

**ECONOMIC VALUATION OF ECOSYSTEM SERVICES IN THE BAY  
OF ASUNCION AND YPACARAI LAKE**

**PR-T1154**

**CERTIFICATION**

I hereby certify that this operation was approved for financing under the Special Program for Biodiversity and Ecosystem Services (BIO), through a communication dated October 30, 2013 sent by Gerhard Lair, (ORP/GCM). Also, I certify that resources from the Program for Biodiversity and Ecosystem Services (BIO) are available for up to US\$250,000 in order to finance the activities described and budgeted in this document. This certification reserves resource for the referenced project for a period of four (4) calendar months counted from the date of eligibility from the funding source. If the project is not approved by the IDB within that period, the reserve of resources will be cancelled, except in the case a new certification is granted. The commitment and disbursement of these resources shall be made only by the Bank in US dollars. The same currency shall be used to stipulate the remuneration and payments to consultants, except in the case of local consultants working in their own borrowing member country who shall have their remuneration defined and paid in the currency of such country. No resources of the Fund shall be made available to cover amounts greater than the amount certified herein above for the implementation of this operation. Amounts greater than the certified amount may arise from commitments on contracts denominated in a currency other than the Fund currency, resulting in currency exchange rate differences, for which the Fund is not at risk.

ORIGINAL FIRMADO

Dec/11/2013

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

\_\_\_\_\_  
Date

**APPROVAL**

Approved: ORIGINAL FIRMADO

Dec/11/2013

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Hector R. Malarin  
Chief  
Environment, Rural Development Disaster  
Risk Management  
INE/RND

\_\_\_\_\_  
Date

## TC DOCUMENT

### I. Basic Information for TC

- Country/Region: PARAGUAY
- TC Name: ECONOMIC VALUATION OF ECOSYSTEM SERVICES IN THE BAY OF ASUNCION AND YPACARAI LAKE
- TC Number: PR-T1154
- Associated Loan/Guarantee Name: PR-L1029
- Team Leader: Alvaro Garcia (RND/CPR); Team Members: Jorge Oyamada (WSA/CPR), Ashley Camhi (INE/RND); Kleber Machado (INE/WSA); Coral Fernandez Illescas (INE/WSA); Elizabeth Chavez (INE/RND); Felipe Capella (LEG/SGO); Mariano Perales (FMP/CPR); and Alberto de Egea (FMP/CPR)
- Operational Support (OS)
- Date of TC Abstract authorization: October 30, 2013
- Donors providing funding: n/a
- Beneficiary: Republic of Paraguay
- Executing Agency and contact name: Bank executed<sup>1</sup>
- IDB Funding Requested: US\$250,000 (Special Program for Biodiversity and Ecosystem Services<sup>2</sup>)
- Local counterpart funding, if any: n/a
- Execution period: 12 months
- Disbursement period (which includes execution period): 18 months
- Required start date: January 2013
- Types of consultants (firm or individual consultants): consultants and firm
- Prepared by Unit: RND/CPR
- Unit of Disbursement Responsibility: RND/CPR
- TC Included in Country Strategy: PR-L1029 included in Country Strategy ; TC included in CPD: n/a
- GCI-9 Sector Priority: Poverty reduction and equity enhancement; climate change, sustainable (including renewable) energy, and environmental sustainability

### II. Objectives and Justification

- 2.1 PR-L1029 “Integral Sanitation Program for the Bay of Asuncion and the Recuperation of Urban Streams,” is a recent loan designed to meet the environmental component of the Coastal Zone Development Plan for Paraguay, currently implemented by the Government, and has the following specific objectives: i) rehabilitation and/or implementation of the systems of pluvial drainage, supply of safe drinking water, collection and disposal of sewage, solid waste and industrial effluents, environmental recovery of streams and health and environmental education of the population; (ii) improving the housing conditions of the population living in areas at risk, through the urban authority, the regularization of land tenure, adequate housing solutions and the implementation of recreational areas; and (iii) strengthening the operational and capacity management of the entities involved in the loan.

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<sup>1</sup> Before the execution of the Operation, the team will present a letter from the Government of Paraguay naming the Bank as the executor.

<sup>2</sup> This TC is requesting funding from the Special Program for Biodiversity and Ecosystem Services after a careful analysis of other sources of financing in the Bank.

- 2.2 The purpose of this TC is to identify and evaluate the environmental economic benefits of the IDB sanitation project, PR-L1029 “Integral Sanitation Program for the Bay of Asuncion and the Recuperation of Urban Streams,” which contributes to the improvement of the sanitation and environmental conditions of the people that live in the watershed of the urban rivers that drain into the Bay of Asuncion and Ypacarai Lake and in and around the bay and lake themselves. This TC will also provide complementary studies to those currently undertaken by the TC “Support to the Integrated Sanitation Program” of the Bay and the Metropolitan Area of Asuncion” (PR-T1143).
- 2.3 The scope of the TC is to conduct a valuation study of prioritized biodiversity and ecosystem services that are affected by the aforementioned loan. The estimation of these economic benefits will be integrated into the economic feasibility assessment of the project. A local environmental NGO will be hired to conduct a biodiversity and ecosystem services diagnostic of the project area, determining which ecosystem services will benefit from the project and selecting those ecosystem services that are likely to generate more economic benefits as an unequivocal result of the project’s implementation. This will include enumeration and prioritization of ecosystem services, existence of biodiversity, and identification of the populations affected by changes in ecosystem services. Environmental economists will be hired to conduct the economic valuation study of the prioritized ecosystems. They will design a survey (surveys if multiple stakeholders are affected) and conduct focal groups with that survey. The local environmental NGO will execute the survey. The environmental economists will use the results from the survey to create a report that will feed into the economic feasibility assessment of the loan.
- 2.4 Ecosystems yield a flow of services (ecosystem services) that are vital to humanity, including the production of goods (e.g., food), life-support processes (e.g., water purification), and life-fulfilling conditions (e.g., recreation opportunities), and the conservation of options (e.g., genetic diversity for future use). Despite its importance, this natural capital is poorly understood, scarcely monitored, and, in many cases, undergoing rapid degradation and depletion<sup>3</sup>. This TC is crucial in demonstrating the economic benefits of the ecosystem services that will be provided by the loan, which are traditionally not valued in economic feasibility analyses. In this respect, the TC is expected to support the justification of loan PR-L1029.
- 2.5 Although this TC is neither specifically mentioned in the Bank’s Country Strategy with Paraguay nor in the Country Programming Document, the Bank’s Country Strategy with Paraguay states that the Bank will continue to support the sanitation sector through projects in preparation and execution, and this TC supports the economic feasibility study of the PR-L1029 loan. A letter of no objection has been signed and received from the Government of Paraguay.
- 2.6 The proposed TC will contribute to the following GCI-9 lending program priority targets: (i) infrastructure for competitiveness and social welfare, as this TC will provide economic

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<sup>3</sup> The Natural Capital Project. <http://www.naturalcapitalproject.org/InVEST.html>

evidence that demonstrates the benefits of the loan; (ii) poverty reduction and equity enhancement, as the TC will support the increase in the coverage and quality of basic services and (ii) climate change, sustainable (including renewable) energy, and environmental sustainability, as the TC will demonstrate the economic value of the biodiversity and ecosystem services for this loan. In addition, the proposed TC will contribute to the sector priority, “Protect the environment, respond to climate change, promote renewable energy, and ensure food security.” Lastly, the proposed TC supports the Biodiversity and Ecosystem Services (BES) Program, as the TC will be one of the first pilots for the BES Program to mainstream the economic value of biodiversity and ecosystem services into the project cycle (per Component 1 of the BES Program).

### **III. Description of activities/components and budget**

3.1 Expected outputs and results are fully consistent with the IDB’s Biodiversity and Ecosystem Services Program<sup>4</sup>.

3.2 The proposed TC project entails the following activities, outputs and results:

#### **1.1. Activity 1. Biodiversity and Ecosystem Services Diagnostic**

3.3 In order to conduct a valuation study of the ecosystem services that are affected by loan PR-L1029, first the ecosystem services need to be identified. A biodiversity and ecosystem services diagnostic will be conducted by a local environmental NGO in order to identify the specific ecosystem services that will be included. It will consist of:

- Definition of the project area (the area that will be affected by loan PR-L1029)
- Identification of ecosystem services benefiting from the project
- Identification of the existence of biodiversity affected by the project
- Mapping of the ecosystem services flows
- Identification of the populations affected by changes in the ecosystem services

#### **1.2. Activity 2. Survey Preparation and Design**

3.4 Once the biodiversity and ecosystem services have been identified, preparation and design of a survey (or surveys) will be conducted by environmental economists. This will consist of:

- Methodology development: Using the information gathered in Activity 1, ecosystems that will be the subject of the study will be prioritized. In addition the most appropriate valuation method for the study will be identified.
- Work strategy: A plan will be developed on how the focal groups will be conducted and the valuation study will be executed
- Survey design: Design of the survey(s) based on information defined from the methodology development and the work strategy

#### **1.3. Activity 3. Survey Implementation**

3.5 Survey implementation will be executed by a firm that specializes in survey implementation and overseen by the environmental economists. This activity will consist of:

- Focal groups on the population(s) identified in Activity 1 conducted by the environmental economists to identify any changes needed in the survey

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<sup>4</sup> <http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=37444118>

- The environmental economists will train the survey implementers (firm)
- Survey(s) will be implemented by the firm, with close communication with the environmental economists to allow for adaptive management of the survey(s)
- Results of the survey(s) will be digitized for use by the environmental economists

#### 1.4. Activity 4. Consolidation of results and integration into economic feasibility analysis

3.6 This activity will be executed by the environmental economists who will:

- Consolidate the results of the survey(s) into a report
- Work with the loan team to integrate the results of the survey(s) in the economic feasibility analysis of the loan

### IV. Indicative Results Matrix

Project Activity	Outputs	Results
<b>General</b>		TC General Outcome: Increased understanding of the role of loan PR-L1029 on the ecosystem services and biodiversity within the project area.
<b>Activity 1. Biodiversity and Ecosystem Services Diagnostic</b>	1. Prioritization of ecosystem services 2. Identification of population benefiting from the loan	<u>Outcome 1:</u> Necessary information obtained to design the survey(s) for the population(s) in the project area
<b>Activity 2. Survey preparation and design</b>	2. Survey	<u>Outcome 2:</u> Survey designed for implementation
<b>Activity 3. Survey Implementation</b>	3. Completed Surveys	<u>Outcome 3:</u> Information gathered to identify how the loan will affect the biodiversity and ecosystem services in the project area
<b>Activity 4. Consolidation of results and integration into economic feasibility analysis</b>	4a. One report 4b. Integration of report into economic feasibility analysis of loan	<u>Outcome 4:</u> Information from Activity 3 integrated into economic feasibility analysis of loan

### V. Indicative Budget

Activity	Description	IDB Funding US\$	Counter -part Funding	Total Funding US\$
<b>Activities</b>				
<b>1. Biodiversity and Ecosystem Services Diagnostic</b>	1a. An assessment that will include ecosystem mapping, enumeration of ecosystem services, prioritization of ecosystem services, existence of biodiversity, and identification of populations benefiting from the project	50,000		50,000
<b>2. Survey preparation and design</b>	2a. Definition of methodology, work strategy, and survey design	50,000		50,000
<b>3. Survey Implementation</b>	3a. Conduct focal groups and pilots 3b. Full implementation of survey	100,000		100,000
<b>4. Consolidation of results and integration into economic feasibility analysis</b>	4a. Report written based on results of survey 4b. Integration of report into economic feasibility analysis of loan	30,000		30,000
<b>5. Travel and miscellaneous expenses</b>		20,000		20,000
<b>TOTAL</b>		<b>US\$250,000</b>		<b>US\$250,000</b>

## **VI. Executing agency and execution structure**

- 6.1 This TC requires highly specialized expertise on environmental economics, survey design, and ecosystem service. The operation must be Bank executed because a single institution outside of the Bank would not be able to supervise this complex operation in a way that would satisfy the needs of the Bank, the country and local stakeholders. The TC capitalizes on the IDB's role to create capacity, serve as a promoter of knowledge and innovation, and impact policy within the region. As a Bank-executed regional operation, the Bank will incorporate lessons learned into IDB lending, operations, and analytical work. This operation addresses the increasing demand from the region for the integration of environmental externalities into the assessment of the Bank's lending portfolio.
- 6.2 The procurement of individual consulting services will be carried out by the IDB in accordance with Human Resources Department (HRD) policies. The procurement of firm consulting services will be carried out by the IDB in accordance with the Policies for the Selection and Contracting of Consultants Financed by the Inter-American Development Bank (GN-2350-9). The procurement of consulting services different from consultants will be carried out by IDB in accordance with Corporate Procurement Policies.
- 6.3 This TC will be executed by the Natural Resources and Disaster Risk Management Division from the Paraguay country office. The BES Program led by INE/RND will provide technical support for the implementation of the TC.

## **VII. Major issues**

- 7.1 Implementation of surveys can be challenging and is considered a risk for this TC. This risk will be mitigated by conducting pilot tests of the survey and focal groups prior to the implementation of the survey. The challenge also exists of putting an economic value on the ecosystem services affected by the loan. This risk will be mitigated by hiring consultants that are reputable in ecosystem service valuation and have experience designing and implementing surveys. In addition, the survey implementation team will be trained by these consultants.

## **VIII. Exceptions to Bank policy – N/A**

## **IX. Environmental and Social Strategy**

- 9.1 It is not anticipated that the activities to be financed in this TC will have negative direct or indirect social or environmental effects. Following ESG's project classification process (Safeguard Policy Filter and Safeguard Screening Form) requirements, it has been determined that this project falls under Category C. No environmental assessment studies or consultations are required for Category "C" operations.

### **Annexes:**

Procurement Plan

Safeguard Screening Form

Terms of Reference

PROCUREMENT PLAN										
Country: Paraguay					Executing agency: IDB-RND/CPR			Public or private sector: PUBLIC		
Project number: PR-T1154					Title of Project: Economic Valuation of Ecosystem Services in the Bay of Asuncion and Ypacarai Lake					
Period covered by the plan: 12 months January 2014 - January 2015)										
Threshold for ex post review of procurements:				Goods and services (in US\$): _____		Consulting services(in US\$): <u>230,000</u>				
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 %			
		<b>Consulting services</b>								
		Consulting service 1: Biodiversity and ecosystem services assessment	50,000	SSS	Ex-Post	100%	0%	Dec-13		
		Consulting service 2: Implementation of surveys	50,000	CQS	Ex-Post	100%	0%	Dec-13		
		Consulting service 3: Survey preparation and design; train surveyors; and consolidation of results	130,000	SSS	Ex-Post	100%	0%	13-Dec		
		Travel and miscellaneous expenses	20,000			100%	0%	Dec-13		
Total			250,000	Prepared by: Ashley Camhi, INE/RND			Date: 11/18/2013			
<p>(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 of 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".</p>										
<p>(2) <b>Goods and works:</b> CB: Competitive bidding; PC: Price comparison; DC: Direct contracting.</p>										
<p>(2) <b>Consulting firms:</b> CQS: Selection Based on the Consultants' Qualifications; QCBS: Quality and cost-based selection; LCS: Least Cost Selection; FBS: Selection under a Fixed Budget; SSS: Single Source Selection; QBS: Quality Based selection.</p>										
<p>(2) <b>Individual consultants:</b> IICQ: International Individual Consultant Selection Based on Qualifications; SSS: Single Source Selection.</p>										
<p>(3) <b>Ex ante/ex post review:</b> 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.</p>										
<p>(4) <b>Technical review:</b> 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.</p>										

## SAFEGUARD SCREENING FORM

PROJECT DETAILS	
IDB Sector	ENVIRONMENT AND NATURAL DISASTERS-BIODIVERSITY AND PROTECTED AREAS CONSERVATION
Type of Operation	Technical Cooperation
Additional Operation Details	
Country	PARAGUAY
Project Status	
Investment Checklist	Infrastructure Water and Sanitation
Team Leader	Garcia Negro, Alvaro (ALVAROG@iadb.org)
Project Title	Economic Valuation of Ecosystem Services in the Bay of Asuncion and Ypacarai Lak
Project Number	PR-T1154
Safeguard Screening Assessor(s)	Camhi, Ashley L. (ashleyc@IADB.ORG)
Assessment Date	2013-10-15

PROJECT CLASSIFICATION SUMMARY		
Project Category: C	Override Rating:	Override Justification:
		Comments:
Conditions/ Recommendations	<ul style="list-style-type: none"> <li>No environmental assessment studies or consultations are required for Category "C" operations.</li> <li>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.).</li> <li>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.</li> </ul>	

SUMMARY OF IMPACTS/RISKS AND POTENTIAL SOLUTIONS	
Identified Impacts/Risks	Potential Solutions

DISASTER RISK SUMMARY	
Disaster Risk Category: Low	
Disaster/	<ul style="list-style-type: none"> <li>No specific Disaster Risk Management is required.</li> </ul>





Recommendations | \_\_\_\_\_

**ASSESSOR DETAILS**

<b>Name of person who completed screening:</b>	Camhi, Ashley L. (ashleyc@IADB.ORG)
<b>Title:</b>	
<b>Date:</b>	2013-10-15

**COMMENTS**

No Comments

**TERMS OF REFERENCE  
PARAGUAY**

**Economic Valuation of Ecosystem Services in the Bay of Asuncion and Ypacarai Lake  
PR-T1154  
Survey Implementation  
Terms of Reference**

**BACKGROUND:**

The Inter-American Development Bank (IDB) is current preparing to finance a loan in Paraguay, (PR-L1029) “Integral Sanitation Program for the Bay of Asuncion and the Recuperation of Urban Streams.” This loan is designed to meet the environmental component of the Coastal Zone Development Plan, currently implemented by the Government, and has the following specific objectives: i) rehabilitation and/or implementation of the systems of pluvial drainage, supply of safe drinking water, collection and disposal of sewage, solid waste and industrial effluents, environmental recovery of streams and health and environmental education of the population; (ii) improving the housing conditions of the population living in areas at risk, through the urban authority, the regularization of land tenure, adequate housing solutions and the implementation of recreational areas; and (iii) strengthening the operational and capacity management of the entities involved in the loan.

The purpose of this project is to identify and evaluate the environmental economic benefits of the IDB sanitation project, PR-L1029 “Integral Sanitation Program for the Bay of Asuncion and the Recuperation of Urban Streams,” which contributes to the improvement of the sanitation and environmental conditions of the people that live in the watershed of the urban rivers that drain into the Bay of Asuncion and Ypacarai Lake, and in the vicinity of the bay and the lake themselves.

The scope of this contract is to implement surveys to the communities within the project area of the loan. The information from these surveys will be used to estimate the environmental economic benefits that will be integrated into the economic feasibility assessment of the loan. A team of environmental economists will be designing the surveys that will be implemented.

**Objectives:**

IDB is seeking a firm to implement surveys that will define the value of the ecosystem services affected by the loan to the communities within the project area. More specifically, the objective of this consultancy is to collect the data necessary to understand the economic benefits from the ecosystem services and biodiversity within the project area as a result of loan PR-L1029.

**Principal Activities:**

Task 1: Survey implementation

- Lifting of field information and digitization of database: The firm will 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.
- It will be necessary to be in constant contact with the environmental economists that designed the survey in order to make any adjustments in the survey or survey implementation as the data is being collected.

**Deliverables:**

- July, 2014 (or six months after the contract is fully executed, whichever is later): Surveys implemented

- August, 2014 (or seven months after the contract is fully executed, whichever is later): Final database provided to IDB and environmental economists

**Payment Schedule:**

The consultancy services will be contracted for a lump-sum and will be paid in the following manner:

- 40% upon signature of the Consultancy Contract
- 60% upon satisfactory delivery of final database

**Coordination:**

Responsibility for coordination of the Consultancy will rest with Alvaro Garcia ([alvarog@iadb.org](mailto:alvarog@iadb.org)) (RND/CPR) with the support of Ashley Camhi ([ashleyc@iadb.org](mailto:ashleyc@iadb.org)) (INE/RND).

**Characteristics of the Consultancy:**

- Category and Consultancy Modality: This is short-term consultancy of a firm
- Contract Duration: 7 months
- Work Location: Paraguay
- Trips: N/A

**Minimum Requirements:**

- Languages: English and Spanish
- Qualifications: Consulting firm with demonstrated experience and in-depth expertise in ecosystem services, survey implementation, data collections, social investigation, and community based development in LAC. This includes aspects related to: (i) economic valuation of ecosystem services, (ii) cost benefit analysis (iii) econometrics, and (iv) economic modeling. Previous experience with multilateral institutions and projects is desirable.
- Expertise required on team: expert(s) in survey implementation; expert(s) in data analysis; and expert(s) in data collection.

**Payments and Condition for Employment:** If the work will be carried out at Headquarters in Washington, D.C., the remuneration shall be determined according to the regulations and criteria of the Bank. Additionally, the Bank can contribute to travel and moving, if applicable. If the candidate is not a citizen or resident of the United States, the Bank will request a G-IV visa to the United States Consulate in the country of origin of the candidate. If the candidate does not get a visa to work in the BID, the contract offer will be rescinded.

**Consanguinity:** Individuals with relatives working for the BID including the fourth degree of consanguinity and the second degree of affinity are not eligible. This includes employees and consultants. Candidates must be citizens of a member country of the Inter-American Development Bank.

**TERMS OF REFERENCE  
PARAGUAY**

**Economic Valuation of Ecosystem Services in the Bay of Asuncion and Ypacarai Lake  
PR-T1154  
Ecosystem Services**

**BACKGROUND:**

The Inter-American Development Bank (IDB) is current preparing to finance a loan in Paraguay, (PR-L1029) “Integral Sanitation Program for the Bay of Asuncion and the Recuperation of Urban Streams.” This loan is designed to meet the environmental component of the Coastal Zone Development Plan, currently implemented by the Government, and has the following specific objectives: i) rehabilitation and/or implementation of the systems of pluvial drainage, supply of safe drinking water, collection and disposal of sewage, solid waste and industrial effluents, environmental recovery of streams and health and environmental education of the population; (ii) improving the housing conditions of the population living in areas at risk, through the urban authority, the regularization of land tenure, adequate housing solutions and the implementation of recreational areas; and (iii) strengthening the operational and capacity management of the entities involved in the loan.

The purpose of this project is to identify and evaluate the environmental economic benefits of the IDB sanitation project, PR-L1029 “Integral Sanitation Program for the Bay of Asuncion and the Recuperation of Urban Streams,” which contributes to the improvement of the sanitation and environmental conditions of the people that live in the watershed of the urban rivers that drain into the Bay of Asuncion and Ypacarai Lake, and in the vicinity of the bay and the lake themselves.

The scope of this project is to conduct a biodiversity and ecosystem services diagnostic for the aforementioned loan. This diagnostic will determine which ecosystem services will benefit from the loan and will select those ecosystem services that are likely to generate more economic benefits as an unequivocal result of the loan’s implementation.

**Objectives:**

IDB is seeking a firm to identify and prioritize which ecosystem services will change as a result of loan PR-L1029 and identify which population(s) will be affected by those changes. This information will be used to feed into a valuation study of the ecosystems affected by loan PR-L1029.

**Principal Activities:**

Task 1: Definition of the project area

- Identify the area that will be affected by the loan
- Identify the ecosystem services that are present within the project area
- Prioritize the ecosystem services that are identified working with local communities and environmental economists, focal groups or community meetings may be required
- Map the potential ecosystem services flows changes
- Identify any biodiversity that will be affected by the loan

Task 2: Definition of the population affected by the changes in ecosystem services

- Utilizing information from Task 1, identify the population(s) that will be affected by the changes in ecosystem services

**Task 3: Work with environmental economists**

- Complete report on the information found in Tasks 1 and 2
- Work with environmental economists to ensure that the information identified can be incorporated into the valuation study of the ecosystem services affected by the loan

**Deliverables:**

- February, 2014 (or one month after the contract is fully executed, whichever is later): Identification of the area and ecosystem services affected by the loan
- March, 2014 (or two months after the contract is fully executed, whichever is later): Identify the likely changes in ecosystem services as a result of the loans and the populations affected by those changes
- April, 2014 (or three months after the contract is fully executed, whichever is later): Prioritize ecosystem services affected and work with environmental economists to incorporate information into valuation methodology  
Report with includes all information found in above deliverables

**Payment Schedule:**

The consultancy services will be contracted for a lump-sum and will be paid in the following manner:

- 20% upon signature of the Consultancy Contract
- 40% upon first draft of outputs
- 40% upon satisfactory delivery of report of deliverables

**Coordination:**

Responsibility for coordination of the Consultancy will rest with Alvaro Garcia ([alvarog@iadb.org](mailto:alvarog@iadb.org)) (RND/CPR) with the support of Ashley Camhi ([ashleyc@iadb.org](mailto:ashleyc@iadb.org)) (INE/RND).

**Characteristics of the Consultancy:**

- Category and Consultancy Modality: This is short-term consultancy for a firm
- Contract Duration: 3 months
- Work Location: Paraguay
- Trips: N/A

**Minimum Requirements:**

- Languages: Spanish and Guarani, English would be a benefit
- Qualifications: Paraguayan environmental non-governmental organization with demonstrated experience and in-depth expertise in ecosystem services, wetlands, green spaces, community engagement, and social interaction. This includes aspects related to: (i) flows of ecosystem services, (ii) engagement of communities, i.e. the ability to conduct group meetings and focal groups, and (iii) geographic information systems. Previous experience with multilateral institutions and projects is desirable.
- Expertise required on team: expert(s) in identification of ecosystem services; expert(s) in social dynamics; and expert(s) in mapping.

**Payments and Condition for Employment:** If the work will be carried out at Headquarters in Washington, D.C., the remuneration shall be determined according to the regulations and criteria of the Bank. Additionally, the Bank can contribute to travel and moving, if applicable. If the candidate is not a citizen or resident of the United States, the Bank will request a G-IV visa to the United States Consulate in the country of origin of the candidate. If the candidate does not get a visa to work in the BID, the contract offer will be rescinded.

**Consanguinity:** Individuals with relatives working for the BID including the fourth degree of consanguinity and the second degree of affinity are not eligible. This includes employees and consultants. Candidates must be citizens of a member country of the Inter-American Development Bank.

**ANEXO A****PARAGUAY****Economic Valuation of Ecosystem Services in the Bay of Asuncion and Ypacarai Lake  
Environmental Economist****TERMS OF REFERENCE****BACKGROUND:**

The Inter-American Development Bank (IDB) is current preparing to finance a loan in Paraguay, (PR-L1029) “Integral Sanitation Program for the Bay of Asuncion and the Recuperation of Urban Streams.” This loan is designed to meet the environmental component of the Coastal Zone Development Plan, currently implemented by the Government, and has the following specific objectives: i) rehabilitation and/or implementation of the systems of pluvial drainage, supply of safe drinking water, collection and disposal of sewage, solid waste and industrial effluents, environmental recovery of streams and health and environmental education of the population; (ii) improving the housing conditions of the population living in areas at risk, through the urban authority, the regularization of land tenure, adequate housing solutions and the implementation of recreational areas; and (iii) strengthening the operational and capacity management of the entities involved in the loan.

The purpose of this project is to identify and evaluate the environmental economic benefits of the IDB sanitation project, PR-L1029 “Integral Sanitation Program for the Bay of Asuncion and the Recuperation of Urban Streams,” which contributes to the improvement of the sanitation and environmental conditions of the people that live in the watershed of the urban rivers that drain into the Bay of Asuncion and Ypacarai Lake, and in the vicinity of the Bay and lake themselves.

The scope of the TC is to conduct a valuation study of prioritized biodiversity and ecosystem services that are affected by the aforementioned loan. The estimation of these economic benefits will be integrated into the economic feasibility assessment of the project.

**Objectives:**

IDB is seeking a consultant to identify and evaluate the environmental economic benefits and implications of an IDB sanitation project in the Bay of Asuncion and Yparacarai Lake, Paraguay. More specifically, the objective of this consultancy is to understand the change of ecosystem services and biodiversity as a result of the completion of works financed by the sanitation project, “Integral Sanitation Program for the Bay of Asuncion and the Recuperation of Urban Streams.”

**Principal Activities:**

Task 1: Survey preparation and design, which will consist of:

- Methodology development: Using the information gathered in Activity 1, where ecosystems that will be the subject of the study will be prioritized. In addition the most appropriate valuation method for the study will be identified.
- Work strategy: A plan will be developed on how the focal groups will be conducted and the valuation study will be executed
- 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 would 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 Activity 1

**Task 2: Survey implementation**

- 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%.
- Conduct focal groups on the population(s) identified in Activity 1 to identify any changes needed in the survey
- Train the survey implementers (firm)
- Implement Pilot Survey: During the implementation, the firm must field test the instrument (at least 40 questionnaires) and test for internal consistency. The number of final questionnaires will depend on the methodology chosen to value benefits (Task 1).

**Task 3: Models' testing and quantification of benefits.**

**Task 4: Consolidation of results and integration into economic feasibility analysis, which will consist of:**

- Consolidate the results of the survey(s) into a report
- Work with the loan team to integrate the results of the survey(s) in the economic feasibility analysis of the loan

**Deliverables:**

- March, 2014 (or two months after the contract is fully executed, whichever is later): Final draft of survey design
- July, 2014 (or six months after the contract is fully executed, whichever is later): Surveys implemented, including surveyors trained and focal groups conducted
- October, 2014 (or nine months after the contract is fully executed, whichever is later): Final draft of report submitted to IDB
- December, 2014 (or eleven months after the contract is fully executed, whichever is later): Report integrated into economic feasibility of the sanitation project

**Payment Schedule:**

The consultancy services will be contracted for a lump-sum and will be paid in the following manner:

- 30% upon signature of the Consultancy Contract
- 30% upon satisfactory delivery of the survey design (Task 1)
- 40% upon satisfactory delivery of final report (Task 3)

**Coordination:**

Responsibility for coordination of the Consultancy will rest with Alvaro Garcia ([alvarog@iadb.org](mailto:alvarog@iadb.org)) (RND/CPR) with the support of Ashley Camhi ([ashleyc@iadb.org](mailto:ashleyc@iadb.org)) (INE/RND).

**Characteristics of the Consultancy:**

- Category and Consultancy Modality: This is short-term consultancy of individual consultants.
- Contract Duration: 12 months
- Work Location: Costa Rica, Chile, Paraguay



- Trips: 4 trips to Paraguay

**Minimum Requirements:**

- Languages: English and Spanish
- Qualifications: Individual consultants with demonstrated experience and in-depth expertise in ecosystem services, wetlands, green spaces, sanitation, and environmental and natural resources economics in LAC. This includes aspects related to: (i) economic valuation of ecosystem services, (ii) cost benefit analysis (iii) econometrics, and (iv) economic modeling. Previous experience with multilateral institutions and projects is desirable.
- Expertise required on team: expert(s) in valuation of ecosystem services; expert(s) in survey design and techniques; and expert(s) in survey implementation.

**Payments and Condition for Employment:** If the work will be carried out at Headquarters in Washington, D.C., the remuneration shall be determined according to the regulations and criteria of the Bank. Additionally, the Bank can contribute to travel and moving, if applicable. If the candidate is not a citizen or resident of the United States, the Bank will request a G-IV visa to the United States Consulate in the country of origin of the candidate. If the candidate does not get a visa to work in the BID, the contract offer will be rescinded.

**Consanguinity:** Individuals with relatives working for the BID including the fourth degree of consanguinity and the second degree of affinity are not eligible. This includes employees and consultants. Candidates must be citizens of a member country of the Inter-American Development Bank.