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Report No: 90164-BZ

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED GRANT

FROM THE GLOBAL ENVIRONMENT FACILITY

IN THE AMOUNT OF US$ 6.0856 MILLION

TO

BELIZE

FOR A

MANAGEMENT AND PROTECTION OF KEY BIODIVERSITY AREAS PROJECT

September 9, 2014

Environment and Natural Resources Global Practice
Caribbean Country Unit
Latin America and the Caribbean Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective June 18, 2014)

Currency Unit	=	Belize Dollar
BZD 1.98	=	USD 1
USD 0.51	=	BZD 1

FISCAL YEAR

January 1 – December 31

ABBREVIATIONS AND ACRONYMS

APAMO	Association of Protected Areas Management Organizations
CBD	Convention on Biological Diversity
CEO	Chief Executive Officer
CNP	Chiquibul National Park
COP	Conference of the Parties
CPS	Country Partnership Strategy
CRFR	Columbia River Forest Reserve
CSFI	Corozal Sustainable Future Initiative
DOE	Department of the Environment
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
EPA	Environmental Protection Act
FCD	Friends for Conservation and Development
FCFR	Freshwater Creek Forest Reserve
FR	Forest Reserve
GEF	Global Environment Facility
GHGs	Greenhouse Gases
GIS	Geographic Information System
GIZ	Gesellschaft für Internationale Zusammenarbeit (German Society for International Cooperation)
GOB	Government of Belize
GPS	Global Positioning System
ICT	Information and Communication Technologies
IEG	Independent Evaluation Group
IPF	Indigenous Peoples Framework
IRPF	Involuntary Resettlement Policy Framework
IUCN	International Union for Conservation of Nature
JSDF	Japan Social Development Fund
KBAs	Key Biodiversity Areas
LULUCF	Land Use, Land Use Change and Forestry
LEGEN	Environmental and International Law Unit
MFFSD	Ministry of Forestry, Fisheries and Sustainable Development
MMFR	Maya Mountain Forest Reserve
MMM	Maya Mountain Massif

MNRA	Ministry of Natural Resources and Agriculture
MTDS	Medium Term Development Strategy
NP	National Park
NBMP	National Biodiversity Monitoring Program
NBSAP	National Biodiversity Strategy and Action Plan
NEAC	National Environmental Assessment Committee
NGO	Non-Governmental Organization
NPAPSP	National Protected Areas Policy and System Plan
NPAP	National Protected Areas Policy
NPAS	National Protected Areas Secretariat
NPASP	National Protected Areas System Plan
NPESAP	National Poverty Elimination Strategy and Action Plan
NTFPs	Non-Timber Forest Products
OP/BP	Operational Policy/Bank Procedure
PAs	Protected Areas
PACT	Protected Areas Conservation Trust
PDO	Project Development Objective
POM	Project Operational Manual
PIAG	Project Implementing Agency Group
PSC	Project Steering Committee
PSP	Permanent Sample Plot
REDD+	Reducing Emissions from Deforestation and Forest Degradation
SBDs	Standard Bidding Documents
SCWS	Spanish Creek Wildlife Sanctuary
SFM	Sustainable Forest Management
SLM	Sustainable Land Management
UNDP	United Nations Development Program
UNESCO	United Nations Education, Science and Culture Organization
UNFCCC	United Nations Framework Convention on Climate Change
VFR	Vaca Forest Reserve
WB	World Bank
WS	Wildlife Sanctuary

Regional Vice President:	Jorge Familiar
Country Director:	Sophie Sirtaine
Senior Global Practice Director:	Paula Caballero
Practice Manager:	Emilia Battaglini (Acting)
Task Team Leader:	Enos E. Esikuri

BELIZE
Management and Protection of Key Biodiversity Areas Project

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PAD DATA SHEET

Belize

Management and Protection of Key Biodiversity Areas Project (P130474)

PROJECT APPRAISAL DOCUMENT

LATIN AMERICA AND CARIBBEAN

Environment and Natural Resources Global Practice

Report No.: PAD327

Basic Information			
Project ID P130474	EA Category B - Partial Assessment	Team Leader Enos E. Esikuri	
Lending Instrument Investment Project Financing	Fragile and/or Capacity Constraints [ ] Financial Intermediaries [ ] Series of Projects [ ]		
Project Implementation Start Date 28-Nov-2014	Project Implementation End Date 30-Sep-2019		
Expected Effectiveness Date 28-Nov-2014	Expected Closing Date 30-Sept- 2019		
Joint IFC No	GEF Focal Area Multi-focal area		
Practice Manager Emilia Battaglini	Senior Global Practice Director Paula Caballero	Country Director Sophie Sirtaine	Regional Vice President Jorge Familiar

Borrower: Belize			
Responsible Agency: Ministry of Forestry, Fisheries, and Sustainable Development			
Contact:	Adele Catzim-Sanchez	Title:	Chief Executive Officer
Telephone No.:	501-822-0810	Email:	ceo@ffsd.gov.bz
Responsible Agency: Protected Areas Conservation Trust			
Contact:	Natalie Rosado	Title:	Agt. Executive Director
Telephone No.:	501-822-3637	Email:	nrosado@pactbelize.org

Project Financing Data(in USD Million)					
[ ]	Loan	[ ]	IDA Grant	[ ]	Guarantee
[ ]	Credit	[X]	Grant	[ ]	Other

Total Project Cost:	9.09	Total Bank Financing:	0.00
Financing Gap:	0.00		

Financing Source	**Amount**
Borrower	3.00
Global Environment Facility (GEF)	6.09
Total	9.09

Expected Disbursements (in USD Million)

Fiscal Year	2015	2016	2017	2018	2019	2020	0000	0000	0000
Annual	0.80	1.20	1.20	1.20	1.20	0.49	0.00	0.00	0.00
Cumulative	0.80	2.00	3.20	4.40	5.60	6.09	0.00	0.00	0.00

Proposed Global Environmental Objective(s)

The Project Development Objective (PDO) is to strengthen natural resource management and biodiversity conservation in Key Biodiversity Areas (KBAs) of Belize.

Components

Component Name	**Cost (USD Millions)**
Component 1: Supporting Forest Protection and Sustainable Forest Management Activities in Key Biodiversity Areas	2.18
Component 2: Promoting Effective Management of Key Biodiversity Areas	2.59
Component 3: Institutional Strengthening and Capacity Building for Enhanced Enforcement of Environmental Regulations	1.00
Component 4: Project Management, Monitoring and Assessment	0.31

Institutional Data

Practice Area / Cross Cutting Solution Area

Environment & Natural Resources

Cross Cutting Areas

[X] Climate Change

[ ] Fragile, Conflict & Violence

[ ] Gender

[ ] Jobs

[ ] Public Private Partnership

Sectors / Climate Change

Sector (Maximum 5 and total % must equal 100)

Major Sector	Sector	%	Adaptation Co-benefits %	Mitigation Co-benefits %

Agriculture, fishing, and forestry	General agriculture, fishing and forestry sector	84	22	17
Public Administration, Law, and Justice	Public administration- Agriculture, fishing and forestry	16	4	3
Total		100		

☐ I certify that there is no Adaptation and Mitigation Climate Change Co-benefits information applicable to this project.

Themes

Theme (Maximum 5 and total % must equal 100)

Major theme	Theme	%
Environment and natural resources management	Environmental policies and institutions	25
Environment and natural resources management	Climate change	25
Environment and natural resources management	Land administration and management	25
Social protection and risk management	Natural disaster management	15
Environment and natural resources management	Other environment and natural resources management	10
Total		100

Compliance

Policy

Does the project depart from the CAS in content or in other significant respects?	Yes [ ]	No [X]
Does the project require any waivers of Bank policies?	Yes [ ]	No [X]
Have these been approved by Bank management?	Yes [ ]	No [X]
Is approval for any policy waiver sought from the Board?	Yes [ ]	No [X]
Does the project meet the Regional criteria for readiness for implementation?	Yes [X]	No [ ]

Safeguard Policies Triggered by the Project	**Yes**	**No**
Environmental Assessment OP/BP 4.01	**X**	
Natural Habitats OP/BP 4.04	**X**	
Forests OP/BP 4.36	**X**	
Pest Management OP 4.09	**X**	
Physical Cultural Resources OP/BP 4.11	**X**	
Indigenous Peoples OP/BP 4.10	**X**	
Involuntary Resettlement OP/BP 4.12	**X**	
Safety of Dams OP/BP 4.37		**X**

Projects on International Waterways OP/BP 7.50		**X**
Projects in Disputed Areas OP/BP 7.60	**X**	

Legal Covenants

Name	Recurrent	Due Date	Frequency
Subsidiary Agreement	**X**	30-Sep-2019	Continuous

Description of Covenant

Summary: The Recipient shall make the proceeds of the Grant available to PACT under the Subsidiary Agreement, under terms and conditions approved by the World Bank, as further described and set forth in Section I.A. of Schedule 2 to the Grant Agreement (GA)

Name	Recurrent	Due Date	Frequency
Implementation Arrangements	**X**	30-Sep-2019	Continuous

Description of Covenant

Summary: The Recipient shall maintain the Project Steering Committee, Technical Advisory Committee, and Project Implementing Agency Group (PIAG), throughout the duration of the Project. The Recipient shall carry out the Project in accordance with the Project Operational Manual (POM). The Recipient shall coordinate with its various agencies and departments required for Project implementation, all as further described and set forth in Section I.B. of Schedule 2 to the GA.

Name	Recurrent	Due Date	Frequency
Sub-Projects	**X**	30-Sep-2019	Continuous

Description of Covenant

Summary: Detailed covenants describing sub-project award, screening, responsibilities and required terms of sub-project implementation agreements, as set forth in Section I.C. of Schedule 2 to the GA

Name	Recurrent	Due Date	Frequency
Environmental and Social Safeguards	**X**	30-Sep-2019	Continuous

Description of Covenant

Summary: Detailed covenants setting forth safeguard requirements for the Project, as set forth in Section I.D of Schedule 2 to the GA

Name	Recurrent	Due Date	Frequency
Annual Work Plan	**X**	30-Sep-2019	Yearly

Description of Covenant

Summary: Covenant requiring the Recipient to prepare an annual work plan not later than February 28th of each year of Project implementation, or such later date as the World Bank shall establish, in accordance with the guidelines detailed in the POM, as further described and set forth in Section I.E of Schedule 2 to the GA

Conditions

Source Of Fund	Name	Type
GEFU	Subsidiary Agreement	Effectiveness

Description of Condition

The Subsidiary Agreement has been executed on behalf of the Recipient and PACT, as set forth in Article V, 5.01 (b) of the GA.

Team Composition

Bank Staff

Name	Title	Specialization	Unit
Enos E. Esikuri	Senior Environmental Specialist	Team Leader	GENDR
Keiko Ashida Tao	Operations Analyst	NRM Specialist	GENDR
Sylvia Michele Diez	Operations Officer	Marine Environment Specialist	GENDR
Julie Rieger/Adam Shayne	Senior Counsel/Lead Counsel	Counsel	LEGLE
Yingwei Wu	Senior Procurement Specialist	Procurement Specialist	GGODR
David I *(Maritza A. Rodriguez De Pichardo – early preparation)*	Sr Financial Management Specialist	Financial Management Specialist	GGODR
Victor Manuel Ordonez Conde	Senior Finance Officer	Finance Officer	CTRLN
Tuuli Johanna Bernardini	Environmental Specialist	Environmental Specialist	GENDR
Kimberly Vilar	Social Development Specialist	Social Development Specialist	GURDR
Victor Bundi Mosoti	Senior Counsel	Counsel	LEGEN

Non Bank Staff

Name	Title	City

Locations

Country	First Administrative Division	Location	Planned	Actual	Comments
Belize	Toledo	Toledo District	**X**		
Belize	Orange Walk	Orange Walk District	**X**		
Belize	Corozal	Corozal District	**X**		
Belize	Cayo	Cayo District	**X**		
Belize	Belize	Belize District	**X**		

I. STRATEGIC CONTEXT

A. Country Context

1. Belize is a small, upper-middle income country with a population of 331,900 and a GDP per capita of US$4,834 (2013)[1]. The country is endowed with the largest barrier reef in the Americas and pristine tropical forests. Although the economy has traditionally been oriented towards agriculture, it has undergone a significant transformation over the last decade resulting from the first commercial oil discovery in 2005 and emergence of the tourism industry[2]. The service sector has become the largest contributor to GDP accounting for 54%, while the agricultural sector accounts for 13% of GDP with exports primarily dominated by the sugar and citrus industries[3].

2. Since gaining independence in 1981, Belize has experienced a peaceful and democratic transition. The governing party, United Democratic Party (UDP), came to power in 2008 and was re-elected in 2012 for a subsequent five-year term, which ensured political stability and continuity for policy priorities. The Government has worked to establish a transparent and accountable government and has taken concrete steps to address governance issues including the passage of the Freedom of Information Act, term limits for elected officials (including the Prime Minister), and empowering the Senate's oversight abilities. After suspending its program for several years due to deteriorating fiscal conditions and fiduciary concerns, the World Bank re-engaged in 2009, through the preparation of the Interim Strategy Note (ISN) 2009-2011[4]. Under this ISN, the Belize Municipal Development Project (BMDP) was approved by the Executive Directors on September 16, 2010. Since the approval of the BMDP and the successful implementation of the ISN, the relationship between the Bank and the Government of Belize (GOB) has improved and there is a clear commitment from the GOB to the lending and technical assistance programs outlined in the World Bank Group Country Partnership Strategy (CPS) FY2012-2015 (Report No. 63504-BZ, discussed by the Executive Directors on September 8, 2011).

3. Fiscal space remains limited in Belize and the public debt trajectory vulnerable to various shocks. The Belizean economy is estimated to have grown by only 0.7% in 2013 mainly because of continued decline in oil production and weak agricultural output, especially sugarcane and citrus. In March 2013, the GOB completed the restructuring of the US$550 million 'Super-Bond', which was issued in the international market in 2007. Over the medium-term, real GDP growth is expected to hover around 2.5% a year as declining oil production would be offset by higher output of other commodity exports, tourism and construction. The authorities' medium-term policy plans would maintain the primary surplus around 1% of GDP, as in 2013, which could lead to significant increases in public debt as a share of GDP, especially if a court decision calls for the payment of compensation to the former owners of the recently nationalized companies. There are risks of economic downturn as additional external vulnerabilities could arise from a protracted period of weak growth in advanced economies or complications with

[1] World Bank Development Indicators 2013.
[2] Total tourist arrivals reached 881,867 in 2013 compared to 216,932 in 2001. Source: Central Bank of Belize, Key Tourism Indicators 2001-2013.
[3] Central Bank of Belize, Economic Indicators 2001-2012.
[4] World Bank, "Interim Strategy Note for Belize", Report No. 47282-BZ, February 4, 2009.

PetroCaribe financing[5]. The authorities have, however, been proactive in developing programs to mitigate the potential impact of these risks[6].

4. Poverty in Belize substantially increased in recent years, in part due to the stagnating economic situation and impact of natural disasters. After a gradual decline in unemployment levels during the past decade, these figures increased drastically from 8% to 16% between 2008 and 2012[7]. During the 2002-2009 period[8], the overall poverty rate increased from 34% to 41%, and extreme poverty increased from 11% to 16%. Rising poverty has affected all districts; for example, poverty rates have more than doubled in the Corozal District, from 26% to 56%[9], and extreme poverty tripled from 6 to 21%[10]. Corozal was also repeatedly impacted by hurricane and flooding, underscoring the population's vulnerability to disasters. As of 2009, income inequality also remains high with a Gini coefficient of 0.42, and the highest rate of economic inequality is concentrated among indigenous Mayan communities.

B. Sectoral and Institutional Context

5. Belize has a very high level of terrestrial[11] and aquatic biodiversity, including more than 150 species of mammals, 540 species of birds, 151 species of amphibians and reptiles, nearly 600 species of freshwater and marine fishes, high numbers of invertebrates, and 3,408 species of vascular plants. Belize's rich terrestrial and marine ecosystems provide important habitat for these species. Much of the terrestrial area of Belize represents a significant portion of the Mesoamerican Biological Corridor, which stretches from Mexico to Panamá. In fact, Belize has the highest forest cover in both Central America and the Caribbean (62% as a percentage of land, 37% of which are primary forests). Belize has two large, unified blocks of intact virgin forest that are likely to be the last strongholds for species that require large, undisturbed areas for their long-term survival. In order to protect this unique forest and outstanding biodiversity, Belize has 103 protected areas (PAs) covering 35.8% of the country's total land area.

6. Although Belize has managed to preserve its forests and outstanding biodiversity to a great extent, the country still faces serious problems that not only threaten the existing natural environment, but also adversely affect the poorer population and the economic growth prospects of the country. Forest cover in Belize has continued to decrease from 72.90% in 1989 to 61.64% in 2012 and is predicted to continue to do so[12]. Main anthropogenic threats to the forests include the expansion of agriculture, housing, and tourism. Also damaging are illegal logging, looting of

[5] *Petrocaribe* is an oil alliance of many Caribbean states with Venezuela to purchase oil on conditions of preferential payment.
[6] International Monetary Fund (IMF), Statement at the Conclusion of the IMF Article IV Consultation Mission to Belize, Press Release No.14/212, May 9, 2014.
[7] International Monetary Fund (IMF) World Economic Outlook Database, April 2014.
[8] The last Country Poverty Assessment is from 2010. Halcrow Group Limited et al, "Government of Belize and Caribbean Development Bank: Country Poverty Assessment Final Report", August 2010.
[9] International Monetary Fund (IMF) World Economic Outlook Database, April 2014.
[10] Halcrow Group Limited et al, "Government of Belize and Caribbean Development Bank: Country Poverty Assessment Final Report", August 2010.
[11] Terrestrial species of global significance occurring in Belize include the jaguar (*Panthera onca*), Yucatan black howler monkey (*Alouatta pigra*), Geoffrey's spider monkey (*Ateles geoffroyi*), Baird's tapir (*Tapirus bairdii*), white-lipped peccary (*Tayassu pecari*), yellow-headed parrot (*Amazona oratrix*), and Mesoamerican river turtle (*Dermatemys mawii*).
[12] Cherrington et al, "Forest Cover and Deforestation in Belize, 2010-2012", August 2012.

archeological sites, hunting, and poaching, in some areas by communities from across the national border. The data shows that PAs in the country have been effective in protecting forests—only 6.4% of overall deforestation occurred within PAs during 2010-2012; the deforestation rate within PAs is 0.25% while outside PAs is 0.84%. However, pressure on PAs is increasingly high in recent years, especially from agricultural expansion which has resulted in the de-reservation of some PAs.

7. Even more threatening to the forests in Belize are natural causes such as wildfires and hurricanes. In addition to the estimated 25,092 ha of cleared lands between 2010 and 2012, another 33,129 ha were estimated to have suffered from fire/hurricane damage during the same period[13]. Belize has been identified as one of the countries that are most vulnerable to the adverse impacts of climate change including more intense and frequent tropical storms and hurricanes, flood damage, and rising sea levels. Like the rest of the Caribbean, Belize has experienced frequent natural disasters of catastrophic proportions[14], and most recently suffered the impact of a Category 1 hurricane (Richard in October 2010), which led to extensive forest area destruction leaving much debris which accumulated and dried up, causing forest fires. Consequently, during the 2011 dry season Belize experienced some of the most extensive forest fires across the country. The short-term impacts of such disasters and the long-term effects of climate change are expected to undermine the resilience of the natural ecosystems and human vulnerability, increasing the urgency of tackling these challenges.

8. Interventions to avoid deforestation and to aid reforestation of degraded forests would significantly enhance the country's potential for climate change mitigation. According to the Second National Communication to the United Nations Framework Convention on Climate Change (UNFCCC)(July 2002), over 91% of the country's emission of greenhouse gases (GHGs) come from Land Use, Land Use Change and Forestry (LULUCF). Further, the National Communication notes that Belize is in a unique position to reduce emissions from deforestation and forest degradation and to increase carbon stocks through enhancement of conservation and sustainable management of forests (REDD+).

9. Loss of forests in deforestation hotspots[15], particularly in key watersheds, leads to loss of ecosystem services. Forests are a valuable asset for Belize and generate a range of important ecosystem services such as protection of water quality, biodiversity habitats, non-timber forest products (NTFPs) for local and indigenous communities, fuel for rural communities, and a large untapped potential for the use of medicinal plants in the pharmaceutical industry. Forests provide soil stabilization, which prevents excessive sedimentation of estuaries and reduces the runoff of nutrients from agriculture to sensitive coral reef and mangrove ecosystems, which greatly impacts the tourism and fisheries sectors, critical foreign exchange earners for Belize (approximately US$260 million and US$25 million respectively in 2011).

[13] Forest damage from fire/hurricane was not included in the estimate of 2012, because deforestation implies land use change. Cherrington et al. 2012. op. cit.

[14] Tropical Storm Arthur (May 2008) caused widespread flooding and extensive damage to infrastructure and the agriculture sector. Hurricanes Keith (2000) and Iris (2001) caused damage reaching 45% and 25% of GDP, respectively. World Bank, "Country Partnership Strategy FY2012-2105", July 2011.

[15] Cherrington et al. 2012, op. cit. and Garcia-Saqui et al. 2011. "Identification of Deforestation and Forest Degradation Drivers in Belize". Belmopan. Belize.

10. Striking a balance between the drivers of economic growth and the pressures they exert on natural resources and the environmental integrity of the country remains a key challenge in Belize. The population growth rate over the past three years in Belize is on average 2.46 %. The rural population continues to be larger than the urban population and it is growing faster (2.85%) than the urban areas. This increase places an undue burden on the country's natural resources. The poorest people and communities in Belize are predominantly rural and their livelihoods depend largely on access to land and natural resources. Furthermore, the highest poverty levels tend to occur in forested areas with the highest (e.g., South and West of Belize) or lowest (e.g., North and East of Belize) levels of biodiversity, thus presenting critical poverty-environment challenges (for example with encroachment and enforcement issues). People in forested areas use the forest resources and can contribute to sustainable forest and natural resource management. However, they need income generating and employment options that are not destructive to the forest. It is therefore important that the Project supports effective and improved management of the environment and natural resources for sustainable livelihoods, contributing to shared prosperity and green growth of Belize.

11. Belize's sector-specific policies and legislation are generally comprehensive and robust, such as the 2009 Water Resources Management Act, the 1992 National Lands Act, and the 1999 Coastal Zone Management Act. However, problems and weaknesses frequently arise from the complications of different jurisdictions and regulations over management of PAs. The National Protected Areas Policy (NPAP) and the National Protected Areas System and Plan (NPASP) define that PAs of Belize are administered and regulated by different laws and enforced by different Government agencies (e.g., Department of the Environment, Forest Department, Fisheries Department, Coastal Zone Management Authority and Institute, Institute of Archaeology, and Lands and Survey Department). The institutions that are directly responsible for the management of Belize's environment and natural resources are underfunded, understaffed, and in many cases lack the capacity to perform their basic functions including monitoring and enforcement. It is evident that the capacity of most PA staff to assess biodiversity and natural resources is a significant limiting factor to the reliability and use of 'self-assessed' data. There are not sufficient historical information of some indicators to be able to gauge current status, or have a limited understanding of some indicator and threats. Historically, environmental civil society organizations (often co-management organizations in PAs) have been very strong in Belize and have played a crucial yet insufficient role in complementing the existing Government capacity to manage PAs and formulate environmental policies. (See Section IV. C. Sustainability)

C. Higher Level Objectives to which the Project Contributes

12. Belize is a signatory to the Convention on Biological Diversity (CBD), ratified on December 30, 1993. At present, management status and effectiveness of PAs in Belize varies from one to the other. In line with priorities identified under the CBD, the proposed Project will support development and implementation of management plans, cataloguing the biophysical environment, supporting monitoring and compliance to improve conservation of natural and cultural resources in the targeted PAs. The Project is fully aligned with *Belize's National Biodiversity Strategy and Action Plan (NBSAP)* submitted to the CBD, which promotes comprehensive use and management of Belize's biological resources and with the 2005 *National Protected Areas System Plan (NPASP)*, which targets the enhanced management of PAs and fulfilling Belize's commitments to the CBD Program of Work on Protected Areas. It is also

aligned with Belize's long-term development plan "*Horizon 2030*" which highlights the central role of sustainable environment and natural resource management in the Belizean economy.

13. Belize is a signatory to the United Nations Framework Convention on Climate Change (UNFCCC), ratified on October 31, 1994. The Project would support the measures identified in the Second National Communication such as the introduction of forest management plans, the promotion of agro-forestry and a REDD program, the restoration of abandoned agricultural lands, the establishment and maintenance of PAs, and the development of a national forest fire response team.

14. The proposed Project is fully consistent with the Biodiversity, Climate Change, and Sustainable Forest Management/REDD+ Strategies under Global Environment Facility fifth replenishment (GEF-5). (See Annex 7)

15. The proposed Project would contribute to achieving the World Bank's twin goals to reduce poverty and promote shared prosperity by directly supporting the livelihoods of the rural poor who depend on ecosystem services and forest resources in Belize and by improving the management of such forest resources. The Project was developed under the current World Bank Group CPS 2012-2015 which focuses on supporting the GOB to achieve "Inclusive and Sustainable Natural Resource-Based Growth and Enhanced Climate Resilience." Specifically, the Project would contribute to the CPS' *Results Area 2: Institutional capacity strengthening for natural resource management and climate change*, and its outcomes "Enhanced effectiveness of the Environmental Impact Assessment (EIA) System" and "Strengthened capacity for compliance monitoring of key agencies responsible for the environment in Belize." It would also contribute to the CPS' *Results Area 3: Investment to strengthen climate resilience*, and its outcomes "Increased ecosystem resilience to climate change impacts" and "Strengthened legal and administrative framework for PAs."

II. PROJECT DEVELOPMENT OBJECTIVES

A. Proposed Development Objective

16. The Project Development Objective (PDO) is to strengthen natural resource management and biodiversity conservation in Key Biodiversity Areas (KBAs) of Belize.

B. Project Beneficiaries

17. **Local Communities:** The direct beneficiaries of the proposed Project include the local population who use the KBAs for hunting, farming, logging, and extraction of non-timber forest products. The primary non-extractive use of the KBAs is for tourism services (tours, bird watching, hiking, caving etc.). The local population would benefit from support for livelihood options that enhance their socio-economic existence and, at the same time, contribute to sustainable natural resource management of KBAs. These direct beneficiaries will be quantified during the implementation through community mobilization workshops in the target areas.

18. **Government Agencies and Co-management NGOs:** The Government departments that are responsible for protection and management of Belize's natural resources would benefit through improvement of capacities for the management of natural resources. The NGOs that assist with the management of PAs and those that engage in the promotion of livelihood activities among communities that utilize PAs with the view to reduce pressures on KBAs should experience improvement in their management capacities and they will serve as conduits through which aspects of the Project would be implemented. Owners and managers of private lands in

KBAs who apply biodiversity-friendly management approaches could utilize the Project to advocate for legal and institutional arrangements that recognize private PAs and integrate them into the PAs system.

19. **Women:** Belize enjoys a very high gender index parity compared to many other countries in the region. The GOB ratified the Convention on the Elimination of all forms of Discrimination Against Women in May 1990. However, because of the important role that women have relative to sustainable use and conservation of biodiversity in Belize, gender considerations would be mainstreamed into community-based activities to be supported under the Project. In addition, CBD guidance on gender would be followed, specifically: (i) COP Decision IX/24 on the approval and endorsement of the CBD Gender plan of Action; and (ii) COP Decision X/19, which amongst other matters invited Parties to consider gender as a core cross-cutting issue in the implementation of biodiversity-related activities.

C. PDO Level Results Indicators

20. The PDO-level Results Indicators are:

a) Forest brought under sustainable forest management plans in targeted area (ha)
b) Areas brought under enhanced biodiversity protection (ha) in the targeted KBAs (as measured by the GEF Management Effectiveness Tracking Tool)
c) People in targeted forests and adjacent communities[16] with increased monetary or non-monetary benefits from forests (#)
d) Government institutions provided with capacity building support to improve management and compliance monitoring of forest resources and environment (#).

III. PROJECT DESCRIPTION

21. To address the challenges described above and based on the principle of site conservation, the proposed Project would support the forest protection, climate mitigation and resilience, sustainable forest management, and biodiversity conservation in targeted areas within the Key Biodiversity Areas (KBAs) in Belize. Site conservation is among the most effective means to reduce biodiversity loss. Therefore, it is critical to identify those sites where unique biodiversity must be conserved. To this end, the concept of KBAs was developed by global practitioners seeking to identify and ultimately ensure that networks of globally important sites are safeguarded. This methodology builds on the identification of species-based conservation targets (through the IUCN Red List) and nests within larger-scale conservation approaches. In 2007, a collaborative effort by the GOB, Belize Tropical Forest Studies, Conservation International, and the Critical Ecosystem Partnership Fund resulted in the definition of the KBAs in Belize based on a Marxan analysis as detailed in the report "Establishing a Baseline to Monitor Species and Key Biodiversity Areas in Belize" (Meerman, 2007). (See Annex 8)

22. Furthermore, the six targeted areas under the Project were chosen out of thirty-two terrestrial PAs within the KBAs through a deliberate and consultative process using criteria such

[16] Based on a collective decision by the participants of the documented consultation exercises held in Belmopan and Toledo in June 2014, the term "adjacent communities" is understood under this project as those communities who have "immediate access to; are geographically proximate; and/or have traditionally used the protected areas for extraction or recreation purposes".

as threats, carbon sequestration potential, management capacity, risk factors, socioeconomic status, and economic values of ecosystem services, in addition to a prioritization of terrestrial areas from the 2012 rationalization exercise for the protected areas system commissioned by the GOB. (See Annex 8) These areas fall within two critical Management Units: the Northern Lowlands and the Maya Mountains Massif. The Project intervention area will cover a total of 215,729 ha, excluding the communities surrounding the PAs that will engage in the Project. Annex 8 presents a detailed description of each PA included in the Project and the key threats facing each area.

23. Climate change mitigation through avoided deforestation and restoration efforts are critical aspects of the Project. The total live carbon in these six sites is estimated at 35,014,108 Mg C. Deforestation rate between 2000 and 2010 varies from 0.2 ha yr^{-1} (Spanish Creek) to 263.2 ha yr^{-1} (Columbia River). The carbon sequestration potential of the targeted PAs under the Project is estimated at 1,316,068 Mg CO_2e. (See Annex 2)

24. Management of forests takes multiple forms within the Project since the six priority areas are all managed in different ways and at different management capacity. Chiquibul NP is co-managed by Friends for Conservation and Development (FCD). The management plan expired in 2013 and is in need of a new plan for the next five years. Spanish Creek WS is co-managed by the Rancho Dolores Environment and Development Company Limited, which has a presence in the park but limited capacity, and there is no management plan to date. Corozal Sustainable Future Initiative (CSFI) has recently become the official co-manager of Freshwater Creek FR. The existing management plan is in need of a thorough update. Vaca Forest Reserve, Columbia River Forest Reserve, and Maya Mountain Forest Reserve have no official co-management entities, hence no management plans. Vaca Forest Reserve has a landscape management strategy.

A. Project Components

25. The Project will finance the following four components:

26. **Component 1: Supporting Forest Protection and Sustainable Forest Management Activities in Key Biodiversity Areas (GEF US$2.1819 million):** In order to mitigate threats to the KBAs, this component will support activities in **(1.1) Forest protection** and **(1.2) Sustainable forest management**, contributing to reduction of emissions from deforestation and degradation and increase in sequestration of CO2. Forest protection will be achieved through (1.1a) Support for the review of Belize's land tenure legislation with a view to identifying potential improvements to such legislation; (1.1b) Support for training required to promote a REDD+ program; and (1.1c) Support for the development and establishment of a fire incidence rapid response team, including through preparation of a work plan and the provision of training and required equipment (such as fire rakes, fire swatters, nomex clothing). Sustainable forest management with local communities in targeted areas will be achieved through (1.2a) Rehabilitation of critical areas of high conservation value through identification, development and implementation of community-based Sub-projects, incorporating climate change mitigation and resiliency measures; (1.2b) Implementation of Sub-projects for sustainable harvesting and marketing of non-timber forest products (such as xate, cohune nut, bay leaf, and popta seeds) and for other community-based forestry opportunities, including, but not limited to, assessment and identification of opportunities for community-based forestry, stakeholder mapping and mobilization, identification of potential products, marketing and product development, training on product development, market analysis and development, and development of business plans; (1.2c) Support for identification and implementation of activities raising awareness on

sustainable forest management; and (1.2d) Support for the development and implementation of sustainable forest management plans, including through assessing existing forestry standards for monitoring and evaluation, existing tools and programs to reduce illegal logging, and for the establishment of an forest information system (FIS) including collection and management of information on change in forest cover, degradation, illegal activities, fire, sustainable forest management, REDD+, and a data sharing protocol with environmental impact assessments and provision of training on such FIS.

27. **Component 2: Promoting Effective Management of Key Biodiversity Areas (KBAs) (GEF US$2.5979 million):** Effective management is critical to mitigate threats to the KBAs. This component will support **(2.1) Improving management of KBAs** and **(2.2) Monitoring and compliance of PAs**. Improving management of KBAs will be achieved through (2.1a) Support for the implementation of the recommendations set forth in the PA Rationalization Exercise, including development of procedures, guidelines, criteria and corresponding regulations for the declaration, re-alignment and de-reservation of PAs and for operationalization of Belize's comprehensive PAs legislation to integrate those PAs which are currently managed under different legislative acts; (2.1b) Support for the development and effective implementation of PA management plans in the targeted Project Sites, including through identification of management needs, development of a geographic information system (GIS) database and application for data management and analysis, provision of natural resource management training and mentoring, and for capacity building of Protected Areas Co-management Organizations; and (2.1c) Support for updating the National Protected Areas System Plan (NPASP) to take into account considerations of climate change mitigation and resilience. Monitoring and compliance activities will be supported through (2.2a) Support for reviewing the legal framework for the protection of biodiversity and forests with a view to identifying potential improvements to such legal framework, including an analysis of, and proposed updates to, Belize's Forest Act and Wildlife Act; (2.2b) Support for implementation of monitoring and compliance in the Project Sites through demarcation of Project Site boundaries, establishment of a compliance and monitoring unit, development and implementation of an operational plan for ensuring compliance with protected status of PAs, provision of training, equipment and transportation for such compliance and monitoring unit; and (2.2c) Support for the development and establishment of a biodiversity monitoring system for KBAs and for increasing biodiversity monitoring capacity, including through support for implementation of the National Biodiversity Monitoring Program in the Project Sites, incorporation of biodiversity information into FIS for the Project Sites, development of biodiversity monitoring guidelines, identification of a biodiversity monitoring field crew, and provision of monitoring tools and training on biodiversity monitoring to stakeholders.

28. **Component 3: Institutional Strengthening and Capacity Building for Enhanced Enforcement of Environmental Regulations (GEF US$1 million):** This component will promote enhanced coordination and provide training among Government agencies charged with environmental management. This is critical for the long-term protection of areas through proper natural resources management, which includes climate change mitigation, and biodiversity conservation. This will be achieved through supporting **(3.1) Increased coordination for balancing environmental management and development,** and **(3.2) Strengthening and improvement of environmental screening tools and processes**. These will be achieved through (3.1a) Support for the establishment of a departmental committee for the promotion of a balance between environmental management and development needs, and (3.1b) Strengthening of

compliance monitoring capacity of staff in the Department of the Environment of the Ministry of Forestry, Fisheries and Sustainable Development (MFFSD) and other key agencies including provision of equipment and training in thematic areas such as compliance monitoring, use of new equipment, site inspection techniques, environmental audits, interpretation of lab analyses, and water quality monitoring. This component will also include (3.2a) Support for the establishment of a standardized environmental impact assessment (EIA) program and protocols for enhanced environmental screening and scoping, including revising Belize's existing EIA program, updating the EIA manual, and mainstreaming the EIA processes into relevant institutions and entities; (3.2b) Support for the improvement of the capacity for decision-making in the EIA process, including through the development and implementation of an information management system for EIAs, the definition of roles and responsibilities of Belize's National Environmental Assessment Committee (NEAC) and other key agencies in the EIA process, an assessment of the EIA process with a view to improving such process with a focus on stakeholder involvement, and the review of, and development of proposed amendments to, Belize's EIA regulations to include other environmental tools and processes; and (3.2c) Provision of training to staff in the MFFSD's Department of the Environment and other key agencies on other environmental management tools, instruments and concepts to enhance the environmental screening and clearance process.

29. **Component 4: Project management, monitoring and assessment (GEF US$305,800):** This component will support the Project Implementing Agency Group (PIAG) to undertake (4.a) project management and implementation support including technical, administrative and fiduciary support and compliance with environmental and social safeguards, and (4.b) monitoring and evaluation, data collection, stakeholder involvement and coordination.

B. Project Financing

30. The Project would be financed by a US$6.0856 million GEF grant and US$3 million in-kind counterpart financing by the GOB. The lending instrument would be an Investment Project Financing. The Project would be supported by parallel financing from complementary investments, including *Marine Conservation and Climate Adaptation Project* (WB/Adaptation Fund, US$6 million), *Promoting Sustainable Natural Resource-based Livelihoods Project* (WB/Japan Social Development Fund, US$3 million), *Climate Resilient Infrastructure Project* (IBRD Loan, US$30 million, some of which will directly support related Project activities).

Table 1: Project Cost and Financing (US$ million)

Project Components	Total Project Cost	GEF Financing	% Financing
1. Supporting Forest Protection and Sustainable Forest Management Activities in Key Biodiversity Areas	2.68	2.18	81
2. Promoting Effective Management of Key Biodiversity Areas	3.10	2.60	84
3. Institutional Strengthening & Capacity Building for Enhanced Enforcement of Environmental Regulations	2.00	1.00	50
4. Project Management, Monitoring and Assessment	1.31	0.31	23
Total Costs			
Total Project Costs	9.09	6.09	67
Front-End Fees	0	0	0
Total Financing Required	**9.09**	**6.09**	67

C. Lessons Learned and Reflected in the Project Design

31. Many lessons from previous projects in Belize and elsewhere are reflected in the design of the proposed Project, for example:

- Fire Management Training must be appropriately designed and delivered to the community participants, considering the education and literacy levels of buffer communities; the hiring of staff from buffer communities builds support and ensures the sustainability of the project; and despite the establishment of processes and procedures to minimize illegal incursions, there will always be some exceptions until alternative livelihoods are provided; (*Towards the Sustainability of Belize Audubon Society (BAS) Managed Protected Areas Project*, BAS). Hence by supporting enterprise formation in targeted buffer communities, the Project would enhance sustainability of conservation investments by lowering degradation pressures on the targeted PAs;

- Projects must use a flexible approach to respond to the evolving circumstances of the country and the progress of other programs and policy initiatives in Belize (*National Capacity Self-Assessment*, UNDP/GEF, 2005); and

- Only one-third of the PA projects designed since 2008 included climate change considerations in project design. Also, the level of community participation in the management of a protected area matters for both environmental outcomes and sustainability (*Managing Forest Resources for Sustainable Development*, Independent Evaluation Group, 2013).

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

32. **The Ministry of Forestry, Fisheries and Sustainable Development (MFFSD)** is responsible for the overall implementation of the proposed Project with the fiduciary assistance of Protected Areas Conservation Trust (PACT). MFFSD houses key units for the implementation of the Project, including National Protected Areas Secretariat (NPAS), Forest Department (FD), and the Department of the Environment (DOE).

33. **The Project Steering Committee (PSC)** will support general Project strategic guidance and implementation oversight. The PSC will be chaired by the Chief Executive Officer (CEO) of the MFFSD, and comprised of CEOs of key Government ministries including the Ministry of Natural Resources and Agriculture, Ministry of Finance and Economic Development (MFED), Ministry of Labor, Local Government, Rural Development and National Emergency Management, and Ministry of Tourism and Culture.

34. **The Technical Advisory Committee (TAC)** will provide general technical guidance for project implementation, including with regard to screening and evaluation of technical aspects of Sub-project proposals, as further set forth in the Project Operational Manual (POM). The TAC is comprised of the Chief Forest Officer, Chief Environmental Officer, Chief Agricultural Officer, the Commissioner of Lands, Head of Climate Change Office, Economist from the MFED, NPAS Program Director, the Executive Director of the Association of Protected Areas Management Organizations (APAMO), and PACT.

35. **Project Implementing Agency Group (PIAG)** within MFFSD would carry out the day-to-day management of the Project, and Sub-projects, including coordination, supervision,

monitoring, quality control, socio-environmental management, and reporting in accordance with the Grant Agreement and the POM. The PIAG will consist of a Project Manager, a Project Officer, staff from NPAS, FD, and DOE, and fiduciary staff of PACT. FD will lead the implementation of Components 1 and 2, DOE for Component 3, and NPAS for Component 4. PACT will be responsible for ensuring sound fiduciary management of the Project's resources. Funds will be transferred to PACT under a Subsidiary Agreement with the Government. No funds will flow directly to the sub-project beneficiaries.

B. Results Monitoring and Evaluation (M&E)

36. The MFFSD will be responsible for the overall monitoring and evaluation (M&E) of the proposed Project through the PIAG. The M&E plan will form a part of the annual work plan of the PIAG. The M&E indicators, targets, data collection methodology, etc. are presented in Annex 1 Results Framework. Monitoring and evaluation of project implementation will be conducted through: (a) activities of the PIAG; (b) semi-annual progress reviews by the PSC and the TAC; (c) progress reviews during World Bank supervision missions; (d) mid-term review of project implementation; and (e) terminal evaluation to be conducted jointly by the MFFSD/PIAG, the PSC, and the TAC. The Implementation Completion and Results Report (ICR) will be prepared within six months after closing of the Grant based on, among other things, the terminal evaluation report prepared by the Government.

C. Sustainability

37. The sustainability of the proposed Project is expected to be high because the Project will address the core of the development challenge that Belize is facing. There is a strong sense of ownership that has been built among multiple governmental and non-governmental entities, including local communities who have been involved in the design of the Project activities through robust consultations. The Project will promote strong coordination among various departments/agencies through the PSC. Thus, the Project would strengthen the capacity of the Government while providing support to local communities and co-management organizations.

38. In addition, there is a strong connection between key Government agencies, particularly the Forestry Department, and the co-management organizations that manage the targeted priority sites. This unique conservation framework in Belize called co-management of PAs would be beneficial for the institutional and financial sustainability of the Project outcomes. It would help to address the issues of inadequate capacity, personnel, and financial resources of the Government to manage the extensive PAs. In general, co-management of PAs is the shared responsibility between the GOB and a local community unit or NGO in the management of a PA by members living on, near or adjacent to it. The Project will involve the APAMO to reflect the lessons from co-management organizations into the project implementation.

39. The Project is developed in line with the World Bank/Belize CPS and complementary to various projects under the CPS. Thus, outcomes from the Project have more sustainability potential. Also, the GOB is committed to improve the macro-fiscal environment, particularly through sound debt management and financial sector reform. In this context, the Project will focus on site-specific, bottom-up measures for long-term sustainability of biodiversity, climate change, and forest management by supporting activities that potentially bear rents that could be captured from activities related to REDD+ in the future. These Project interventions would be assessed and replicated or scaled up where possible in future projects.

V. KEY RISKS AND MITIGATION MEASURES

A. Risk Ratings Summary Table

Stakeholder Risk	Low
Implementing Agency Risk	
- Capacity	Moderate
- Governance	Moderate
Project Risk	
- Design	Moderate
- Social and Environmental	High
- Program and Donor	Low
- Delivery Monitoring and Sustainability	Moderate
Overall Implementation Risk	Moderate

B. Overall Risk Rating Explanation

40. The overall risk rating is moderate. Aside from for the possibility of the proposed development of management plans for the targeted Protected Areas (PAs) inadvertently affecting the security of Mayan communities' land tenure, no substantial risks have been identified. Social safeguard instruments are in place to ensure that potential impacts are appropriately addressed. Risk management measures include the development of management plans for the target PAs requiring free, prior and informed consultation leading to broad community support. Best practice grievance redress mechanism has been adopted and incorporated in the safeguard instruments. (See Annex 4)

VI. APPRAISAL SUMMARY

A. Economic and Financial Analyses

41. The benefits from the proposed Project are wide ranging but result primarily from decreased deforestation and illegal wildlife harvesting through reduced illegal trespass for hunting or land clearing, protection of KBA forest resources through fire protection, and restoration of degraded sites through reforestation. The Project cost equals to a total of US$6,085,600. Assuming these are in present value terms, the proposed Project has positive net benefits even in different discount rates and time horizon case (e.g., US$49,249,398 for 10 year time horizon and discount rate of 10%). The benefit break-even point is considerably lower than the estimated benefits. For example, even if estimated benefits were 50% lower than currently estimated, the net benefits from undertaking the Project would be positive. This is largely because of the high value of standing primary forests for biodiversity, forest, wildlife, livelihoods, and income.

42. The Project's cost effectiveness analysis can be undertaken by estimating what Belize would have to spend in order to achieve the same protection as the Project. A way to do this is to assume that Belize would have to purchase credits for deforestation that occurs without the Project (a total of 12,430 ha for the 10 year time horizon, and 24,858 ha for the 20 year time horizon), and then assume that credits could be purchased to capture carbon emissions and biodiversity benefits. Taking the conservative mid-range of these values from the analysis, it can be assumed that Belize would need to spend US$1,000 per hectare to offset the damage from not having the Project. Using this figure, and assuming that the cost is paid now at year zero, the total costs from this alternative action are US$12,430,000 for the 10-year time horizon, and

US$24,858,000 for the 20-year time horizon. Given that the Project's net benefits are high, the alternative cost project is not as efficient as the Project. (See Annex 6)

B. Technical

43. Site conservation is globally recognized as among the most effective means to reduce biodiversity loss. Within the KBAs, 6 priority sites have been selected for the proposed Project based on criteria related to biodiversity, climate change, and sustainable forest management.

44. Co-management of PAs and involvement of local communities is a critical aspect of the Project. Belize has been a successful model for the Region with regards to the Forestry Department working with co-management organizations and local communities. The expansion and strengthening of this model within the PAs system of Belize are key to the sustainability of the system itself and the mitigation of threats to these areas, which is the main objective of the Project.

C. Financial Management

45. The financial management (FM) functions for this Project will be solely handled by the PACT, acting as the fiduciary agent on behalf of the Recipient. No funds will flow to the sub-project beneficiaries. The FM inherent and control residual risks are moderate once PACT, with Bank's support, completes a time-bound action plan to mitigate risks. The World Bank has assisted in the drafting of an FM Chapter in the POM. Periodic desk reviews and comprehensive risk based on-site FM implementation support will be conducted with a GAC approach, being alert on FM red flags, highlighting areas for improvements, and providing support to have all instances expeditiously resolved and closed. (See Annex 3)

D. Procurement

46. An assessment under Procurement Risk Assessment and Management System (PRAMs) was conducted on PACT as the sole fiduciary agency to implement procurement actions for the proposed Project. The overall Project risk for procurement is rated as moderate based on the proposed mitigation arrangement for procurement implementation. Procurement for the Project would be carried out in accordance with the World Bank's "Guidelines: Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers" dated January 2011, revised July 2014, and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated January 2011, revised July 2014, and the provisions stipulated in the Grant Agreement. Various items under different expenditure categories are described generally in Annex 3. For each contract to be financed by the Grant, the different procurement methods or consultant selection methods, the need for prequalification, estimated costs, prior review requirements, and time frame are agreed between the Grant Recipient and the World Bank in the Procurement Plan (PP). The PP will be updated at least annually or as required to reflect the actual Project implementation needs and improvements in institutional capacity. The procurement procedures and standard bidding documents (SBDs) to be used for each procurement method, as well as model contracts are posted on the web site worldbank.org. (See Annex 3)

E. Social (including Safeguards)

47. The GOB has prepared an Indigenous Peoples Framework (IPF, i.e. Culturally Appropriate Consultation and Participation Protocol), Involuntary Resettlement Policy Framework (IRPF), and Livelihood Restoration Process Framework to address the project's

social safeguard risks according to the Bank's operational policies. Earlier version of the social safeguard instruments was disclosed on October 18, 2013, which was then updated and re-consulted in June 2014 and redisclosed in country on August 1, 2014 and on the World Bank's web site on August 4, 2014. A comprehensive set of consultations were held in country with representatives of all project stakeholders, in various locations, during project preparation. (See Annex 3 for details)

48. **Indigenous Peoples OP/BP 4.10.** The indigenous peoples of Belize who may be impacted by the Project are select Maya Mopan, Maya Kekchi and Maya Yucatec communities mostly in the Toledo District and, to a certain extent, in Cayo. Other ethnicities that could be impacted are the Creoles, Mestizos, and Mennonites. An IPF was prepared and disclosed, in order to establish the guidelines for consulting and engaging with Project-affected communities and preparing Indigenous Peoples Plans during implementation. The Project acknowledges that there are disputes around land rights between the Government of Belize and Mayan communities in the Toledo District, where Project activities could be undertaken, as evidenced by court cases up to the Belizean Supreme Court level and appealed at the Caribbean Court of Justice. This is the existing context in which the Project was designed. The various consultations with stakeholders have not indicated that the land case would be an impediment to the achievement of Project objectives. Moreover, in order to mitigate any potential adverse impacts of project activities to Mayan communities, the IPF has explicitly stated that *free, prior and informed consultation leading to broad community support* is required for the management plans that will affect the Mayan communities, as well as for the Indigenous Peoples Plans to be prepared during implementation.

49. **Involuntary Resettlement OP/BP 4.12**. Improved management of the KBAs support by the project may restrict access to targeted PAs, potentially affecting traditional users' utilization of resources causing them to experience involuntary changes in their livelihood strategies. The project recognizes this potential adverse impact and has made provisions to restore and diversify livelihood strategies that reduce pressures on the biodiversity of KBAs. These provisions consist of the financing of Sub-projects described in Component 1.2(b) to be guided by the Livelihood Restoration Process Framework, prepared by the GOB according to OP 4.12. In addition to the Livelihood Restoration Process Framework, the GOB also prepared, consulted and disclosed an Involuntary Resettlement Policy Framework (IRPF), in accordance with OP 4.12. As neither land acquisition nor resettlement is foreseen as a result of direct project activities, the IRPF was prepared as a precautionary measure.

50. The following table summarizes the Safeguard Policies that have and have not been triggered by the Project.

Safeguard policies triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	X	
Natural Habitats OP/BP 4.04	X	
Forests OP/BP 4.36	X	
Pest Management OP 4.09	X	
Physical Cultural Resources OP/BP 4.11	X	
Indigenous Peoples OP/BP 4.10	X	
Involuntary Resettlement OP/BP 4.12	X	

Dam Safety OP/BP 4.37		X
International Waters OP/BP 7.50		X
Projects in Disputed Areas OP/BP 7.60	X	

F. Environment (including Safeguards)

51. The Project is classified as Category B and its main expected environmental impacts are positive. The Project applies an integrated socio-environmental approach to sustainable natural resource management and biodiversity conservation through the Project activities to improve the livelihoods of local communities surrounding the target PAs. Socio-environmental management of Project activities is required due to potential adverse environmental impacts on human populations or environmentally sensitive areas. However, the same will be readily mitigated as they are likely to be site-specific and reversible. The exact location and nature of small investments to be financed under the Project will only be determined through a demand-driven process during implementation. Hence, an Environmental Management Framework (EMF) has been prepared by the GOB to conform to the environmental safeguard policies and the applicable national regulations. The impacts related to each of the environmental safeguards policies that have been triggered (OPs 4.01, 4.04, 4.36, 4.09, and 4.11) have been addressed in the EMF. (See Annex 3) The final EMF was disclosed in country on August 1, 2014 and on the World Bank's web site on August 4, 2014.

G. Others (including Safeguards)

52. **Projects under Disputed Areas OP/BP 7.60.** This policy is applicable to the proposed Project because of the longstanding territorial dispute between Belize and Guatemala. Some of the six geographical areas that have been identified and prioritized for the proposed activities under the Project fall within the general area known to be in dispute. The proposed Project does not prejudice the position of either the Bank or the two countries involved. It is emphasized that by supporting the Project, the World Bank does not intend to make any judgment on the legal or other status of the territories concerned or to prejudice the final determination of the parties' claims. In line with OP/BP 7.60, the World Bank has ensured compliance with the requirements of the policy. The Bank has determined that given that the Project activities entail capacity building and small-scale community driven sustainable forest management practices and improvements to the management of protected areas, the Project is not harmful to the territorial interests of Guatemala.

Annex 1: Results Framework and Monitoring

BELIZE: Management and Protection of Key Biodiversity Areas Project

PDO/Global Environmental Objective (GEO): The PDO/GEO is to strengthen natural resource management and biodiversity conservation in Key Biodiversity Areas (KBAs) of Belize.

PDO Level Results Indicators*	Core	Unit of Measure	Baseline	Cumulative Target Values**					Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description (indicator definition, etc.)
				YR 1	YR 2	YR3	YR 4	YR5				
Indicator 1: Forest brought under sustainable forest management plans in targeted area (ha)	☒	Ha	0	13,370	29,737	46,584	96,584	106,557	Annual	Long-term forest licenses, Sustainable Forest Management Plans, Annual Plan of Operations (for licensees)	MFFSD	SFM pertains only to Forest Reserves: FCFR, VFR, MMFR, and CRFR. Indicator measures the forest land area brought under management plans through the Project and includes production and protection forests
Indicator 2: Areas brought under enhanced biodiversity protection (ha) in the targeted KBAs (as measured by the GEF Management Effectiveness Tracking Tool)	☒	% increase in METT Score	0 since almost all sites score below 35%: FCFR: 22 SCWS: 22 VFR: 26 CNP: 27 MMFR: 22 CRFR: 44			FCFR: 30% SCWS: 30% VFR: 30% CNP: 30% MMFR: 30% CRFR: 25%		FCFR:60% SCWS: 60% VFR: 60% CNP: 60% MMFR: 60% CRFR: 60%	Mid and End of Project	Mid-term evaluation, Completion evaluation	MFFSD	Indicator will measure establishment and or improving existing management system for the targeted PAs. METT score will be obtained for each PA.
Indicator 3: People in targeted forests and adjacent communities with increased monetary or non-monetary benefits from forests (#)	☒	# of peoples with increased benefits disaggregated by gender and ethnicity	0	Baseline survey	+20%	+30%	+40%	+50%	Annual	Surveys	MFFSD	Indicator will measure extent to which local people see improved livelihood due to the Project. Surveys will be conducted as part of monitoring plan.
Indicator 4: Government institutions provided with capacity building support to improve management and compliance monitoring of forest resources and environment (#)	☒	# of national or sub-national institutions	0	1	2	3	4	4	Annual	Training reports; annual work plans for the Project	MFFSD	Indicator refers to the number of national or sub-national institutions (e.g. DOE, FD, etc.) that receive capacity building through the Project

												including training of officials, support to operations, information management, investments in physical infrastructure or other facilities.
INTERMEDIATE RESULTS												
Intermediate Result (Component 1: Supporting Forest Protection and Sustainable Forest Management Activities in Key Biodiversity Areas):												
Intermediate Result Indicator 1.1: Review of the land tenure legislation that requires to clear forested land	☒	Yes/No	0			Final draft Amendment	Submission to Lands & Survey Department		Annually	Forest Department's submission	Lands & Survey Dep., MNRA	
Intermediate Result Indicator 1.2: At least 50 people trained and equipped in monitoring, compliance and forest fire reduction techniques	☒	# of people	0	20	30	40	50		Annually at the beginning of fire season	Trainings undertaken	MFFSD	
Intermediate Result Indicator 1.3: High conservation value areas rehabilitated via community-based activities	☒	Hectares	0	400	1200	2000	2800	3425	Annually	On the ground verification	MFFSD	
Intermediate Result Indicator 1.4: Men and women engaged in Sub-projects supporting sustainable harvesting and marketing of NTFPs in target areas	☐	# of people participating in activities disaggregated by gender and ethnicity	0	Baseline survey	+10%	+30%	+40%	+50%	Annually	Sub-project reports	MFFSD	
Intermediate Result Indicator 1.5: Four (4) forest management plans developed and implemented in the targeted forests	☒	# of plans developed and implemented	0	1	2	3	4		Annually	Plans developed and under implementa-tion	MFFSD	
Intermediate Result Indicator 1.6: 2.5 M Mg CO2e due to avoided emissions and/or increased sequestration	☐	Tons of CO2e avoided emissions and ton C sequestered	0	0.5 M	1 M	1.5M	2.0 M	2.5 M	Annually	On the ground verification using 28 Permanent Sample Plots; Forest Information System	MFFSD	
Intermediate Result (Component 2: Promoting Effective Management of Key Biodiversity Areas (KBAs):												
Intermediate Result Indicator 2.1: Establishment of clear	☐	Yes/No	0		First draft		Final draft regulations		End of Project	Submission to Parliamentary	MFFSD	

procedures and criteria for the declaration, re-alignment and de-reservation of PAs										procedures		
Intermediate Result Indicator 2.2: Six (6) PA management plans developed and implemented in the targeted areas	☐	# of plans developed and implemented	0	1	2	4	6		Annually	Annual reports	MFFSD	Management plans, resources and capacities available in targeted sites beyond the minimal level to achieve the areas' biodiversity protection goals
Intermediate Result Indicator 2.3: The 2005 NPASP updated to incorporate climate change mitigation and resiliency measures	☐	Yes/No	0		Updated NPASP	Submission for endorse-ment by relevant authority			End of Project	National endorsement procedures	MFFSD	
Intermediate Result Indicator 2.4: Increased sightings of target indicator species FCFR: White-lipped peccary SCWS: Central American River Turtle VFR: White lipped peccary CNP: Scarlet macaw MMFR: White-lipped peccary CRFR: White lipped peccary	☐	% of sighting increased	FCRF: tbd SCWS: tbd VFR: tbd CNP: 200 MMFR:tbd CFRF: tbd		5%	10% 10% 10% 15% 10% 10%		20% 25% 20% 25% 20% 20%	Annually	Biodiversity Monitoring Activities	MFFSD	
Intermediate Result (Component 3: Institutional Strengthening & Capacity Building for Enhanced Enforcement of Environmental Regulations)												
Intermediate Result Indicator 3.1: 20 staff in key agencies trained and equipped with better assessment and compliance monitoring tools and capacities	☒	# of staff trained	0	4	8	12	16	20	Annually	DOE, annual reports	MFFSD	
Intermediate Result Indicator 3.2: The EIA Program revised and the EIA Manual updated and endorsed	☐	Yes/No	0		The EIA Program revised	The EIA Manual updated and endorsed			Annually	DOE, annual reports	MFFSD	

Annex 2: Detailed Project Description

BELIZE: Management and Protection of Key Biodiversity Areas Project

A. Proposed Development Objective

1. The objective of the proposed Project is to strengthen natural resource management and biodiversity conservation in Key Biodiversity Areas (KBAs) of Belize. The proposed Project would achieve this by (i) supporting forest protection and sustainable forest management activities in KBAs, including training required to promote a REDD+ program to incentivize private land protection, developing a fire incidence rapid response team, rehabilitation of critical areas of high conservation value by local communities, and community-based sustainable use of ecosystem goods and services; (ii) promoting effective management of KBAs, including development and implementation of management plans in the targeted PAs, and improving legal framework for the protection of biodiversity and forests; and (iii) institutional strengthening and capacity building for enhanced enforcement of environmental regulations, including increased coordination for balancing environmental management and development, and improving environmental screening tools and processes.

2. The six targeted areas, out of thirty-two terrestrial PAs within the KBAs, were chosen for the Project through a deliberate and consultative process using criteria such as deforestation threats, carbon sequestration potential, management capacity, risk factors, socioeconomic status, and economic values of ecosystem services, in addition to a prioritization of terrestrial areas from the 2012 rationalization exercise for the protected areas system commissioned by the GOB. These areas fall within two critical Management Units: the Northern Lowlands and the Maya Mountains Massif. The Project intervention area will cover a total of 215,729 ha, excluding the communities surrounding the PAs that will engage in the Project.

Table 2: Selected Priority Sites for the Project

Name	KBA	Area (ha)	Key Terrestrial Species
Freshwater Creek FR	Northern Lowlands	13,370	Central American river turtle (CR), yellow-headed parrot, Yucatan black howler monkey, Central American spider monkey, Baird's tapir (EN)
Spanish Creek WS	Northern Lowlands	2,387	Central American River Turtle (CR), Agami Heron, Muscovy Duck
Vaca FR	Maya Mountains Massif	16,367	Scarlet macaw, Baird's tapir (EN)
Chiquibul NP	Maya Mountains Massif	106,785	Morelet's treefrog (CR), jaguar, scarlet macaws (EN)
Maya Mountain FR	Maya Mountains Massif	16,847	Scarlet macaw (EN), white-lipped peccary, ornate hawk-eagle
Columbia River FR	Maya Mountains Massif	59,973	Morelet's treefrog (CR), Keel-billed Motmot (VU),

CR: Critically Endangered; EN: Endangered; VU: vulnerable

3. Climate change mitigation through avoided deforestation and restoration efforts are critical aspects of the Project. The estimated total live carbon, deforestation rates, and the carbon sequestration potential of the targeted PAs are summarized listed in Tables 3a, 3b, and 4.

Table 3a: Estimated carbon stocks of the priority sites

Protected Area	Hectares	Mean Live AGC (Mg C ha^{-1})†	Live BGC (Mg C ha^{-1})‡	Total Live C (Mg C ha^{-1})	Estimated Total Live C (Mg C)
Freshwater Creek Forest Reserve	13,369.8	87.5 ±3.7	18.0	105.5	1,410,513.9
Spanish Creek Wildlife Sanctuary	2,386.9	110.2 ±3.5	22.1	132.3	315,786.8
Vaca Forest Reserve	16,366.7	118.5 ±2.1	23.6	142.1	2,325,708.1
Chiquibul National Park	106,785.1	143.8 ±0.4	27.9	171.7	18,335,001.7
Maya Mountain Forest Reserve	16,847.3	136.5 ±1.9	26.7	163.2	2,749,479.4

Columbia River Forest Reserve	59,973.4	137.8 ±0.8	26.9	164.7	9,877,618.9
Total	**215,729.4**				**35,014,108.8**

†Mean Live AGC (Above-ground carbon) estimated using the 500 m resolution global carbon map dataset of Baccini *et al*. (2012), the most precise representations of above-ground carbon stocks at small scales, such as Belize. Mean AGC calculated as the arithmetic mean of values (Mg C ha^{-1}) of all raster cells falling within a given protected area, and includes all vegetation types. Values after the ± symbol are 95% CI of the mean.

‡Live BGC (Below-ground carbon) of tree roots estimated using the regression model developed by Cairns *et al.* (1997): Live BGC =exp (-1.0587 + 0.8836 *ln AGC).

Table 3b: Deforestation rates in target Project sites and carbon stocks that are threatened

Name	Total Area (ha)	Principal Habitat Type	Primary Deforestation Threat	Rate of Deforestation 2000-2010 (ha yr^{-1})†	Expected Deforestation 2013-2020 (ha)	Expected Live C Loss by 2020 (Mg)‡
Freshwater Creek Forest Reserve	13,369.8	Tropical Broad-leaf Forest	Encroachment for agriculture	7.5 ha yr^{-1} (<0.1 % yr^{-1})	52.8	5,573
Spanish Creek Wildlife Sanctuary	2,386.9	Tropical Broad-leaf Forest	Encroachment for agriculture	0.2 ha yr^{-1} (<0.1 % yr^{-1})	1.3	168
Vaca Forest Reserve	16,366.7	Tropical Broad-leaf Forest	Encroachment for agriculture	18.8 ha yr^{-1} (0.1 % yr^{-1})	131.3	18,657
Chiquibul National Park	106,785.1	Tropical Broad-leaf Forest	Encroachment for agriculture	33.6 ha yr^{-1} (<0.1 % yr^{-1})	235.6	40,472
Maya Mountain Forest Reserve	16,847.3	Tropical Broad-leaf Forest	Encroachment for agriculture	68.4 ha yr^{-1} (0.4 % yr^{-1})	478.8	78,136
Columbia River Forest Reserve	59,973.4	Tropical Broad-leaf Forest	Encroachment for agriculture	263.2 ha yr^{-1} (0.4 % yr^{-1})	1,842.2	303,505
Total	**215,729.4**				**2,741.9**	**446,511**

Table 4: Estimated CO2e achievable under the Project from avoided emissions/increased sequestration

Name	Primary Project Interventions (Activity number)	Expected Live CO2e Emissions Prevented/ Sequestration Achieved by 2020 (%)‡	Expected Live CO2e Emissions Prevented by 2020 (Mg)	Expected Live CO2e sequestered through rehabilitation by 2020 (Mg)‡‡
Freshwater Creek Forest Reserve	• Fire suppression (1.1c) • Rehabilitation of critical areas (1.2a) • Patrol in the PAs (2.2b)	90% 76% 100%	6,093 -- 20,436	302,210
Spanish Creek Wildlife Sanctuary	• Fire suppression (comp. 1.1c) • Rehabilitation of critical areas (1.2a) • Patrol in the PAs (2.2b)	90% 100%† 100%	3,669 -- 616	22
Vaca Forest Reserve	• Fire suppression (1.1c) • Rehabilitation of critical areas (1.2a) • Alternative livelihoods (NTFPs) (1.2b) • Patrol in the PAs (2.2b)	70% 53% 40% 30%	29,363 -- 27,366 20,524	420,201
Chiquibul National Park	• Fire suppression (1.1c) • Rehabilitation of critical areas (1.2a) • Alternative livelihoods (NTFPs) (1.2b) • Patrol in the PAs (2.2b)	50% 34% 30% 20%	26,444 -- 44,523 29,682	76,464
Maya Mountain Forest Reserve	• Fire suppression (1.1c) • Rehabilitation of critical areas (1.2a) • Alternative livelihoods (NTFPs) (1.2b) • Patrol in the PAs (2.2b)	50% 68% 50% 30%	5,236 -- 143,262 85,957	12,805
Columbia River Forest Reserve	• Fire suppression (1.1c) • Rehabilitation of critical areas (1.2a) • Patrol in the PAs (2.2b)	50% 28% 60%	41,220 -- 667,772	504,366
Total			**1,152,163**	**1,316,068**

‡Figures approximated as the relative contribution of the given Project intervention (through various subcomponents) to achieving CO2e. Where there is more than one intervention which contributes to achieving CO2e loss prevention, the contribution is relative and therefore can be added together to estimate total CO2e achieved. For example, both alternative livelihoods (subcomponent

1.2b) and patrol in PAs (subcomponent 2.2b) contribute to achieving a reduction in deforestation, the total of the two thus represents the total deforestation to be prevented under the Project.
†Values are calculated as: (rehabilitation target/total area)×100, and are averaged where there are more than one rehabilitation targets.
‡‡Values are totals for each protected area (KBAs with Ecosystem Type and area for each type along with target area for rehabilitation), after conversion to CO2e.

4. Management of forests takes multiple forms within the Project since the six priority areas are all managed in different ways and at different management capacity. Chiquibul NP is co-managed by Friends for Conservation and Development (FCD). Its management plan will expire in 2013 and is in need of a new plan for the next five years. Spanish Creek WS is co-managed by the Rancho Dolores Environment and Development Company Limited, which has a presence in the park but limited capacity, and there is no management plan to date. Corozal Sustainable Future Initiative (CSFI) has recently become the official co-manager of Freshwater Creek FR. The existing management plan is in need of a thorough update. Vaca Forest Reserve, Columbia River Forest Reserve, and Maya Mountain Forest Reserve have no official co-management entities, hence no management plans. Vaca Forest Reserve has a landscape management strategy.

B. Project Components

5. The Project will finance the following components:

Component 1: Supporting Forest Protection and Sustainable Forest Management Activities in Key Biodiversity Areas (GEF US$2.1819 million): In order to mitigate threats to the KBAs, this component will support activities in **(1.1) Forest protection** and **(1.2) Sustainable forest management**, contributing to reduction of emissions from deforestation and degradation and increase in sequestration of CO_2. Forest protection will be achieved through (1.1a) Support for the review of the Recipient's land tenure legislation with a view to identifying potential improvements to such legislation; (1.1b) Support for training required to promote a REDD+ program; and (1.1c) Support for the development and establishment of a fire incidence rapid response team, including through preparation of a work plan and the provision of training and required equipment (such as fire rakes, fire swatters, nomex clothing). Sustainable forest management with local communities in targeted areas will be achieved through (1.2a) Rehabilitation of critical areas of high conservation value through identification, development and implementation of community-based Sub-projects, incorporating climate change mitigation and resiliency measures; (1.2b) Implementation of Sub-projects for sustainable harvesting and marketing of non-timber forest products (such as xate, cohune nut, bay leaf, and popta seeds) and for other community-based forestry opportunities, including, but not limited to, assessment and identification of opportunities for community-based forestry, stakeholder mapping and mobilization, identification of potential products, marketing and product development, training on product development, market analysis and development, and development of business plans; (1.2c) Support for identification and implementation of activities raising awareness on sustainable forest management; and (1.2d) Support for the development and implementation of sustainable forest management plans, including through assessing existing forestry standards for monitoring and evaluation, existing tools and programs to reduce illegal logging, and for the establishment of an forest information system (FIS) including collection and management of information on change in forest cover, degradation, illegal activities, fire, sustainable forest management, REDD+ and a data sharing protocol with environmental impact assessments and provision of training on such FIS.

Sub-component 1.1: Forest Protection

Output 1.1a: Support for the review of Belize's land tenure legislation with a view to identifying potential improvements to such legislation

6. One key factor driving deforestation in Belize is the existing land tenure legislation, which requires that titled lands that are forested must be cleared by the owners in order to be considered 'developed' by the Government. This provides a strong incentive for landowners to clear the land in an effort to meet the requirements of 'development' without which landowners are charged with a higher land tax. However, it has been observed that many of these lands lie idle after they have been cleared since the landowners lack the capital to engage in alternative land uses. It is possible that enhancements on this legislation could greatly contribute to reducing deforestation pressure in Belize.

Activities:

- Conduct an examination of the existing requirements for land clearing within the current legal structure;
- Review and develop draft amendments to the tax disincentive legislation and the requirement to clear/develop forested land; and
- Provide technical assistance to the process of amendment.

Output 1.1b: Support for training required to promote a REDD+ program

7. This activity is aims at capacity building for REDD+ in Belize. The overall goal of a REDD+ program in Belize is to utilize REDD+ as a tool towards achieving SFM and contributing towards sustainable development. It is important to promote a REDD+ program through implementation of training following the needs assessment conducted under the Central American Commission of the Environment and Development (CCAD)/GIZ REDD+ Program. There are many levels and layers to the REDD+ initiative (e.g., forest monitoring, social forestry, carbon accounting, etc.) and it involves a broad spectrum of players (Government, private sector, NGOs, communities, etc.) with varying degrees of capacity. It is therefore imperative that the key stakeholders possess the necessary knowledge, skills and capacities to competently participate in training to promote a REDD+ program. Belize has submitted a Readiness Preparation Proposal (RPP) to the Forest Carbon Partnership Facility (FCPF). The RPP outlines the proposed REDD+ structure, identifies the need for a national REDD+ awareness and consultation process, the drivers of deforestation, options for addressing these drivers, an implementation framework for these options, social and environmental safeguards, capacity building, forest monitoring, methodologies for reference levels and overall program monitoring. The Project will address one of the main barriers to building REDD+ program in Belize, which is the extremely limited capacity and expertise within the country.

Activities:

- Provide targeted training on REDD+ including carbon estimation by the Forest Department and local communities and the use of methodologies, applicable to future REDD+ activities.

Output 1.1c: Support for the development and establishment of a fire incidence rapid response team

8. The Project will support the establishment of a fire incidence rapid response team which will be coordinated by the Forest Department in collaboration with local communities, long-term license holders and co-managers. The team will be informed through an existing early fire detection system and field communications from the community level. The rapid response team will be trained in fire management, fire detection and suppression and prescribed burning and provided with fire equipment to address incidences of fire in broadleaf and needle-leaf forests within and around the Project sites. The fire equipment will enable the rapid response team to address fires locally as an early response measure with fire swatters, polaski axes, back-pack pumps, fire-rakes, drip-torches, nomex clothing

and footwear; they may be supplemented depending on intensity and extent of fire with a targeted approach by a larger team mobilized from other sites and equipped with motorized water pumps and hoses. The Project will train at least 50 people for monitoring and forest fire management, detection and fire suppression techniques for rapid response team including local communities and co-management partners. Some of the barriers in addressing threats of wild fires are: Lack of awareness of the impacts and laws of fire, capacity (human, equipment), and coordination among agencies (e.g., agricultural fires dealt with by the Agriculture Department, and forest fires by the Forest Department).

Table 5. Loss of Areas due to Forest Fires in the Project Sites

Name	Number of Fires per Year (MODIS Detections yr^{-1})†	Total Area Affected (ha yr^{-1})‡
Freshwater Creek Forest Reserve	1	2.5
Spanish Creek Wildlife Sanctuary	0.5	1.2
Vaca Forest Reserve	4.6	11.5
Chiquibul National Park	4.8	12.0
Maya Mountain Forest Reserve	1	2.5
Columbia River Forest Reserve	7.8	19.5
Total	**19.7**	**49.2**

†Estimated as the total number of MODIS (Moderate Resolution Imaging Spectroradiometer) hotspot detections per year over the period 2001 to 2011.
‡Assuming each fire detection corresponds to a fire affecting an average of 2.5 ha.

Activities:

- Prepare a work plan and identify needs for equipment and training for the fire incidence rapid response team in each target Project Site involving the Forest Department, co-managers, and local communities;
- Train at least 50 people in monitoring and forest fire management, fire detection, fire suppression, and prescribed burning techniques to address fire incidences in fire prone forests within and around the Project Sites;
- To address fires locally as an early response measure, procure and provide fire equipment for the rapid response team, including communications, fire swatters, polaski axes, backpack pumps, fire rakes, drip torches, nomex clothing and footwear, water pumps and accessories, and where necessary, all-terrain vehicles with trailers and water tanks; and
- Based on need, construct fire lookout towers in strategic locations within the Project sites. This will complement the existing early fire detection system via NASA and MODIS, and supplement the existing Southern Belize Fire Working Group (co-managers and FD). Community members buffering Columbia River Forest Reserve and Maya Mountain Forest Reserve will be included in the Working Group in order to enhance its operation.

Sub-component 1.2: Sustainable Forest Management

Output 1.2a: Rehabilitation of critical areas of high conservation value through identification, development and implementation of community-based Sub-projects incorporating climate change mitigation and resiliency measures

Rehabilitation of agricultural areas will include replanting and tending so that secondary forests can regenerate. Rehabilitation of broad-leaved and pine forest involves targeted planting of desired species in forests degraded by logging, fires, or which are in need of silvicultural intervention to increase biomass stocks.

Activities:

- Assess six target PAs to identify priority rehabilitation potential and resilience of degraded sites for rehabilitation and restoration activities to achieve full forest health and functionality;
- Identify and develop scope and methodologies for community-based rehabilitation activities such as prescribed burning, thinning, monitoring for insect damage and removing trees where pest outbreaks are detected, and where necessary reforestation and enrichment planting; and
- Implement specific community-based rehabilitation activities.

Output 1.2b: Implementation of Sub-projects for sustainable harvesting and marketing of NTFPs and for other community-based forestry opportunities

9. The key deforestation driver is expansion of agriculture and rural frontier. It is therefore important to create incentives for local communities not to engage in deforestation activities. Through a systematic approach, the Project will assess viable options within the KBAs, ranging from product identification to product development and marketing. The financial viability aspect is critical to a long-term success of the alternative economic activities. There are various potentially marketable NTFPs that the Project will support, including xaté for commercial use for floral arrangements in the local and export market; cohune nut for its potential alternative energy source utilizing both the oil and shells; bay leaf for commercial use in the tourism industry as thatch and by local communities for home construction; popta seeds harvested from palmetto palms for the treatment of prostate cancer.

Activities:

- Assess six target areas and identify opportunities for community-based forestry, including stakeholder mapping and mobilization, assistance for community groups to establish legal identity registered under the relevant legislations of Belize, potential products and marketing;
- Provide necessary training for product and business development;
- Support for market analysis, market development, business plan development, and product development; and
- Invest in sub-projects approved according to the process and criteria set in the Project Operational Manual, and related Livelihood Restoration Process Framework.

Output 1.2c: Support for identification and implementation of activities raising awareness on sustainable forest management

Activities:

- Develop and implement a forest fire prevention and awareness raising program; and
- Develop and implement a sustainable forest management awareness campaign at the national level.

Output 1.2d: Support for the development and implementation of sustainable forest management plans

10. All the 6 target sites including the 4 forest reserves are in urgent need of management plans to guide activities. The Project would support the preparation, endorsement, and implementation of management plans that guide forest protection, production, and management activities. Currently there is no systematic and coherent data collection and management system related to forest management in Belize. The tracking of deforestation and carbon emission has been ad hoc and not consistent. The majority of deforestation studies are based on satellite imagery. There is an on-going effort to standardize data collection through 30 permanent sample plots (PSPs) in selected productive

forest types. Currently, there are 12 PSPs in two of the Project sites, namely Freshwater Creek Forest Reserve (2) and Columbia River Forest Reserve (10). The Project will establish an additional 16 PSPs in the Project sites (Chiquibul NP, Spanish Creek WS, Maya Mountain FR, and Vaca FR). Currently, the Forest Department is undertaking a re-measurement of these PSPs. The PSPs now includes an added parameter to estimate carbon content within the forest types. This information will be part of the Forest Information System (FIS) to be established under the Project. The FIS will have a component to estimate carbon sequestration and avoided emissions. The Project will also support community-based reforestation activities (1.2a) to be monitored by the FD for estimation of carbon capture.

Activities:

- Assess the existing forestry standards for monitoring and evaluation, existing tools and programs to reduce illegal logging;
- Develop and implement management plans for MMFR, VFR, FCFR, and CRFR;
- Establish Forest Information System (FIS) including collection and management of information on change in forest cover, degradation, illegal activities in forested areas, fire, sustainable forest management, REDD+, and a data sharing protocol with EIAs and provision of training on the use of such FIS. This activity will include training on the use of FIS for the staff of relevant agencies and co-managers; and
- Establish an additional 16 PSPs in different forest types that occur in the selected Project sites (Chiquibul NP, Spanish Creek WS, Maya Mountain FR, and Vaca FR) and that are not represented in the existing PSPs.

Component 2: Promoting Effective Management of Key Biodiversity Areas (KBAs) (GEF US$2.5979 million): Effective management is critical to mitigate threats to the KBAs. This component will support **(2.1) Improving management of KBAs** and **(2.2) Monitoring and compliance of PAs**. Improving management of KBAs will be achieved through (2.1a) Support for the implementation of the recommendations set forth in the PA Rationalization Exercise, including development of procedures, guidelines, criteria and corresponding regulations for the declaration, re-alignment and de-reservation of PAs and for operationalization of Belize's comprehensive PAs legislation to integrate PAs which are currently managed under different legislative acts; (2.1b) Support for development and effective implementation of PA management plans in targeted Project Sites, including through identification of management needs, development of a GIS database and application for data management and analysis, provision of natural resource management training and mentoring, and for capacity building of Protected Areas Co-management Organizations; and (2.1c) Support for updating the National Protected Areas System Plan (NPASP) to take into account considerations of climate change mitigation and resilience. Monitoring and compliance activities will be supported through (2.2a) Support for reviewing the legal framework for the protection of biodiversity and forests with a view to identifying potential improvements to such legal framework, including an analysis of, and proposed updates to, Belize's Forest Act and Wildlife Act; (2.2b) Support for implementation of monitoring and compliance in the Project Sites through demarcation of Project Site boundaries, establishment of a compliance and monitoring unit, development and implementation of an operational plan for ensuring compliance with protected status of PAs, and provision of training, equipment and transportation for such compliance and monitoring unit; and (2.2c) Support for the development and establishment of a biodiversity monitoring system for KBAs and for increasing biodiversity monitoring capacity, including through support for implementation of the National Biodiversity Monitoring Program in the Project Sites, incorporation of biodiversity information into FIS for the Project Sites, development of biodiversity monitoring guidelines,

identification of a biodiversity monitoring field crew, and provision of monitoring tools and training on biodiversity monitoring to stakeholders.

Sub-component 2.1: Improving management of KBAs

Output 2.1a: Support for the implementation of the recommendations set forth in the PA Rationalization Exercise

11. Belize's PAs are currently managed under the three different laws, namely the Forests Act, the Fisheries Act, and the National Parks System Act. The MFFSD is currently leading the effort to integrate all PAs through the preparation of a comprehensive Protected Areas System Legislation for the submission and approval by the Cabinet. The Project will support the operationalization of the Legislation.

Activities:

- Support establishing procedures/guidelines, criteria, and corresponding regulations for the declaration, re-alignment and de-reservation of PAs; and
- Operationalize the new Protected Areas Legislation including developing standard procedures for corresponding regulations, the administrative structure, and coordination mechanism to integrate all PAs.

Output 2.1b: Support for development and effective implementation of PA management plans in the targeted Project Sites

Activities:

- Identify the management needs of the target sites;
- Prepare and implement four (4) protected areas management plans (Spanish Creek WS, Columbia River FR, Maya Mountain, and Vaca FR), and update and implement the 2 existing management plans (Freshwater Creek FR and Chiquibul NP);
- Develop a protected areas GIS database and application for data management and analysis that will contribute to the FIS;
- Provide natural resource management training and mentoring by MFSSD staff and/or co-management organizations to support early career professionals; and
- Capacity building of co-management organizations, including funds accounting, technical reporting, and proposal writing.

Output 2.1c: Support for updating the National Protected Areas System Plan (NPASP) to take into account considerations of climate change mitigation and resilience

12. The Second National Communications to the UNFCCC notes that Belize's forest cover is changing due largely to agricultural activities and climate-related hurricane damage which also present key threats to PAs. This highlights the importance of integration of climate change mitigation in PA management. This would include awareness raising, working with the Agriculture Department to identify community-based activities and agroforestry activities in areas buffering protected areas, etc. Furthermore, addressing threats to PAs and improving their effective management enhances Belize's carbon sink and positions the country to potentially receive benefits from payments for averting forest loss and managing forests for carbon sequestration.

Activities:

- Conduct an assessment, including consultations, to incorporate climate change mitigation and

resilience considerations into the NPASP in line with the measures identified in the Second National Communication of UNFCCC and other relevant national climate change policies and strategies; and

- Provide technical assistance for endorsement of the draft by the relevant authority.

Sub-component 2.2: Monitoring and Compliance within the KBAs

Output 2.2a: Support for reviewing the legal frameworks for the protection of biodiversity and forests with a view to identifying potential improvements to such legal framework

13. This activity will support strengthening of the Forest Act including administration and management of Belize's forest estate; law enforcement; and revision of community forestry initiatives, sustainable forest management approaches, including a revision of forest licenses as well as stumpage/logging tax fee on timber and non-timber forest products extracted from forest reserves and national lands. The activity will further support the country in updating its legislation related to wildlife management.

Activities:

- Analyze and update the Forest Act to improve the effectiveness of compliance and enforcement of such Act; and
- Analyze and draft the legislation for improved wildlife management including research, monitoring, wildlife rehabilitation, reintroduction to the wild, collaboration among partners, permits and fees.

Output 2.2b: Support for implementation of monitoring and compliance in the Project Sites

14. Monitoring and compliance to the PAs registration is critical to improve the management of PAs. MFFSD is currently conducting an assessment of land tenure within PAs to understand the status of persons living in and/or conducting activities within PAs.

Activities:

- Demarcate boundaries of selected target PAs (Vaca FR, Chiquibul NP, Maya Mountain FR, and Columbia River FR) to identify land incursion discrepancies;
- Establish a Compliance and Monitoring Unit within the FD and develop and implement an operational plan for PA compliance and prevention of illegal activities in the target Project sites;
- Provide training including search and rescue, navigation, to the Compliance and Monitoring Unit, including co-managers; and
- Provide equipment such as radio communications, uniforms, camping gear, GPS, cameras, first aid kits, and transport as necessary for the Compliance and Monitoring Unit.

Output 2.2c: Support for the development and establishment of a biodiversity monitoring system for KBAs and for increasing biodiversity monitoring capacity

15. The national research and monitoring coordinating entity, University of Belize's Environmental Research Institute (ERI), in collaboration with key national agencies such as the NPAS, the Fisheries Department, the Forest Department and other partners, is currently developing a National Biodiversity Monitoring Program (NBMP). The goal of the Program is to implement coordinated and standardized monitoring that provides the status of biodiversity and natural resources in the country. The NBMP is expected to be finalized in early 2014. The Project will support implementation of the NBMP in the target sites.

Activities:

- Support implementation of the NBMP in six target areas;
- Incorporate biodiversity information including biodiversity indicators and invasive alien species into FIS for six target areas;
- Develop a biodiversity monitoring guidelines/protocols;
- Develop priority research topics for the KBAs;
- Provide training for the Forest Department, co-managers, local communities, and educational/research institutes on data collection and the use of biodiversity monitoring protocols under the NBMP; and
- Identify biodiversity monitoring field crew and provide with monitoring tools.

Component 3: Institutional Strengthening and Capacity Building for Enhanced Enforcement of Environmental Regulations (GEF US$1 million): This component will promote enhanced coordination and provide training among government agencies charged with environmental management. This is critical for the long-term protection of areas through proper natural resources management, which includes climate change mitigation, and biodiversity conservation. This will be achieved through supporting **(3.1) Increased coordination for balancing environmental management and development** and **(3.2) Strengthening and improvement of environmental screening tools and processes**. These will be achieved through (3.1a) Support for the establishment of a departmental committee for the promotion of a balance between environmental management and development needs, and (3.1b) Strengthening of compliance monitoring capacity of staff in the MFFSD' DOE and other key agencies including provision of equipment and training in thematic areas such as compliance monitoring, use of new equipment, site inspection techniques, environmental audits, interpretation of lab analyses, and water quality monitoring. This component will also include (3.2a) Support for the establishment of a standardized environmental impact assessment (EIA) program and protocols for enhanced environmental screening and scoping, including revising the existing EIA Program, updating the EIA manual, and mainstreaming the EIA processes into other relevant institutions and entities; (3.2b) support for the improvement of the capacity for decision-making in the EIA process, including through the development and implementation of an information management system for EIAs, the definition of roles and responsibilities of the NEAC and other key agencies in the EIA process, an assessment of the EIA process with a view to improving such process with a focus on stakeholder involvement, and the review of, and development of proposed amendments to, Belize's EIA regulations to include other environmental tools and processes; and (3.2c) Provision of training to staff in the MFFSD's DOE and other key agencies on other environmental management tools, instruments and concepts to enhance the environmental screening and clearance process.

Sub-component 3.1: Increased coordination for improved environmental management and development

Output 3.1a: Support for the establishment of a departmental committee for the promotion of a balance between environmental management and development needs

16. The NEAC is a legally established advisory body with responsibilities specific to the EIA process including making recommendations to improve the EIA process, review the adequacy of EIA reports, and advise on the need for public consultation. The Committee is chaired by the Chief Environmental Officer and is comprised of; Chief Forest Officer, Lands Commissioner, two NGOs representative, a tertiary level educational institution representative, the senior Public Health Officer, etc. The current

list of responsibilities of the NEAC is restricted to the EIA process and does not necessarily develop policy direction for the improvement of environmental management.

Activities:

- Conduct an assessment to develop inter-sectoral mechanisms that will promote a balance between environmental management and development. This could include the establishment of a Departmental Steering Committee or expanding the responsibilities of the NEAC; and
- Implement the recommended option from the assessment, including the development of a procedural manual to guide the committee.

Output 3.1b: Strengthening of compliance monitoring capacity of staff in the MFFSD's DOE and other key agencies including provision of equipment and training in thematic areas

17. The Project will support strengthening capacity of DOE staff and other key agencies in thematic areas such as compliance monitoring, use of new equipment, site inspection techniques, environmental audits, interpretation of lab analyses, and water quality monitoring. Water quality as an aquatic biodiversity indicator is important to understand and manage the threats to freshwater aquatic biodiversity such as the critically endangered Central American River Turtle that are found in some of the targeted sites. Therefore, support for implementing water quality monitoring in one of the Project Sites would be a critical input to assess the health of the ecosystems therein and ensure long-term ecosystem services.

Activities:

- Strengthen institutional capacity of the Environmental Compliance Monitoring and Enforcement Unit within DOE, through revision of its roles and responsibilities to complement in the management of the identified key biodiversity area;
- Prioritize and conduct training of DOE staff and other key regulatory agencies on topics related to environmental monitoring and compliance, including equipment use, site inspection techniques, environmental audits, interpretation of lab analyses, water quality monitoring and techniques, and rapid environmental assessments;
- Prioritize and support the purchase of necessary equipment such as samples bottles, calibrating reagents, GPSs, cameras, range finders, ice coolers, water quality field testing device, etc. to improve ability to mobilize and conduct compliance monitoring; and
- Develop and implement a Water Quality Monitoring Program in one of the six target areas to assess possible aquatic threats to the selected site in view of replicating this program in other KBAs in the future by DOE. This will contribute to updating the National Water Quality Monitoring Plan by DOE.

Sub-component 3.2: Strengthening and improvement of environmental screening tools and processes

Output 3.2a: Support for the establishment of a standardized environmental impact assessment (EIA) program and protocols for enhanced environmental screening and scoping

Activities:

- Compare and contrast existing EIA program regionally (within Central American and Caribbean Countries) in order to improve the EIA process nationally;
- Revise the EIA Program and update the EIA Manual to establish qualitative and quantitative criteria to standardize who can conduct EIAs, structure, grammar, referencing, guidelines and

methodologies to measure impacts, mitigation measures, and monitoring across EIA reports; and

- Mainstream EIA process into permitting Government agencies other than DOE.

Output 3.2b: Support for the improvement of the capacity for decision-making in the environmental impact assessment process

Activities:

- Develop and implement an information management system for EIAs;
- Define roles and responsibilities of NEAC and other key agencies in the EIA process and increase participation of these key agencies and NEAC at site inspections and public consultations;
- Assess and improve the EIA process with a focus on stakeholder involvement, with the goal of improving public participation in decision-making; and
- Review and develop amendment(s) to Belize's Environmental Impact Assessment Regulations to include other environmental tools and processes.

Output 3.2c: Provision of training to staff in the MFFSD's Department of the Environment and other key agencies on other environmental management tools, instruments and concepts to enhance the environmental screening and clearance processes

Activities:

- Train staff of key agencies including NEAC on Strategic Environmental Assessment (SEA). The trainings will be geared towards policies, strategies and sector plans that could have significant negative impacts on the environment and natural resources of Belize; and
- Train or sensitize staff of the Department of the Environment and key agencies including NEAC on the Social Impact Assessment methodology.

Component 4: Project management, monitoring and assessment (GEF US$305,800): This component will support the Project Implementing Agency Group (PIAG) in project management and implementation support including technical, administrative and fiduciary support including safeguards, support for monitoring and evaluation, data collection, stakeholder involvement and coordination, hiring of consultants, financing of Operating Costs, Training and Monitoring and Compliance Activities. The PIAG is located within the MFFSD, consisting of Project Manager, Project Officer, staff from the National Protected Areas Secretariat, Department of the Environment, and Forest Department, and fiduciary staff from PACT. Efforts will be made to harmonize the coordination of this Project with other existing World Bank/GEF projects.

Annex 3: Implementation Arrangements

BELIZE: Management and Protection of Key Biodiversity Areas Project

I. Organizational Structure and Roles and Responsibilities

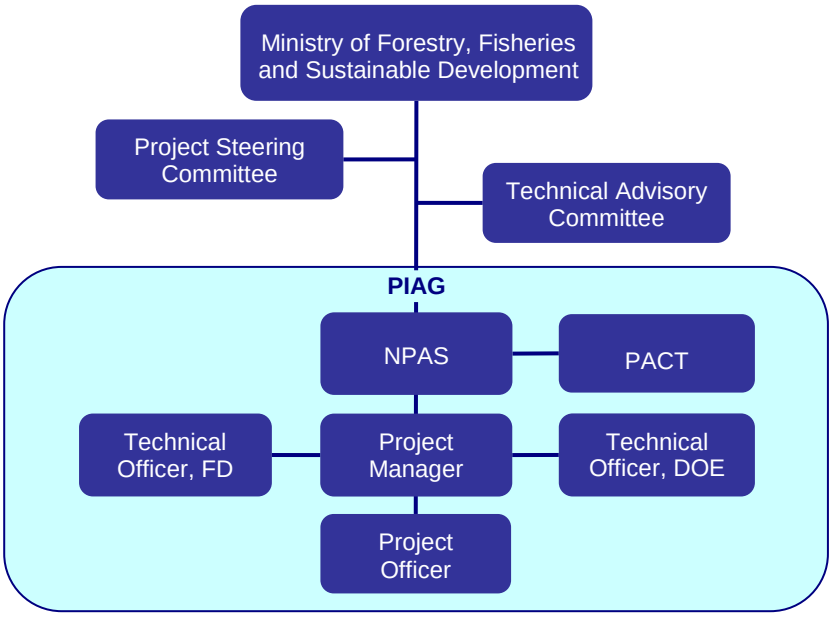
1. **The Ministry of Forestry, Fisheries and Sustainable Development (MFFSD)** is responsible for the overall implementation of the Project with the fiduciary assistance of Protected Areas Conservation Trust (PACT). The MFFSD has the overarching policy level responsibility for implementation of the Forest Act, the Wildlife Act, the Environmental Protection Act (EPA), and the National Parks System Act as well as the implementation of the Forest Policy, the Biodiversity Policy, and the National Protected Areas Policy. MFFSD is currently developing the National Climate Change Policy, Strategy, and Action Plan.

2. **The Project Steering Committee (PSC)** will support project implementation by providing guidance on national policy and on strategic approaches for successful project implementation. The Committee will advocate on behalf of the Project and when needed to obtain support for the legal and other system wide changes such as operationalization of revised administrative structures for PAs and the management and administration of environmental impact assessment processes. The PSC will be chaired by the Chief Executive Officer (CEO) of the MFFSD, and comprised of CEOs of key Government ministries including the Ministry of Natural Resources and Agriculture, Ministry of Finance and Economic Development, Ministry of Labor, Local Government, Rural Development and National Emergency Management, Ministry of Tourism and Culture. NPAS and PACT would be *ex-officio* members of the PSC. The NPAS Program Director, along with the Project Manager, will provide administrative support to the PCS and coordinate the logistics for the operations and activities of the steering committee. The PSC will meet quarterly and convene special meetings on an as needed basis.

3. **The Technical Advisory Committee (TAC)** will provide technical guidance for project implementation. The TAC has been established and comprised of the Chief Forest Officer (CFO), Chief Environmental Officer, Chief Agricultural Officer, Commissioner of Lands, Head of Climate Change Office, Economist from the Ministry of Finance and Economic Development, NPAS Program Director, the Executive Director of the Association of Protected Areas Management Organizations (APAMO), and PACT. TAC will be chaired by CFO and empowered to invite other technical advisors as needed. Chief Environment Officer will be the vice-chair and will act on behalf of the chair in his or her absence to ensure continuity in regularity of meetings. TAC will meet once every two months and will convene special meetings to address particular project issues that may arise. During those meetings, the TAC will focus on actionable items related to project implementation.

4. **Project Implementing Agency Group (PIAG)** within MFFSD will carry out the day-to-day management of the Project, including coordination, supervision, monitoring, quality control, socio-environmental management, reporting, and fiduciary management of the Project's resources (by PACT) in accordance with the POM and the Grant Agreement. The PIAG' responsibilities include, but are not limited to, the preparation of the Project's Annual Operating Plan; implementation and coordination of activities under the various Project components; monitoring of implementation progress in relation to the work plans and to the budgets for each component on a regular basis; compliance with the environmental and social safeguards instruments developed for the Project. The PIAG will consist of a Project Manager, a Project Officer, officers from the existing units within MFFSD, namely the National Protected Areas Secretariat (NPAS), Department of the Environment (DOE), the Forest Department, and fiduciary staff of PACT.

Figure 1. Organizational Structure for Project Management



5. **National Protected Areas Secretariat (NPAS), MFFSD**, is the body currently responsible for coordinating the implementation of the National Protected Areas Policy and System Plan (NPAPSP). NPAS is led by Program Director who reports to the MFFSD CEO. NPAS Program Director will provide oversight to Project Manager and Project Officer.

6. **Forest Department, MFFSD**, is the lead Government agency with mandate for the management and operations of forest reserves, the national forest estate, national parks, wildlife sanctuaries, natural monuments, and nature reserves as provided for by the Forest Act and the National Parks System Act. The project activities under Components 1 and 2 will be led by the Forest Department. The activities relating to the land tenure legislation and boundary demarcation will be closely coordinated with the Lands and Surveys Department of the Ministry of Natural Resources and Agriculture.

7. **Department of the Environment (DOE), MFFSD**, is the Government agency responsible for enforcement of environmental legislation including the Environmental Impact Assessment Regulations and other relevant regulations under the EPA. The Project activities in Component 3 will be led by DOE. It will also provide technical support for the implementation of the EMF as necessary.

8. **Protected Areas Conservation Trust (PACT)** is a body established pursuant to Belize's Protected Areas Conservation Trust Act of 1995, revised edition 2003, and currently is the fiduciary manager for NPAS. As part of the PIAG, PACT will be responsible for ensuring sound fiduciary management of the Project's resources in accordance with the Grant Agreement, the Subsidiary Agreement, the POM, and any other policies employed by PACT relevant to project management. Its responsibilities will include, *inter alia*, financial management and procurement of goods and services. PACT will ensure that it has qualified staff in adequate numbers to ensure sound fiduciary

management of the Project's resources throughout the life of the Project in agreement with the terms set forth in the Grant Agreement and the Operational Manual.

II. Project Partners

9. **Association of Protected Areas Management Organizations (APAMO)** is a non-governmental umbrella agency that is made up of NGOs who co-manage PAs and work with communities that buffer PAs. Recognizing the challenges and issues, APAMO was established to strengthen coordination among protected areas management organizations. APAMO and its members will provide support to the implementation of activities in the specific Project sites. It will also assist in the activities that will bring about system wide improvement in protected areas management and legislative reform.

10. **Protected Areas Co-management Organizations** will collaborate in the implementation of Project activities with the Forest Department and communities in the six Project sites. These include: Friends for Conservation and Development (FCD), Rancho Dolores Environmental and Development Company Limited, and Corozal Sustainable Future Initiative (CSFI). Additional co-management organization will be identified during project implementation as necessary.

III. Project Management Instruments

11. **Project Operational Manual (POM)** defines the institutional arrangements, procedures, requirements, and guidelines for the management and implementation of the Project. It is also intended to help in ensuring that the Project is implemented in a transparent manner. The POM is a working document and its contents will be subject to periodic review and updating as necessary over the life of the Project given the flexibility required by the diversity of Sub-project conditions that could be encountered during implementation. Such changes are subject to approval of the World Bank.

12. **Annual Operating Plan (AOP) and Procurement Plan (PP)**. The PIAG is responsible for preparing AOP and PP in consultation with key stakeholders. The AOP should provide a plan for the project implementation of each year including the overall goal, planned activities, timeframe and budget. The PP reflects procurement activities required to implement the planned activities. The PIAG sends the AOP and PP to the TAC for comments and the PSC for approval. Once approved by the PSC, the AOP is then sent to the World Bank for no objection.

IV. Monitoring and Evaluation of Project Results

13. The MFFSD will be responsible for the overall monitoring and evaluation (M&E) of the Project through the PIAG in accordance with the POM and the Grant Agreement. The M&E plan will form a part of the annual work plan of the PIAG. The outcome indicators are presented in Annex 1. Monitoring and evaluation of project implementation status and results will be conducted through: (a) day-to-day activities of the PIAG; (b) quarterly progress reviews by the PSC and once every two months by the TAC; (c) semester progress reviews during World Bank implementation support missions; and (d) mid-term review of project implementation to be conducted jointly by the MFFSD/PIAG, PSC, TAC, and the World Bank.

14. The PIAG will transmit to the World Bank semester progress reports on Project implementation and outcomes not later than one month after the end of the period covered by such report. An Implementation Completion Report will be prepared within six months after closing of the Grant.

V. Financial Management Arrangements

15. Financial Management Inherent and Control Risks. The financial management (FM) functions for this Project will be solely handled by the PACT, acting as the fiduciary agent on behalf of the Recipient. No funds will flow to the Sub-project beneficiaries. A time-bound action plan was defined for the Project. Once implemented, with World Bank's support, residual inherent and control risk are rated as moderate.

16. Financial Management Arrangements—Flow of Funds. PACT will be the only entity handling Grant proceeds. The entity will open a bank account denominated in US$ named the Designated Account at the Central Bank of Belize. The threshold for the advance is up to US$500,000, and the minimum value of application is US$200,000. The entity will open another bank account denominated in BZ$ named the Operating Account in a commercial Bank, the Belize Bank. Bank accounts will be segregated. The entity will process disbursements through Statement of Expenditures (SOEs) as support documentation and record of summary sheets. Disbursement methods would be advance, reimbursement, and direct payment. These and other relevant disbursement matters will be inserted in the Disbursement Letter.

17. Grant Agreement and Project Operational Manual. The periodicity of financial reports submission is set as quarterly during project inception only for the first audited period and semiannual for following fiscal years. Annual audits for the entity are to be performed by an independent audit firm to be submitted four months after the end of the audited period. Periodic Interim Unaudited Financial Reports (IFRs), Annual Financial Statements, and External Audit reports, will be distributed and discussed among the members of the PSC, and posted in the internet portal of the Entity for public access. Other FM aspects, including internal control and risk management features, have been defined in the Operational Manual.

18. FM Supervision Plan. The scope is defined as a comprehensive implementation support mission, including full on-site supervision covering all areas specified in the FM supervision checklist, with a governance and anticorruption (GAC), with special attention to FM red flags. The frequency of FM supervision by the World Bank will be annual. The intervals and scope will be revised with the supervision results as indicated in the FM risk rating.

19. In summary, the FM inherent and control residual risks are moderate once PACT, with Bank's support, completes a time-bound action plan to mitigate risks. The World Bank has assisted in the drafting of an FM Chapter in the POM. Periodic desk reviews and comprehensive risk based on-site FM implementation support will be conducted with a GAC approach, being alert on FM red flags, highlighting areas for improvements, and providing support to have all instances expeditiously resolved and closed.

VI. Disbursements

20. PACT will be responsible for processing all payments for works, goods and services. Payments will be made directly from the OA. Such arrangements are considered appropriate. This arrangement has the necessary segregation and level of approvals and can speed up implementation.

21. The following disbursement methods will be used: Retroactive Financing, Advance, Reimbursement and Direct Payment. The Minimum Application Size with respect to Direct Payments and Reimbursements (not Advances) will be in US$200,000 equivalent. Applications documenting expenditure paid from the Designated Account should be submitted by PACT ideally once a month but not later than once every three months, and must include reconciled bank statements as well as other appropriate supporting documents. The Project will also have a four month Grace Period.

Table 6. Eligible Expenditure Categories

Category	Amount of the GEF Trust Fund Grant Allocated (expressed in USD)	Percentage of Expenditures to be Financed (inclusive of Taxes)
(1) Goods, Works, Non-consulting services, Consultants' services, Training, and Monitoring and Compliance Activities except for Sub-projects, and Operating Costs	4,835,600	100%
(2) Goods, Works, Non-consulting services, Consultants' services, and Training, for Sub-projects	1,250,000	100%
TOTAL AMOUNT	6,085,600	

22. The POM includes a list of excluded expenditures which are not eligible for financing under the Grant.

VII. Procurement Arrangements

23. **General**. Procurement for the Project would be carried out in accordance with the World Bank's "Guidelines: Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers", dated January 2011, revised July 2014; and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers", dated January 2011; and the provisions stipulated in the Grant Agreement. Various items under different expenditure categories are described below in general. For each contract to be financed by the Grant, the different procurement methods or consultant selection methods, the need for prequalification, estimated costs, prior review requirements, and time frame are agreed between the Grant Recipient and the World Bank in the Procurement Plan (PP). The PP will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity. The procurement procedures and standard bidding documents (SBDs) to be used for each procurement method, as well as model contracts are posted on the web site worldbank.org.

24. **Procurement of works.** (No major works under the Project is foreseen.) For the small works for establishing nurseries, etc. under sub-projects, shopping procedures for small value contracts (<US$150,000 equivalent) as agreed with the World Bank will be followed.

25. **Procurement of Goods and non-consulting services (NCS).** Goods procured under this Project include, but not limited to: fires swatters, polaski axes, backpack pumps, fires rakes, drip torches, nomex clothing and footwear, water pumps and accessories, seedlings, dibbers, soil inoculants, a machine for extracting cohune oil, and sheep stock (Component 1), GIS database, radio communications, uniforms, camping gear, GPS, cameras, first aid kits, and transport (Component 2), and sample bottles, calibrating reagents, range finders, ice coolers, water quality field testing device, etc. (Component 3) and vehicles. The procurement would be carried out using the World Bank's SBD for ICB processes and Shopping (Request for Quotations) documents (<US$50,000 equivalent) agreed with or satisfactory to the World Bank.

26. **Selection of Consultants**. Consulting services would be required under this Project for preparation of Protected Area management plans, land tenure studies, sustainable forest development, communications, marketing analysis, business plans, and preliminary studies to assess the need of the Protected Areas. Individual consultants would be selected following the procedures set forth in Section V of the Guidelines, whereas consulting firms would be selected following Quality and Cost Based Selection (QCBS), Least-Cost Selection (LCS), Selection Based on Consultant's Qualifications (CQS) etc. Short lists of consultants for services estimated to cost less than $200,000

equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.

27. **Sub-project procurement.** PACT in coordination with NPAS will make the necessary arrangement for procurement of all good, consulting and non-consulting services. Grantees' request for procurement shall be agreed upon in the work plan with PIAG including a range of procurement activities, none of the contracts exceeding USD50,000 equivalent, which shall be processed with comparison of at least three quotations and qualifications.

28. **Operating Costs** mean the following reasonable incremental operational costs (which would not have been incurred absent the Project) related to project implementation, management and supervision and incurred by the Borrower: (i) costs for utilities, maintenance and consumable office supplies, printing services, and communication services; and (ii) transportation costs, travel and per diem cost for supervisors and technical staff which will carry out supervisory activities under the Project.

29. **Procurement Assessment**. An assessment of the capacity of PACT as the fiduciary agency to implement procurement actions was carried out in July 2012 for the Project by a World Bank's procurement accredited staff during preparation in line with the Procurement Risk Assessment and Management System (PRAMs) by the World Bank. Questionnaire for PRAMs was shared with PACT and the officials in MFFSD and PACT's team were interviewed on the assessment of the Procurement. The following are the summarized findings (with details entered in the PRAMs):

30. The procurement financed by donors and international financing institute including the World Bank shall follow their respective procurement procedures respectively.

31. An assessment of the capacity of the Implementing Agency to implement procurement actions under the Project was conducted. The assessment reviewed the organizational structure for implementing the Project and the interaction between the procurement staff in PACT and the PIAG in MFFSD with a Project Manager for project implementation. The overall Project risk for procurement is rated as moderate based on the proposed mitigation arrangement for procurement implementation below:

Action Plan in Strengthening the Capacity to Implement Procurement Actions:

a. A procurement specialist position has been advertised widely in Belize and regional media and a qualified candidate has been selected for the position in PACT for implementing the procurement activities under the Project. The contract should be signed by the Project negotiations.

b. The procurement specialist and the PIAG/PACT project team shall attend training for procurement in the regional Fiduciary Workshop in 2014.

c. Tender/selection documents for the first year's procurement under ICB and QCBS prepared by PACT/PIAG should be submitted to the World Bank for review by the effectiveness of the Project.

32. **Procurement Plan**. The procurement plan for implementation of the project for the first 18 months was agreed between the Recipient and the Project Team on March 13, 2014 and filed in the PACT with major packages included in Table 7 below. The plan shall be made available at web address http://www.worldbank.org/procure within 30 days of the signature of the Grant Agreement. It would be updated annually and the updated procurement plan shall be disclosed at this site after clearance by the World Bank.

33. The recommended thresholds for the use of the procurement methods specified in the Grant Agreement are identified in Table 8 as the basis for the agreed procurement plan.

34. **A General Procurement Notice (GPN)** would be published in the UN "Development Business" on-line around the period of Loan Negotiation. For ICB goods and works contracts and large-value consultants contracts (more than US$200,000), Specific Procurement Notice would be advertised in the Development Business on-line and national press.

35. **Frequency of Procurement Supervision.** Supervision of procurement would be carried out through prior review supplemented by supervision missions with post review at least once a year.

Table 7: Procurement Plan (for the first 18 months)

No.	Contract Category and Type	Description of Contract	Estimated Cost (US$)	Procurement Method	Review by Bank (Prior/Post)	Estimated date of award
1.	**Goods**	Vehicles - 1 van and six trucks(Year 1)	320,000	ICB	Prior	July 2014
2.	**Goods**	Vehicles – four trucks(Year 2)	180,000	ICB	Prior	July 2015

Table 8: Thresholds for Procurement Methods and Prior Review

Expenditure Category	Contract Value (Threshold) (US$ thousands)	Procurement Method	Contracts Subject to Prior Review
1. Works	>1500	ICB	All
	<1500	NCB	First
	<150	Shopping	None
2. Goods and Non Consulting Services	>150	ICB	All
	<150	NCB	First
	<50	Shopping	None
	Regardless of value	Direct Contracting	All
3.Consulting Services			
-3.A Firms	≥100	QCBS,QBS,FBS, LCS	All
	<100	QCBS,QBS,FBS,LCS, and CQS	First contract
	Regardless of value	Single Source	All
-3.B Individuals	Regardless of value	Comparison of 3 CVs in accordance with Chapter V of the Guidelines	None
	Regardless of value	Sole Source	All

Note: ICB = International Competitive Bidding; NCB = National Competitive Bidding
QCBS = Quality- and Cost-Based Selection; QBS = Quality-Based Selection
FBS = Fixed Budget Selection; LCS = Least-Cost Selection
CQS = Selection Based on Consultants' Qualifications

VIII. Environmental and Social (including safeguards)

36. **Environmental Assessment OP/BP 4.01.** Components 1 and 2 include financing of sustainable development activities with local communities to reduce the encroachment pressure on forest resources; community-based activities to support rehabilitation/restoration of critical areas; and targeted livelihood options to enhance the socio-economic existence between PAs, natural resource management, and local communities. The Project is classified as Category B, as its potential adverse environmental impacts on human populations or environmentally important areas are site-specific, reversible and can be readily mitigated. Since the combined exact location and nature of small investments to be financed under the Project will only be determined through a demand-driven process during Project implementation, the GOB has prepared an Environmental Management Framework (EMF) to conform to the triggered environmental safeguard policies and the applicable national regulations. The final EMF was disclosed in country on August 1, 2014 and on the World Bank's web site on August 4, 2014.

37. **Natural Habitats OP/BP 4.04.** The Project will help rehabilitate, restore, and protect targeted Key Biodiversity Areas (KBA), which are important to preserve local biodiversity and the quality of water resources. Regarding Project-financed sustainable livelihood activities, the EMF explicitly forbids activities that would lead to conversion or degradation of critical natural habitats or their supporting areas.

38. **Forests OP/BP 4.36.** The Project will support rehabilitation/restoration of critical forested areas (e.g., watersheds) through community-based activities. Regarding Project-financed sustainable livelihood activities, the EMF explicitly forbids activities that would lead to clearing or degradation of forests or forest ecosystems.

39. **Pest Management OP/BP 4.09.** The Project will not finance chemical pesticides or lead to increased use of other agricultural chemicals. However, pest management could be necessary for eligible Sub-projects related to sustainable livelihood activities. In those cases, the Project will promote use of Integrated Pest Management (IPM) as defined and instructed in the OP/BP 4.09. The EMF includes applicable screening guidance at the sub-project level in order to define if a specific Pest Management Plan (PMP) will need to be developed before sub-project approval and implementation.

40. **Physical Cultural Resources OP/BP 4.11.** The Project could involve small structural works and since Belize has thousands of Mayan Antiquities buried under the forests, chance finds might occur within the Project's intervention areas. Belize has a well-developed program for management of Mayan Antiquities in situ and ex situ. If antiquities are encountered during project implementation, the Institute of Archaeology will be notified immediately, and as the competent authority, it will make the decisions on how any chance find would be managed. Additionally, the EMF explicitly forbids activities that would negatively impact any known cultural site. The EMF also mandates that in case of any difference/gap between the national legislation and the World Bank safeguard policy, the stricter approach will prevail.

C. Social (including Safeguards)

41. The GOB has prepared an Indigenous Peoples Framework (IPF, i.e. Culturally Appropriate Consultation and Participation Protocol), the Involuntary Resettlement Policy Framework (IRPF) and Livelihood Restoration Process Framework to address the project's social safeguard risks according to the Bank's operational policies. A preliminary version of the social safeguard instruments was disclosed on October 18, 2013, which was then updated and re-consulted in June 2014 and redisclosed in country on August 1, 2014 and on the World Bank's web site on August 4, 2014. Of the three consultations held in June 2014, the first meeting was in Belmopan on June 3rd, 2014 at the George Price Center for Peace and Development with representation from the Freshwater Creek, Spanish Creek, Vaca and Chiquibul KBAs. The second was held in Punta Gorda on June 6, 2014 at the Nazareth Retreat Center with Toledo district alcaldes and chairpersons; translation was provided in Spanish, Ketchi and Mopan. Lastly, the third meeting was held at the Toledo Institute for Development and Environment's (TIDE) Conference Room, in the Hopeville area of Punta Gorda, with leaders from the representative organizations of the Toledo's Alcalde Association (TAA) and Mayan Leaders Alliance (MLA), as well as other participants, conducted in English and Ketchi. Minutes from all three consultations were thoroughly documented and included in the annex of the framework, as well as the GOB's responses to each concern. If further concerns arise, revisions of the framework are admissible during implementation. As suggested by the meeting minutes, these initial consultations on project activities and safeguard instruments have opened the opportunity for engagement and dialogue between the GOB and indigenous stakeholders that will be followed up closely during implementation, according to culturally appropriate protocol.

42. **Indigenous Peoples OP/BP 4.10.** The Project will engage with stakeholders of different ethnicities both at the site level for the site-specific activities and nationwide for activities that will have system-wide impacts. The indigenous peoples of Belize who could be impacted by the Project are select Maya Mopan, Maya Kekchi and Maya Yucatec communities mostly in the Toledo District and to a certain extent in Cayo. Other ethnicities that could be impacted are the Creoles, Mestizos, and Mennonites. Earlier version was disclosed on October 18, 2013, which was then revised and re-consulted in June 2014 and redisclosed in country on August 1, 2014 and on the World Bank's web site on August 4, 2014, in order to establish guidelines for consulting and engaging with project-affected communities and in particular to ensure culturally appropriate engagement with indigenous partners. Specifically, the Project acknowledges that there are disputes around land rights between the GOB and Mayan communities in the Toledo District, where Project activities could be undertaken, as evidenced by court cases up to the Belizean Supreme Court level and appealed at the Caribbean Court of Justice. This was the existing context in which the Project was designed. The various consultations with stakeholders in June 2014 have not indicated that the land case would be an impediment to the achievement of Project objectives. However, the Project will continue to closely monitor developments during Project implementation. Moreover, in order to mitigate any potential adverse impacts of project activities to Mayan communities, the IPF has explicitly stated that free, prior and informed consultation leading to broad community support is required for the management plans that will affect the Mayan communities of Colombia River and Vaca forest reserves, as well as for the Indigenous Peoples Plans to be prepared during implementation.

43. In addition, there will be more participatory processes and opportunities during implementation of the Project for stakeholders/communities to raise issues and engage in various activities. Given the demand-driven nature of many of the activities planned under the project, local consultations on land tenure and other issues will be systematically carried out at the site level with affected communities and other stakeholders, as an on-going practice, following a mutual agreed consultation schedule. Thus it is expected that Mayan communities will not only be consulted but

will rather be integral partners in the design, implementation, and monitoring and evaluation of project activities that will affect them.

44. **Involuntary Resettlement OP/BP 4.12.** Improved management of the KBAs support by the project will restrict access to targeted PAs, potentially affecting traditional users' utilization of resources causing them to experience involuntary changes in their livelihood strategies. The project recognizes this potential adverse impact and has made provisions to restore and diversify livelihood strategies that reduce pressures on the biodiversity of KBAs. These provisions consist of the financing of subprojects described in Component 1.2.b to be guided by the Livelihood Restoration Process Framework, prepared by the GOB according to OP 4.12.

45. An initial version was disclosed on October 18, 2013 and later revised and updated, re-consulted and redisclosed in country on August 1, 2014 and on the World Bank's web site on August 4, 2014. The instrument identifies which communities will potentially be affected, describes the type of adverse, livelihood-related impacts that project activities could bring about, and establishes a process by which members of potentially affected communities will participate in the design of the project components, determination of measures necessary to achieve resettlement policy objectives, and implementation and monitoring of relevant Project activities.

46. In addition to the Livelihood Restoration Process Framework, the GOB also prepared, consulted and disclosed an Involuntary Resettlement Policy Framework (IRPF), in accordance with OP 4.12. The IRPF was prepared, as a precautionary measure, in response to findings from the GOB's independent land tenure monitoring of the PAs (since 2009) as well as project preparation assessments, indicating that there could be activities occurring within one or more of the target sites that may not be consistent with the protected area designation. Neither land acquisition nor resettlement is foreseen as a result of direct project activities. Nevertheless, land tenure assessments within protected areas to be financed under the project could provide updated information to be considered by the Government of Belize. Therefore, if the GOB decides to undertake any physical resettlement within the targeted areas and duration of this project, Resettlement Action Plans (RAPs) will be implemented according to the IRPF's principles, mitigation measures, institutional arrangements and procedures.

47. **Projects under Disputed Areas OP/BP 7.60.** This policy is applicable to the Project because of the longstanding territorial dispute between Belize and Guatemala. Some of the six geographical areas that have been identified and prioritized for potential infrastructure investments under the Project fall within the general area known to be in dispute. The Project does not prejudice the position of either the Bank or the two countries involved. It is emphasized that by supporting the Project, the World Bank does not intend to make any judgment on the legal or other status of the territories concerned or to prejudice the final determination of the parties' claims. In line with OP/BP 7.60, the World Bank has ensured compliance with the requirements of the policy. The Bank has determined that given that the Project activities entail capacity building and small-scale community driven sustainable forest management practices and improvements to the management of protected areas, the Project is not harmful to the territorial interests of Guatemala.

48. The PIAG will be responsible for the Project's socio-environmental management and compliance with the World Bank's safeguards, with technical support by DOE as necessary. DOE has an overall capacity and experience on environmental screening of projects within the framework of the national legislation. Component 3 includes relevant capacity enhancement as presented under the component description, and the Bank team will provide applicable safeguards training to the responsible MFFSD and Project staff and other relevant stakeholder groups at the project inception and during implementation on as-needed-basis.

Annex 4: Operational Risk Assessment Framework (ORAF)

BELIZE: Management and Protection of Key Biodiversity Areas Project

Project Stakeholder Risks						
Stakeholder Risk	**Rating**	**Moderate**				
Risk Description:	**Risk Management:**					
Some stakeholders (local communities, land owners, and/or NGOs) may not support the proposed activities.	An intensive awareness raising campaign would be carried out to increase the understanding and following buy-in of the local communities. The Operational Manual of the Project will mandate that it will support only activities that comply with sound environmental and social safeguard policies. A robust consultation process has been undertaken during project preparation which confirmed the level of commitment towards the proposed activities. The GOB has prepared a Livelihood Restoration Process Framework to guide the restoration and diversification of alternative sustainable livelihoods.					
	Resp:	**Status:**	**Stage:**	**Recurrent:**	**Due Date:**	**Frequency:**
	Client	Not Yet Due	Implementation	☐	30-Sep-2019	
Implementing Agency (IA) Risks (including Fiduciary Risks)						
Capacity	**Rating**	**Moderate**				
Risk Description:	**Risk Management:**					
MFFSD and PACT have not implemented Bank projects before.	PACT has staff specifically trained to administer and monitor GEF projects and systems to accurately track and manage grant funds. MFFSD and PACT has increased the project management capacity through the PPG of the project and the fiduciary training course. The Bank will continue assessing this risk and mitigating it with frequent supervision as needed and training efforts integrated in the operations.					
	Resp:	**Status:**	**Stage:**	**Recurrent:**	**Due Date:**	**Frequency:**
	Bank	Not Yet Due	Both	☐	30-Sep-2019	
Governance	**Rating**	**Low**				
Risk Description:	**Risk Management:**					
The governance structure, operational guidelines and other institutional policies of MFFSD and/or the implementation arrangements of the Project could be altered over time and if so, these might not conform to the adequate standards.	MFFSD and PACT both have a robust management system. The Project implementation will be governed by the Operational Manual satisfactory to the Bank and overseen by the multi-sectoral Steering Committee and the Technical Advisory Committee.					
	Resp:	**Status:**	**Stage:**	**Recurrent:**	**Due Date:**	**Frequency:**
	Client	Not Yet Due	Implementation	☐	30-Sep-2019	
	Risk Management:					
	PACT has a robust system for managing funds. The multi-sectoral Steering Committee regularly oversees the project management. External audits, FM and ex-post procurement reviews by the Bank will be conducted annually.					
	Resp:	**Status:**	**Stage:**	**Recurrent:**	**Due Date:**	**Frequency:**
	Both	Not Yet Due	Both	☐	31-May-2019	
Project Risks						

<table>
<tr><td>Design</td><td>Rating</td><td colspan="5">Moderate</td></tr>
<tr><td>Risk Description:</td><td colspan="6">Risk Management:</td></tr>
<tr><td rowspan="3">Community-based activities may take time to actually start implementation on the ground due to low capacity.</td><td colspan="6">The proposed activities will coordinate and share experience with other on-going community-based efforts led by the Government of Belize. The Project will particularly focus on strengthening institutions and capacity building so as to carry out the activities within the proposed timeframe.</td></tr>
<tr><td>Resp:</td><td>Status:</td><td>Stage:</td><td>Recurrent:</td><td>Due Date:</td><td>Frequency:</td></tr>
<tr><td>Client</td><td>Not Yet Due</td><td>Implementation</td><td>☐</td><td>30-Sep-2019</td><td></td></tr>
<tr><td>Social and Environmental</td><td>Rating</td><td colspan="5">High</td></tr>
<tr><td>Risk Description:</td><td colspan="6">Risk Management:</td></tr>
<tr><td rowspan="3">Potential increase in social conflict amongst stakeholders due to the regulation/restriction of the business of illegal loggers, poachers, hunters, extractors of NTFP and transnational organized crime; potential actions against foreign nationals, project activities inadvertently contributing to Mayan communities' increased land insecurity, by supporting the formalization of management arrangements while the security of their land tenure –currently under review by the Caribbean Court of Justice- is still uncertain; potential physical relocation of Belizeans or foreign nations living/working within protected areas during the life of the project.</td><td colspan="6">Social safeguard instruments are in place to ensure that potential social impacts are appropriately addressed through effective mitigation measures described in the project's Livelihood Restoration Process Framework, IRPF and IPF. In particular, the instruments stress the need to carry out ongoing consultation with project affected people through the duration of the project. Specifically, regarding indigenous peoples, as the Framework explains in detail, management plans for targeted PAs will require free, prior and informed consultation leading to broad community support for project financing. Moreover, the Livelihood Restoration Process Framework details how Component 1.2b will ensure the implementation of alternative livelihood subprojects aimed to restore and diversify livelihood strategies with a focus on environmental sustainability, and the IRPF ensures that any potential relocation carried out contemporaneously to the project must abide by Bank policy. Moreover, the incorporation of best practice grievance redress mechanism and environmental crime prevention considerations and tools, possibly in the project's training for compliance monitoring curriculum (Comp. 3.1.b), as well as other activities, will be recommended in order to mitigate the risk of increased conflict while increasing chances of achieving project objectives.</td></tr>
<tr><td>Resp:</td><td>Status:</td><td>Stage:</td><td>Recurrent:</td><td>Due Date:</td><td>Frequency:</td></tr>
<tr><td>Client</td><td>Not Yet Due</td><td>Implementation</td><td>☐</td><td>30-Sep-2019</td><td></td></tr>
<tr><td>Program and Donor</td><td>Rating</td><td colspan="5">Low</td></tr>
<tr><td>Risk Description:</td><td colspan="6">Risk Management:</td></tr>
<tr><td rowspan="3">Associated projects that complement the proposed Project may not materialize.</td><td colspan="6">The Project activities are not dependent on co-financing from the associated projects. Major complementary activities come from the projects anticipated under the CPS which has been agreed by the Government. Some of these projects have already been under implementation.</td></tr>
<tr><td>Resp:</td><td>Status:</td><td>Stage:</td><td>Recurrent:</td><td>Due Date:</td><td>Frequency:</td></tr>
<tr><td>Bank</td><td>Not Yet Due</td><td>Both</td><td>☐</td><td>30-Sep-2019</td><td></td></tr>
</table>

<table>
<tr><td>Delivery Monitoring and Sustainability</td><td>Rating</td><td colspan="5">Moderate</td></tr>
<tr><td>Risk Description:</td><td colspan="6">Risk Management:</td></tr>
<tr><td rowspan="3">Belize's capacity and resource limitations could constrain sustainability of the project achievements.</td><td colspan="6">The Bank continues to assess this risk and mitigate it with efforts to support the Government seeking additional resources for continued activities. The Project will focus on internalization of capacity built through the Project.</td></tr>
<tr><td>Resp:</td><td>Status:</td><td>Stage:</td><td>Recurrent:</td><td>Due Date:</td><td>Frequency:</td></tr>
<tr><td>Both</td><td>Not Yet Due</td><td>Both</td><td>☐</td><td>30-Sep-2019</td><td></td></tr>
<tr><td colspan="7">Overall Risk</td></tr>
<tr><td>Overall Implementation Risk:</td><td>Rating</td><td colspan="5">Moderate</td></tr>
<tr><td colspan="7">Risk Description:</td></tr>
<tr><td colspan="7">The overall risk rating is moderate as no substantial risks are identified except for the social risk which is a potential increase in social conflict amongst stakeholders due to the regulation/restriction of the use of the KBAs and transnational organized crime, Mayan communities' increased land insecurity. Social safeguard instruments are in place to ensure that potential social impacts are appropriately addressed through effective mitigation measures described in the project's Livelihood Restoration Process Framework, IRPF and IPF.</td></tr>
</table>

Annex 5: Implementation Support Plan

BELIZE: Management and Protection of Key Biodiversity Areas Project

1. The Implementation Support Plan (ISP) describes how the World Bank and other development partners will support the implementation of the risk mitigation measures (identified in the ORAF) and provide the technical advice necessary to facilitate achieving the PDO (linked to results/outcomes identified in the result framework). The ISP also identifies the minimum requirements to meet the World Bank's fiduciary obligations.

2. Technical Support Needed: The Project's intervention covers wide-ranging areas such as sustainable forest management, biodiversity, ecosystem services, protected area management, environmental policy, community-based development, small business development, marketing, environmental management, social development, climate change mitigation and adaptation, disaster risk management, carbon financing, ICT, communications, and knowledge management. The World Bank Task Team will involve specialists in these areas within the institution and may add external experts in the areas where necessary.

3. **Risk Mitigation Measures:** The proposed Project is focused on mitigating vulnerability to climate change and natural disasters through activities related to policy and capacity building. In parallel, the Project will coordinate with the Climate Resilient Infrastructure Project (an IBRD loan) under preparation which also includes activities to reinforce and reforest embankments, slopes to improve the resilience to natural hazards.

4. **Capacity:** The World Bank continues to assess this risk and mitigate it with close supervision and training efforts integrated in the operations. An emphasis will be placed on developing an effective implementation structure and monitoring program. Before the project effectiveness, the World Bank will retroactively finance the capacity enhancements for the PIAG with qualified technical and administrative staff. The World Bank will work closely with the PIAG to (a) provide necessary inputs early in the process of preparing technical and procurement documents according to the Annual Operating Plan and Procurement Plan, (b) support and follow up the review process of approving such documents on the client's side, and (c) review and provide no objections or comments efficiently.

5. **Delivery Monitoring:** The World Bank will assist in the Project's monitoring and evaluation program by (a) providing adequate information and data management practices, (b) sharing good examples and lessons learned from other operations including reporting templates and information systems, and (c) conducting field trips to the target PAs and local communities during every supervision missions, (d) exchanging information with other donor agencies with similar projects, and (e) conducting a thorough mid-term review with external experts specialized in the subject in Belize.

6. **Fiduciary Aspects**: The World Bank will check the implementation status quarterly in the first year and determine the specific training needs for the client. The first procurement and financial management training has already been provided prior to the appraisal. Training will be repeated or customized as necessary during the project implementation. Ex-post reviews and FM reviews by the World Bank's specialists will be conducted once a year.

7. **Safeguards:** The Project will not invest in any large infrastructure or other activities that require a full Environmental Impact Assessment. Therefore, the World Bank's environmental specialist will make a field visit once a year and support the environmental aspects of the investments

remotely on a daily basis. The anticipated level of environmental supervision is 2 staff weeks per year. Social aspects of the Project investments will be supported by a social development specialist on the team who is expected to make one field visit every year. It is proposed that these safeguards specialists combine missions for different projects in Belize that they supervise, and, if possible, combine training for the clients and stakeholders of these projects.

8. **Thematic**: The Project has been developed under the current Country Partnership Strategy (FY12-15). Also there are several projects which are closely linked to the project (e.g., Promoting Sustainable Natural Resource-based Livelihoods Project, Climate Resilient Infrastructure Project, and Marine Conservation and Climate Adaptation Project). Therefore, Project supervision may be integrated to broader thematic or implementation support missions (i.e. fiduciary or sectoral) as adequate. This will be done in consultation with the country team.

The main focus in terms of support to implementation:

Time	***Focus***	***Skills Needed***	***Resource Estimate***	***Partner Role***
First twelve months	Establishing the project management structure and getting the project implementation on track	Project management, Procurement, FM, Disbursement, Technical expertise, Safeguards	17 staff weeks	Project management, technical coordination, fiduciary management
12-48 months	Support and monitoring for achieving intended outcomes	Thematic expertise, safeguards	72 staff weeks	Project management, technical coordination, fiduciary management

Skills Mix Required

Skills Needed	***Number of Staff Weeks per year***	***Number of Trips per year***	***Comments***
• Forest Management	4 sw	2	
• Biodiversity	4 sw	2	
• Environmental Management	1 sw	1	
• Social development	1 sw	1	
• Small business development/marketing	2 sw	Local	
• Climate Change/Carbon Accounting	1 sw	1	
• Communications	1 sw	Local	
• ICT	1 sw	Local	
• Project management	1 sw	1	
• Procurement	2 sw	1	
• FM	2 sw	1	
• Disbursement	1 sw	N/A	
• Legal	1 sw	N/A	

Partners

Name	***Country***	***Role***
Ministry of Forestry, Fisheries, and Sustainable Development (MFFSD)	Belize	Technical Coordination and implementation of activities in the targeted areas
Protected Areas Conservation Trust (PACT)	Belize	Fiduciary management
Local communities/NGOs	Belize	Implementation of on-the-ground activities in the target areas

Annex 6: Economic and Financial Analysis

BELIZE: Management and Protection of Key Biodiversity Areas Project

I. Introduction

1. **Project Components**. Components 1-4 of the project outline specific activities for protecting biodiversity and preventing further deforestation and biodiversity reductions in three Key Biodiversity Areas (KBAs) of Belize comprising existing forest and watershed reserves. These KBAs are currently designated protected areas (PAs) and include two large tracts of more than 250,000 ha and a collection of smaller noncontiguous areas. The components of the Project are interrelated and will be analyzed together as one project. This is justified given that many of the action items for Belize derive from elements of more than one component, and an important overall result is reduced deforestation and protection of primary forest that spans across all activities. Component 1 supports forest protection and sustainable forest management in KBAs through a series of defined actions, with the main tasks being 1) increased monitoring and PA compliance efforts and revision of legislation regarding tenure that reduces incentives clear land and makes protection of KBAs more effective, 2) an increase in the number of hectares under sustainable forest management by 50%, 3) reduced incidence of fire by 25% through development of plans and increased suppression efforts, and 4) increased carbon storage by a target of 5.5 million tons annually from reforestation activities on degraded sites. Component 2 outlines several related action items required to promote effective management of KBAs, including providing support to remove the central government's ability to de-reserve areas without a formal process, increased patrol of the monitoring and compliance unit in the target PAs, clearer delineation of PA boundaries, and community based activities through reforestation and NTFPs in Component 1. Component 3 focuses on institutional strengthening for enhanced enforcement including training and equipping of additional staff, finding ways to better coordinate different levels of government in activities relevant to protection of KBAs, and updating various plans and environmental certification programs for expected enhanced compliance. Finally, Component 4 focuses on project management such as stakeholder involvement and impact evaluation. For the economic cost effectiveness and breakeven benefit analyses, the main set of actions that can be valued in terms of benefits and costs are those activities outlined in Components 1 and 2, but Components 3 and 4 facilitate these actions. Thus, a benefit-cost analysis of the first two components essentially assumes successful fulfillment of the third and fourth components, and measures of enforcement and administrative costs in the literature that will be used (see below) are for costs that include both on the ground and administrative legal actions to protect forests. The success of Components 3 and 4 in ensuring Components 1 and 2 are feasible is assumed to occur for the purposes here given no a priori reason to assume failure.

2. **Key Biodiversity Areas under Consideration**. Belize has large blocks of tropical forests covering 72% of its land area, with 37% classified as primary mostly broadleaf forests. The KBAs identified in the Project include two large blocks and some other isolated sites. The first block is comprised of the Selva Maya and Rio Bravo conservation areas (104,897 ha), Aguas Turbias National Park (3,541 ha), and Gallon Jug Private Management Area (54,154 ha). The second block is comprised of the Maya Mountains of the Vaca Plateau (14,118 ha), and the Mountain Pine Ridge (43,372 ha) and Manatee River (36,621 ha) forest reserves. The third block is comprised of a collection of areas that are smaller and non-contiguous and found throughout

the country. A recent study on the state of Belize's PAs assessed the management and enforcement effectiveness of several of these areas, finding that some of the KBAs, such as Aquas Turbias in particular, have been poorly managed while others, such as the Manatee River Reserve, have been only moderately managed against illegal incursions (Walker and Walker, 2009). This study also lists as the top five threats to PAs in Belize in general to include hunting, logging, boundary incursion, agricultural land uses from squatters, and anthropogenic fire disturbances.

II. Outline of the Economic Analysis

3. **Time Horizon and Discount Rate Assumptions**. The Project will assume to commence in 2014, and two time horizons, 10 year and 20 years, will be considered. The two time horizons offer potentially different benefit streams, as some of the goals of the proposal, such as carbon sequestration or reforestation of degraded sites, may not be fully realized until sometime after the Project commences. Further, there are adjustments expected in local people's use of the KBAs, and the impact on deforestation rates is likely to happen over time rather than instantaneously. For evaluating the present value of the net benefits, three discount rates will be used: a 4% rate that is widely regarded as a "social" discount rate by economists for evaluating projects such as this one where there are benefits and costs that go beyond what private individuals can capture, and more market-oriented 10% and 20% discount rates.

4. **Scope of the Economic Analysis**. Deforestation has been a continuing concern throughout Belize for the past several decades, and the Project seeks to reduce further degradation and deforestation in these KBAs. As in most tropical countries, deforestation is essentially a mining problem where native forests with positive net rents, or returns net the cost of extracting the forest, are captured by reducing the stock and lowering forest health through losses in the highest quality and most valuable species. This type of exhaustible resource exploitation problem in economics implies that reductions in the rate of forest removals creates annual benefits in terms of avoided forest loss, and these benefits are measured as a function of the reduction in land area cleared as deforestation prevention policies are applied. On the other hand, reforestation of fast growing tree species provides a substitute source of wood and other products and can partially rehabilitate degraded (selectively harvested by removing the highest valued trees) and previously cleared lands. On existing forest land that is not yet subject to deforestation or selective harvesting, benefits derive from reduced impact on forests through human use via long term forest management plans to better regulate use and prevent degradation as caused by unsustainable harvesting practices (such as high grading), promotion of agroforestry, restoration of abandoned agricultural lands, increased storage of carbon and potential rents that could be captured from such storage under payment for ecosystem services programs such as REDD+ for example (See Pfaff et al., 2013), higher maintenance and protection of borders delineating KBAs, and benefits due to higher biodiversity of plants and animals and greater production of non-timber forest products utilized by local communities but also protected in KBAs. The Belizean Government's expectations for important targets detailed in the components of the proposal are an increase in area under sustainable forest management by 50%, reduced fire incidence by 25%, increase areas rehabilitated via community-based activities by 3425 ha, and reduce illegal trespass losses to forests by farming, hunting, and logging by regular patrol (90% of planned patrol in the work plan) by the monitoring and compliance unit in the target PAs under the Project. The costs associated with the project include greater government enforcement and management costs concerning protected areas, reforestation

costs, greater fire control, and several indirect opportunity and transaction costs. While there are to be expected some losses in welfare to surrounding communities that now make use of the forest illegally through crossing of boundaries for harvesting of timber, bush meat, and other non-timber forest products, these losses are difficult to estimate without formal survey data, and as such it is assumed for this analysis that the benefits of enhancement to the natural resources from the proposed activities will likely be higher than these costs. Further, it is assumed that government implementation of elements of Components 1-4 is efficient and effective, meaning there is no corruption or poor management that reduces the ability of Belize to meet the targets outlined above. Any inefficiency in this regard can be addressed by assuming larger than expected costs for the actions listed in the proposal, and this translates into a higher benefit breakeven point as later discussed. However, since cost estimates will be taken from similar developing and tropical countries, it is expected that the costs used in the economic analysis already include some of these transactions and efficiency costs that are due to less than efficient governance.

5. **Deforestation within Protected and Non-Protected Areas**. Belize has the highest percentage of forest cover of any Mesoamerican country, although this has declined significantly over the past two decades. For example, using Landsat data Cherrington *et al*. (2012) find that forest cover equaled 1,648,783 ha in 1980 but only 1,366,300 ha in 2010, so that the percent of the country covered by forest declined from 74.38% to 61.64% of total land area, a change of 9,416 ha per year. Of this cleared land, 96.2% consisted of lost broadleaf tropical forest (the most common type) while 2.8% was pine forest (mixed forest cover types are a very small part of deforestation according to this report). Primary pine forests have also suffered repeated outbreaks from bark beetle. In terms of PAs, most of the deforestation there (93.6%) occurred outside of delineated boundaries, but 6.4% or about 603 ha per year of deforestation was found to occur within PA boundaries. The most significant deforestation was found within PAs targeted under the Project, namely Chiquibul National Park, Columbia River Forest Reserve, and Vaca Forest Reserve. It is expected that the impact of Belize's effort outside of designated KBAs will be smaller than inside for these reasons. This assumption in fact has strong support in the literature, which has found repeatedly in studying super-enforcement of protected areas that deforestation often increases on the fringe of these areas as long as there is relatively good access, which is the case in Belize given the small distances connecting population centers and primary forests, and the proximity of other countries to Belize primary forests and KBAs – this type of effect has been described as 'leakage' in the literature. Further, the fact that better management in PAs does not guarantee close to a full reduction in deforestation also has support in the literature, although there is some debate. For example, Joppa and Pfaff (2010) recently find for similar protected areas in Costa Rica's that avoided deforestation is often lower than expected once location is accounted for, and the fact that better protection designation and enforcement actually results in increased deforestation around the core of protection. A similar result has also been found in Sanchez-Azofeifa et al. (2001), who demonstrate that fragmentation of forests increases outside of protected areas in Central America, even though deforestation decreases in protected areas once designated. Moreover, better control of forests outside of PAs will likely reduce the increasing pressure on PAs that can be expected as deforestation increases. Andam et al. (2008) further found that 65% of avoided deforestation or, for example, intended deforestation reductions are overestimated. However, even in their study they do find that PA control has reduced deforestation by 10% during the 1990s in Paraguay, while other studies have

found that deforestation in two important forest reserves there was up to 50% lower once the government committed resources to their control.

6. **Land Use Change Assumptions with the Project**. Given the targets set forth in the Belize proposal and the collective findings on the literature of PAs in tropical forest developing countries, it is assumed that the project leads to a reduction in deforestation in KBAs of 50% from the current 6.4% loss in hectares noted in paragraph 5, and that this effect is gradual and occurs over the next 10 years at a rate of 5% reduction per year. To be as conservative as possible, it is expected that this 50% reduction in deforestation continues at the same rate for the next 10 years. Additionally, because the scope of the proposal in Components 2 and 3 includes revised laws and better administration and coordination at central and local government levels in general, it is assumed that there will be an impact on deforestation for the forestland area outside of the proposal-designated KBAs. It is assumed that this effect is a 10% decrease of the total deforested land area to be captured over both time horizons based on the total hectares of forest lost historically. Finally, it is assumed that a portion of the total deforestation reduction is due to reforestation on degraded lands, and that this is accomplished on 25% of all avoided deforestation land. There are two reasons to be conservative in evaluating plantations. First, given the difficulty in reforesting broadleaf native forests, and the relative efficiency and ease of establishing fast growing pine plantations in Central America, reforestation of debilitated lands will likely only be possible in a cost effective way through establishing pine or Eucalyptus plantations (these plantations are in fact common in heavily deforested countries after reform). Second, reforested plantations such as these are typically monocultures and are therefore less biologically diverse than native broadleaf forests. On the other hand, and accounted for in this analysis, pine plantations in Central America are very fast growing and efficient carbon stores. Table 9 presents changes in land use under the assumptions set forth in this paragraph and paragraph 5.

Table 9: Land Use Change Assumptions at 10 and 20 Years

Estimated Effects of Proposed Project	*End of 2024*	*End of 2034*
Hectares primary forest deforested in KBAs *without* Project	6,027	12,052
Hectares primary forest deforested in KBAs *with* Project	3,013	6,026
Hectares deforestation avoided in KBAs	3,014	6,026
Hectares of deforestation avoided outside of KBAs	9,416	18,832
Total Hectares deforestation reduced *with* Project	12,429	24,858
Hectares reforested in non-broadleaf forest *with* Project	3,107	6,214
Hectares in Key Biodiversity Areas	250,000	250,000

7. **Overview of Benefits with the Project.** The benefits from carrying out Components 1-4 are wide ranging but result primarily through three channels, decreased deforestation and illegal wildlife harvesting through reduced illegal trespass for hunting or land clearing, protection of KBA forest resources through fire protection, and restoration of degraded sites through reforestation. Many of the policy actions described in the project components, such as land tenure, are afforded through the benefits of decreased deforestation through land clearing reductions. There are both market and nonmarket benefits accountable to these channels. Market benefits include those changes to the ecosystem that contribute to higher rents earned by land users or land owners (in this case the Government of Belize). Examples of market benefits include carbon storage that may attract carbon credits both from avoided deforestation and reforestation of degraded lands, higher land values through greater investment in secure tenure

areas, increased use of agroforestry practices that generate rents for land users, greater and more accessible quantities of NTFPs most notably cabbage palm, bush meat, and medicinal plants that are used by local communities and/or marketed and sold outside of local areas (these can have both market and nonmarket benefits to local communities), tourism income that derives from higher quality plant and animal diversity and abundance, reduced fire timber losses measured in terms of the value of forests saved by greater control and fire education programs, and more sustainable logging practices that increase the rents from forest land uses. These market benefits are easier to value than the host of nonmarket benefits expected from the Project (although some of these nonmarket benefits are not necessarily captured by Belize itself). For example, the Project will increase the quality of wildlife habitat and water quality, allow populations of certain endangered animals noted in the Project, such as the Jaguar and different species of monkeys, to recover through decreased illegal hunting and habitat destruction, increase the quality of natural resources in sustaining local populations through, for example, bush meat, greater biodiversity will occur that may be valued not only by Belizean citizens but also the rest of the world, and lower greenhouse gas production and a contribution to climate maintenance and reductions to carbon emissions. Many types of nonmarket benefits are difficult to value without targeted surveys and other data collection. However, for some of the nonmarket benefits, the market benefits that are easily valued provide at least a lower bound value.

8. Table 10 presents a classification of the types of benefits expected from the activities listed in the first column taken from the project components. It is important to note that protection of the native primary forest in Belize is a key feature that cuts across many benefits. Protection is afforded through project components including reductions in land clearing and squatting for slash/burn agriculture and grazing, reductions in illegal hunting, and reduction in illegal harvesting including unsustainable forest management practices such as selective harvesting. Protection of primary forest results in many market and nonmarket benefits as shown in the first row of the table. However, because many activities set forth in the project are related, the table indicates the core market and nonmarket benefits that must be estimated so that double counting of benefits does not occur. For example, the reduction of both habitat loss and illegal hunting will lead to greater biodiversity and wildlife preservation, and as such this is likely to cause increased tourism revenues per hectare of forested area protected. It is most conservative to assume that many will affect the same area as is assumed to equal decreased deforestation. This is a necessary assumption because the project activities for each component outlined in Paragraph 1, with the exception of reforestation of degraded lands, will likely affect most or the entire same forestland base. It is also important to realize that these benefits are generated annually but are related to the land use change assumptions given in Table 9, including reduction in deforestation expected each year, the area protected by fire each year, and the area reforested on degraded lands. Further, it is valid to use benefits transfer if information in the literature concerning similar nonmarket values as those attributable to protection of KBAs in Belize can be applied to computation of benefits for the analysis here. In this analysis, existing literature will be used for Central and Latin America to provide bounds on market values (and nonmarket values where possible) from greater protection in KBAs over the 10 and 20-year time horizon. These values are typically estimated per hectare in the literature and as such will be applied in this form throughout the analysis, making use of Table 9.

Table 10: Benefits of Proposed Project by Activity

Proposed Activity	*Market*	*Nonmarket*
Protection of primary forest	Tourism, NTFPs, forest harvesting	Plant and animal biodiversity,

(decrease in deforestation)*	revenues	watershed quality, endangered and threatened wildlife species protection, NTFPs (medicinal plants)
Fire suppression and management	Reduction in losses to timber, agriculture, cattle	Protection of primary forest
KBA policy reform and enforcement**	Protection of primary forest	Protection of primary forest
Tenure security protection	Higher land value and investments	Protection of primary forest
Forest plantation establishment on degraded lands	Carbon credits for new growth in established plantations, harvesting returns	Climate maintenance (reduced global warming)
Ensuring greater local involvement	Protection of primary forest	Protection of primary forest

Notes: * includes reductions in land clearing and squatting for slash/burn agriculture and grazing, illegal hunting, and illegal harvesting including selective harvesting; **includes enforcing sustainable forest management principles, delineating and enforcing KBA boundaries, reform of government tenure and protected area policies, coordination of government levels.

9. **Overview of Costs Associated with the Project**. The Project will involve both direct actions that the Belizean Government must take to implement the Project, as well as indirect costs associated with avoided deforestation; the latter has been the subject of considerable debate in the economics literature and can be viewed as the opportunity and transactions costs of implementing any policy shift that changes land use and deforestation, implying that some opportunities are lost by reducing forest use. Referring to Table 10, the activities in the first column comprise activities that contribute to costs. These are accountable per hectare and are dependent on the land use change assumptions in Table 9. A classification of costs is given in Table 11, which identifies where direct and indirect costs are expected to arise and the land area to which they are applied; also indicated in the second column is the number of hectares each activity in the first column is applied to. The easiest types of costs to estimate are the direct costs in the third column. In the Project, direct costs include government payments for greater fire protection and suppression, as this is mentioned in the proposal as one way of capturing project financial benefits, higher enforcement costs related to Component 1-2 actions, and costs to reforest degraded sites. However, there are other costs that represent indirect opportunity costs associated with the Project. For example, there are lost timber incomes from lower harvesting due to greater enforcement and legislative changes, and shifts (largely decreases) in the use of forests by local people for NTFP collection and bush meat hunting as enforcement tightens and delineation of boundaries becomes more complete. Although many of these activities are illegal or are short-term benefits, one must at least acknowledge that some stakeholders will be worse off from the proposed actions. There is a large literature on these opportunity costs associated with avoided deforestation, much of which has revolved around tropical forests in Central America, and this literature will be used to value these lost returns on a per hectare basis. It is important to be as conservative as possible in estimating indirect opportunity costs, because enhancements in NTFPs and local management of lands in the long run under sustainable forest management goals of the proposal will more than compensate for short run losses.

Table 11: Direct and Indirect Annual Costs from Proposed Project Activities

Proposed Activity (project components)	*Area Applied (Table 9)*	*Direct Costs*	*Indirect Costs*
Protection of primary forest (decrease in deforestation)	Total hectares of deforestation reduced		Lost rents from using forests by local populations

	with Project		or harvesting in areas newly protected and enforced
Fire suppression and management	Hectares in KBAs	Labor to fight fires, administrative costs	
KBA policy reform and enforcement	Hectares in KBAs	Administrative costs, additional inspectors and enforcement labor	Additional costs of sustainable forest management
Tenure security protection	Hectares in KBAs	Administrative	
Forest plantation establishment on degraded lands	Hectares reforested in non-broadleaf forest	Establishment; Forest management	
Ensuring greater local involvement	Hectares in KBAs	Transaction costs	

III. Assumptions for Specific Costs and Benefits

10. **Protection of Primary Forest Benefits and Costs.** The benefits found in Table 10 have been studied in Central and Latin America. Pearce (1998) presents values for the categories of benefits described in the second and third column of the first row of Table 10, based on a survey of studies undertaken in Central American tropical forests. They found that the nonmarket benefits associated with non-extractive carbon, recreation, and biodiversity total US$4,400 per hectare per year of deforestation prevented, and other non-use values attributable to the preservation of diverse species and plants to equal US$27 per hectare at the upper limits. They also found extractive (harvest) rents (an indirect cost in the first row of Table 11) to equal about US$40-50 per hectare, which implies non-extractive values of native forests are much higher than extractive values, a point made repeatedly in the literature on conservation of primary tropical forests. Similarly in a review of the literature, Gossling (1999) found that benefits including diversity, medicinal plants and NTFPs used by local communities, global warming, payments for environmental services (PES) and other use and nonuse values total about US$6,000-7,000 per hectare per year of deforestation avoided, while the indirect opportunity costs of activities identified in first row and fourth column of Table 11 to total about US$1,000-3,000 per acre in terms of lost extraction illegal rents. Zbinden and Lee (2005) discusses the Costa Rican PES program and provides data showing that payments for sustainable forest management and reforestation on enrolled lands can be US$241-623 per hectare and should be included in the Gossling and Pearce estimates. Putting all of these findings together, a figure of US$4,500 per hectare per year will be used to represent the benefits of primary forest protection net of the indirect opportunity costs, and this is applied to the annualized total hectares of deforestation reduced in Table 9 for both time horizons. The present values of net benefits of protection of the primary forest under the three discount rates are given in Tables 12 and 13 for 10 and 20-year time horizons respectively.

11. **Fire Suppression and Management Benefits and Costs.** In general, the impact of the fire management strategy is difficult to value. First, fire protection potentially protects standing forest from deforestation or cover loss in the KBAs that is already valued in paragraph 10 for the KBA, in addition to other hectares that will be under greater fire protection – this assumes that fire protection is applied consistently across this area. Second, in many places in the tropics and Central and Latin America in particular, fire often starts not in primary forest but in partially cleared, selectively logged areas, or land under slash and burn agriculture where the canopy has

been opened and temperatures are higher at ground level (Holdsworth and Uhl, 1997). Wherever the fire protection is applied, there are benefits in terms of forest and other land use losses avoided that must be counted in estimating a net benefit of fire control per hectare per year. De Mendonca *et al.* (2004) and Nepstad *et al.* (2001) provide average data and results for tropical countries concerning the value saved in secondary cleared forest and other landscapes from prevention of fire, finding on average that losses saved are about US$31 per hectare. Nepstad *et al.* further argue that fire prevention activities in partially cleared or grazed lands in Amazonia cost a relatively small US$0.90-1 per hectare. Absent any data in tropical countries, mainly because fire protection is very under-funded and often not applied at all, it can be assumed that fire suppression costs US$10-20 per hectare, which is consistent with experience in developed countries. It will therefore be assumed that the net benefits per year for fire protection are equal to US$10 per hectare, taking the lower suppression cost range. The present values of net benefits of fire suppression and management are given in Tables 11 and 12 for 10 and 20-year time horizons respectively.

12. **KBA Policy Reform and Enforcement Costs**. The benefits from greater enforcement and stricter policies are already captured in the benefits of decreased deforestation and protection of primary forests discussed in paragraph 10. The costs of enforcement in tropical developing countries are difficult to estimate, in part because enforcement has been virtually nonexistent in these situations (Contreras-Hermosillo, 2001). However, one circumstance where enforcement has been applied, when it is used at all, has been forest concessions. Forest concessions are large harvesting agreements made for harvesting tropical forests between government and owners/harvesters, and often given their visibility governments do enforce these areas to ensure contracts are adhered to. An entire literature exists on the pitfalls in designing concessions, but there is some information on how much enforcement would need to be spent in order for the government to secure rent capture and minimize illegal trespass. The objective of this enforcement is similar to the Project. It has relevance for Belize's KBAs since preventing illegal incursions is the main objective of greater enforcement as discussed in the project components. It has been estimated in Peru and Amazonia, two regions where concessions have been used for decades, that the costs of proper enforcement range from US$10-100 per hectare per year (Ellison, 2003). The lower range of this value is more appropriate for Belize, since KBAs are not subject to large concessions harvesting of high valued trees as in Amazonia, and because distances are small between forest sites. Further, as discussed in the Project document, enforcement will likely be required most extensively in border zones, meaning it is appropriate to apply the cost per hectare to a smaller number than the total hectares in the KBAs, and finally there is already some enforcement going on in KBA areas as evidenced by the assessment in Walker and Walker (2009). It is therefore assumed that a cost of US$10 per hectare per year will be applied to 25% of the 250,000 ha in the KBAs, for a total cost of US$625,000 per year of the Project. Tables 11 and 12 present the present value of these costs for the different discount rates and time horizons included in this study.

13. **Tenure Security Protection**. The primary benefits of tenure security are protection of primary forests by reducing incentives to clear land, and there may be potential for PES collected as a result (although markets for PES do not generally exist on a large scale yet) – some of these benefits are included in the paragraph 10 discussion. There may, however, be additional benefits suggested by recent work. Merry and Amacher (2008) and Bohn and Deacon (2000) find that secure tenure can increase land values by providing incentives to invest in production instead of protection. Merry and Amacher in a study of land values in Amazonia, find that more secure land

in productive uses can add up to US$11 per hectare per year of land value, whereas formal land title yields slightly more than US$1 per hectare. There are separate costs of administration however that go beyond enforcement of KBAs discussed in paragraph 12. For example, Hatcher (2009) in a survey of the literature finds that for Bolivia and Brazil, the costs of securing tenure administratively and socially can range from US$0.50-9.96 per hectare, while Grieg-Gran (2008) argues that administrative costs for tenure and PES administration are US$4-6 per hectare per year for a scheme that relies only on new applicants. Using the higher end of both cost and benefit ranges, it is assumed that the net benefit of tenure security equals US$2 per hectare per year for hectares of KBAs since this land is currently not managed under highly secure tenure. Tables 11 and 12 present the present values of these net benefits for the two time horizons and different discount rates.

14. **Forest Plantation Establishment Costs and Benefits**. The Project suggests new establishment of forests that will benefit Belize in two ways, first, through a sustainable source of timber, and, second, through potential to capture market carbon credits or at least provide nonmarket benefits from increased carbon storage (see Table 10). There is some question concerning the ease of market based carbon credit revenue capture in developing tropical countries due to obvious transaction costs involved in large scale crediting and the fact that credit markets are generally not yet widespread. Further, the feasibility of carbon credits involves a stock versus a flow question. The stock of Belize's forests are largely unchanging as they are native forests with growth rates that are very small if not equal to zero; avoided deforestation through prevention of land clearing there prevents loss in carbon, but the remaining forest has a high average stock with a low flow per year. Richards and Stokes (2004) survey several studies on the valuation of reforestation costs and benefits for new forest plantation establishment. In those studies relevant to Belize, they find that carbon storage from plantations in Central and Latin America average 25-125 tons/ha, with total land costs to establish these plantations of US$50-150 per hectare. Some studies report costs per ton sequestered from plantations, and in tropical regions this has been found to equal US$5-11 per ton to establish a plantation and US$0-40 per ton for forest management activities in the plantation once established. On the revenue side, Myers (2008) and Sohngen and Beach (2006) suggest a wide range of annualized carbon payment benefits in the range of US$23-669 per hectare per year. The upper end of this range includes harvesting of plantations at periodic rotation ages (usually 7-15 years per rotation). Harvesting and carbon storage are compatible in sustainably managed forest plantations if regeneration is undertaken after each harvesting. This is because the average carbon stored over time is affected to a relatively small degree if forests are reestablished on the site, since considerable amounts of carbon are stored below ground in roots and the crowns of trees that are usually not removed upon harvesting. While wood production has slowed in Belize in recent decades, this analysis assumes plantations cost US$150 per hectare to establish (recognizing that this may be a lower bound, although it is an average plantation cost for pine species in more temperate climates), and it is assumed there is a relatively low annualized US$300 per hectare per year carbon payment benefit. Thus, a conservative net benefit of US$150 per hectare per year reforested is assumed. This net benefit is applied to the hectares assumed to be reforested and is given, in present value terms, in Tables 12 and 13.

15. The largest potential benefit of carbon storage comes from the stock of forests protected through avoided deforestation, i.e., protection of primary forest in Table 10. Pearce and Moran (1994) discuss changes in carbon with land use change, finding that land shifts from secondary (degraded) forest and primary native forests to short term agricultural and grazing reduces

carbon stocks stored in the forest 50-220 tons per hectare for secondary and primary forest respectively. Using benefits transfer from other studies, they argue that the benefits in terms of global warming from avoiding deforestation of these forests, based on Fankhauser's (1994) estimate of US$20 per ton of carbon lost, are US$2,000-3,000 per hectare of primary forest protected. Since this figure represents a global warming benefit, it is already included in the valuation of benefits of primary forest protection outlined in paragraph 10.

16. **Ensuring Greater Local Involvement.** The impact of greater local involvement on the wealth of local people is somewhat unclear in the literature. During the past several decades there has been considerable devolving of ownership and management of tropical forest reserves to local and indigenous people, most of which has involved African and Indian cases (Pfaff et al., 2010). In these as well as tropical forests, the purpose of local involvement is to offer incentives for protection and monitoring that build upon the central government's enforcement regime, in return for local peoples' continued sustainable use of forests for NTFPs and sometimes for a share of the revenues earned by tourism or managed use of forests. The failure or success of these initiatives is not guaranteed and depends on the precise structure of local involvement, commitment by the government, the structure of village rights and decisions, and rents subject to protection. In Amazonia (the closest example to the Belize case), it has been found that local involvement offers a protective effect similar to designating and enforcing a protected area, and local involvements facilitates or is equivalent to PAs in reducing fire incidence and deforestation (Nepstad *et al*., 2006, Adenay *et al*., 2009). However, Pfaff et al. (2010) argue that while these effects are less than claimed, local involvement is better than open access forest in avoiding deforestation. Further, if rents were high enough, exclusion of outsiders would already be happening to some extent as found by Nepstad *et al*. (2006). Improvement in sustainable forest management has occurred in Mexico after local involvement was initiated (Alix-Garcia et al., 2004), but the cases in Asia have not always led to reduced deforestation, especially where land tenure and legal protection was not in place and enforced (Engel and Palmer, 2008), or where tracts of forest under consideration were very large. Given this literature and the proposed actions and nature of KBAs in Belize, it will be assumed that local involvement is necessary in facilitating protection of primary forest (through avoiding deforestation and enhancing sustainable forest use). The value of this involvement could in principle be derived by estimating the value to local communities of using the forest under the proposal and deducting the costs of not doing so in terms of continued degradation. Lacking data for this, it is most conservative to assume that ensuring local involvement is necessary to facilitate the proposal components rather than producing a calculated net benefit. This is reflected in the last row of Tables 12 and 13.

IV. Benefit Breakeven Analysis and Cost Effectiveness Analysis

17. Tables 12 and 13 present results from the net present value analysis that considers the net benefits from adopting the Project versus doing nothing but continuing the status quo and having KBAs suffer continuing (and historical) deforestation and degradation. Thus, the elements of the tables present the net change of adopting the Project. Table 14 presents the net benefits of undertaking the Project once the costs are deducted in present value terms, for all discount rates and both time horizons. Table 14 uses the last row of Tables 12 and 13 and deducts from these elements the present value of Bank implementation costs. The cost by component suggests a project cost equal to US$5,779,800 and a management cost of an additional US$305,800 for a total of US$6,085,600. Assuming these are in present value terms, Table 14 presents the net benefits of the Project. In every discount rate and time horizon case, the Project has positive net

benefits. The benefit break-even point is considerably lower than the estimated benefits. For example, even if estimated benefits were 50% lower than currently estimated, the net benefits from undertaking the Project would be positive. This is largely because of the high value of standing primary forests for biodiversity, forest, wildlife livelihoods, and income.

18. A cost effectiveness analysis can be undertaken by estimating what Belize would have to spend in order to achieve the same protection as the Project. A way to do this is to assume that Belize would have to purchase credits for deforestation that occurs without the Project (a total of 12,430 ha for the 10 year time horizon, and 24,858 ha for the 20 year time horizon (from Table 9), and then assume that credits could be purchased to capture carbon emissions and biodiversity benefits. Taking the conservative midrange of these values from the analysis, it can be assumed that Belize would need to spend US$1,000 per hectare to offset the damage from not having the Project. Using this figure, and assuming that the cost is paid now at year zero, the total costs from this alternative action are US$12,430,000 for the 10-year time horizon, and US$24,858,000 for the 20-year time horizon. Given that the net benefits are higher from Table 14, the alternative cost project is not as efficient as the Project.

Table 12: Present Value (PV) of Net Benefits (USD) *With* Proposed Project Activities for 10 Year Time Horizon (2014-2024) and Discount Rates of 4, 10, and 20%

Proposed Activity	***PV of Net Benefits 4%***	***PV of Net Benefits 10%***	***PV of Net Benefits 20%***
Protection of primary forest (decrease in deforestation)	45,368,295	34,369,636	23,450,593
Fire suppression and management	20,277,239	15,361,418	10,481,180
KBA policy reform and enforcement*	-5,069,310	-3,840,354	-2,620,295
Tenure security protection	4,055,448	3,072,284	2,096,236
Forest plantation establishment on degraded lands	378,069	286,414	195,422
Ensuring greater local involvement***	0	0	0
TOTAL PV of Net Benefits (10 year)**	**65,009,741**	**49,249,398**	**33,603,136**

Notes: *PVNB is negative as these are only costs (see paragraph 12); ** sum of each column; ***facilitation effect (see paragraph 16)

Table 13: Present Value (PV) of Net Benefits (USD) *With* Proposed Project Activities for 20 Year Time Horizon (2014-2024) and Discount Rates of 4, 10, and 20%

Proposed Activity	***PV of Net Benefits 4%***	***PV of Net Benefits 10%***	***PV of Net Benefits 20%***
Protection of primary forest (decrease in deforestation)	76,017,490	47,620,619	27,237,994
Fire suppression and management	33,975,816	21,283,909	12,173,949
KBA policy reform and enforcement*	-8,493,954	-5,320,977	-3,043,487
Tenure security protection	6,795,163	4,256,782	2,434,790
Forest plantation establishment on degraded lands	633,479	396,838	226,983

Ensuring greater local involvement***	0	0	0
TOTAL PV of Net Benefits (20 year)**	**108,927,994**	**68,237,171**	**39,030,229**

Notes: *PVNB is negative as these are only costs (see paragraph 12); ** sum of each column; ***facilitation effect (see paragraph 16)

Table 14. Total Net Benefits from Proposed Project Implementation

Time Horizon	***4%***	***10%***	***20%***
(10 year) 2013-2023*	58,924,141	39,156,798	27,517,536
(20 year) 2013-2033	102,842,394	62,151,561	32,944,629

Notes: *Total PV of Net Benefits in Table 12 minus present value of GEF/Bank costs

Annex 7: Incremental Cost Analysis and Global Environmental Benefits

BELIZE: Management and Protection of Key Biodiversity Areas Project

1. The proposed Project is fully consistent with the multiple Focal Areas under Global Environment Facility fifth replenishment (GEF-5) as follows:

Objective 1 of the Biodiversity Strategy: Improve sustainability of PAs systems	The Project will directly support: Improved management effectiveness of existing and new PAs.
Objective 2 of the Biodiversity Strategy: Mainstream biodiversity conservation and sustainable use into production landscapes, seascapes and sectors.	The Project will support: (i) Increase in sustainably managed landscapes and seascapes that integrate biodiversity conservation and (ii) Measures to conserve and sustainably use biodiversity incorporated in policy and regulatory frameworks.
Objective 5 of the Climate Change Strategy: Promote conservation and enhancement of carbon stocks through sustainable management of land use, land-use change, and forestry (LULUCF).	The Project will support: (i) Good management practices in LULUCF adopted both within the forest land and in the wider landscape; (ii) Restoration and enhancement of carbon stocks in forests and non-forest lands, including peatland, and (iii) GHG emissions avoided and carbon sequestered.
Objective 1 of the Sustainable Forest Management/REDD+ Strategy: Reduce pressures on forest resources and generate sustainable flows of forest ecosystem services.	The Project will support (i) Good management practices applied in existing forests.

2. Belize has a very high level of terrestrial and aquatic biodiversity, including more than 150 species of mammals, 540 species of birds, 151 species of amphibians and reptiles, nearly 600 species of freshwater and marine fishes, high numbers of invertebrates, and 3,408 species of vascular plants. Belize's rich terrestrial and marine ecosystems provide important habitat for these species, represented by the Belize Barrier Reef—the largest barrier reef in the Americas—classified as one of the world's marine hotspots and encompasses six United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage sites. Belize is well known for having plentiful natural resources and a vast array of ecotypes with respect to water and biodiversity.

3. Much of the terrestrial area of Belize represents a significant portion of the Mesoamerican Biological Corridor, which stretches from Mexico to Panamá. In fact, Belize has the highest forest cover in both Central America and the Caribbean; 72% of Belize (as a percentage of land) is covered with forests, of which 37% are classified as primary forests. Belize has two large, unified blocks of intact virgin rainforest that are likely to be the last strongholds for species that require large, undisturbed areas for their long-term survival, such as the jaguar (considered the flagship species of Belizean conservation). In order to protect this unique forest and outstanding biodiversity, Belize has 94 protected areas covering 34.9% of the country's total land area. Terrestrial species of global significance occurring in Belize include the jaguar (*Panthera onca*), Yucatan black howler monkey (*Alouatta pigra*), Geoffrey's spider monkey (*Ateles geoffroyi*), the Baird's tapir (*Tapirus bairdii*), the white-lipped peccary (*Tayassu pecari*), the endangered yellow-headed parrot (*Amazona oratrix*), the Mesoamerican river turtle (*Dermatemys mawii*), and the endemic Maya Mountains frog (*Lithobates juliani*).

4. Although Belize has managed to preserve its environmental capital to a greater extent than its neighbors, it still faces some serious environmental problems that adversely affect the

poor as well as economic growth prospects. The forests are under increasing pressure from factors such as illegal logging and encroachment, forest/bush fires, and slash-and-burn agriculture. Another factor driving deforestation in Belize is the existing land tenure legislation, which requires that leased lands that are forested must be 'developed' by the owners or their leases will be revoked. This provides strong incentive for landowners to clear the land in an effort to meet the requirements of 'development'. However, it has been observed that many of these lands lie idle after they have been cleared since the landowners lack the capital to engage in alternative land uses.

5. Loss of forests in deforestation hotspots, particularly in key watersheds, leads to loss of ecosystem services: protection of water quality in adjacent watersheds and reduction of nutrient flows that are damaging to coral reefs. Since the pre-independence period, timber was one of Belize's major export products. Although the industry has now declined, forests are a valuable asset and generate a range of important ecosystem services such as biodiversity habitats, non-timber forest products (NTFPs) for local and indigenous communities, fuel for rural communities, and a large untapped potential for the use of medicinal plants in the pharmaceutical industry. Forests provide soil stabilization, which prevents excessive sedimentation of estuaries and coral reefs and reduces the runoff of nutrients from agricultural areas to sensitive coral reef and mangrove ecosystems. Location is important with respect to the loss of ecosystem services such as water quality protection by riparian forests. Deforestation has been found to be more severe along rivers, reaching 13% annually in some areas.

6. The major obstacles in implementation of the CBD Strategic Plan include the lack of financial resources, the lack of research and development facilities, and insufficient technical capacity. While progress has been made in building institutional capacity for biodiversity conservation, there still remains much more to be done if Belize is to be able to effectively manage and protect its biological resources. Protected areas remain in need of trained personnel, information on key aspects of conservation such as distribution of species and demographic patterns in protected areas and biological corridors. Access to adequate financial resources remains a major challenge despite the support received from Belize's Protected Areas Conservation Trust, GEF and other funding agencies. Therefore there is need for continued and increased international support in terms of financial and technical resources required to carry through the various activities of the Strategic Plan of CBD in order to reach substantial reduction of rate of biodiversity loss.

Baseline Scenario

7. Biodiversity in Belize is threatened by deforestation as a result of illegal logging and encroachment, forest/bush fires, and slash-and-burn agriculture. The impact of productive activities on biodiversity and on the overall environment is reflected in changes in land use, with forest area converted to agricultural use or replaced by forest plantations. These changes in land use result in habitat destruction, soil erosion, contamination of water, ecosystem fragmentation and species loss. At the same time, because most of these producers (and communities) are impoverished and marginalized, their management decisions are often heavily influenced by short-term economic needs (i.e. relative prices of different crops), which frequently ignore long-term sustainability issues and environmental concerns.

8. Income generating activities related to the use of natural resources are important contributors of biodiversity loss. Belize's protected areas are a major asset to the national

economy, contributing to hundreds of millions of dollars in ecosystem goods and services each year (Drumm *et al*, 2012). Protected areas play a major role in maintaining the base of the Belizean economy. The tourism industry (which generates nearly a quarter of Belize's GDP) is largely dependent on protected areas. Furthermore, the timber industry is sustained by the PA system.

9. The 6 priority sites to be covered by the Project are of high priority in terms of poverty alleviation and mitigation of social and economic marginalization, thus, the importance of consolidating income-generating opportunities through incorporating biodiversity considerations into productive landscapes. Examples of prior efforts implemented by the Government of Belize in this regard are the GEF/IBRD Mesoamerican Biological Corridor project (2002-2009) and the GEF/UNDP Mesoamerican Biological Corridor project (1996-2006). In 2010, the Belize protected area system receiving funding equivalent to about 2.6% of the Government of Belize's annual budget or about $3.35 per acre. Costa Rica spends about US$24 per hectare compared to Belize's US$8 per hectare on its protected area systems budget.

10. However, in spite of the success of these efforts, much more needs to be done to scale-up initiatives and to ensure long-term biodiversity conservation, climate change mitigation, and sustainable forest management outcomes.

11. Under the baseline scenario incursions would continue to occur along the national border due to lack of enforcement capabilities. This degradation would exacerbate the intrusions made by Belizeans for NTFPs. In addition, there would remain a lack of capacity in how to deal with these natural resource management issues. In addition, perverse incentives on a legislative level would remain in place to continue the de-reservation and deforestation of lands in protected areas.

Baseline of current management

12. An estimated US$8.9 million was spent in total on the protected area system in 2010. Using UNDP's Financial Scorecard methodology (Bovarnick, 2010) and the Threshold of Sustainability for Tourism approach (Drumm, McCool, Rieger, 2011), a funding gap between current investment and funding needed to operate at a level that sustains the health of the protected areas, of US$10.2 million for a basic scenario and US$19.4 million for an optimal scenario.

13. In 2010, the central Belizean Government dedicated US$843,460 to the Forestry Department for the protected areas, US$350,000 of which went to the 6 priority sites. Annual logging concessions are approximately US$633,000 per year, approximately US$220,000 of which is for the 6 priority sites. In addition, park fees for terrestrial protected areas are US$656,000 per year, US$120,000 of which is for the 6 priority sites. Based on this information, approximately US$690,000 per year is invested in the 6 priority areas.

14. The combined cost of the baseline scenario is estimated at US$3.45 million. This includes salaries, equipment, and administration for the 6 priority areas.

GEF alternative

15. With the support of GEF, the Government of Belize would be able to provide support to FD and the co-management organizations that seek to effectively manage the 6 priority areas. In addition, the Project will support addressing perverse incentives that exist in the legislations of Belize that lead to increased deforestation and de-reservation of protected areas. The GEF

Alternative would comprise investments to expand the range of activities proposed in the baseline scenario and implemented through the four project components. The combined cost of the GEF Alternative (baseline scenario plus complementary GEF investments) is estimated at US$9.54 million.

16. The implementation of the GEF Alternative would result in the following outcomes:

a. Increased areas brought under enhanced sustainable forest management practices in targeted area (ha)

b. Increased management effectiveness of PAs in the targeted KBAs (as measured by the GEF Management Effectiveness Tracking Tool)

c. Diversified household income through community-based sustainable activities supported by the Project in the targeted area (# of households)

d. Strengthened capacity for compliance monitoring and enforcement of key agencies responsible for the environment as measured by the reduction in forest/bush fires from the baseline figure.

Incremental costs

17. The GEF grant will provide the needed incremental investments that would be more difficult to attain through government budgetary or non-governmental sources for the coordinated investments in the 6 priority areas as well as system wide improvements to the PAs that will improve sustainable forest management, biodiversity conservation, and climate change mitigation. The proposed GEF financing will complement counterpart investment resources provided by the Government of Belize. Moreover, to ensure that biodiversity benefits are accruing, the GEF incremental investment will support the development of a comprehensive monitoring and evaluation/verification system.

18. The Project was designed to complement ongoing GEF initiatives such as the medium sized GEF project entitled "Strengthening National Capacities for the Operationalization, Consolidation, and Sustainability of Belize's Protected Areas System" (US$975,000) and the GEF small grants including: "Agroforestry to Reduce Poverty, Increase Community Resilience, Protect Ecosystem Services and Conserve Biodiversity in Toledo" implemented by Ya'axche Conservation Trust (US$49,129)(2012-2014); "Building Community Resilience as a Tool to Minimizing Impact on the Belize Barrier Reef System through Improved Educational Opportunities and Land-use within the Rio Grande River Watershed" implemented by C'AC' ALENEL CAR SA NIMA (US$39,779)(pipeline); "Promoting Landscape Management in the Vaca Forest Reserve through Community Development and Support" implemented by Friends for Conservation and Development (US$49,999)(2012-2013); "Strengthening the Institutional & Productive Capacity of Cayo Quality Honey Producers Cooperative Society Limited (CQHPC) Through the Adoption of Sound Agro-Ecological Practices" implemented by Cayo Quality Honey Producers Cooperative Society Limited (US$45,000)(2013-2015); "Protecting and Sustaining the Biodiversity Resources of the Cockscomb Basin Wildlife Sanctuary through the Promotion of Environmentally Friendly Sustainable Supplementary Livelihoods" implemented by Belize Audubon Society (US$50,000)(2013-2015); "Improving Management Effectiveness of Community Managed Protected Areas" implemented by APAMO (US$50,000)(pipeline). Furthermore, the Project's Technical Advisory Committee will include a representative of the APAMO, an umbrella organization for protected areas co-managers to ensure coordination and

synchronization of efforts, as well as promote cross-fertilization where possible.

19. The proposed amount of $6.0856 million represents the Belizean Government's estimate of the incremental cost required to achieve expected global benefits that would not be supported through existing programs.

Table 15. Incremental Costs Matrix

Component	Costs Category	US$	National/Domestic Benefits	Global Benefits
1. Supporting Forest Protection and Sustainable Forest Management Activities in Key Biodiversity Areas	Baseline (GOM)	1.35	Some low level of co-management would exist within the 3 PAs of the selected priority areas, but they would continue to be underfunded and lack management capacity; sustainable forest management would continue at a low level or non-existent within the PAs	There would be an ineffective protection and continued deforestation that would contribute little to avoid greenhouse gas emissions
	With GEF alternative	3.53	Increased and effective management of the 6 priority areas; fire response team in place; alternative livelihood activities reducing poverty and pressure on PAs; improved legislation to protect forested areas; and increased management of the forests	High level of deforestation avoided and the GHG emissions mitigated as a result of improved management of the 6 priority areas; restoration efforts; decrease in forest fires, and building capacity for REDD+
	Increment	2.18		
2. Promoting Effective Management of Key Biodiversity Areas	Baseline (GOM)	1.165	Biodiversity monitoring plan exists but is not operationalized; continue infractions into PAs; Management plans exist in some PAs, but not are not implemented effectively	Low level of protection of PAs that will avoid a decreasing level of greenhouse gas emissions and protect some globally significant species
	With GEF alternative	3.763	Increased level of monitoring of protected areas and biodiversity; streamlined system to manage forest assets; increased community involvement in sustainable forest management, monitoring and PA compliance	Increased protection of globally significant biodiversity from increased compliance and strengthening of legislation, reduction of GHG emissions from forest fires, unsustainable forest management, and illegal logging
	Increment	2.598		
3. Institutional Strengthening & Capacity Building for Enhanced Enforcement of Environmental Regulations	Baseline (GOM)	0.56	Continued inefficiency in EIA system; existing organization to manage EIA exists but lacks coordination among relevant agencies	Increased extinction of globally significant species that are not illuminated in EIAs
	With GEF alternative	1.56	Increased coordination and execution of EIAs; organization that deals with EIAs will have a greater presence in the country; increased capacity of staff to execute monitoring of critical natural resources; EIAs streamlined into natural resource management in the country	Reduction in GHG emissions through increased environmental management of forested areas; increased protection of globally significant species that will be recognized and protected through the standardization of EIAs

	Increment	1.00		
4. Project Management, Monitoring and Assessment	Baseline (GOM)	0.375	PACT has basic fiduciary capacity	Ad hoc monitoring of forests that support critical species and mitigate climate change
	With GEF alternative	0.6826	Increased capacity of existing officers in the Department of the Environment, the Forestry Department, and PACT related to M&E, project management, and fiduciary management	Sustainability of skills necessary to mitigate climate change and protect species of global significance
	Increment	0.3076		
Total	Baseline (GOM)	3.45		
	With GEF alternative	9.5356		
	Increment	6.0856		

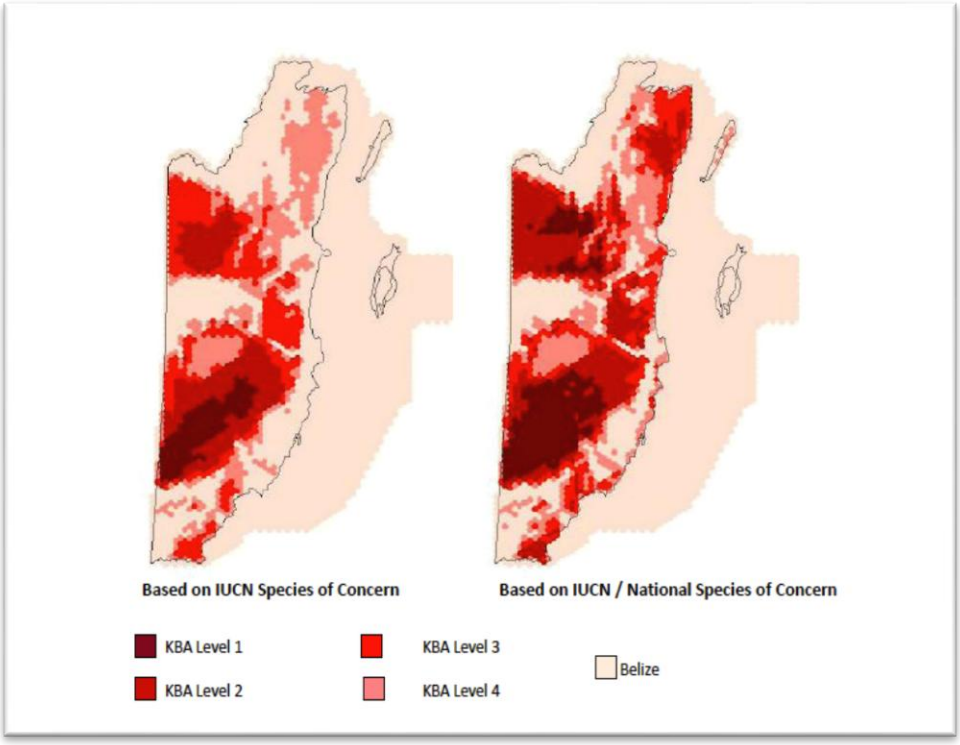
Annex 8: Project Site Identification and Description

BELIZE: Management and Protection of Key Biodiversity Areas Project

I. Key Biodiversity Areas (KBAs) in Belize

1. Based on the principle of site conservation, the Project would support the forest protection, climate mitigation and resilience, sustainable forest management, and biodiversity conservation in targeted areas within the Key Biodiversity Areas (KBAs) in Belize. Site conservation is among the most effective means to reduce biodiversity loss. Therefore, it is critical to identify those sites where unique biodiversity must be conserved. The concept of Key Biodiversity Areas (KBAs) was developed by global practitioners seeking to identify and ultimately ensure that networks of globally important sites are safeguarded. This methodology builds on the identification of species-based conservation targets (through the IUCN Red List) and nests within larger-scale conservation approaches. Site selection is driven by the distribution and population of species that require site-level conservation. In 2007, a collaborative effort by the Government of Belize, Belize Tropical Forest Studies, Conservation International, and the Critical Ecosystem Partnership Fund resulted in the definition of the KBAs in Belize as detailed in the report "Establishing a Baseline to Monitor Species and Key Biodiversity Areas in Belize" (Meerman, 2007). Map 1 demonstrates the four groups of KBAs identified in Belize.

Map 1: Key Biodiversity Area Outputs (Marxan outputs, Meerman, 2007)



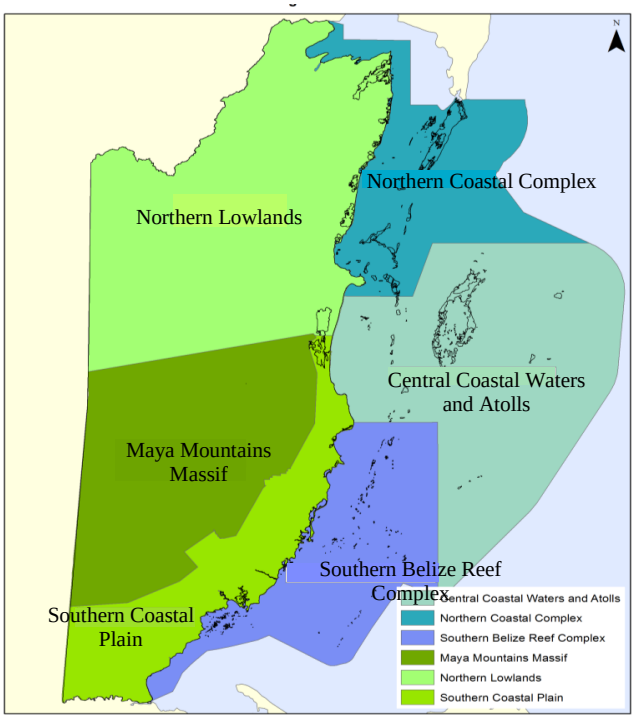
2. Priority areas for biodiversity protection were identified under the KBAs Assessment (Meerman, 2007) based on a Marxan analysis, with two outputs – the first focused on the presence of globally threatened species as per the IUCN Red List criteria; the second included

species of national concern, such as birds that concentrate at highly vulnerable nesting colonies and sub species of national concern such as the scarlet macaw. Ultimately, 39 IUCN-listed species were included in the KBA analysis.

3. The identified highest priority biodiversity areas of global concern in Belize (Global Key Biodiversity Area Level 1) are adequately covered by the National Protected Areas System, occurring within the protected areas of the Maya Mountains Massif. The areas under KBA Level 2 are also primarily within the Maya Mountains Massif.

4. Priority areas for biodiversity protection were identified under the KBAs Assessment (Meerman, 2007) based on a Marxan analysis, with two outputs – the first focused on the presence of globally threatened species as per the IUCN Red List criteria; the second included species of national concern, such as birds that concentrate at highly vulnerable nesting colonies and sub species of national concern such as the scarlet macaw. Ultimately, 39 IUCN-listed species were included in the KBA analysis. The identified highest priority biodiversity areas of global concern in Belize (Global Key Biodiversity Area 1) are adequately covered by the NPAS, occurring within the PAs of the Maya Mountains Massif. The second highest priority areas are also primarily within the Maya Mountains Massif.

Map 2: Protected Areas Management Units



5. The National Protected Areas System (NPAS) consists of 6 Management Units (See Map 2) that are subsumed within the KBAs. These are:

Terrestrial Management Units:

- Northern Lowlands
- Maya Mountains Massif
- Southern Coastal Plain

Marine Management Units:

- Northern Coastal Complex
- Central Coastal Waters and Atolls
- Southern Belize Reef Complex

II. KBAs target areas selection process

6. The target areas within the KBAs for the Project were selected through a stakeholder engagement process. Two workshops were conducted on February 8th, 2013 and February 22nd, 2013. The first was to select possible sites and the second to validate the selection.

7. A set of criteria was developed to rank all the 32 terrestrial protected areas within the KBAs as identified in the KBAs assessment report from 2007. The set of selection criteria was developed by the National Protected Areas Secretariat in consultation with the Forest Department and the World Bank. The criteria were grouped into 6 categories: threats, carbon, management capacity, risk factors, socio-economic, and economic values as detailed below:

8. Threats

- Deforestation

- Fragmentation of natural habitat
- Anthropogenic fire incidence
- Incidence of illegal activities (hunting, logging)
- Risk of natural activities (fire, hurricanes)

9. Carbon
   - Carbon sequestration potential
   - High possibility of regeneration

10. Management Capacity
   - Lack of management capacity
   - Lack of human resources for enforcement, conservation and monitoring

11. Risk Factors
   - Resistance of communities to participate in Project
   - Geopolitical factors

12. Socio-economic
   - Poverty levels
   - Local community dependence on resources in the PA (uses: subsistence, income generation activities)

13. Economic Values
   - Watershed catchment/protection
   - Coastal/river bank protection

14. All criteria received equal weight. After the criteria were enumerated, a working session was held to rank all of the protected areas within the KBAs (list of participants is available in the Project files). Following this session, results from the ranking exercise were compiled by the NPAS and Forest Department into a spreadsheet with the criteria and scoring for each PA. Subsequently, the top scores were analyzed and the top ranking PAs were identified (See Table 16). Results we ranked with (highest possible score 45) and without risk factors (highest possible score 39) because the risk factors were agreed to be contentious.

Table 16: Ranking Results for Selection of Target Sites

Results before removing risk factors		**Results after removing risk factors**	
Name of PA	**Score**	**Name of PA**	**Score**
Maya Mountain FR	42	Maya Mountain FR	36
Honey Camp NP	39	Columbia River FR	34
Freshwater Creek FR	39	Freshwater Creek FR	34
Columbia River FR	39	Honey Camp NP	34
Spanish Creek WS	37	Vaca FR	33
Vaca FR	37	Aguas Turbias NP	32
Aguas Turbias NP	36	Spanish Creek WS	32

15. After the ranking exercise was conducted, the top seven PAs were vetted as potential candidate sites. Five PAs were chosen from Table 16 and one additional PA - Chiquibul National Park – was included based on information from the PA rationalization exercise.

16. Fifteen criteria (Table 17) were used to guide prioritization of the terrestrial protected areas system within the PA rationalization exercise, allocated to four categories. These criteria were developed with input from Forest Department personnel and through feedback from protected area managers asked to 'field test' the assessment, to ensure it provided a valid output. Each of these criteria was rated out of a total possible score of 4, with scores then totaled and averaged per protected area. Prioritization scores ranged from 3.33 out of 4.00 for Columbia River Forest Reserve, considered the highest priority overall within the system, to the lowest score - 1.27 out of 4.00 for Melinda National Park.

Table 17: Terrestrial Prioritization Criteria

1.0 Environmental Values
1.1 Watershed Catchment and Protection
1.2 Wetland Flood Sink Function
1.3 Coastal / River Bank Protection
1.4 Steep Slope Erosion Control
2.0 Biodiversity Status
2.1 Global Recognition for Biodiversity Values
2.2 Value for Under Represented Ecosystems or Ecosystems of Limited Extent
3.0 Socio-Economic Value
3.1 Value for Commercial Extractive Use (timber / non-timber forest products)
3.2 Value for Non-Renewable Resource Extraction - minerals
3.3 Value for Non-Renewable Resource Extraction – petroleum
3.4 Importance for Water Security
3.5 Value for Hydro-electricity Generation
3.6 Traditional Resource Use Dependence
3.7 Tourism / Recreational / Cultural Values
4.0 Key Resilience Features
4.1 Forest Connectivity
4.2 Altitudinal / Lateral Connectivity

17. The highest rated overall, greater than 3.00, were Columbia River Forest Reserve and Chiquibul National Park. Below are examples of major rating criteria.

18. **Watershed Catchment and Protection, Protected Areas rated as *VERY HIGH***
Chiquibul National Park
Columbia River Forest Reserve
Maya Mountain Forest Reserve
Vaca Forest Reserve

19. **Based on Species of Global and National Concern, Protected Areas (Meerman, 2007)**
Columbia River Forest Reserve
Chiquibul National Park

20. **Ecosystems <10,000 acres**
Tropical evergreen seasonal needle-leaved lowland forest, well drained
- Vaca Forest Reserve

21. **Ecosystems <1,000 and <-5,000 acres nationally**
Deciduous broad-leaved lowland riparian shrubland in hills
- Chiquibul National Park

- Columbia River Forest Reserve
- Vaca Forest Reserve

22. **Ecosystems <1,000 and <-5,000 acres nationally**
Tropical evergreen broad-leaved lowland forest, moderately drained, on calcareous soils
- Columbia River Forest Reserve

23. **Ecosystems <1,000 and <-5,000 acres nationally**
Tropical evergreen lower-montane broad-leaved forest
- Chiquibul National Park

24. **Ecosystems <1,000 and <-5,000 acres nationally**
Tropical evergreen broad-leaved lower montane forest with palms
- Chiquibul National Park

25. **Forest Connectivity, Protected Areas rated as *VERY HIGH***
- Columbia River Forest Reserve
- Maya Mountain Forest Reserve
- Vaca Forest Reserve
- Chiquibul National Park
- Freshwater Creek Forest Reserve
- Spanish Creek Wildlife Sanctuary

26. In addition, APAMO also suggested 4 protected areas in greatest need of strengthening: Freshwater Creek Forest Reserve, Vaca Forest Reserve, Spanish Creek Wildlife Sanctuary, and Columbia River Forest Reserve.

27. Subsequently, a validation session was convened to present and discuss the selection process for the 6 proposed target areas (list of participants is available in the Project files).

28. Based on the analyses and validation/ranking exercises, the final consensus list of PAs to be included in the Project were:

a. *Northern Lowlands KBA*
- Spanish Creek Wildlife Sanctuary
- Freshwater Creek Forest Reserve

b. Maya Mountains Massif KBA
- Chiquibul National Park
- Columbia River Forest Reserve
- Vaca Forest Reserve
- Maya Mountain Forest Reserve

29. Below is a detailed description of each priority site.

MAYA MOUNTAIN FOREST RESERVE

Name	IUCN Category	Gazetted	Co-Manager	Hectares
Maya Mountain Forest Reserve	VI	1997/114	N/A	16,847

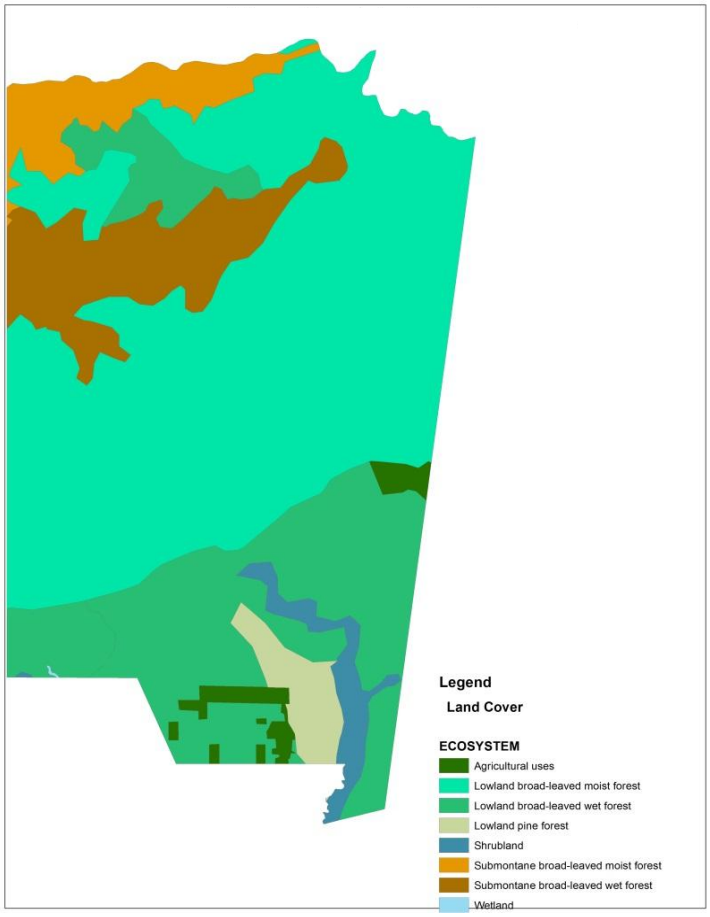
30. The Maya Mountain Forest Reserve is on the easternmost face of the Maya Mountain

Massif (MMM). As shown in Map 3, the ecosystems present are lowland broad leaf forest, sub-montane broadleaf forest, lowland pine forest, and shrub lands.

31. This east facing side of the Maya Mountains is important for the water security of agricultural areas and communities downstream. It provides steep slope protection as the Maya Mountains quickly transition into the lowlands of the coastal plains. This protected area has steep slopes unsuitable for agriculture or habitation.

32. Clearance of these steep slopes could be detrimental to agricultural activities and communities downstream. Climate change predictions of increased intensity of storms could destabilize soils on cleared, steep slopes, resulting in the mudslides and landslides seen in Guatemala and Honduras.

Map 3: Land Cover for Maya Mountain Forest



33. It is recommended that this forest reserve be managed as an integral part of the National Protected Areas System. Efforts should be made to reduce pressures for de-reservation. The areas of the forest reserve that buffer communities should be managed for sustainable community use based on agroforestry practices. Sustainable community use plans based on experiences for integrated landscape management should be developed and implemented in these buffer areas. The landscape approach should seek to retain the forest canopy for future water security. The need for protected area management, monitoring, and support for livelihood activities that fit within the livelihood framework of the buffering communities is essential.

34. An NGO partner should be identified to support the preparation and implementation of a management plan for the forest reserve as well as to support the preparation and implementation of sustainable community land use plans for the buffer areas.

FRESHWATER CREEK FOREST RESERVE

Name	IUCN Category	Gazetted	Co-Manager	Hectares
Freshwater Creek Forest Reserve	VI	1997, revised 2001/66	Corozal Sustainable Future Initiative	13,370

35. Freshwater Creek Forest Reserve is the northernmost target site for the Project. When it was first established in 1997 it was made up 60,000 acres and has since been reduced to 33,393

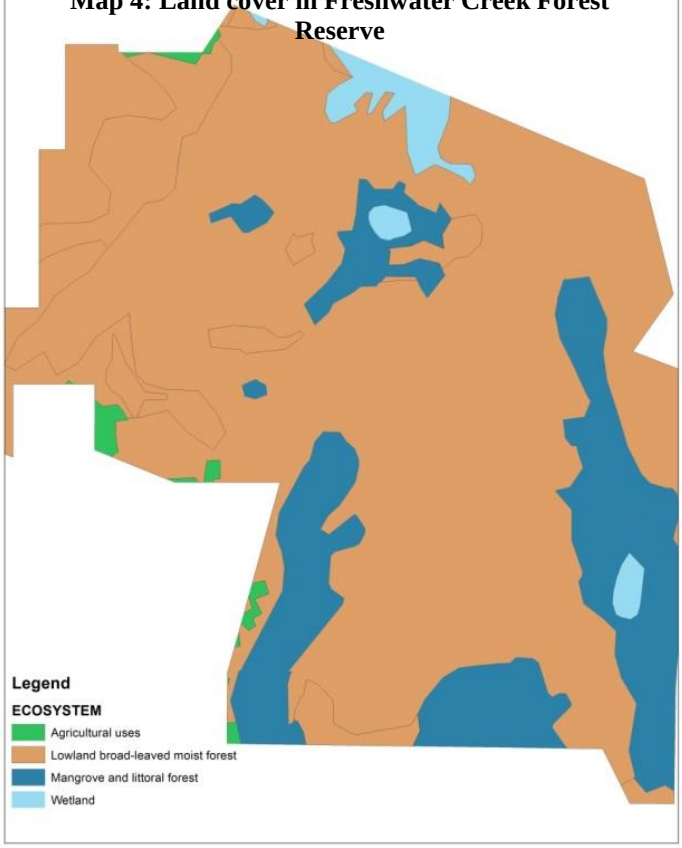
acres. The buffer communities include Orange Walk Town, San Estevan, Santa Marta, Honeycamp Lagoon, and Chunox. Each of the communities are mainly composed of mestizos, with some immigrants from Mexico and Central America, primarily Guatemala and El Salvador. Most residents work in agriculture, and most do not use the forest reserve on a regular basis, although a few people do occasionally hunt and fish in the reserve. The incursions into the protected area have been mainly for agricultural uses, resulting in fragmentation and de-reservation of portions of the reserve.

36. Freshwater Creek is one of the few remaining protected refuges for breeding populations of the critically endangered Central American river turtle (hicatee). The critically endangered goliath grouper is also recorded in this same creek, where it joins the brackish Northern Lagoon. The Endangered Yucatan black howler monkey, Central American spider monkey and Baird's tapir are also both found within the Park, and the West Indian manatee (classified as Vulnerable) is known to enter the lower reaches of Freshwater Creek. The globally endangered (and nationally critically endangered) Yellow-headed parrot reported as previously present, may no longer use the savannas as a breeding population because of the increased frequency of anthropogenic fires and resultant decline in pine density.

37. As shown in Map 4, agricultural incursions into Freshwater Creek Forest Reserve continue. Sugarcane plantations and sugarcane production dominate the buffer area, which is likely the largest cause of agricultural activity in the protected area.

38. Freshwater Creek is considered an important secondary node for the northeast biological corridor, and will therefore facilitate ecosystem adaptation to climate change. Agricultural incursions are fragmenting the forest, reducing resilience to climate change and increasing susceptibility to fire.

Map 4: Land cover in Freshwater Creek Forest Reserve



39. The lands to east of Freshwater Creek are in private ownership, with large-scale land clearance for agriculture by the Mennonites. The site provides protection to the yellow-headed parrots which are globally endangered and which have declined rapidly in Belize over the last 15 years due to increased anthropogenic fires.

40. Overall, Freshwater Creek Forest Reserve is an important component of the North East Biological Corridor, and critical for maintaining wide-ranging species such as white-lipped peccary, and allowing ecosystems and species migration in response to climate change. Consequently, it should remain an integral part of the National Protected Areas System. Required actions include:

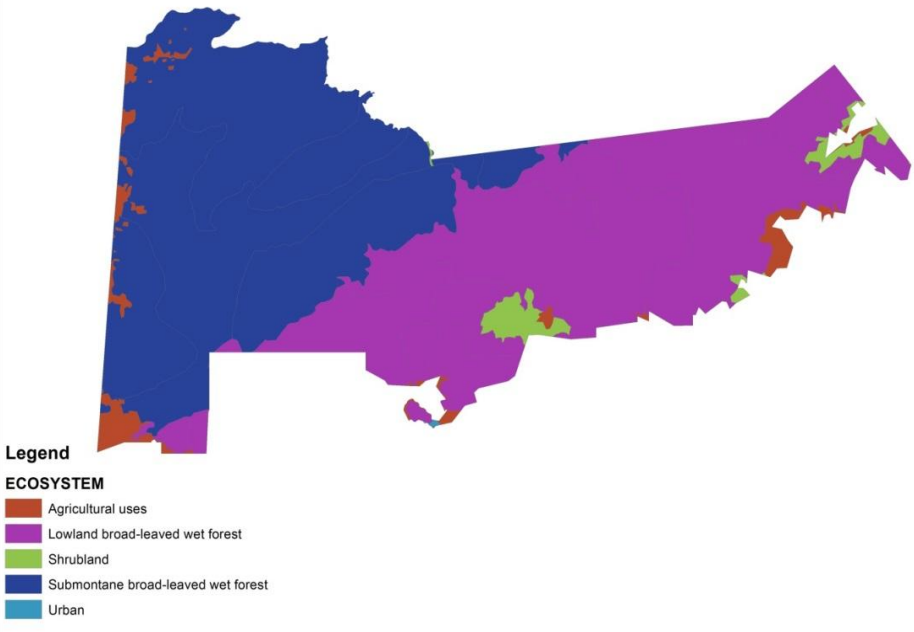
- Re-establish and enforce moratorium on logging within the Forest Reserve until stocks are assessed as having recovered sufficiently for sustainable extraction

- Implement areas of agro-forestry as an interim measure in impacted areas to re-establish forest cover and engender social support, based on approved Community Sustainable Use Plans. It is critical that these uses retain the forest canopy for future biological corridor functionality.
- Needs management and monitoring – potential for community conservation focus through biological corridor program – identify potential co-management group
- Management Unit: Northern Lowlands
- Maintain forest cover and reduce fragmentation by logging tracks and agricultural incursions – potential for community agroforestry initiative linked to north east biological corridor
- Proactive fire prevention and effectively address fires that occur
- Implement moratorium to allow forest recovery

COLOMBIA RIVER FOREST RESERVE

Name	IUCN Category	Gazetted	Co-Manager	Hectares
Columbia River Forest Reserve	VI	1997/115	N/A	59,973

Map 5: Columbia River Forest reserve and the current land cover



41. Columbia River Forest Reserve is the southernmost protected area in the Maya Mountain Massif (MMM). According to the rationalization exercise, Colombia River Forest Reserve is one of the six highest priority terrestrial protected areas in Belize. Effective management is important for all protected areas, and particularly for those considered as priorities.

42. Columbia River Forest Reserve is unique in Belize and has been highlighted as one of the highest priority areas for biodiversity conservation in Belize (Meerman 2009). The very limited

biological assessment of the area in 1997 found 56 species of amphibians and reptiles, with many additional species awaiting discovery. Also it concluded that avian diversity in the Columbia River Forest Reserve is as high or higher than elsewhere in Belize, and that higher elevation forests within the reserve harbor several species not known (or not likely) to occur elsewhere in the country.

43. The strategy of this forest reserve is unique because it uses an integrated approach to address agroforestry and sustainable forest management involving surrounding communities. In addition, a core conservation area exists to protect the watershed. However, according to the national management effectiveness assessment conducted in 2009 (Walker *et al*., 2010), Columbia River Forest Reserve rated as the one in most need of strengthening in terms of having a very high prioritization score but poor management effectiveness.

44. The southeastern face of the Colombia River Forest Reserve transitions from steep slopes to the coastal plan. The steep and transitioning slopes should remain under forest cover. Steep slope protection: Clearance of steep hill slopes will increase the risk to property and human life, especially in the context of climate change predictions which suggest an increased intensity of storms, which will destabilize soils on cleared, steep slopes, resulting in the mud slides and landslides.

45. CRFR is a Core part of the Maya Mountains Massif. There is a high level of incursion by Guatemala for hunting, farming, and natural resource extraction. This protected area needs to remain as an integral part of the National Protected Areas System. Other important actions include:

- As a priority, strengthen security against transboundary incursions
- Implement areas of community sustainable use, based on approved Community Sustainable Use Plans though concession agreements. Critical that these uses retain the forest canopy for future water security
- Needs management and monitoring – engage NGO partner
- Management Unit: Maya Mountains Massif
- Manage fire risk in limestone areas/adjacent agricultural areas
- Maintain forest cover within the Forest Reserve, including areas of community sustainable use
- Encourage maintenance of forest cover in the lowland, coast plain landscape to increase water catchment in the upper watershed
- Minimize human impacts, including logging tracks, which may increase susceptibility to storm events

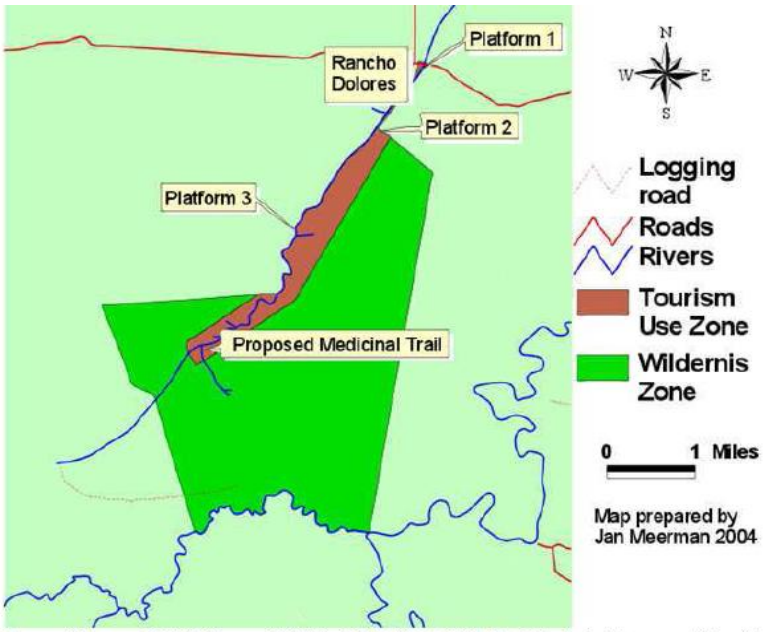
SPANISH CREEK WILDLIFE SANCTUARY

Name	IUCN Category	Gazetted	Co-Manager	Hectares
Spanish Creek Wildlife Sanctuary	IV	2002/87	Rancho Dolores Environment and Development Company Limited	2,387

46. Spanish Creek Wildlife Sanctuary is the only wildlife sanctuary among the six target protected areas. It is also the smallest of the six at 6,001 acres. It is located in the Belize River Valley in the Belize District. The adjacent communities are primarily of Creole descent with a long history in the logging industry.

47. Spanish Creek Wildlife Sanctuary, declared a protected area in June 2002, is situated along 5 miles of Spanish Creek. The Wildlife Sanctuary lies within the Belize River watershed, along Spanish Creek, south of Rancho Dolores. This Wildlife Sanctuary forms an important link in the Northern Biological Corridor. The protected area is considered to be a potential resource for local tourism, with a number of features of touristic value including high bird diversity. Spanish Creek support many of Belize's characteristic forest-dwelling mammal species, with the reputation of having abundant wildlife, tracks of jaguar and tapir suggesting that there is sufficient connectivity with the Rio Bravo area to maintain viable populations. The further reaches of Spanish Creek still have the critically endangered Central American River Turtle (Critically Endangered), as well as harboring the shy, elusive Agami heron and Muscovy duck, among other species, making the area attractive as a potential birding destination.

Map 6: Spanish Creek Wildlife Sanctuary



Source: Meerman, J. C., P. Herrera, B. Holland & A. Howe 2004, Rapid Ecological Assessment Spanish Creek Wildlife Sanctuary. 48 pp.

48. The sanctuary was established for the protection of local biodiversity, and to strengthen corridor connectivity between Rio Bravo, the Community Baboon Sanctuary and Crooked Tree Wildlife Sanctuary. Uses within the Wildlife Sanctuary include non-extractive – tourism, education and research. One of the values of Spanish Creek Wildlife Sanctuary is the protection of riparian vegetation, which is important for the stability of riverbanks, filtering run-off and maintaining water quality. As clearance of this vegetation increases, the impacts are seen not only in the declining quality of water in the rivers and along the coast, but also on Belize's reef system, where sedimentation and agro-chemical run-off reduces reef health. The destruction of the Kendall Bridge by Tropical Storm Arthur clearly demonstrated the impacts of clearing riparian forest.

49. Rancho Dolores Environmental and Development Co. Ltd. operate the Spanish Creek Wildlife Sanctuary as co-managers with the Forestry Department. It is dedicated to the social and economic development of Rancho Dolores Village and the area surrounding the community.

50. Some of the primary actions in this protected area include:

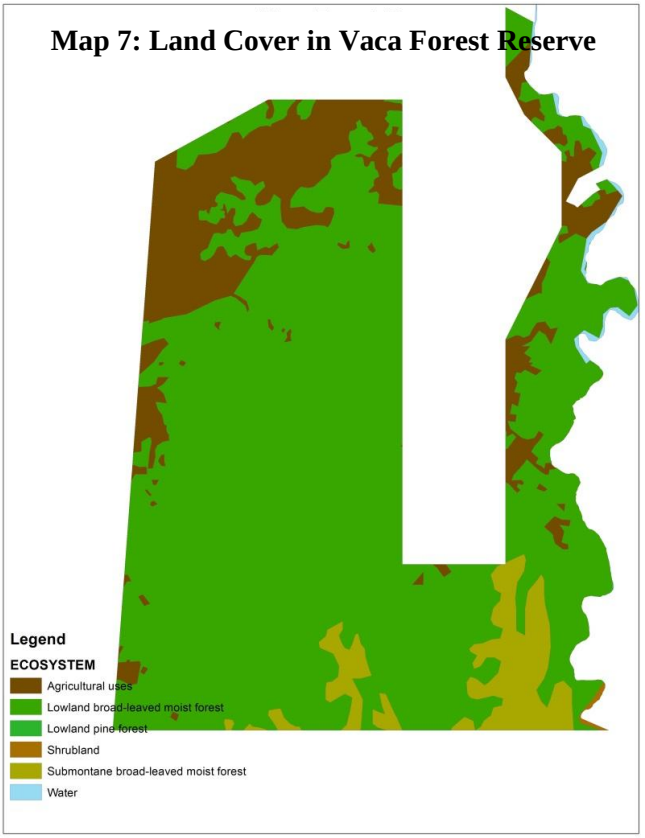
- Maintain riverside vegetation
- Actively conserve hicatee – particularly known nesting sites
- Management of traditional community resource extraction
- Needs an approved sustainable fishery plan, with use agreement
- All other activities must be non-extractive

VACA FOREST RESERVE

Name	IUCN Category	Gazetted	Co-Manager	Hectares
Vaca Forest Reserve	VI	1997, revised 2003/137 and 2010	Friends for Conservation and Development	16,367

51. Vaca Forest Reserve lies on Belize's western border with Guatemala. It is a critical part of the Maya Mountain Massif, one of the last remaining large, intact blocks of forest within the region and an integral part of the Central KBAs. It is considered essential for the survival of wide-ranging species such as scarlet macaw, white-lipped peccary, and ornate hawk-eagle, all of which need large blocks of contiguous forest to maintain viable populations.

Map 7: Land Cover in Vaca Forest Reserve



52. Map 7 shows the ecosystems of the Vaca Forest Reserve, possessing broad leaf forests, both lowland and sub-montane. The map also demonstrates that there is significant agricultural activity within the forest reserve. These activities include cattle pasture, and crop production.

53. Vaca Forest Reserve includes steep slopes that need to be maintained forested. It is the headwater for the Vaca Dam so maintaining the forest cover is a critical environmental service. Some of the actions required in this protected area include:

- Ensure that the reserve remains an integral part of the National Protected Areas System
- As a priority, strengthen security against border incursions
- Implement areas of community sustainable use, based on approved Community Sustainable Use Plans and concession agreements. It is critical that these uses retain the forest canopy for future water security and viability of dam reservoirs
- Needs active engagement and monitoring – engage NGO partner – FCD
- Promote livelihood activities that reduce the pressures on the biodiversity of the area.
- Needs a diagnostic study to identify an effective restoration program.
- FCD has conducted a social assessment with farmers
- FCD has a landscape management strategy, which would include acreage

CHIQUIBUL NATIONAL PARK

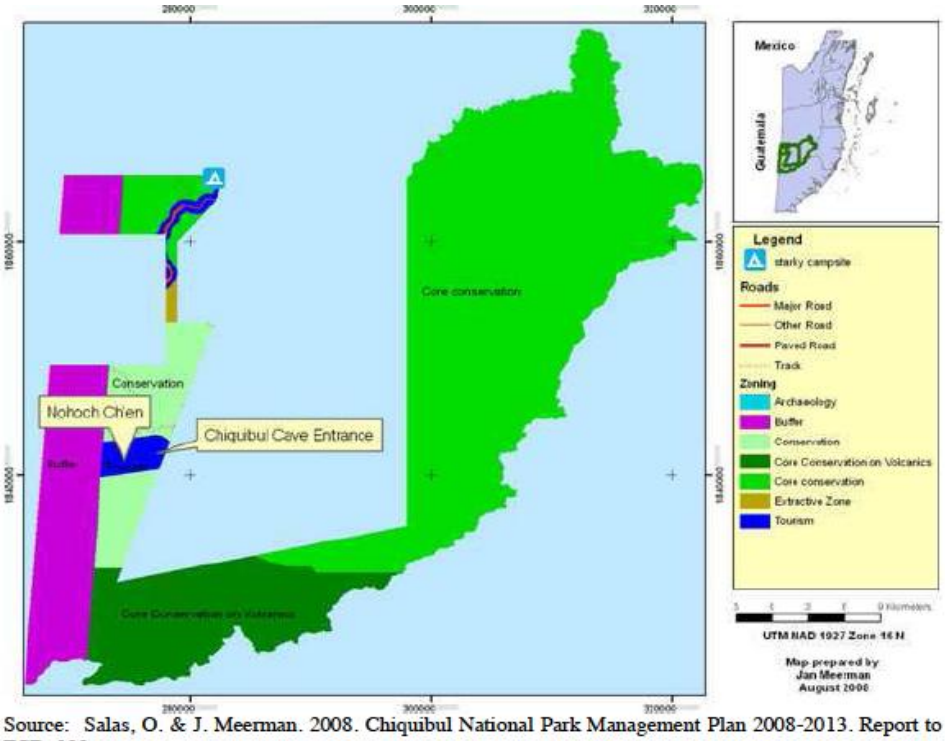
Name	IUCN Category	Gazetted	Co-Manager	Hectares
Chiquibul National Park	II	1991/55	Friends for Conservation and Development	106,785

54. Chiquibul National Park is the largest of the six protected areas targeted for this Project

within the KBAs and the only national park. It is also the largest single protected area in Belize found within a KBA.

55. According to the rationalization exercise, Chiquibul National Park is one of the six highest priority terrestrial protected areas. It protects steep slopes and ensures that the water that flows into the Challio Dam, which is used to supply more than 50% of the potable water needs of the country.

Map 8: Chiquibul National Park



Source: Salas, O. & J. Meerman. 2008. Chiquibul National Park Management Plan 2008-2013. Report to FCD. 192 pp.

56. The Chiquibul area has historically been rich in biodiversity in a mosaic of seventeen forest ecosystems under six broad ecosystem categories. The National Park provides protection for at least twenty species of international concern (Critically Endangered, Endangered and Vulnerable (IUCN, 2010)), including the Critically Endangered Morelet's treefrog (*Agalychnis moreletii*). The area has been a critical stronghold for the small, remnant sub-species population of scarlet macaws, the largest parrot species in Belize. The Cuxtabani area to the north-east has been identified as an important component of the Core Conservation Area of the Maya Mountains Massif, for its value as a refuge for wildlife (Walker and Walker, 2008). Historically Chiquibul was renowned as having some of the least impacted wildlife populations in Belize, with abundant game species and a largely intact trophic structure. (Directory of Protected Areas in Belize, 2011)

57. The Chiquibul forest faces significant cross boundary pressures. These include illegal hunting, looting and looting of archaeological sites, harvesting of xate, and poaching of birds. Some of the actions that need to be taken for this PA include:

- Strengthen against border incursions
- Maintain connectivity with other protected areas of the Maya Mountains Massif

- Reduce transboundary incursions and associated fire risks
- Ensure mining activities do no compromise water quality and availability downstream
- Private sector (resort/lodges) impacts the PA through extraction of resources.
- Local communities (surrounding) do not impact the national park, but the forest reserve which if not monitored can expand into the national parks

58. Chiquibul NP is co-managed by Friends for Conservation and Development.

III. Site Specific Project Activities

59. Primary threats for each selected site and the project activities to address such threats are presented in Table 18.

Table 18: Project Sites, Threats, and Project Interventions

Protected Area	Priority threats	Project Interventions
Freshwater Creek Forest Reserve	1. Encroachment for agriculture (sugarcane production, slash-and-burn, forest fires) 2. Illegal logging and poaching (Yellow-headed Parrots) 3. De-reservation 4. Hurricane damage	1 - Review of land tenure and legislation (1.1a) 1, 2 - REDD+ training (1.1b) 1, 2 - Establishment of fire response team (1.1c) 1, 4 - Rehabilitation of critical areas (1.2a) 1, 2 - Sub-projects for NTFPs (1.2b) 1, 2, 3, 4 - Awareness raising 1, 2, 4 - Assessment of forestry standards, M&E, and FIS (1.2d) 3 - Establishment of procedures for de-reservation of PAs (2.1a) 1, 2, 3, 4 - Improved management of PAs (2.1b) 4 - Updating NPASP (2.1c) 2 - Review of legislations for wildlife management and the Forest Act (2.2a) 1, 2, 3 - Monitoring and compliance in the PAs (2.2b) 2 - Biodiversity monitoring system 1, 2 - Training on compliance monitoring (3.1b) 1, 2 - Standardized EIA program (3.2a) 1, 2 - Introduction of other environmental management tools (3.2c)
Spanish Creek Wildlife Sanctuary	1. Encroachment for agriculture (anthropogenic fires) 2. Wildlife poaching (esp. critically endangered Central American River Turtle) 3. Sedimentation from agrochemical runoff 4. Hurricane damage	1 - Review of land tenure and legislation (1.1a) 1, 2 - REDD+ training (1.1b) 1, 2 - Establishment of fire response team (1.1c) 1, 4 - Rehabilitation of critical areas (1.2a) 1, 2, 3 - Sub-projects for NTFPs (1.2b) 1, 2, 3, 4 - Awareness raising 1, 2, 4 - Assessment of forestry standards, M&E, and FIS (1.2d) 1, 2, 3, 4 - Improved management of PAs (2.1b) 4 - Updating NPASP (2.1c) 2 - Review of legislations for wildlife management and the Forest Act (2.2a) 1, 2, 3 - Monitoring and compliance in the PAs (2.2b) 2 - Biodiversity monitoring system 1, 2, 3 - Training on compliance monitoring (3.1b) 1, 2, 3 - Standardized EIA program (3.2a) 1, 2, 3 - Introduction of other environmental management tools (3.2c)
Vaca Forest Reserve	1. Encroachment for agriculture (slash-and-burn, livestock production, forest fires) 2. Illegal logging and wildlife poaching, and extraction of NTFPs 3. Unsustainable short-term logging 4. De-reservation 5. Hurricane damage	1 - Review of land tenure and legislation (1.1a) 1, 2, 3 - REDD+ training (1.1b) 1, 2, 3 - Establishment of fire response team (1.1c) 1, 2, 3 - Rehabilitation of critical areas (1.2a) 1, 2, 3 - Sub-projects for NTFPs (1.2b) 1, 2, 3, 4, 5 - Awareness raising 2, 3 - Assessment of forestry standards, M&E, and FIS (1.2d) 4 - Establishment of procedures for de-reservation of PAs (2.1a) 1, 2, 3, 5 - Improved management of PAs (2.1b) 5 - Updating NPASP (2.1c) 2 - Review of legislations for wildlife management and the Forest Act (2.2a) 1, 2, 3 - Monitoring and compliance in the PAs (2.2b)

		2 - Biodiversity monitoring system 1, 2, 3 - Training on compliance monitoring (3.1b) 1, 2, 3 - Standardized EIA program (3.2a) 1, 2, 3 - Introduction of other environmental management tools (3.2c)
Chiquibul National Park	1. Encroachment for agriculture (slash-and-burn, forest fires) 2. Illegal logging, wildlife poaching and extraction of NTFPs 3. Looting of archeological sites 4. Gold panning 5. Hurricane damage	1, 2 - Review of land tenure and legislation (1.1a) 1, 2 - REDD+ training (1.1b) 1, 2, 3, 4 - Establishment of fire response team (1.1c) 5 - Rehabilitation of critical areas (1.2a) 1, 2, 3, 4 - Sub-projects for NTFPs (1.2b) 1, 2, 3, 4, 5 - Awareness raising 2 - Assessment of forestry standards, M&E, and FIS (1.2d) 1, 2, 3, 4, 5 - Improved management of PAs (2.1b) 5 - Updating NPASP (2.1c) 2 - Review of legislations for wildlife management and the Forest Act (2.2a) 1, 2, 3, 4 - Monitoring and compliance in the PAs (2.2b) 2 - Biodiversity monitoring system 1, 2 - Training on compliance monitoring (3.1b) 1, 2 - Standardized EIA program (3.2a) 1, 2, 3, 4 - Introduction of other environmental management tools (3.2c)
Maya Mountain Forest Reserve	1. Encroachment for agriculture (including slash-and-burn, forest fires) and settlement 2. Illegal logging 3. De-reservation 4. Hurricane damage	1 - Review of land tenure and legislation (1.1a) 1, 2 - REDD+ training (1.1b) 1, 2 - Establishment of fire response team (1.1c) 1, 4 - Rehabilitation of critical areas (1.2a) 1, 2 - Sub-projects for NTFPs (1.2b) 1, 2, 3, 4 - Awareness raising 1, 2, 4 - Assessment of forestry standards, M&E, and FIS (1.2d) 3 - Establishment of procedures for de-reservation of PAs (2.1a) 1, 2, 3, 4 - Improved management of PAs (2.1b) 4 - Updating NPASP (2.1c) 2 - Review of legislations for wildlife management and the Forest Act (2.2a) 1, 2 - Monitoring and compliance in the PAs (2.2b) 1, 2 - Training on compliance monitoring (3.1b) Standardized EIA program (3.2a) 1, 2 - Introduction of other environmental management tools (3.2c)
Columbia River Forest Reserve	1. Encroachment for agriculture (including slash-and-burn, forest fires) 2. Illegal logging, wildlife poaching, and extraction of NTFPs 3. De-reservation 4. Hurricane damage	1 - Review of land tenure and legislation (1.1a) 1, 2 - REDD+ training (1.1b) 1, 2 - Establishment of fire response team (1.1c) 1, 4 - Rehabilitation of critical areas (1.2a) 1, 2 - Sub-projects for NTFPs (1.2b) 1, 2, 3, 4 - Awareness raising 1, 2, 4 - Assessment of forestry standards, M&E, and FIS (1.2d) 3 - Establishment of procedures for de-reservation of PAs (2.1a) 1, 2, 3, 4 - Improved management of PAs (2.1b) 4 - Updating NPASP (2.1c) 2 - Review of legislations for wildlife management and the Forest Act (2.2a) 1, 2 - Monitoring and compliance in the PAs (2.2b) 1, 2 - Training on compliance monitoring (3.1b) Standardized EIA program (3.2a) 1, 2 - Introduction of other environmental management tools (3.2c)

60. Depending on ecosystem type and resilience of the forests, the methodology in the rehabilitation process and in maintaining forest health which allows for increased carbon storage varies. Rehabilitation of agricultural areas includes replanting and tending so that secondary forests can regenerate. Rehabilitation of broad-leaved and pine forest involves targeted planting of desired species in forests degraded by logging, fires, or which are in need of silvicultural intervention to increase biomass stocks. For broad leaf forests, practices such as enrichment planting through direct seeding or transplanting are applied. Silvicultural practices such as thinning, removal of herbaceous shrubs, the installation of containment lines and prescribed burning will be applied to contain pest outbreak in pine forests. In the event that there are pest or

disease outbreaks in broadleaf forest then all control options which are non-artificial in nature will be explored. Replanting is an adequate measure for areas that have been degraded. Reforestation is the measure that will be applied for the areas impacted by hurricane damages, forest degradation, deforestation, pest and disease outbreaks.

Table 19. Ecosystem type per Project Site

Project Sites	Ecosystem Type	Hectares
Freshwater Creek FR	Wetland	339.9
	Agricultural uses	109.8
	Mangrove and littoral forest	2475.2
	Lowland broad-leaved moist scrub forest	890.9
	Lowland broad-leaved moist forest	9554.0
Spanish Creek WS	Water	0.2
	Agricultural uses	0.8
	Lowland broad-leaved moist forest	1948.3
	Lowland broad-leaved moist scrub forest	86.6
	Shrubland	351.0
Vaca Forest Reserve	Agricultural uses	2498.6
	Lowland broad-leaved moist forest	12516.2
	Lowland pine forest	4.4
	Shrubland	23.1
	Submontane broad-leaved moist forest	1095.5
Chiquibul NP	Submontane broad-leaved wet forest	21518.8
	Shrubland	26.7
	Submontane broad-leaved moist forest	62800.7
	Wetland	24.9
	Submontane pine forest	244.6
	Agricultural uses	3423.9
	Lowland broad-leaved moist forest	18745.2
Maya Mountain FR	Submontane broad-leaved moist forest	832.5
	Lowland broad-leaved wet forest	4115.9
	Wetland	2.8
	Agricultural uses	294.5
	Submontane broad-leaved wet forest	1618.5
	Lowland broad-leaved moist forest	9160.6
	Lowland pine forest	428.4
	Shrubland	394.2
Columbia River FR	Submontane broad-leaved wet forest	28997.8
	Urban	18.8
	Lowland broad-leaved wet forest	27784.3
	Agricultural uses	1839.5
	Shrubland	1319.4

Annex 9: Map of Project Areas IBRD 40096

BELIZE: Management and Protection of Key Biodiversity Areas Project