies;
 - f. Ecosystems services management; including the extent to which the economic value of the coastal zone is incorporated into policy making;
 - g. Participatory planning including public consultation, local level involvement; use of local knowledge;
 - h. Use of performance indicators; and
 - i. Funding;
- (iii) Apply the template to The Bahamas, Belize, Guyana, Jamaica, Suriname and Trinidad and Tobago in order to generate an ICZM profile for each country. The consultant will apply the template through the use of a survey questionnaire to be administered to government officials in ICZM and related fields in each country. In addition the consultant will make technical visits to two countries in order to administer the survey face-to-face;
 - (iv) Document actual case studies of best practice ICZM in non-Caribbean SIDS/LLCS. The case study countries to be agreed between the consultant and the Bank;
 - (v) Identify the challenges faced in best practice ICZM in each of these countries, taking into consideration the varying coastal environments and economic dependency on the coastal zone; and make recommendations for improving effective ICZM;
 - (vi) Prepare a report on the results of the analysis; and
 - (vii) Prepare a 30-45 minute Powerpoint Presentation of the results of the analysis for presentation at an international conference on coastal planning, hazard resilience and economic development for SIDS/LLCS, to be held in Q3, 2015.

V DELIVERABLES

5.1 The Consultant will submit the following deliverables:

- (i) Inception report describing the methodology for the conduct of the consultancy, and work plan (including predicted interviews and travel requirements), within one week of the start of the consultancy;

- (ii) Best practice template, within two (2) weeks of the start of the consultancy;
- (iii) Report of ICZM best practices in Barbados, within four (4) weeks of the start of the consultancy
- (iv) Draft report with country profiles for Caribbean states and add case studies of non-Caribbean SIDS/LLCS, including challenges and recommendations, within six (6) weeks of the start of the consultancy;
- (v) Final report incorporating the comments of the CZMU and the Bank, and including a 30-35 minute Powerpoint presentation summarizing the results of the study within eight (8) weeks of the start of the consultancy.

VI PAYMENTS

6.1 Payment will be made as follows:

- 20% after approval of the inception report;
- 40 % after approval of the draft report; and
- 40% after approval of the final report.

VII SUPERVISION AND COORDINATION

7.1 The consultant will report to Cassandra Rogers, Disaster Risk Management Lead Specialist based in Barbados with the support of Michele Lemay, Natural Resources Lead Specialist (INE/RND), and Duncan Gromko, Biodiversity Analyst (INE/RND).

INDICATIVE TERMS OF REFERENCE

Research Fellow in Integrated Coastal Zone Management/Disaster Risk Management

I BACKGROUND

- 1.1 Since the 1980s, the Government of Barbados (GOBA) has collaborated with the Inter-American Development Bank (IDB) in integrated coastal zone management (ICZM) in an effort to safeguard the island's tourism industry, which in 2011 accounted for 44% of Gross Domestic Product (GDP), 43% of total export earnings, and 43% of employment.¹
- 1.2 Through IDB support, the GOBA has established the legal and institutional framework needed to protect its coast (including the establishment of the Coastal Zone Management Unit (CZMU) as the provider of a permanent CZM function fully integrated in public administration, approval of a CZM Act and ICZM Plan); acquired the technical know-how to assess, monitor and manage complex physical processes that shape its shoreline and contribute to the scenic beauty and recreational value of its beaches; implemented coastal infrastructure works that have had successfully controlled coastal erosion, stabilized beaches, improved public coastal access; and provided tangible economic and social benefits, both to its international tourism product and to local Barbadians. Today Barbados has one of the most comprehensive coastal and marine management programs in the Caribbean and is a regionally recognized best practice model.
- 1.3 In 2010, in order to address the threat of climate change, rising sea levels, increased severity and frequency of storms, ocean acidification as well as non-climatic hazards, the CZMU initiated the process of expanding its mandate to adopt an integrated coastal risk management approach that explicitly incorporates risk management solutions in ICZM. This approach addresses current and future coastal vulnerabilities as well as reflect changes in environmental and socio-economic conditions over time and is being implemented primarily through the Coastal Risk Assessment and Management Program (BA-L1014; 2463/OC-BA), which was approved by the IDB in 2010. This Program will provide support in three areas: coastal risk assessment, monitoring and management, hazard-resilient coastal infrastructure; and institutional capacity for sustainable coastal risk management.
- 1.4 As part of Component 2 of the loan BA-L1014, the feasibility of using coral reef restoration and rehabilitation as an ecosystem-based approach to mitigating the effects of climate change and improving the overall health and well-being of nearshore ecosystems will be piloted. In addition, under Component 3 of the loan, the national ICZM plan will be updated and the CZM Act amended to incorporate risk reduction and adaptation solutions.
- 1.5 In 2013 the Bank approved the technical cooperation (TC) BA-T1025: *Capacity Building for Ecosystem Services Valuation and ICZM Best Practices Dissemination* in order to

¹ Travel & Tourism Economic Impact 2012: Barbados. World Travel & Tourism Council. 2012.

support the implementation of the loan BA-L1014. The general objective of the TC is to strengthen capacity for risk-based ICZM in Barbados. The specific objectives are to (i) enhance capacity in coastal planning using an innovative spatial analysis tool for mapping and valuing ecosystem services, the application of which would inform the updating of the national ICZM plan; and (ii) document and disseminate best practices and lessons learned in ICZM, coastal planning and in enhancing coastal resilience in Small Island Developing States / Small Developing States (SIDS/SDS) including the Barbados model.

- 1.6 This consultancy refers to the services of a research fellow to support the implementation of the TC, including strengthening capacity in integrated coastal risk management/disaster risk management.

II OBJECTIVES AND DESCRIPTION

- 2.1 The objective of the consultancy is to provide support to the Bank's Environment, Rural Development and Disaster Risk Management Division (RND) in the execution of the TC BA-T1025.

III CHARACTERISTICS OF THE CONSULTANCY

- 3.1 *Type of consultancy:* Individual Consultant/Research Fellow.
- 3.2 *Duration:* Two years, beginning August 2013.
- 3.3 *Qualifications and experience:* A minimum of a Master's degree in coastal zone management, disaster risk management, climate change adaptation, coastal engineering, natural resource management, environmental science and policy, economics, biodiversity and ecosystems or related discipline, with at least two years of post-graduate relevant experience in analytical research and technical input for projects and programs in coastal zone management/disaster risk management. Experience in the Caribbean is necessary. Familiarity with IDB funded projects would be an advantage.

Competencies: Dynamic individual with capacity to be proactive, work under minimal supervision; strong analytical, planning, organizing and executing skills; attention to detail; ability to work with multicultural and multidisciplinary teams; ability to adjust to multiple demands; ability to write technical reports; and excellent communications skills in English.

- 3.3 *Place of work:* IDB Country Office in Barbados. May include travel.

IV TASKS

- 4.1 The tasks include and are not limited to the following:
- (i) Provide support for the execution of the TC BA-T1025. The Research Fellow will work towards four specific objectives: (i) increasing capacity within the CZMU to incorporate ecosystem services into coastal planning and evaluating the impact of

spatial analysis of Barbados's coastal ecosystem services (ii) evaluating the impact of hazard-resilient coastal infrastructure (iii) comparing best practices in ICZM in SIDS/SDS; and (iv) disseminating lessons learned, including via international conference on coastal planning and hazard resilience for SIDS/SDS. The tasks include:

- a. Assist in project supervision: This includes the contracting of individual consultants and consulting firms; the coordination and monitoring of activities of firms and individual consultants and with executing agencies in line with the Project Execution Plan and Results Matrix; the technical review of project documents; and the updating of Bank monitoring systems;
- b. Assist in the preparation of technical studies;
- c. Develop presentation material and reports and deliver presentations as requested;
- d. Assist in the organizing of meetings, workshops and conferences; and
- e. Any other assistance required.

- (ii) The consultant will prepare a work plan every semester (6 months) and submit quarterly progress reports.

V SUPERVISION AND COORDINATION

- 5.1 The Research Fellow will report to Cassandra Rogers, Disaster Risk Management Lead Specialist based in Barbados who will have overall responsibility for coordination of the consultancy with the support of Michele Lemay, Natural Resources Lead Specialist (INE/RND), and Duncan Gromko, Biodiversity Analyst (INE/RND).

VI CONDITIONS OF EMPLOYMENT

- 6.1 Payment and Conditions of Employment: Remuneration will be determined in accordance with Bank regulations and criteria. The Bank will additionally contribute toward travel and moving expenses, if applicable. Payments will be made twice monthly based upon submission by the Research Fellow of an invoice.

SAFEGUARD POLICY FILTER REPORT

PROJECT DETAILS	IDB Sector	ENVIRONMENT AND NATURAL DISASTERS-COASTAL ZONE MANAGEMENT
	Type of Operation	Technical Cooperation
	Additional Operation Details	
	Investment Checklist	Generic Checklist
	Team Leader	Rogers, Cassandra T. (CASSANDRAR@iadb.org)
	Project Title	Capacity building for ecosystem services valuation and best practice disseminati
	Project Number	BA-T1025
	Safeguard Screening Assessor(s)	Gromko, Duncan (duncang@IADB.ORG)
	Assessment Date	2013-03-08
	Additional Comments	

SAFEGUARD POLICY FILTER RESULTS	Type of Operation	Technical Cooperation	
	Safeguard Policy Items Identified (Yes)	Activities to be financed in the project area are located within a geographical area or sector exposed to natural hazards* (Type 1 Disaster Risk Scenario).	(B.01) Disaster Risk Management Policy– OP-704
		The Bank will make available to the public the relevant Project documents.	(B.01) Access to Information Policy– OP-102
		The operation is in compliance with environmental, specific women's rights, gender, and indigenous laws and regulations of the country where the operation is being implemented (including national obligations established under ratified Multilateral Environmental Agreements).	(B.02)

		The operation (including associated facilities) is screened and classified according to their potential environmental impacts.	(B.03)
		If a Technical Cooperation, the operation is associated with the design and/or implementation of a major investment loan in infrastructure.	(B.04)
		The operation is sensitive to slow onset changes in climatic variables, weather patterns and the consequences incl. sea level rise, glacier run off. (Type 1 Gradual Climate Change Risk Scenario).	(B.04)
		The project is specifically designed to increase the capacity of human and natural systems to adapt to a changing climate.	(B.04)
		The project includes activities to close current “adaptation deficits” or to increase the capacity of human and natural systems to adapt to a changing climate.	(B.04)
		The Bank will monitor the executing agency/borrower’s compliance with all safeguard requirements stipulated in the loan agreement and project operating or credit regulations.	(B.07)
		Any part of the investment or component(s) is being co-financed.	(B.15)
		Suitable safeguard provisions for procurement of goods and services in Bank financed projects may be incorporated into project-specific loan agreements, operating regulations and bidding documents, as appropriate, to ensure environmentally responsible procurement.	(B.17)

	Potential Safeguard Policy Items(?)	No potential issues identified	
	Recommended Action:	<p>Operation has triggered 1 or more Policy Directives; please refer to appropriate Directive(s). Complete Project Classification Tool. Submit Safeguard Policy Filter Report, PP (or equivalent) and Safeguard Screening Form to ESR.</p> <p>The project triggered the Disaster Risk Management policy (OP-704).</p> <p>A more limited and specific Disaster Risk Assessment (DRA) may be required (see Directive A-2 of the DRM Policy OP-704). Please contact a Natural Disaster Specialist in VPS/ESG or INE/RND for guidance.</p> <p>Also: if the project needs to be modified to increase resilience to climate change, consider the (i) possibility of classification as adaptation project and (ii) additional financing options. Please contact a INE/CCS adaptation specialist for guidance.</p> <p>The project triggered the Other Risks policy (B.04): climate risk. Please include sections on how climate risk will be dealt with in the ESS as well as client documents (EIA, EA, etc); Recommend addressing risks from gradual changes in climate for the project in cost/benefit and credit risk analyses as well as TORs for engineering studies.</p>	
	Additional Comments:		

ASSESSOR DETAILS	Name of person who completed screening:	Gromko, Duncan (duncang@IADB.ORG)
	Title:	
	Date:	2013-03-08

SAFEGUARD SCREENING FORM

PROJECT DETAILS	IDB Sector	ENVIRONMENT AND NATURAL DISASTERS-COASTAL ZONE MANAGEMENT
	Type of Operation	Technical Cooperation
	Additional Operation Details	
	Country	BARBADOS
	Project Status	
	Investment Checklist	Generic Checklist
	Team Leader	Rogers, Cassandra T. (CASSANDRAR@iadb.org)
	Project Title	Capacity building for ecosystem services valuation and best practice disseminati
	Project Number	BA-T1025
	Safeguard Screening Assessor(s)	Gromko, Duncan (duncang@IADB.ORG)
	Assessment Date	2013-03-08
	Additional Comments	

PROJECT CLASSIFICATION SUMMARY	Project Category: C	Override Rating:	Override Justification:
	Conditions/ Recommendations		Comments:
		<ul style="list-style-type: none"> No environmental assessment studies or consultations are required for Category "C" operations. Some Category "C" operations may require specific safeguard or monitoring requirements (Policy Directive B.3).Where relevant, these operations will establish safeguard, or monitoring requirements to address environmental and other risks (social, disaster, cultural, health and safety etc.). The Project Team must send the PP (or equivalent) containing the Environmental and Social Strategy (the requirements for an ESS are described in the Environment Policy Guideline: Directive B.3) as well as the Safeguard Policy Filter and Safeguard Screening Form Reports. 	

SUMMARY OF	Identified Impacts/Risks	Potential Solutions
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IMPACTS/RISKS AND POTENTIAL SOLUTIONS		
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DISASTER SUMMARY	<p>Details</p> <p>The Project should include the necessary measures to reduce disaster risk to acceptable levels as determined by the Bank on the basis of generally accepted standards and practices. Alternative prevention and mitigation measures that decrease vulnerability must be analyzed and included in project design and implementation as applicable. These measures should include safety and contingency planning to protect human health and economic assets. Expert opinion and adherence to international standards should be sought, where reasonably necessary.</p>	<p>Actions</p> <p>A more limited and specific Disaster Risk Assessment (DRA) may be required (see Directive A-2 of the DRM Policy OP-704). Please contact a Natural Disaster Specialist in VPS/ESG or INE/RND for guidance.</p> <p>Also: if the project needs to be modified to increase resilience to climate change, consider the (i) possibility of classification as adaptation project and (ii) additional financing options. Please contact a INE/CCS adaptation specialist for guidance.</p> <p>The project triggered the Other Risks policy (B.04): climate risk. Please include sections on how climate risk will be dealt with in the ESS as well as client documents (EIA, EA, etc); Recommend addressing risks from gradual changes in climate for the project in cost/benefit and credit risk analyses as well as TORs for engineering studies.</p>
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ASSESSOR DETAILS	Name of person who completed screening:	Gromko, Duncan (duncang@IADB.ORG)
	Title:	
	Date:	2013-03-08