TC Document

I. Basic Information for TC

▪ Country/Region:	Jamaica
▪ TC Name:	Breaking Ground: Jamaica's First Payments for Ecosystem Services Scheme
▪ TC Number:	JA-T1127
▪ Team Leader/Members:	Joseph Milewski (CSD/RND), Team Leader; Michele Lemay (CSD/RND), Alternate Team Leader. Rene Herrera; Naveen Jainauth-Umrao (VPC/FMP); Maria del Pilar Jimenez (LEG/SGO); Rajiv Alistair Ebanks (CCB/CJA); Kelsey Schueler and Elizabeth Chavez (CSD/RND).
▪ Indicate if: Operational Support, Client Support, or Research & Dissemination	Client Support
▪ Date of TC Abstract authorization:	January 26, 2017
▪ Beneficiary:	Jamaica
▪ Executing Agency and contact name	Government of Jamaica, National Environment and Planning Agency; Contact: Nelsa English, Project Manager of GEF project JA-G1001
▪ Donors providing funding:	OC-SDP Sustainability Fund
▪ IDB Funding Requested:	US$300,000.00
▪ Local counterpart funding, if any:	US$375,000.00
▪ Disbursement period (which includes Execution period):	24 months
▪ Required start date:	April 2017
▪ Types of consultants (firm or individual consultants):	Firm
▪ Prepared by Unit:	CSD/RND
▪ Unit of Disbursement Responsibility:	CCB/CJA
▪ TC Included in Country Strategy (y/n):	Yes
▪ TC included in CPD (y/n):	Yes
▪ Alignment to the Update to the Institutional Strategy 2010-2020:	Climate Change and Environmental Sustainability

II. Objectives and Justification of the TC

2.1 The objective of this TC is to improve the provision of critical ecosystem services (e.g. water quality, biodiversity preservation, erosion control) through a Payments for Ecosystem Services (PES) scheme[1], in the Hope and Yallahs River watersheds, which provide 42% of the water to Jamaica's capital, Kingston. The objectives of the PES scheme are to decrease the level of sedimentation in the water for Kingston residents, improve protection of biodiversity in the Yallahs and Hope watersheds, and increase the application of sustainable land use activities that improve the quality and quantity

[1] A PES Scheme is a market oriented instrument to assure the supply and maintenance of ecosystem services. In this case, the flow of water provisioning services from forested, agro-forested and sustainably managed lands.

of water from the Hope and Yallahs watersheds that are provided to Kingston residents. This TC is critical in order to provide the necessary skills and capacity to support Jamaica's first PES scheme.

2.2 The Yallahs and Hope River Watershed Management Units (WMUs) comprise about 10% of the Blue and John Crown Mountains, which are a designated National Park (BJCMNP). The BJCMNP contains critical levels of biodiversity, including high levels of endemic taxa of flora and fauna, specifically 240 Jamaican endemic plants, of which 87 are endemic to the mountains, 30 species of birds, 27 reptile species, 20 amphibians, most of the 505 endemic species of Jamaican snails and several endangered butterflies, besides being an overwintering habitat for migratory species. This biodiversity supports a variety of ecosystem services. In addition to providing water to Kingston's residents, the rivers recharge aquifers and provide irrigation to farmers. The rivers are also linked to the health of coastal and marine ecosystems, as they filter sediment and contaminates from waters that will eventually reach the ocean, including Palisadoes-Port Royal Protected Area (a Ramsar site). The WMUs also contain 7% of the island's farmland. An estimated 8% of the area is flood prone, 49% prone to landslides, and 65% subject to soil erosion. Within the WMUs there is an average of 29% poor households (higher than the 19% national average).

2.3 The biodiversity, hydrological regimes, water quality, and ecosystem services in general of the Hope and Yallahs watersheds are threatened by, among others: (i) deforestation and forest degradation; (ii) soil quality reduction as a result of inadequate agricultural practices and fires, which affect income generation opportunities, particularly for small farmers; and (iii) land use changes, soil erosion, waste water disposal, and the use of agrochemicals, particularly on coffee plantations.

2.4 However, sufficient funds from national or local budgets have not been made available to National Park managers or watershed stewards. Law enforcement is also ineffective due to limited capacity. Existing funds do not cover the costs of effective management and do not address the need for ecosystem rehabilitation or reforestation. While the Government of Jamaica (GOJ) has embarked on initiatives to address aspects of the financial sustainability of the protected areas system[2], these projects do not address economic valuation of natural resources in the watersheds or PES in the context of integrated watershed management. Also lacking is a system to estimate the economic value of natural resources and incorporate these values into payment schemes, land-use planning, and environmental decision-making. There are no systems in place to generate funds for watershed management or sustainable land management. In addition, over 90% of land with reforestation potential is private and not under Government control, thus managing deforestation will require suitable incentives and will depend on buy-in from stakeholders and landowners in key areas. Beneficiaries are often disconnected from where ecosystem services are generated and there are few incentives for upper watershed dwellers to maintain forest cover, since many do not internalize the benefits from the ecosystem services generated.

2.5 Although the BJCMNP provides water and mitigates floods and soil loss, beneficiaries of these services do not pay for them and the contribution of water users to watershed management is minimal. Although the National Irrigation Commission intends to recover 100% of the Operation and Maintenance costs of irrigation systems from user fees, these fees only partly cover the maintenance of distribution and extraction infrastructure and do not include the management of the watershed that provides the

[2] Strengthening the Operational and Financial Sustainability of the National Protected Area System project.

water. Similarly, the National Water Commission (NWC) does not charge domestic customers for watershed management, nor does it carry out large-scale watershed management. The current and past efforts of NWC and the IDB[3] to rehabilitate and expand the water supply scheme in Kingston are an opportunity to introduce PES concurrently with improvements in service delivery, improvements to the revenue collection system, and a mechanism to ensure payments are used to manage the watersheds more effectively.

2.6 This TC will support the implementation of the GEF project, Integrated Management of the Yallahs & Hope Watersheds (JA-G1001; GRT/FM-14607-JA.). The second component of the GEF project is focused on the design and implementation of the PES scheme. This is the first PES scheme in Jamaica and thus its success is of utmost importance. Reviews of PES schemes, including Pattanayak et al (2010), Blackman et al (2014), and GEF (2010)[4], demonstrate that preparation and design are critical elements to the success of all PES schemes. Often these elements are rushed, which leads to failed implementation of PES schemes. This project has identified this risk and is preempting it by completing the proper background analysis to lay the groundwork for a successful PES scheme. Success of this PES scheme could lead to the expansion of PES schemes throughout Jamaica or a national PES program, such as those that exist successfully in Mexico and Costa Rica.

2.7 This TC is aligned with the Bank's Country Strategy with Jamaica 2016-2021 (GN-2868) under the cross-cutting area of resilience to climate shocks, particularly the central area: "multi-sectorial approach to the issue of resilience and disaster risk management, which removes the silo approach and seeks to build organic, seamless linkages across the socioeconomic landscape". This TC also has the potential to contribute to the strategic area of improved public sector management by generating revenues for natural resource management under a PES scheme. This TC is aligned with Jamaica's Vision 2030: Medium Term Socio-Economic Policy Framework 2015-2018 under the theme environmental sustainability and climate change response, which includes improving financial mechanisms for biodiversity and ecosystem management as a key area. Additional alignment exists with Jamaica's National Biodiversity Strategy and Action Plan[5], Strategic Forest Management Plan (2009-2013), and Watersheds Policy (draft).

2.8 This operation is strategically aligned with the Bank's Update to the Institutional Strategy 2010-2020 (GN-2788-5) through the cross-cutting theme of climate change and environmental sustainability as the operation is intended to address problems related to the conservation and sustainable use of biodiversity and ecosystem services, as well as support for new or improved environmental governance (i.e., PES Scheme). The specific activities financed under this TC will contribute to outcomes,

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[3] JA-L1012 (US$15 M) - Agricultural Competitiveness Program; JA-L1035 (US$133 M) – Kingston Metropolitan Area Water Supply Development Program; JA-L0106 (US$16.8 M) – National Irrigation Development Program.

[4] Blackman, A., Epanchin-Niell, R., Siikamäki, J., & Velez-Lopez, D. (2014). *Biodiversity Conservation in Latin America and the Caribbean: Prioritizing Policies*. Routledge; Global Environment Facility. (2010). Payments for Ecosystem Services; Pattanayak, S. K., Wunder, S., & Ferraro, P. J. (2010). Show me the money: Do payments supply environmental services in developing countries? *Review of Environmental Economics and Policy*, req006.

[5] Objectives 4.5.1.1.1 "mechanisms to increase the investment in and channel financial resources to biodiversity and watershed managers" and 4.5.5.3 "incorporate economic values of ecological services into land-use planning and biological conservation".

which are aligned with the Corporate Results Framework (CRF)[6], but are being monitored and measured under the project GRT/FM-14607-JA (see ¶4.2). Thus, to avoid 'double counting' and given the narrow definition of activities of this TC, alignment/contribution to a specific CRF indicator is not claimed. This TC generates knowledge to support sustainable financing for sustainable land management, including agricultural practices (see ¶2.3), which is directly aligned with the IDB's Ordinary Capital Strategic Development Program for Sustainability's (OC-SDP for Sustainability) objective to promote opportunities for LAC agricultural sector players to improve transition towards sustainable agriculture. By supporting the provision of market-based mechanisms for the sustainability of ecosystem services in critical watersheds with high biodiversity, this TC also promotes the OC-SDP for Sustainability focus on supporting technological innovations, reforms, and market access initiatives.

III. Description of Activities/Components and Budget

3.1 The objective of this TC is to support the development of a PES scheme, which is expected to improve the provision of critical ecosystem services in the Hope and Yallahs watersheds. The specific outcome of this TC will be feasibility studies, which in combination with work under an on-going GEF project (GRT/FM-14607-JA), will result in a PES Operational Manual with a sustainable financing scheme. The specific scope of work and outcome of the TC is interconnected with activities under GRT/FM-14607-JA. For more information on this relationship, please see ¶4.2.

3.2 **Component One: PES Scheme Management and Design**. This component is comprised of two key activities. First, implementation of a willingness to pay study to identify how much Kingston residents would be willing to pay to maintain the biodiversity and ecosystem services. The outcome of that activity will be a monetary amount that Kingston residents would be willing to pay to maintain the biodiversity and ecosystem services. Second, an economic analysis of how much the NWC will save from the reduction in sedimentation. The outcome will be a reasonable estimate of how much NWC will save if the PES scheme is implemented. As a result, this component intends to pilot a financing scheme that will ensure that fees are used to pay for forest and watershed management. There are three existing national mechanisms that could be adapted to receive income from water user fees, manage the funds and allocate them to manage the watershed, including the Environmental Foundation of Jamaica, the Jamaica National Parks Trust Fund and the Forest Conservation Fund. They were established to manage debt-swap funds, and have many years' worth of experience in managing investments and making medium and small grants to protect biodiversity and valuable ecosystems.

[6] Country Development Result (CDR) Indicator "beneficiaries of improved management and sustainable use of natural capital." CDR Auxiliary Indicators "terrestrial or marine areas with improved management" and "farmers with improved access to agricultural services and investments." Regional Context Indicator "Greenhouse gas emissions."

Indicative Results Matrix

Outcome Statement: PES Operation Manual with a sustainable financing scheme for a market-based instrument for conservation of natural capital (PES Scheme) designed for the Hope and Yallahs watersheds.							
Activity	**Standard Output Indicator**	**Fund Output Indicator**	**Unit of Measurement**	**Base line**	**Means of Verification**	**Planned Progress**	
						2017	**2018**
Implementation of Willingness to Pay Survey	Surveys conducted	Number of surveys completed	Surveys	0	Consulting report approved by the National Environment and Planning Agency	0	1500
Economic analysis of National Water Commission's savings under Payments for Ecosystem Services scheme scenario	Feasibility study completed	Number of economic analysis completed	Studies	0	Consulting report approved by the National Environment and Planning Agency	0	1

3.3 The total budget for this TC has been estimated at $675,000 per the table below.

Indicative Budget

Activity/ Component	**Description**	**IDB/Fund Funding**	**Counterpart Funding**	**Total Funding**
PES Scheme Design and Management	Implementation of WTP survey and economic analysis of NWC savings	US$300,000	US$375,000	US$675,000
TOTAL		US$300,000	US$375,000	US$675,000

3.4 The Country Office in Jamaica will supervise the TC. The Project Team will coordinate closely with the GRT/FM-14607-JA team at the IDB for monitoring and reporting.

IV. Executing Agency and Execution Structure

4.1 GOJ sent the Bank a Letter of Request on 6 September 2016. The TC was also included in the Country Program, which was reviewed with GOJ in November 2016. The executing agency (EA) for this TC will be the GOJ, through the National Environment and Planning Agency (NEPA). NEPA's mandate is highly consistent with the objectives of this TC as it operates under several conservation and natural resource management acts. NEPA also has a long track record of successful implementation of GEF, multi-lateral and locally funded projects (NEPA is currently EA for the related operation GRT/FM-14607-JA). The institutional capacity assessment prepared under GRT/FM-14607-JA demonstrates that NEPA has the necessary institutional, fiduciary, administrative and internal control capabilities for effective and transparent administration of project resources.

4.2 Initially, the scope of work to achieve the objectives of GRT/FM-14607-JA had been defined per four key tasks: (1) identification of the appropriate land use changes in prioritized areas; (2) identification of land tenure for prioritized areas and design of a WTP study; (3) implementation of WTP study and economic analysis of NWC savings; and (4) combining all of the studies and solidifying the financial contributors. Currently,

NEPA is completing a competitive procurement process (QBS) for the contract PES Scheme Management and Design under GRT/FM-14607-JA. However, the resources under GRT/FM-14607-JA are only expected to cover Tasks 1, 2 and 4 (the specific activities that will not be financed under GRT/FM-14607-JA are pending negotiations with the top-ranked firm). This TC will support the project GFT-FM-14607-JA by contracting the technical assistance necessary to fulfill Task 3.

4.3 The EA will contract individual consultants, consulting firms and non-consulting services in accordance with the Bank's current procurement policies and procedures (GN-2350-9). One contract, PES Scheme Management and Design, is to be awarded to a consulting firm under this TC, for which the EA will contract the services of a consulting firm by Single-Source Selection (SSS), on the basis of continuity of service. The work to be implemented under this TC will use the same technical approach (i.e. survey instruments, economic analysis) and require the same experience as the work that was advertised under GRT/FM-14607-JA (see ¶4.2). Thus, the consulting services represent a natural continuation of previous work. Under the contract to be prepared under GRT/FM-14607-JA, a commitment for the aforementioned consulting services will be financed under this TC.

V. Major issues

5.1 The risks are, mainly, a lack of buy-in by the NWC and low willingness of Kingston residents to contribute to biodiversity conservation. To mitigate these risks, NWC has been included as a supervisor of the studies for the GEF project and the PES scheme. In addition, several workshops have already been conducted with multiple government agencies, including NWC, the agricultural extension (RADA), the Water Resources Authority (WRA), the Forestry Department (FD), NGOs, and civil society. Lastly, all of these agencies have been actively involved in the development and refinement of the TORs for the PES scheme.

VI. Exceptions to Bank policy

6.1 None.

VII. Environmental and Social Strategy

7.1 The program is classified as Category "C" pursuant to the Bank's Environment and Safeguards Compliance Policy (OP 703): (i) no environmental or social risks; (ii) direct contribution to solve an environmental issue, see (SPF) (SSF).

Required Annexes:

- Letter of Request
- Results Matrix
- Terms of Reference
- Procurement Plan

ANY REPLY OR SUBSEQUENT REFERENCE SHOULD BE ADDRESSED TO THE FINANCIAL SECRETARY AND THE FOLLOWING REFERENCE NUMBER QUOTED:-

Telephone No. 92-28600-16
Website: http://www.mof.gov.jm
Email: info@mof.gov.jm

MINISTRY OF FINANCE AND THE PUBLIC SERVICE
30 NATIONAL HEROES CIRCLE
P.O. BOX 512
KINGSTON
JAMAICA

September 6, 2016

Mrs. Therese Turner-Jones
General Manager
Country Department, Caribbean Group
Inter-American Development Bank
40-46 Knutsford Boulevard
Kingston 5

Dear Mrs. Turner Jones,

Re: Request for Grant Funding of US$0.3 Million to conduct a feasibility study for a Payment for Ecosystem Services (PES) Scheme to support the Project for the Integrated Management of the Yallahs and Hope Watershed Management Area (IDB Grant No. GTR/FM-14607-JA)

Reference is made to the Integrated Management of the Yallahs and Hope Watershed Management Area Non-Reimbursable Financing Agreement between the Inter-American Development Bank (IDB) and the Government of Jamaica (GOJ) in the sum of US$12,781,798 which was signed on October 1, 2014. The Project which is being executed by the National Environment and Planning Agency (NEPA) seeks to improve the conservation and management of biodiversity and the provision of ecosystem services in the Yallahs and Hope River Watersheds.

The NEPA, through the Planning Institute of Jamaica (PIOJ), is requesting support from the Bank for a Technical Cooperation (TC) in the sum of **US$ 0.3 Million** to conduct a feasibility study for a Payment for Ecosystem Services (PES) Scheme which will enable sustainable financing for the conservation of biodiversity and the protection of the existing ecosystems within the Yallahs and Hope River Watersheds.

Enclosed is the Project Proposal and Implementation schedule which were submitted by the PIOJ. The Ministry of Finance and the Public Service hereby requests the provision of an additional **US$0.3 million** in resources for the successful implementation of this important Project.

Yours sincerely,

Darlene Morrison
for Financial Secretary

Results Matrix

Operation Number: JA-T1127

- Outcome Statement: PES Operation Manual with a sustainable financing scheme for a market-based instrument for conservation of natural capital (PES Scheme) designed for the Hope and Yallahs watersheds

Outcome	Unit Of Measure	Baseline	Baseline Year	

1 **- Component: PES Scheme for Yallahs and Hope Watersheds, Jamaica**

Output Definition	Unit Of Measure		2017	2018	EOP 0
Surveys conducted	Surveys (#)	P	0.00	1,500.00	1,500.00
		P(a)	0.00	1,500.00	1,500.00
		A			
Feasibility study completed	Studies (#)	P	0.00	1.00	1.00
		P(a)	0.00	1.00	1.00
		A			

Component Revised Cost

1 Component: PES Scheme for Yallahs and Hope Watersheds, Jamaica **675,000.00**

Output Definition		2017	2018	Cost
	P	0.00	325,000.00	325,000.00
Surveys conducted	P(a)	0.00	325,000.00	325,000.00
	A			
	P	0.00	350,000.00	350,000.00
Feasibility study completed	P(a)	0.00	350,000.00	350,000.00
	A			

Total		2017	2018	Cost
Total Cost	P	0.00	675,000.00	675,000.00
	P(a)	0.00	675,000.00	675,000.00
	A	0.00	0.00	0.00

ANNEX A

Jamaica

CCB/CJA

Breaking Ground: Jamaica's First Payments for Ecosystem Services Scheme (JA-T1127)
PES Scheme Management and Design

TERMS OF REFERENCE

Background

Established in 1959, the Inter-American Development Bank ("IDB" or "Bank") is the main source of financing for economic, social and institutional development in Latin America and the Caribbean. It provides loans, grants, guarantees, policy advice and technical assistance to the public and private sectors of its borrowing countries.

The objective of this project is to improve the provision of critical ecosystem services (e.g. water quality, biodiversity preservation, erosion control) through a Payments for Ecosystem Services (PES) scheme, in the Hope and Yallahs River watersheds, which provide 42% of the water to the capital, Kingston. The objectives of the PES scheme are to decrease the level of sedimentation in the water for Kingston residents; improve protection of biodiversity in the Yallahs and Hope watersheds; and increase the application of sustainable land use activities that improve the quality and quantity of water from the Hope and Yallahs watersheds that are provided to Kingston residents. This project is critical to provide the necessary skills and capacity to support Jamaica's first PES scheme.

The Yallahs and Hope River Watershed Management Units (WMUs) comprise about 10% of the Blue and John Crown Mountains, which are a designated National Park (BJCMNP). The BJCMNP contains critical levels of biodiversity, including high levels of endemic taxa of flora and fauna, specifically 240 Jamaican endemic plants, of which 87 are endemic to the mountains, 30 species of birds, 27 reptile species, 20 amphibians, most of the 505 endemic species of Jamaican snails and several endangered butterflies, besides being an overwintering habitat for migratory species. This biodiversity supports a variety of ecosystem services. In addition to providing water to Kingston's residents, the rivers recharge aquifers and provide irrigation to farmers. The rivers are also linked to the health of coastal and marine ecosystems, as they filter sediment and contaminates from waters that will eventually reach the ocean, including Palisadoes-Port Royal Protected Area (a Ramsar site). The WMUs also contain 7% of the island's farmland. An estimated 8% of the area is flood prone, 49% prone to landslides and 65% subject to soil erosion. Within the WMUs there is an average of 29% poor households (higher than the 19% national average).

The biodiversity, hydrological regimes, water quality and ecosystem services in general of the Hope and Yallahs watersheds are threatened by, among others: (i) deforestation and forest degradation; (ii) soil quality reduction as a result of inadequate agricultural practices and fires, which affect income generation opportunities, particularly for small farmers; and (iii) land use

changes, soil erosion, waste water disposal and the use of agrochemicals, particularly on coffee plantations.

However, sufficient funds from national or local budgets have not been made available to National Park managers or watershed stewards. Law enforcement is also ineffective due to limited capacity. Existing funds do not cover the costs of effective management and do not address the need for ecosystem rehabilitation or reforestation. While GOJ has embarked on initiatives to address aspects of the financial sustainability of the protected areas system, projects do not address economic valuation of natural resources in the watersheds or payment for ecosystem services in the context of integrated watershed management. Also lacking is a system to estimate the economic value of natural resources and incorporate these values into payment schemes, land-use planning and environmental decision-making. There are no systems in place to generate funds for watershed management or sustainable land management. In addition, over 90% of land with reforestation potential is private and not under Government control, thus managing deforestation will require suitable incentives and will depend on buy-in from stakeholders and landowners in key areas. Beneficiaries are often disconnected from where ecosystem services are generated and there are few incentives for upper watershed dwellers to maintain forest cover, since many do not internalize the benefits from the ecosystem services generated.

Although the BJCMNP provides water and mitigates floods and soil loss, beneficiaries of these services do not pay for them and the contribution of water users to watershed management is minimal. Although the National Irrigation Commission intends to recover 100% of the Operation and Maintenance costs of irrigation systems from user fees, these fees only partly cover the maintenance of distribution and extraction infrastructure and do not include the management of the watershed that provides the water. Similarly, the National Water Commission does not charge domestic customers for watershed management, nor does it carry out large-scale watershed management. The current and past efforts of NWC and the IDB to rehabilitate and expand the water supply scheme in Kingston are an opportunity to introduce payment for ecosystem services concurrently with improvements in service delivery, improvements to the revenue collection system and a mechanism to ensure payments are used to manage the watersheds more effectively.

This project will support the implementation of the GEF project, Integrated Management of the Yallahs & Hope Watersheds (JA-G1001; GRT/FM-14607-JA.). The second component of the GEF project is focused on the design and implementation of the PES scheme. This is the first PES scheme in Jamaica and thus its success is of utmost importance. Reviews of PES schemes, including Pattanayak et al (2010), Blackman et al (2014), and GEF (2010), demonstrate that preparation and design are critical elements to the success of all PES schemes. Often these elements are rushed, which leads to failed implementation of PES schemes. This project has identified this risk and is preempting it by completing the proper background analysis to lay the groundwork for a successful PES scheme. Success of this PES scheme could lead to the expansion of PES schemes throughout Jamaica or a national PES program, such as those that exist successfully in Mexico and Costa Rica.

This TOR represents a specific set of activities under the consultancy to manage the design of a payments for ecosystem services scheme in Jamaica. The consultancy is broken up into four phases: diagnostic, design, implementation, and incorporation. This TOR covers a sub-set of these activities under design and implementation.

Prior or concurrent to this consultancy, a hydrological study will be conducted. This study will identify, based on hydrological modeling, the priority areas of intervention within the Yallahs and

Hope watersheds. The institution contracted to carry out the design of the payments for ecosystem services scheme will need to take into account the results of the hydrological study into their work.

Consultancy objective(s)

This consultancy has the following objectives:

1. Design of Willingness to Pay Study Objectives: Clearly delineate the biodiversity and ecosystem services to be prioritized for the PES scheme through a participatory process. Design surveys, manage survey implementation, and analyze survey results that will define what the residents of Kingston and St. Andrew are willing to pay for the biodiversity and ecosystem services provided by the micro-watershed priority sites identified for land use changes within the Hope and Yallahs watersheds for the proposed PES scheme.

2. Implementation of the Willingness to Pay Study Objectives: Implement surveys that will define the willingness to pay for the biodiversity and ecosystem services provided by the micro-catchment priority sites identified for land use change within the Hope and Yallahs watersheds as part of a new PES scheme. More specifically, the objective of this consultancy is to collect the data necessary to understand the economic benefits from the biodiversity and ecosystem services from these identified priority sites.

3. Economic Analysis of Improvement of Water Related Services Objectives: Conduct an economic analysis of the monetary benefit (reduction in costs) to the National Water Commission (NWC) from the identified (hydrologically modeled) reduction in sedimentation and change in water quantity for the proposed PES scheme.

Main activities

In addition to the specific activities detailed below, the institution selected will be responsible for the overall management of its team. This includes ensuring that critical information is being shared between specialists within the team that are necessary for the preparation of the PES scheme. It will also require informing the IDB and the implementing agency (NEPA) of progress being made. Quarterly reports on the progress of the project are required.

The selected candidate will:

<u>Design of Willingness to Pay Study</u>

1. Task 1: Biodiversity and ecosystem services identification
   1.1. Identify the biodiversity and ecosystem services that will be affected by the implementation of the proposed PES scheme, focus groups or community meetings may be required
   1.2. Some preliminary ecosystem services (e.g., water quantity) have already been identified through the project design and development – these should be taken into account when prioritizing what ecosystem services to include

2. Task 2: Definition of the population benefitting from the changes in biodiversity and ecosystem services as a result of the proposed PES scheme

2.1. Utilizing information from Task 1, identify the population(s) that will be affected by the changes in biodiversity and ecosystem services from the proposed PES scheme. Examples:
   - Water quantity is of great concern to the residents of Kingston and St. Andrew that are receiving water from the Hope and Yallahs watersheds
   - Hunting within the Hope and Yallahs watersheds is of extreme importance Jamaicans
   - Water quantity and sedimentation levels may be of great importance to the two bottling companies that are located within the Hope and Yallahs watersheds
   - Water quantity and sedimentation levels may be of great importance to the 50 well owners within the Hope and Yallahs watersheds

3. Task 3: Complete and submit a report to the IDB and the implementing agency (NEPA) on the information identified in tasks 1 and 2
   3.1. Conduct a workshop with the relevant entities on the information obtained from tasks 1 and 2

4. Task 4: Survey(s) preparation and design, which will consist of:
   4.1. Methodology development: Using the information gathered in tasks 1 and 2, prioritize the biodiversity and ecosystem services that will be the subject of the willingness to pay study. In addition the most appropriate valuation method for the study should be identified.
   4.2. Work strategy: Develop a plan on how the focal groups will be conducted and the valuation study will be executed
   4.3. Survey design: Design of the survey(s) based on information defined from the methodology development and the work strategy. It is expected that the number of questionnaires will depend on the methodology chosen to quantify the economic value of the benefits. In turn, the methodology chosen will depend on the type of benefits identified in the abovementioned activities
   4.4. Complete and submit a second report with all above components from Task 4 elucidated

5. Task 5: Supervision of survey implementation
   5.1. Supervise the definition of the target population and sample size: Identify the objective population. The sample should be representative of the target population and the size should be such that the results yield a confidence level of 90%.
   5.2. Supervise focal group workshops on the population(s) identified in Task 2 to identify any changes needed in the survey
   5.3. Supervise the training of the survey implementers.
   5.4. Supervise the implementation of a pilot survey: During the implementation, the firm must field test the instrument and test for internal consistency. The number of final questionnaires will depend on the methodology chosen to value benefits.
   5.5. Supervise implementation of final survey and provide feedback and necessary adjustments during implementation to the survey implementation firm.

6. Task 6: Analyze survey results in order to provide information on the willingness to pay for biodiversity and the identified ecosystem services for the proposed PES scheme.
   6.1. Consolidation of results into a third report

<u>Implementation of the Willingness to Pay Study</u>

7. Task 7: Survey implementation

7.1. Lifting of field information and digitization of database: Implement surveys and collect data with the previously designed and tested survey instruments. The data collected and cleaned will be delivered in an Excel database.
7.2. It will be necessary to be in constant contact with the members of the team that designed the survey in order to make any adjustments in the survey or survey implementation as the data is being collected.

Economic Analysis of Improvement of Water Related Services

8. Task 8: Conduct an economic analysis of the monetary benefit (reduction in costs) to the National Water Commission (NWC) from the hypothesized reduction in sedimentation and change in water quantity (assuming those are part of the ecosystem services identified in Task 1) from the proposed PES scheme. In order to complete this task, it will be necessary to utilize information from the hydrological consultant.
9. Task 9: Complete a report geared for the Kingston water company on the costs savings from the implementation of the PES scheme. Depending on the results from the hydrologist consultancy, it will likely be necessary to provide scenarios of levels of changes in ecosystem services (e.g., 5%, 8%, or 10% reduction in sedimentation associated with different levels of cost savings).

Reports / Deliverables

Design of Willingness to Pay Study

1. First report containing: (i) Identification of the likely changes in ecosystem services as a result of the PES scheme and the populations affected by those changes and (ii) prioritized ecosystem services
2. Final report on focus groups design, fieldwork design and first draft of survey design (second report).
3. Surveys implemented, including surveyors trained and focal groups conducted.
4. Report on the results of the willingness to pay for the biodiversity and ecosystem services that will be affected by the land use changes from the PES scheme (third report).

Implementation of the Willingness to Pay Study

1. Surveys implemented
2. Final database provided to NEPA and consultant(s) that designed surveys

Economic Analysis of Improvement of Water Related Services

1. Report on the costs savings from the implementation of the proposed PES scheme to the National Water Commission

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.

Payment Schedule

- Second Report (Design of Willingness to Pay Study): 30%
- Final database provided to NEPA: 30%

- Report on cost savings to NWC: 40%

Qualifications

- *Academic Degree / Level & Years of Professional Work Experience:* Master's or Doctorate (preferred) in Environmental Economics, Resource Economics, Natural Resource Management, Land Use Planning, Project Management, Environmental Law or related fields. 5 years minimum of relevant professional experience.
- *Languages:* English
- *Areas of Expertise:* **Management and Construction of PES Manual** - Demonstrated experience managing and supervising PES schemes, for a minimum of three PES schemes. In-depth expertise in issues related to PES scheme design such as ecosystem services, environmental economics, hydrology, land use practices, land tenure, institutional and legal arrangements in LAC. **Land Use** - Experience in designing land use change plans for the provision of ecosystem services, including utilizing the opportunity cost of land; work in agriculture with agroforestry and/or forestry systems; and designing agricultural plans that affect hydrological systems. **Land Titling** - demonstrated experience and in-depth expertise in land tenure, government regulations related to land titling, data collection, social investigation, and community based work in LAC. **Design and Implementation of Willingness to Pay Study -** demonstrated experience and in-depth expertise in ecosystem services, watersheds, water services, environmental and natural resources economics in LAC, survey implementation, data collection, social investigation, and community based development in LAC. **Economic Analysis of Improvement of Water Related Services** - demonstrated experience and in-depth expertise in ecosystem services, watersheds, water services, and environmental and natural resources economics in LAC. **Sustainable Financing** - fundraising experience and at least two examples of successfully implemented sustainable financing plans for PES schemes or similar projects (e.g., protected areas).
- *Skills*: Understanding of ecosystem service flows; ability to construct the opportunity cost of various agricultural practices; understanding of biodiversity and ecosystem service changes as a result of various land use types; expertise in the provision of ecosystem services; expertise in agroforestry methods; expertise in forestry; understanding of how land use changes affect hydrology; and experience working in agriculture. Excellent research skills, clear understanding of land tenure in Jamaica, and ability to work with government entities to find solutions to unclear land titles. Expert(s) in survey design and techniques, survey implementation, data analysis and data collection. Superior understanding of the definition and benefits of biodiversity and ecosystem services; ability to think creatively about potential funding sources for a PES scheme; ability to approach and convince potential financial contributors of the benefits to the PES scheme; and ability to develop a plan for multiple funding sources. PES scheme design experience and proven ability to construct a PES operational manual. Previous experience with multilateral institutions and projects is desirable.

Characteristics of the Consultancy

- Consultancy category and modality: Products and External Services Contractual, Lump Sum
- Contract duration: Maximum 24 months
- Place(s) of work: External consultancy
- Division Leader or Coordinator: Will be coordinated under the supervision of RND/CSD and CCB/CJA.

Inter-American Development Bank
VPC/FMP

PROCUREMENT PLAN FOR NON-REIMBURSABLE TECHNICAL COOPERATIONS

Country: Jamaica	**Executing agency:** NEPA	**Public or private sector:** PUBLIC
Project number: JA-T1127	**Title of Project:** Breaking Ground: Jamaica's First PES Scheme	
Period covered by the plan: April 2017 - April 2019		
Threshold for ex-post review of procurements:	**Goods and services (in US$):** 0	**Consulting services(in US$):** 675,000

Item Nº	Ref. AWP	Description (1)	Estimated contract cost (US$)	Procurement Method (2)	Review of procurement (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		**Component 1**								
		Consulting services								
		Consulting service 1 (firm): PES Scheme Management and Design	675,000	SSS	Ex-Ante	44	56	Apr-17		
Total			675,000	Prepared by: Kelsey Schueler			Date: 02/27/2017			

(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 nder 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.

(2) Country system: include selection Method

(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.