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Программа Организации Объединенных Наций по окружающей среде

برنامج الأمم المتحدة للبيئة

联合国环境规划署



PROJECT DOCUMENT

SECTION 1: PROJECT IDENTIFICATION

- 1.1 Project title:** Iyanola – Natural Resource Management of the NE Coast
- 1.2 Project number:** GFL/5060-2740-4C74
PMS:
- 1.3 Project type:** FSP
- 1.4 Trust Fund:** GEF
- 1.5 Strategic 5 Strategic Objectives:** BD1, BD2, SFM/REDD-1, LD-2, CC-5
- 1.6 UNEP priority:** Ecosystem Management, Climate Change

EM(a): Use of the ecosystem approach in countries to maintain ecosystem services and sustainable productivity of terrestrial and aquatic systems is increased, delivered through Methodologies, partnerships and tools to maintain or restore ecosystem services and integrate the ecosystem management approach with the conservation and management of ecosystems

EM (c): Services and benefits derived from ecosystems are integrated with development planning and accounting, particularly in relation to wider landscapes and seascapes and the implementation of biodiversity and ecosystem related MEAs, delivered through Biodiversity and ecosystem service values are assessed, demonstrated and communicated to strengthen decision-making by governments, businesses and consumers.

CC (a) Ecosystem-based and supporting adaptation approaches are implemented and integrated into key sectoral and national development strategies to reduce vulnerability and strengthen resilience to climate change impacts.

- 1.7 Geographical scope:** National
- 1.8 Mode of execution:** External
- 1.9 Project executing organization:** Ministry of Sustainable Development, Energy Science and Technology – Sustainable Development and Environment Division
- 1.10 Duration of project:** 48 months
Commencing: 1 January 2015
Completion: 31 December 2018

1.12 Project summary

1. The North East Coast of Saint Lucia is a significant area among the geographical regions, and is the only remaining frontier with a combination of rare and endemic flora and fauna species, landscapes of outstanding natural beauty and quality, ecosystems rich in bio-diversity and unique dry scrub forests

ecosystems and pristine beaches. This region, like many of the geographic zonal regions of Saint Lucia, is endowed with a variety of environmental resources which form an important and potential socio-economic and cultural asset base of the island's national economy. The prudent and judicious harnessing of those resources through sustainable land use planning and management can produce local economic benefits and contribute to positive environmental change and adaptation at the global scale.

2. The Iyanola Natural Resource Management project of the North East Coast seeks to improve the effective management and sustainable use of the natural resource base of the NE Coast as part of the broader objective of contributing to global environmental security. This is to be achieved through linkages to the GEF prescribed focal areas of Biodiversity, Climate Change and Land Degradation and related priorities of Land use planning, Safeguarding of key areas and Continuity and Sustainable replacements.
3. These priorities are to be addressed in four distinct, inter-related and integrated components including Component 1: Enhanced Land Use Planning and Regulatory Framework as applied to the North East Coast.
4. In that regard, building on the existing legal framework was a key intervention to define the development of appropriate supporting regulations and guidelines which integrate environmental sensitivities, priorities and sustainable management options in terrestrial and marine ecosystems.
5. A pilot land use plan for the NE Coast in the possible absence of a national land use plan was considered to constitute an incremental building block to move towards the achievement of the foregoing overarching goal. Moreover, of particular emphasis is the opportunity to integrate considerations of biodiversity and sustainable land use options into a development scenario for the North East Coast.
6. The project will help inform and guide the sustainable development of the North-East Coast, dubbed the 'Iyanola – Natural Resource Management of the North-East Coast' and *“will promote the conservation and sustainable use of biodiversity and the maintenance of ecosystem goods and services through the improved management of ecologically sensitive areas of interest towards long-term positive impacts in representation of terrestrial and marine ecosystems, and threatened species”*.
7. The overall goal of the project is increased management effectiveness and sustainable use of the North East Coast's natural resource base to generate multiple global environmental benefits.
8. The Project aims to enhance land use planning; develop a regulatory framework and enhance capacity for the production of biodiversity friendly goods and services in inland forest and coastal communities, in order to create a platform for strengthening of the national enabling environment, as required to increase conservation and management effectiveness of terrestrial and coastal marine habitats and ecosystems in the NE Iyanola Coast region.
9. The Project is designed to have socio-economic benefits for local communities. Protection and sustainable management of forest and marine biodiversity resources will not only serve to maintain marine and forest product-related enterprises but will open new opportunities to diversify traditional local economies and support local microenterprises and nature based tourism. Local communities and women's groups will be involved in the designing and implementation of national interventions to ensure their equitability and sustainability. Many of the suggested biodiversity friendly goods, non-timber forest products (NTFPs) suggested for initial focus are traditionally been dominated by women. Socio-economic indicators will be developed to measure the impact of improved management of timber resources and ecosystem services, together with increases in income for targeted communities and replication efforts. Restoration efforts offer gender neutral opportunities by involving women in nursery operations. As part of this effort, disaggregated gendered impacts of increased income generation will be tracked as part of the M & E system. The lessons learned, marketing and innovative successes of the Components 3 will be shared at regularly inter-community venues to en(gender) replication, and will have a positive and sustainable impact on women.

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ACRONYMS AND ABBREVIATIONS

BD	Biodiversity
CBD	Convention on Biological Diversity
CBO	Community Based Organization
CC	Climate Change
CEPA	Communication, Education and Public Awareness
DCA	Development Control Authority
DCSG	Development Control Standards and Guidelines
DFA	Degraded Forest Areas
DFID	Department for International Development
DoF	Department of Forestry
EIA	Environmental Impact Assessment
EP	Executing Partner
ES	Ecosystem Services
ESV	Ecosystem Services Valuation
EU	European Union
FD	Forest Department
FFI	Fauna and Flora International
GDP	Gross Domestic Product
GEB	Global Environmental Benefit
GEF	Global Environment Facility
IAS	Invasive Alien Species
IBA	Important Bird Area
IPTC	Iyanola Project Technical Committee
ISFM	Integrated Sustainable Forest Management
ITC	International Trade Centre
IUCN	International Union for the Conservation of Nature
IWRM	Integrated Water Resources Management
KAP	Knowledge Attributes and Practices
KBA	Key Biodiversity Area
LD	Land Degradation
LPIE	Lead Project Implementation Entity
M & E	Monitoring and Evaluation
MMA	Marine Management Area
MSDEST	Ministry of Sustainable Development, Energy, Science and Technology
MTDSP	Mid Term Development Strategy Paper
NAPSAP	National Action Plan and Strategic Action Plan
NBSAP	National Biodiversity Strategy and Action Plan
NDP	National Development Plan
NGO	Non Governmental Organization
NLP	National Land Policy
NPD	National Project Director
NTFP	Non Timber Forest Products
OECS	Organisation of Eastern Caribbean States
PA	Protected Area
PIR	Project Implementation Report
PPCR	Pilot Program for Climate Resilience
PPG	Project Preparation Grant
PSC	Project Steering Committee

SDED	Sustainable Development and Environment Division
SEAs	Strategic Environmental and Socioeconomic Assessments
SFM	Sustainable Forest Management
SLING	St Lucia Integrated National Geonode
SLISBA	Saint Lucia Small Business Association
SLM	Sustainable Land Management
SLMA	Saint Lucia Manufacturers Association
SPAW	Protocol Concerning Specially Protected Areas and Wildlife
SPPA	SPPA - Systems Plan for Protected Areas (Revised referred to as SPPA2)
TK	Traditional Knowledge
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Climate Change Convention
VAT	Value Added Tax
WBT	White Breasted Thrasher
WRI	World Resources Institute

SECTION 2: BACKGROUND AND SITUATION ANALYSIS (BASELINE COURSE OF ACTION)

2.1. Background and context

10. This situational analysis will provide an overview of Saint Lucia's geography, demography and economy as it relates to the Iyanola North East Region. It will look at the areas global significance, threats and barriers to achieving solutions to address those threats, the current institutional sectoral and policy context including legal and policy frameworks and an overall long term solution for the effective management of the Iyanola North East Coast Region.
11. Saint Lucia is the second largest of the Windward Islands and is located between 13°43' and 14°07' north and 60°05' west. The island is a small volcanic island located at latitude 13° 59' N, and 61° W within the Eastern Caribbean, and its total land area is approximately 616 km², of which 77% is forested.
12. The island possesses a high degree of diversity, not only in the ecosystems and habitats found on the island, but also in the variety of biological resources present, and the endemism of species found in the country. Biodiversity is important to the country for food, shelter, medicines, ecosystem services, sustainable livelihoods, agriculture and tourism industries and future untapped industries of the country.



Figure 1: Location of Saint Lucia in the Caribbean
@worldatlas.com



Figure 2: Map of Saint Lucia
@GraphicsMaps.com

Geography, Demography and Economy

13. The island is approximately 238 square miles. The island is of volcanic origin and has a mountainous terrain coupled with many fertile valleys made up mostly of alluvial soils¹.
14. The mid-year population estimate for Saint Lucia in 2012 was 169,115. The 2012 labour force comprises 94,606 and the unemployment rate as at 2012 was 21.4 percent. Gros Islet experienced the greatest percentage increase in population increasing in 2010 by 20.8% more than it was in 2001. This illustrates that Gros Islet's population has increased by an average of over 2% per cent a year, four times the rate of increase in the population of Saint Lucia, representing an additional 4,338 persons moving to the Gros Islet district. Dennery, the other district within which part of the Iyanola Region falls, experienced a decline in population of -1.5 per cent.
15. Saint Lucia's economy contracted in 2012 by 0.8 per cent, following a 1.5% growth rate in 2011. As at 2012, GDP of Saint Lucia was -0.84 per cent. This is primarily due to restrained domestic demand and lower private investment. Decline in economic activity was due to significant downturns in the distributive trades, construction, transport and communications sectors. Although very vulnerable, the Tourism sector continues to be the largest contributor to the island's gross domestic product (GDP). There is slow recovery in the agricultural sector due to extreme weather events such as a major drought in 2009/2010, Hurricane Tomas in 2010 and the more recent Christmas Eve trough of 2013. Additionally, the inflation rate increased from 2.8 per cent in 2011 to 4.2 per cent in 2012 and 4.3 per cent as at January 2013² mainly due to higher import prices and the introduction of the value added tax (VAT)³.
16. The National Land Policy (NLP), approved since 2007 incorporates aspects of environment and natural resource management, however lacks the regulatory framework and guidelines needed to guide development in a manner that takes into a broad range of some times critical ecosystem services and important biodiversity . There is no National Land Use Plan, resulting in short sighted planning permissions being granted with little apparent attempt to avoid or mitigate adverse impacts to critical ecosystem goods and services. A National Land Use Plan is long overdue; but has now been given consideration in the 2014-2015 budget.



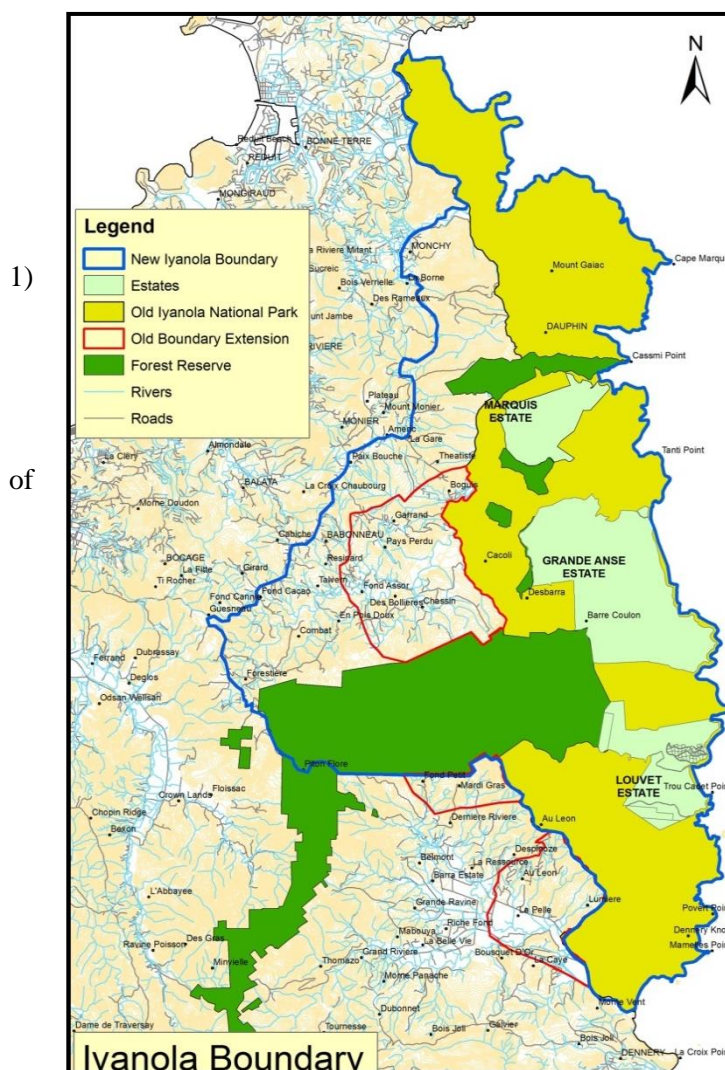
Figure 3: Grande Anse Beach
Credit: Daily Mail, UK

¹ Saint Lucia Statistical Digest 2012, http://204.188.173.139:9090/stats/images/publications/2012_Statistical_Digest.pdf.

² Saint Lucia Statistical Department Factsheet, <http://204.188.173.139:9090/stats/images/stories/factsheet.pdf>.

³ Saint Lucia Economic and Social Review 2012, [file:///C:/Users/Fevriers/Downloads/Economic-and-Social-Review-2012%20\(1\).pdf](file:///C:/Users/Fevriers/Downloads/Economic-and-Social-Review-2012%20(1).pdf).

17. The existing North Eastern Coastal region extends from Point du Cap in the North of the island to Mandele Point in Dennery (Walker). The area, with a population of less than 13, 500 people, is the most sparsely populated region within the country (IDEA, 2008). The Iyanola Region falls within the districts of Gros Islet, Dennery and



Castries and comprises twenty five (25) communities. The area is rich in natural resources and wildlife and is home to many rare and endemic plant and animal species that are endemic to Saint Lucia. Priority marine ecosystems of the NE Coast comprise: Grand Anse Beach and 2) Louvet Mangrove Marine. Both are designated Reserves⁴, and adjoin private estates poised for development.

18. The Iyanola National Park is one the designated areas proposed in the Systems Plan for Protected Areas which has not yet been approved. The area is documented as a Key Biodiversity Area (KBA) and an Important Bird Area (IBA). Given the challenges afforded by ownership of lands within the proposed park, its future is uncertain. The proposed

Figure 4: The IYANOLA Region

boundaries including privately held lands, covers an area of approximately 5090 hectares in the north east of the island and would serve to protect the only extensive area of undeveloped coastline remaining in St Lucia. This area encompasses most of the island's

intact dry forest ecosystems and is critical to the continued survival of some of its most rare and threatened endemic species, most notably iguanas and turtles.

19. The tropical dry forests serve as an important habitat for many rare and endemic species and in contrast to moist/rain forests are often regarded as being a valuable source of goods and services (John M. , 2010). The plants in the dry forest areas help to protect coastal lands from soil erosion (Toussaint, 2006). In addition, plants found in the dry forest areas are a source of livelihood for many families. These include the La Tanye Palm, which grows naturally in dry forest areas; trees such as Bois Madam and Bois Gwiye, which are sued in broom making (Toussaint, 2006). This type of forest is also important for bee pasture, with plants such as Campeche, Ti Bom, Bois Tan, and Glory Cedar that produce high quality nectar in honey production (Toussaint, 2006).

⁴ Saint Lucia's Marine reserves, number 24, and include the NE Coast reserves of Grande Anse and Louvet. These reserves are declared under the Fisheries Act Number 10 of 1984 for the purpose of protecting the natural resources contained herein.

20. Other plants of value that have been recognized in the area include several edible fruits, such as Balata, Black Berries and Bois Tan (Toussaint, 2006). A few others are also mentioned in the section below.
21. There are currently 12 Forest Reserves and 24 Protected Forests covering about 15% of the island. The reserves perform essential functions in safeguarding and regulating the island's water supply, preventing soil erosion and landslides, supporting the country's present and future renewable fuel supply and providing many services such as nutrient enrichment, and pollination through its wildlife species. The main threats to these are habitat modification and destruction. Habitat change is occurring at a rapid rate and is expected to increase even further in the future with the projected increase in hotels, marinas and golf courses earmarked for coastal regions, and an increase in housing and infrastructure which may impact dry forest areas.
22. The project site⁵ extends beyond the boundaries of the proposed Iyanola Park and covers communities extending from Cas en Bas in the North to Fond D'or in the South; and the coastline in the east to the boundary of the NW quadrant in the west. The 25 communities that have been identified by the Land Use consultant as being part of the Iyanola Region are spread throughout the project site. While the Iyanola region encompasses most of the Iyanola Park, it extends beyond the park to include most of Castries Waterworks Forest and beyond. The communities are spread over 3 administrative districts (Gros Islet, Babonneau and Dennery) which also coincide with the different sections of the Iyanola Region (North, Central, and South).
23. Referring to Table 1, there is a higher concentration of the population (7,944 persons or 59% of the total population in the Iyanola region) spread over 9 communities and hamlets in Northern Iyanola. Central Iyanola comprises 7 communities with a total population of 3541 or 26% of the Iyanola Region. There are 4 communities in South Iyanola with a total population of 2007 persons or 12% of the population in the Iyanola site.

District	Population		
	Male	Female	Total
Northern Iyanola: Gros Islet	3955	3989	7944
Central Iyanola: Babonneau	1777	1764	3541
South Iyanola: Dennery	1010	997	2007

Table 1: Population by Iyanola region

24. Northern Iyanola comprises farming and residential communities surrounding Castries, as well as some spectacular, rugged eastern coast lands. The Cas En Bas beach where the Cotton Bay Hotel is located is also well known for kite and wind surfing and horseback riding.
25. Along the coast in this region there are two major archaeological sites, Anse Lavoutte and Comerette Point. The Late Ceramic Age site of Lavoutte has been known as a major Pre- Columbian site since

⁵This study area and the communities contained therein was determined by the Land Use Consultant. The vast majority of these communities are outside of the Iyanola Park, the boundary for which was determined by the Department of Forestry.

the 1960s. It is located on a promontory that partly blocks the northern entrance to the bay of Cas-en-Bas.

26. Increased tourist activity in the area has accelerated the rate of erosion at the site. A large number of human burials were found eroding out of the site on inspection in January 2009.⁶
27. The Marquis Estate is also in Northern Iyanola. This estate covers approximately 2,250 acres along the northeast coast of the Marquis River Valley. The estate is now divided among several owners, including an international property investment company, Harlequin Property which owns approximately 525 acres. Approximately 1,070 acres of the estate is considered scrubland, while 930 acres are covered in crops, and 550 acres in natural forest.⁷
28. The Central Iyanola Region is also made up primarily of farming communities: Babonneau proper, Caco, Chassin, Fond Assau, Talvern, En Pois Doux, Fond Canie, and Resinard. This Region has at least two major tourism attractions within this site: The Rainforest Adventures is a nature-based attraction located in Chassin while the Fond Latisab Creole Park, also located in Chassin is the site for demonstrations of local culture and traditions.
29. This region is steeped in African tradition and cultural heritage, with evidence of the presence of Amerindians as well. There is a deep sense of community, in Babonneau Proper and its environs and these communities diligently preserve their “Kweyol” heritage.
30. Current land use in the study area in terms of forests and farming is shown in Figure 5 below.

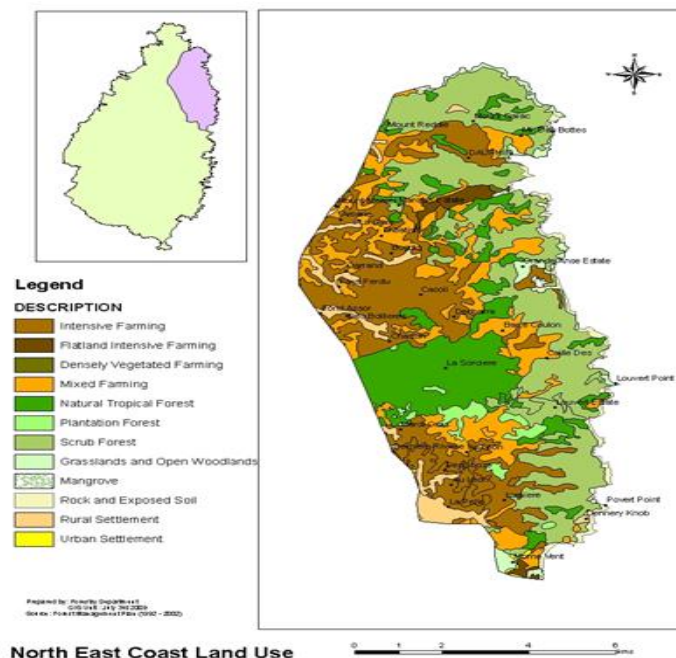


Figure 5: Land use in the proposed Iyanola Region.
Source: Forestry Department

⁶Corinne L. Hofman, *et al.* (N.D.) Life and death at Pre-Columbian Lavoutte, Saint Lucia, Lesser Antilles. Academia.edu. accessed on February 20 2014

⁷This information was obtained from the Product Development and Marketing Consultant’s Report.

31. Much of the proposed development of the North East Coast is centred on private estates. The area comprises three large private estates, which cover an extensive area. Figure 6 below highlights the locations of the main private estates within the region.

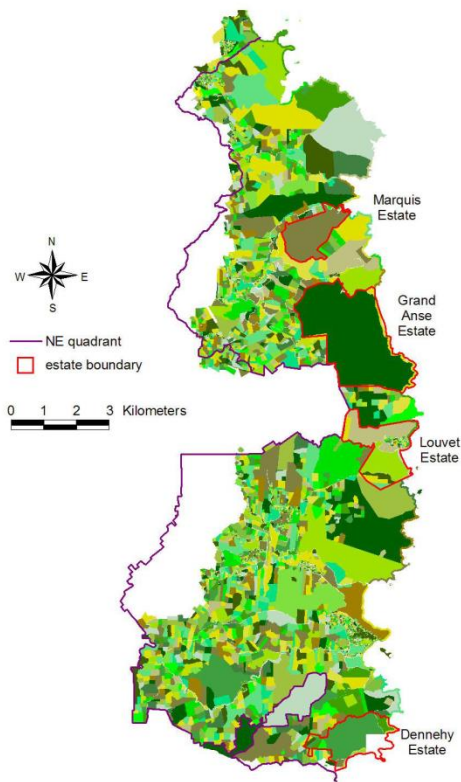


Figure 6: Large private estates along the North East Coast (Source: John, M. (2010). Investigating the Feasibility of Establishing a Biosphere Reserve on the Northeast Coast of St. Lucia. Waterloo, Ontario, Canada.)

32. A description of the estates, highlighting key elements of their biodiversity, based on the works on Makkedah John and other cited sources is presented below:

Grand Anse

33. The Grand Anse Estate located within the central Iyanola region covers an area of approximately 1628.4 acres. The estate is contoured by three mountain ridges, all of which face the Atlantic Ocean and give rise to two valleys. The property has three rivers, two of which form Lagoons on the Grand Anse Beach, while the other empties into the Atlantic Ocean.



Figure 7: Grand Anse Beach (Source: The Mirror Online. www.mirror.co.uk)

34. Grande Anse beach is comprised of a 1.6 km sandy beach which is bathed by high energy waves from the Atlantic Ocean. This, coupled with the frequent and illegal removal of sand, makes the beach highly dynamic with sand dunes growing and shrinking repeatedly in response to wave and wind activity.
35. Grand Anse is a habitat for several species of birds, reptiles and mammals. The area, with approximately fifty three bird species including five of the island's seven endemic birds, is "at the core of the North East Coast Important Bird Area (IBA)." Five of the island's endemic reptile species are also found there (Morton M. , 2007). Notably, thirteen of the plant species that are found at Grand Anse are classified as being very rare or of restricted range⁸, with four of these species only known from the area (Morton M. , 2007). A pond at Grand Anse also forms the islands only known breeding site for the masked duck (Daltry, 2009). The Grand Anse Beach is one of two nesting sites for the Iyanola and the leather back turtle, and is the most important nesting site for the leather back turtle.
36. Due to the limited activity on the property, much of the vegetation on the estate has re-grown into what is regarded as secondary dry forest and shrubs.

Louvet Estate

37. Louvet is an old plantation estate located along the beachfront in close proximity to the communities of Des Barras and Aux Lyon. The estate covers approximately 548 acres of land (Caribbean Oceanfront Properties Coastal Systems International, Inc., 2009). Former owners operated guest houses farmed the estate, which since become inactive. inaccessibility, as a result of poor road conditions, has resulted the regrowth of much of natural vegetation. The hilly areas are occupied primarily by secondary forests and scrublands, while a coconut farm and grasslands, often used grazing, constitute the majority of the flatlands.



Figure 8: Section of Louvet Estate
(Caribbean Oceanfront Properties and Coastal Systems International, Inc., 2009)

38. The Louvet Beach Environmental Impact Assessment (2009) identified 108 species of flora, including trees, shrubs, vines and herbs, including thirteen agricultural species. The area is also home to several species of mammals, reptiles, and birds, including seven endemic bird species. The Louvet Beach and the surrounding dry forest are an important egg-laying site and habitat, respectively, for the St. Lucia iguana. The Beach is also one of the primary sea turtle nesting sites for the endangered Leatherback and Hawksbill Sea Turtles. The Louvet River runs down the centre of the property and empties into the Atlantic Ocean and a small area of mangrove is found close to the mouth of the river (Caribbean Oceanfront Properties and Coastal Systems International, Inc., 2009).

⁸ At a high risk of extinction, and in many cases known only from a single locality.

Marquis Estate

39. The Marquis Estate covers approximately 2,250 acres along the northeast coast of the Marquis River Valley. The estate is now divided among several owners, including an international property investment company, Harlequin Property which owns approximately 525 acres. Approximately 1,070

930

are,



acres of the estate is considered scrubland, while acres are covered in crops, and 550 acres in natural forest.

40. The ecosystems found on the Marquis Estate for the most part, similar in composition to those found on the Grand Anse and Louvet Estates.

Figure 9: Aerial view of Marquis Estate
(harlequinhotelsandresort.com)

41. Southern Iyanola includes the communities of Lumiere, Gadette, Au Leon, Despinoze and La Perle, all of which are farming communities, with a few crafts persons and clerical workers in Au Leon. Au Leon (population of 1697 persons) is the largest and the most densely populated community in the entire project site. The Southern Iyanola Region also includes the Louvet Estate located along the beachfront in close proximity to the communities of Des Barras and Aux Lyon.

42. Referring to Figure 8 below, 77% of the population in the project site is between 0 and 44 years of age; 90% is between 0 and 59 years of age. Forty-four per cent of the population is below the age of 19 years. The population is young with close to half of the population being less than 19 years of age. There are no significant gender differences for each age cohort. There are also no significant differences in population composition by age group between communities.

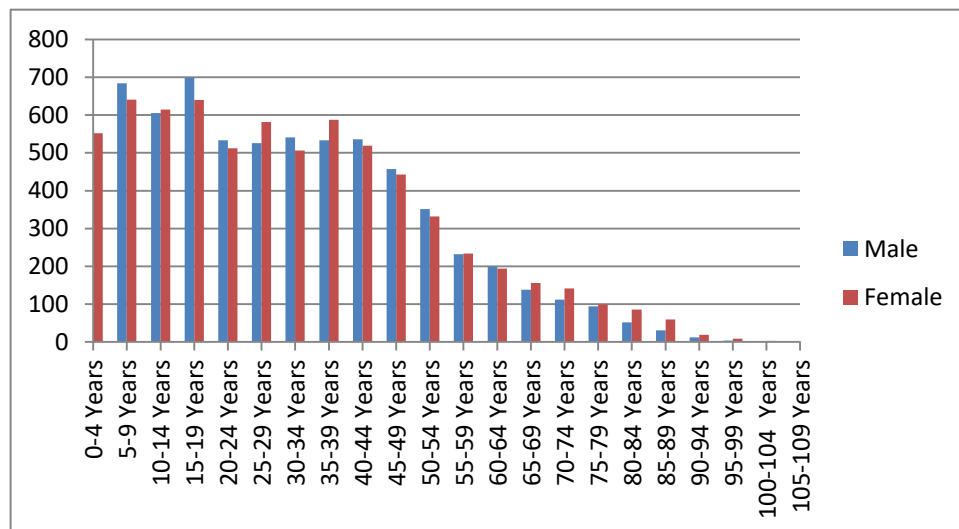


Figure 10: Population distribution in project site

43. Between 25 and 29% of the occupations reported for the communities in Iyanola North and Central was as “service and Sales Workers”⁹. A very large number of young persons in these communities are involved in the tourism industry, primarily at the lower end in housekeeping, waiting and other

⁹ 2010 Population Census

non-specialised jobs. Some of them are also involved in tourism activities within the site – wind and kite surfing and horseback riding in Cas En Bas Beach; Rainforest Adventures (the enterprise in Chassin informed the terrestrial Ecosystems Consultants that 50% of their labour force comes from Chassin itself); Island Adventures Tours which conduct some of their tours on the Fond D’Or Beach, etc.

44. A break-down of some of the key resources found along the North East Coast by settlement/community is illustrated in the table below.

Table 2: Key resources in the Iyanola region by community

Natural Resources	Iyanola North								Iyanola Central				Iyanola South						
	Cas En Bas *	Monchy **	Dauphin **	Esperance	La Borne	Marquis ***	Theatiste	Boguis *	Garrand *	Desbarras ***	Chassin **	Louvet Estate ***	Gadette	Au Leon	Despinoze	La Pelle	Lumiere	La Caye	Fond Dor ***
Beaches	X			X						X		X							X
Cultural/Historical Heritage	X	X	X		X	X		s	X			X							X
Waterfalls												X							
Bees														X					
Fishes			X			X				X		X							X
Farm Land		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Crab		X	X	X		X				X		X					X		X
Forest			X			X		X		X		X							X
Timber			X	X		X			X	X		X							X
Livestock			X	X		X				X		X							X
Latanye		X	X	X		X		X		X		X							X
Coconut		X				X						X							
Cassava		X			X					X						X			
River		X	X			X		X	X	X	X								
Bamboo		X																	
Rare/Endemic Birds			X	X		X				X		X							X
Endemic Reptiles			X	X		X	X			X		X							X
Mangroves		X	X			X				X		X							X
Rare Plant Species		x				X		X		X		X							

KEY: * of conservation significance ** of high conservation significance *** highest sensitivity areas, of highest conservation significance

ECONOMIC PROFILE

45. The main economic activities within the Iyanola region are centred on use of natural resources, with fishing and agriculture being the main activities. Traditionally, the main activities within the dry

forest areas of the East Coast have been sugar, copra, and banana agriculture; whereas coconut plantations and the grazing of livestock have been more common along the flatlands (John M. , 2010). While agriculture continues to be one of the main activities, there has been a decline in cultivation of most of the traditional crops due to factors such as environmental impacts and vulnerability of markets.

46. Other plants found in the dry forests also provide a number of goods and services. Among the more commonly utilized forest resources are Latanye and L'ansan. In particular, the l'ansan trade in St. Lucia is noted to be a dependable source of income, primarily for poor people in communities in the vicinity of the forests (Toussaint, 2011).
47. In 2010, the per capita income was estimated at USD6, 677.00 or approximately 18,000 XCD. Many of the persons living in the communities in the project site met this per capita income threshold. Women in all instances earned less than men and they tended to cluster around the lower income categories.

AGRICULTURE

48. Farming still remains a very important economic activity in the project site although there has been a decline in cultivation of most of the traditional crops. The crops that were traditionally grown were sugar, bananas and coconuts. Coconut plantations and the grazing of livestock have been more common along the flatlands.
49. Farming continues in Monchy, Esperance, La Bourne, Marquis, Boguis, Chassin, Louvet, Aux Leon and its surrounding communities. Most of the land used for agriculture in the interior is family land while the farmers in the coastal communities (Boguis, Garrand, De Barras, Aux Leon) farm on estate and/or Crown Lands. In the case of the latter, they are usually squatters. Farmers in Chassin grow along the river banks. Farmers who squat on the land usually use slash and burn to clear their initial plots.
50. Most of the farming is small scale and rain fed or irrigated manually with watering cans. Farmers in Marquis, however use irrigation. All of these farmers specialise in short term vegetable and fruit crops, and herbs. There is also some cultivation of root crops and plantain. These are sold to hotels, supermarkets and at the local market. Some of the produce is also sold within the community. Some cocoa is grown as an intercrop by farmers in Marquis. The cocoa is processed for the local market.
51. Cassava cultivation is very common – De Barras, La Bourne, Garrand, Luvette, Aux Lyon. The cassava is processed in the farms into farine by women. The farine is sold in the community or in the Castries Market. Farine production is common in the project site. The communities known for farine production are Monchy, La Bourne, Des Barras and La Perle. In Des Barras farine is produced by women who work together. Farine is made on a Thursday for market on Friday. The farine from des Barras is so popular that persons come to the community to buy the farine. These women also make cassava bread for sale in the community and in the market.
52. There are also a number of poultry and pig farmers in the project site. Other livestock are primarily small ruminants although there are a few persons who also keep cattle. Livestock farmers are found primarily in Dauphin, Esperance, Marquis, De Barras, Louvet, and Fond D'Or.

FISHING

53. Very few persons in the project area are involved in full time fishing. According to the Marine Biologist on the team, subsistence, and recreational fishing occurs in the rivers and (maybe to a lesser extent) along the beaches of both Grande Anse and Louvet. There are also some fishermen registered with the Department of Fisheries (De Barras – 1, Aux Lyon – 1, Boguis – 3, Fond Assau - 4, Monchy – 41, Grande Rivier (Dennery) – 3). Whilst these fishers may not have boats anchored offshore of these sites, and they may land their fish at other docks, it is likely that they do some fishing offshore of the Grande Anse and Louvet bays. Observations at night indicate that there is some night fishing occurring offshore (of Grand Anse at least).
54. Fishermen from Canaries, Anse La Raye, Dennery, Praslin and Micoud also fish off the waters of the North East Coast. Most of the fishermen fishing off the NE Coast are, however, from Dennery.
55. Esperance used to be famous for conch harvesting. With that supply have been depleted fishermen go about 6 miles off shore to a conch bank and use gill nets. Sea eggs are harvested off Cas En Bas and Grande Anse; and off Fond D'Or Beach. Whelks are also harvested in the intertidal and nearshore sub tidal areas, particularly the areas where large waves tend to hit against the rocks on the east and north coasts. This fishery is artisanal in nature. Most of these fishers come from Anse Ger and Dennery but they scout for the whelks all along the north east coast. All of the whelk fishers harvest whelks on a part-time basis.
56. The project site is also an important lobster area. There is a lobster bank about 6 miles off shore. In addition, there is a tuna bank about 10 miles off the coast. This bank is visited by fishers from Castries and Gros Islet. Other off shore pelagics found here are kingfish and mahi mahi. There is also pot fishing from about 120' in depth to 14 miles off shore. Persons from surrounding communities in Garrard, Boguis, Des Barras and Aux Leon also engage in spear fishing.

NATURE-BASED TOURISM/ ECO-TOURISM

57. Tourism is Saint Lucia's most significant source of income and employment, with the industry accounting for approximately 65% of the country's GDP (Central Intelligence Agency (US), 2013). The travel and tourism industry directly contributed an estimated XCD455.7 million to GDP in 2012. During this period, the industry was also estimated to directly support approximately 18.6% of the country's employment (World Travel & Tourism Council, 2012).
58. The island's location and product appeal are among the most influential reasons for visiting Saint Lucia. As it relates to the product offering, nature-based activities (sunset cruises, sailing, and horseback riding) and scenery are among the most appreciated attributes of the island (St. Lucia Tourist Board, 2013).
59. The North East coast of Saint Lucia is the least visited and least accessible part of the island, partially as a result of its poor road network. The beaches in this area tend to be wider and more aesthetic than other beaches. However, beach front developments are less attractive to developers as a result of the high wave energy along the Atlantic coast. Nevertheless, the region is considered to "offer good potential for eco and community based tourism activities, the establishment of natural parks, and the expansion of the manufacturing sector" (Walker, p. 79).
60. The Vision Plan for the North East quadrant recognises the potential for tourism, and in particular, eco-tourism. It is anticipated that eco-tourism developments, such as eco-resorts near the Grand Anse, Marquis, Louvet, and Fond D'or areas, will serve to foster greater interest in the region. Growth in the product offering, as well as enhancement of existing touristic activities are regarded as

significant prospects for the generation of employment and facilitation of entrepreneurial activities within the region.

61. Development of the tourism product has the advantage of providing linkages to other economic sectors, including agriculture, fisheries and manufacturing (Jules, 2005, p. 5). Despite this, John (2010) notes that the mass tourism model, which features the development of activities that are able to attract a large number of people, results in economic gains, but does not follow the requirements of sustainability (John M. , 2010).
62. The concept of eco-tourism is not new to Saint Lucia, with the island having received the Caribbean Islands' 2000 Ecotourism Award for its Nature Heritage Programme, and being well regarded for its "dedication to environmental conservation. (Jones, 2011) "

Nature-Based Tourism Activities in the Iyanola Region

63. There are currently a number of formal eco-tourism initiatives within the Iyanola region of the island. Further development of the nature tourism product within the region must therefore take into account the sustainability of these initiatives, not only within the environmental context, but also within the social and economic context.



Figure 11: Nature-Based Tourism Initiatives in St. Lucia

Source:

64. Noted eco-tourism initiatives within the region provide a showcase of the local culture and feature the island's unique biodiversity.
65. The economic profile of the Iyanola area can thus be summarised as follows: Livelihoods that are individual based, artisanal in nature and that are based on the surrounding natural resources. These include farming, fishing, crab catching, charcoal production, logging and saw milling, and such other activities.
66. Livelihoods that are group based but still artisanal in nature. These include agro processing by the Babonneau Women's Rural Network; farine production by groups of women; the Sangkofa Roots Farm where a group of Rastafarians practise organic farming and permaculture; the Mabouya Valley

Trust Fund which manages the Fond D'Or Nature Reserve and Historical Park and a few other sites and attractions but which are not within the Iyanola project site.

67. Livelihoods that are generated within Iyanola but which are not natural resources based. There are a number of persons throughout the communities in Iyanola who are involved in small businesses – grocery shops, restaurants, catering, bars, tailoring, day care facilities, beauty parlours and barber shops; etc.
68. Livelihoods that are generated within the Iyanola area but which are capitalised and managed by persons from outside of Iyanola. These livelihoods are based on the natural resources in Iyanola.

CURRENT MARKETS

69. Much of the contribution of natural resources to economic livelihoods is largely unrecorded. In reference to forest products, Toussaint, in an article in the Voice newspaper, dated June 7, 2011, noted that “...the use of forest products for subsistence and local trade is difficult to track and measure. In general, the economic valuation of forests to GDP is scanty and in most cases not evaluated” (Toussaint, 2011). Within the local context, this statement can also be applied to other biodiversity products.
70. Further research will be required in order to garner a better understanding of the local market from the key stakeholders to assist in determining the investment potential and nature of human capital needed for viability of production of identified products and services. However, findings from preliminary consultations with residents from select communities in the Iyanola region indicate that with the exception of a few eco-tourism initiatives, the production of bio-friendly goods and services at the community level generally takes place in an ad hoc manner. Rather than a strategic approach to business development, most persons engaged in these activities do so because of tradition, or the ease of access to resources. Consequently, there is often little knowledge of the resources and methods required for ensuring sustainable use.
71. More structured approaches to the production of bio-diversity friendly products at the community level are primarily the result of projects, which are funded by Government agencies often with the

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Figure 12: *Latanye brooms being sold locally* (Morton M. , 2009)

assistance of funding from NGOs and International donors, such as the EU, DFID, and GEF. The provision of capital, well as undertaking training initiatives to increase awareness of the resources that utilized and sensitise persons to sustainable are usually key components of these projects. However, insufficient monitoring follow-up usually results in long-term diminishing returns.

72. Most biodiversity products produced at community level are currently utilized for subsistence or sold locally. Few items produced at the community level are exported. In most cases, trade in these items is largely inconsistent.

2.2. Global significance

73. Saint Lucia as a signatory to several multi-lateral environmental agreements such as the Convention on Biological Diversity (CBD) that pushes the conservation of biological resources, sustainable use and the fair and equitable sharing of genetic resources and the United Nations Framework Convention on Climate Change (UNFCCC) is supposed to mainstream such conventions into national policy

development and planning. The effective management of the Iyanola North East Region is an example of ensuring that such mainstreaming is achieved at the national level. Consequently, effectively managing the resources of the Iyanola North East Coast Region is of critical importance to meeting international commitments and protecting the island's biodiversity. Also, effective management of the area is necessary to protect ongoing traditional livelihoods and economic activity due to available land, coastal waters and forest resources further allowing persons to engage in community based and agro-tourism activities. Additionally, as a party to the St. George's Declaration on Environmental Sustainability in the OECS, the Protocol Concerning Specially Protected Areas and Wildlife (SPAW Protocol; signed in 1990) to the Cartagena Convention, among others, Saint Lucia has a global responsibility to conserve its indigenous plants, animals and their habitats.

74. Specific Global Environmental Benefits under the GEF Biodiversity, Climate Change, Land Degradation (including Sustainable Forest Management) and Sustainable Forest Management (SFM) focal areas can be summarized as follows:
75. **Biodiversity (and SFM):** Incorporation of biodiversity and ecosystem services into currently lacking land use planning will improve the management and regulate the use of biodiversity in productive sectors, particularly tourism development. The improved management and restoration of degraded forest areas (see Figure 13) will stem habitat loss and degradation thereby safeguarding habitat for forest plants and animal species of global significance, including migratory species and thereby improving ecosystem services provided by the forest; increase the management effectiveness of forest of high priority conservation value and restoration of high value mangrove ecosystems. The project will increase conservation and management effectiveness of coastal marine habitat and ecosystem of Grande Anse, of global importance to the Saint Lucia iguana, and leatherback turtle, whilst also addressing threats posed by invasive alien species. The reduction of pressure on forest ecosystems will also occur through the development of markets for biodiversity friendly sustainable goods and services. Through the development of alternative livelihoods, including agroforestry and non-timber forest products (NTFPs), pressure on forest resources will be relieved while providing opportunities for generation of income in remote coastal communities hard hit by the economic downturn and loss of tourism revenues.
76. **Climate Change (and SFM).** Adoption of sustainable forest and land management techniques and restoration efforts will result in enhanced resilience to climate change, rebuilding and conservation of carbon stocks and a reduction in emissions from forest deforestation and degradation. In terms of carbon benefits, the estimates are based on 2009 inventory data for St. Lucia. The carbon benefits of the project are estimated at an annual sequestration of 23,056 tons CO₂, with a potential total carbon benefit of 691,689 tons CO₂ at the end of a 30 year period (calculated using Tier 1 UNFCCC guidelines).
77. **Land degradation (and SFM):** Improved provisioning of ecosystems services through restoration of riparian buffer zones, resulting in erosion and sediment control benefits, water quality benefits, flood control -- with contributions to carbon sequestration through forest restoration, sustainable forest management, and improved land use planning and management.

2.3. Threats, root causes and barrier analysis

78. Analyses of threats/risks, root causes and barriers to achieving an effective solution to adequately and sustainably manage the resources of the Iyanola NE Coast Region were investigated during the Project Preparation Grant (PPG) phase and reviewed at the Stakeholder Project Validation Workshop and are summarized in this section. They reflect a contemporary espousal of development trajectories

that emphasize inadequate land use planning and management, ineffective biodiversity and ecosystems management in sensitive environments, absence of supporting policies and institutional frameworks to facilitate sustainable economic livelihoods from biodiversity (BD)friendly goods and services and thus ensure equitable distribution of benefits among local communities; the failures of markets to reflect the full value of BD friendly goods and services, and the limited capacity and knowledge base needed to sustainably manage the resources of the Iyanola NE Region to the greatest effect. Further, the impacts of climate change are likely to pose a significant threat to biodiversity and ecosystems, which provide existing opportunities for deriving benefits from the sustainable management of use of the resources in the NE Iyanola Region.

79. A review of the current activities, particularly impacting the region was undertaken in order to inform the viability of existing initiatives, avenues for expansion of these initiatives, as well as suggestions for the development of complementary activities, and are elaborated below. The key drivers of change in the Iyanola region, and the goods and services they supply, are inadequate land use planning, habitat fragmentation/land ownership, lack of economic opportunity, climate change vulnerability, over exploitation of resources, low management effectiveness of ecosystem goods and services, accompanied by lack of awareness, capacity and financing.
80. **Inadequate Land Use Planning:** There is no National Land Use Plan, resulting in short sighted planning permissions being granted with little apparent attempt to avoid or mitigate adverse impacts to critical ecosystem goods and services. However, in recent times, de facto permission has been granted for the development of several private estates within the Iyanola NE Coast region and it was essential to evaluate possible threats/ risks that are likely to result from the implementation of such development initiatives. Further, several hotel developments have been either approved for the area or are in the planning stage. Developers continue to speculate with the natural beauty of real estate at Saint Lucia's NE coast, with major sections being traded on the market. A proposal to construct a new link road/major highway to the south of the island, through the Iyanola NE Coast Region threatens to open up the area for development and endanger the area's threatened natural resources.
81. A long over-due proposal for a National Land Use Plan has now been given consideration in the country's 2014-2015 budget. Though included as part of past national level development and land use plans; the non-adoption and lack of enforcement of plan proposals combined with the absence of a detailed local plan serves to render the NE Coast and its environmental resources susceptible to the vagaries of negative development impacts, inappropriate land management practices and indiscriminate and detrimental resource exploitation.
82. Unregulated development has the potential for severe negative impacts on the environment. Deforestation, soil erosion, destruction and fragmentation of terrestrial and coastal habitats, pollution especially of the marine environment (IUCN, 2012)¹⁰ and depletion of biological diversity (including the extinction of rare and endangered species such as the endemic iguana and other important animal species such as the white breasted thrasher and rare plant species), are occurring but the exact rates at which they occur are not known.
83. There is concern that there has been insufficient regard for the potential risks that these developments may pose to the area's biodiversity, which already faces immediate threats as a result of unregulated practices, such as the hunting of iguanas and turtles, sand mining (in particular at the Grande Anse beach the nesting site for leather back turtle), dumping in mangrove areas, and the clearing of trees; the cutting of coastal vegetation such as mangroves in the area has led to shoreline exposure. The introduction and spread of invasive or exotic species, as well as feral and domestic animals, such as pigs, goats and cows, that destroy biodiversity and habitats in these areas is also cause for concern.

¹⁰IUCN. (2012). *Building and Operating Biodiversity Friendly Hotels in the Caribbean*. Gland, Switzerland: IUCN.

84. There is however, increasing recognition of the need for consideration of the “sensitive environments” within the area, particularly with regard land use planning, safeguarding of key areas, continuity and sustainable replacements. In order to safeguard long-term sustainability, “binding mechanisms in terms of legislation and regulatory framework” will be key to ensuring that developers do not pursue interests which may be lucrative in the short term, while compromising long-term benefits (ITC Executive Forum, Ministry of Trade and Industry Republic of Trinidad and Tobago, Commonwealth Secretariat , 2004)¹¹. As such, within the local context, a number of policies have been developed to regulate developmental activities with a view to ensuring sustainable use of natural resources.
85. The Draft National Systems Plan for Protected Areas in Saint Lucia outlines a proposal for an Iyanola National Park within the region. The proposed Iyanola National Park would cover an area of just over 5,000 hectares, and provide a system to protect the vulnerable resources within the area, including the only extensive area of undeveloped coastline remaining in the island. The proposed area also contains most of the island’s intact dry forest ecosystems and is therefore critical to the survival of some of the rarest endemic species (Haffey, 2009)¹².
86. The National Vision Plan also provides an initial framework to “ensure that development can move forward, in a controlled manner....” Preliminary goals for the North-Eastern region, as outlined in the plan “include a new road providing access throughout the quadrant, new housing settlements, a water intake initiative, and new eco-tourism developments” (IDEA, 2008)¹³.
87. **Habitat Fragmentation/Land Ownership:** The proposed boundaries including privately held lands, covers an area of approximately 5090 hectares in the north east of the island and would serve to protect the only extensive area of undeveloped coastline remaining in Saint Lucia. This area encompasses most of the island’s intact dry forest ecosystems and is critical to the continued survival of some of its most rare and threatened endemic species, most notably iguanas and turtles. Given the challenges afforded by ownership of lands (private and sometimes absentee landowners) within the Iyanola region, its future is uncertain.
88. **Climate Change Vulnerability:** The island’s geographic location and topographic profile also increases its vulnerability to a number of weather-based disasters, including hurricanes, floods, droughts, storm surges, and coastal erosion (Climate Change Technology Needs Assessment for Saint Lucia, p. 9)¹⁴. While national planning is advancing and some important vulnerability and adaptation analyses have been carried out, the adoption of planned adaptation and mitigation strategies represents a real barrier to the effective maintenance of biodiversity within the area. A real threat is that, faced with the need to change, there will be a tendency to adopt simple solutions which, in fact, will reduce system resilience and adaptability.
89. In addition to environmental threats or risks, social and economic factors also pose a threat to the sustainable development.

¹¹ITC Executive Forum, Ministry of Trade and Industry Republic of Trinidad and Tobago, Commonwealth Secretariat . (2004). *Strategic Approach to Tourism as an Export and Development Opportunity in Small States: St. Lucia*. Port of Spain, Trinidad & Tobago.

¹²Haffey, D. (2009). *A Systems Plan for Protected Areas in Saint Lucia*.

¹³IDEA. (2008, October). Saint Lucia National Vision Plan. Orlando, Florida, USA.

¹⁴*Climate Change Technology Needs Assessment for Saint Lucia*. (n.d.). Retrieved from United Nations Framework Convention on Climate Change.

90. **Lack of Economic Opportunity.** Inadequate livelihood and income generation options for rural communities: Poverty in Saint Lucia is considered mainly a rural phenomenon, with rural districts showing poverty prevalence rates in excess of 35%.¹⁵ The margins of the area proposed as Iyanola National Park are bordering the rural communities of Monchy, Babonneau and Dennery, with the typical socioeconomic activities of farming and fishing communities. Permanent and temporary residents are dedicated to farming (short term crops and livestock), extractive use of natural resources (charcoal- and broom-making), and (largely illegal) hunting and poaching. The equitable distribution of resources or benefits from the nature based tourism industry is also a key element to be considered, as inequitable distribution has the potential to jeopardize the stability of the industry through leakages, with consequent negative economic and social impacts. Tourism is minimal with only one ecotourism facility ran by Rainforest Adventures. These socioeconomic activities are discussed in the context of biodiversity and natural resource management in one of the background reports entitled "Valuation of ecosystem goods and services, and biodiversity data relating to forested areas for the NE Coast". Overall, management effectiveness of forest, riparian, mangrove and marine areas in the NE coast is deficient, and livelihood options limited.
91. **Overexploitation of Resources.** Baseline analyses carried out in the Project site provided evidence of significant threats to traditional sustainable production practices and the maintenance of biodiversity as a result of over-consumption or over-utilisation of resources in livelihoods, which has the potential to result in a loss of resource bases. Agricultural activity in the NE coast competes with forest biodiversity. The potential for harmonious agroforestry has not yet been markedly tapped into.
92. **Low Management Effectiveness/Ecosystem Goods and Services (Terrestrial/Marine).** The Forest Reserve and Protected Forests system of the country are intended to perform essential functions in safeguarding and regulating the island's water supply, preventing soil erosion and landslides, supporting the country's present and future renewable fuel supply and providing many services such as nutrient enrichment, and pollination through its wildlife species. Main threats are habitat modification and destruction. Habitat change is occurring at a rapid rate and is expected to increase even further in the future with the projected increase in hotels, marinas and golf courses earmarked for coastal regions, and an increase in housing and infrastructure which may impact dry forest areas. This is further exacerbated by the challenges associated with ownership of lands within the proposed Iyanola park.
93. The Biodiversity Assessment of Saint Lucia's Forests¹⁶, clearly identifies the Dry Forests of the NE coast in first place as the priority area with "very high" conservation importance, for intervention both within and outside of Forests Reserves. Among the key threats and pressures identified for forest biodiversity in the participatory threat analysis were the ongoing degradation and loss of deciduous seasonal forests, mangroves and freshwater swamp forests to residential, tourism and other developments, alien invasive species; and, for a few species, over-exploitation. The analysis demonstrated that forests outside of the Forest Reserve system were approximately four times more at risk from severe threats than forests inside the reserves: a testimony to the effectiveness of the reserves management.
94. In addition, priority marine ecosystems of the NE Coast comprise: 1) Grand Anse Beach and 2) Louvet Mangrove Marine, both of which are designated Reserves. These designated Marine Reserves adjoin private estates poised for development and have not been mapped and therefore have an

¹⁵Government of Saint Lucia and the Caribbean Development Bank. Saint Lucia Country Poverty Assessment Report. Prepared by Kairi Consultants, Ltd.; 2008.

¹⁶Biodiversity Assessment of Saint Lucia's Forests, with Management Recommendations, Jennifer C. Daltry (Fauna and Flora International), 2009 - financed by the EC and Banana Industry Trust under the National Forest Demarcation and Bio-physical Resource Inventory Project

imprecise location, no identifiable boundaries, and no spatial dimensions. Furthermore, there is no current data on their status or condition; no active management, no enforcement of their statutory protection and no regime of inspection or policing. Planning permission for developments that will damage or destroy Marine Reserves has been granted with little apparent attempt to avoid or mitigate adverse impacts, whilst in other cases damaging activities are ignored by the relevant authorities. Immediate threats include invasives, degradation of conch habitats, hunting of iguanas and turtles, dumping in mangrove areas, and sand mining.

95. Haffey (2009) summarized the management effectiveness, among other areas, of the Saint Lucia Forest Reserve, mangroves and Grande Anse. Planning was found to be weak at Grand Anse, with the major threats being coastal development and road construction, sand mining, marine invasive species, hunting/poaching, and exploitation of non-timber forest products. The largest threat to mangroves was coastal development. Forest reserves are at risk from natural disaster, terrestrial invasive species, squatting, hunting/poaching, and exploitation of non-timber forest products.
96. **Land Degradation.**As a result of farming and settlements contributing to the degradation and fragmentation of the forests, much of the land is in secondary forests, scrubland or open wood land. The degraded forest areas in the NE Coast Iyanola region are shown in Figure 13. The areas indicated were taken from the following reports (Daltry, 2009; Morton, 2009) and supplemented by information received through interviews and a single site visit from Aux Leon to Babonneau.
97. Priority areas for restoration were mapped by the Forest Department, along riparian buffer zones, ravines and beaches and sites important to ecosystem services and biodiversity of global significance based on available data. Areas prioritized for restoration can be seen in Figure 14.

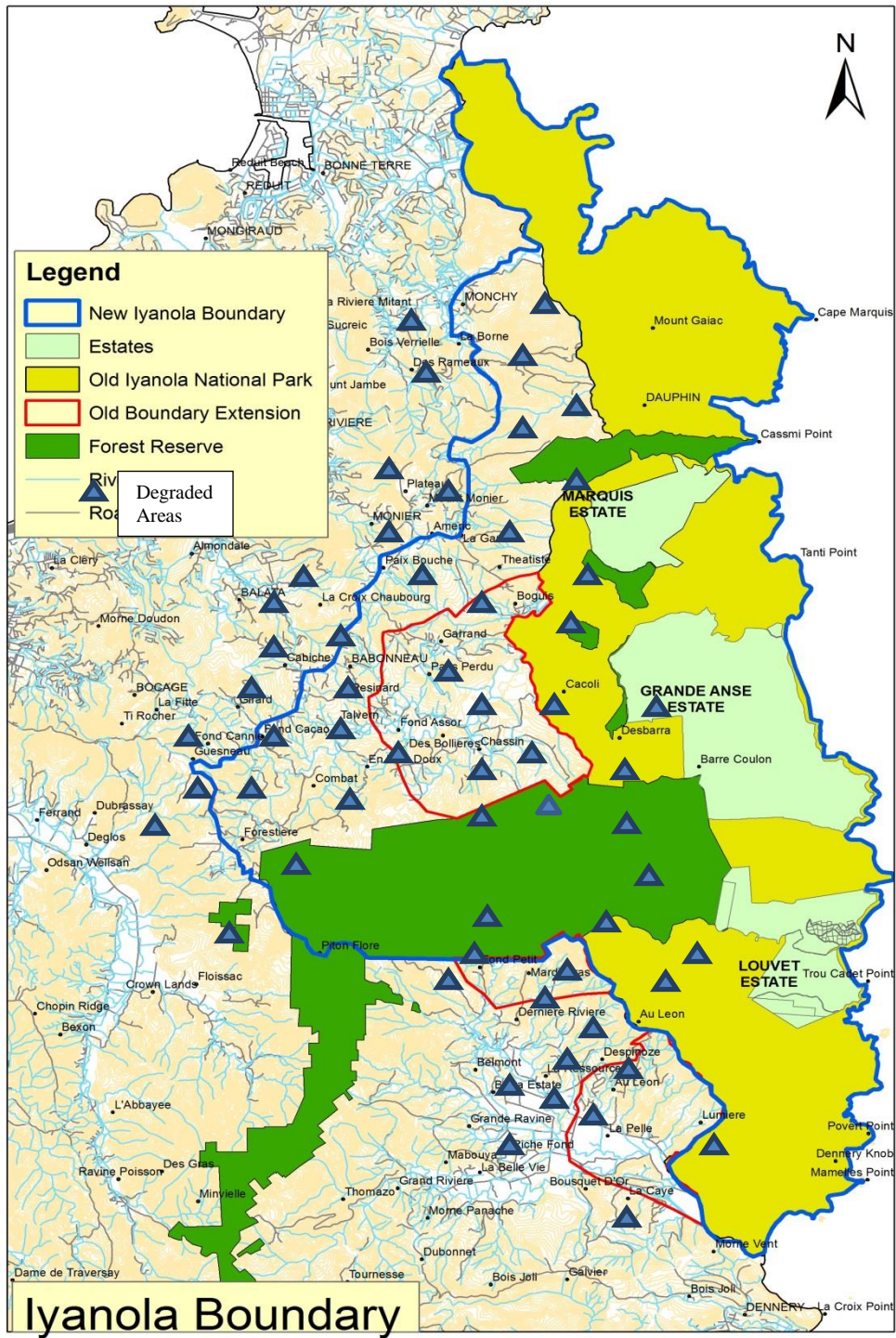


Figure 13: Degraded areas in the Iyanola region.

98. **Lack of Awareness.** The following gaps in Knowledge, Attitudes and Practices (KAPs) were identified as priorities for Saint Lucia:

- Low awareness of PAs, and their importance to natural resource conservation
- Low awareness of benefits to be derived from PAs (particularly the social and economic benefits)
- Few people know that they can visit, enjoy and play a role in protecting the PAs or that they have an ownership stake in PAs.

99. **Lack of human resource capacity** is also a major impediment to achieving effective management of the area. In addition, the current absence of effective community management can pose further threat in the absence of dedicated human resources at the national level. Furthermore, the ongoing unsustainable extraction of resources in the area poses a problem to effective management and threatens existing and new livelihoods if resources users are not trained in sustainably using and replacing natural resources. Inadequate institutional and policy design for the management of the area can be a major barrier to achieving management objectives e.g. by not capitalising on opportunities for co-management to strengthen overall management. Further inadequate public awareness on the significance of the area nationally and globally in addition to the provision of alternative livelihoods for resource users can affect successful implementation of this project.

100. Overarching areas of concern in the context of GEF priorities, national and those specific to the NE Coast are:

- i. Lack of planned, guided and managed development of all types (residential, agricultural, touristic and access) which takes into account ecosystems goods and services.
- ii. Lack of measures to ensure that areas of key global and national significance (forest, coastal and marine) are safeguarded, while taking into account development needs. Lack of follow up or financing for completed biodiversity assessment and priority setting exercises.
- iii. Lack of sustainable options to reduce pressures on ecosystem services and goods.

2.4. Institutional, sectoral and policy context

101. The following ministries, agencies and groups form the institutional framework for the management of the Iyanola North East Coast Region:

- Ministry of Sustainable Development, Energy, Science and Technology
- Ministry of Agriculture – Extension and Fisheries
- Department of Forestry
- Department of Planning and National Development
- Ministry of Social Transformation for information on community groups, community dynamics, information on stakeholders, etc.
- Ministry of Tourism, Heritage and Creative Industries for information on ecotourism enterprises
- Constituency Councils for Gros Islet, Babonneau, Dennery North and Dennery South
- Development Committees within the Iyanola North East Coast Region

102. The following make up the legal framework of the management of the Iyanola North East Coast Region:

- Environmental Management Act (2000)
- Forest, Soil and Water Conservation Act (1945)

- Wildlife Protection Act (1983)
- Fisheries Act (1984)
- Land Conservation and Improvement Act (1992)
- Physical Planning and Development Act (2001)

103. The policy framework that guides the management of the North east coast includes:

- The current National Development Plan that is being prepared and which is aimed at guiding development in all sectors within the country.
- The medium term development strategy paper (MTDSP) which is a five year development and strategic plan with a vision of an innovative and industrious nation, grounded in the principles of patriotism, integrity and good governance striving towards sustainable and equitable development for all to be achieved through: Stabilisation and the macro-economy, diversification of the productive sectors through private sector development, poverty reduction and promotion of equity, environmental sustainability and human development.
- The National Environmental Policy
- Coastal Zone Management Policy
- Development Control Authority (DCA) - comprises of technical persons from key environment and development agencies in St Lucia to oversee and advise the government on development projects.

104. The long term solution required to effectively manage the resources of the Iyanola North East Coast Region is the improvement of the project site including improving land use, the protection of forest cover for the restoration and enhancement of carbon stocks, overall improvement and sustainable extraction and use of marine and terrestrial resources in the project site as well as the development of biodiversity friendly goods and services through the informed and sustainable development of private lands, and improved management practices overall.

2.5. Stakeholder mapping and analysis

105. There are many stakeholders in the Iyanola. Not all the stakeholders will participate in the project; benefit from the project or impact on or be impacted by the project. Nevertheless, it is useful to have a knowledge of all the stakeholders in the communities within the project site and who use the natural resources within the site; all those from outside of the site but who earn livelihoods from the natural resources in the site; and the stakeholders in public and private sector agencies; community organisations, and regional and international agencies that are involved, in some way, in the management and scientific research of the natural resources in the site.

106. In preparing the Stakeholder Plan, the following agencies were consulted, in addition to individuals and groups in the project site:

- i. Ministry of Agriculture – Extension and Fisheries
- ii. Department of Forestry
- iii. Ministry of Social Transformation for information on community groups, community dynamics, information on stakeholders, etc.
- iv. Ministry of Tourism, Heritage and Creative Industries for information on the ecotourism enterprises in the site
- v. Constituency Councils for Gros Islet, Babonneau, Dennery North and Dennery South
- vi. Development Committees

- vii. Mothers and Fathers Group for Babonneau to find out about the importance of such groups to livelihood creations in the communities in the site
 - viii. Babonneau Cluster of St. Lucia Network of Rural Women Producers to obtain information on their structure and organisation and to scope whether the group would be amicable to working on new products like honey and herbs
 - ix. Broom producers to ascertain where they obtain their raw materials from and the scope to expand production in the project site
 - x. Des Barras Turtle Watch Group in order to determine whether are still a viable enterprise and what needs to be undertaken, through the project, to strengthen the Group and to make it a viable entity
107. In addition to the information derived from discussions from persons in the agencies identified above, information was also derived from the reports of the Consulting Team hired to prepare the background documents for this Project Document. Secondary information was also derived from a review of the literature.
108. The Stakeholder Map defines who the stakeholders are in the project site. It also provides a description of who each of these stakeholders is; their possible interest in the project; and their possible level of participation in the Project. The Participation level is classified into:
- i. Level of participation – High/low
 - ii. Level of Influence – high/Low
 - iii. Type of information provided – provide information regularly/provide information occasionally
 - iv. Key Player in – conservation, livelihoods, or other
109. The Table in Appendix 14: Project Stakeholder and Participation Plan presents a Stakeholder Map and Analysis which identifies the range of stakeholders who will have an interest in or who may influence the design, implementation and outcomes of any one or all of the components of the Iyanola Project.
110. It is important to note the extent of the Key Stakeholders identified in the Map. These are stakeholders primarily from government agencies who have a stake in the NE Coast either as managers of the natural resources found in the area; agencies that are interested in the historical and cultural imperatives in the site; agencies that are involved in development opportunities provided by the site; or agencies (primarily international) that are involved in working in the site undertaking research with government agencies. Not all of these Key Stakeholders will be involved in all aspects of the project cycle; it is however likely that even if they are not fully involved in project design and implementation they will still play an influential role in the project, either in terms of providing information or in terms of proposed development activities which will impact on the natural resources in the site.
111. The Stakeholders have been categorised into primary and secondary stakeholders. The primary stakeholders are those who are envisaged to participate and/or benefit from the project. The Secondary Stakeholders are those who will not participate directly in project activities but who could influence the outcome of the project.
112. Participation, for purposes of the Iyanola Project is defined as a process through which people with an interest (stakeholders) influence and share control over development initiatives and the decisions and resources that affect them. In practice this involves employing measures to: identify relevant stakeholders, share information with them, listen to their views, involve them in processes of

development planning and decision-making, contribute to their capacity building and, ultimately, empower them to initiate, manage and control their own self-development.¹⁷

113. Based on the definition provided above, the list of stakeholders that have been identified is by no means exhaustive and it is very likely that at project implementation the Map and the Participation Plan for each project component will have to be revised. At that time it is recommended that the stakeholders provided for each component in this Report be validated and their different levels of involvement be finalised. It is to be noted that the primary stakeholders who will need to participate in finalising the project design; in implementation; and in monitoring project activities in which they are involved in. The secondary stakeholders will need to be consulted, as and when appropriate, so that project information is shared with them; they participate in field visits and consultative meetings, research, and in monitoring and evaluating project activities. Some of them, especially those from the key ministries will also be involved in working alongside the primary stakeholders in project implementation and in providing training and guidance to the primary stakeholders.
114. The Participation Plans provided in Appendix 14 are provided by Project Component; each of these components is summarised below for ease of reference. The information provided in the table pertains only to activities that will take place in the Iyanola Project site. It is, however, to be noted that each component also has activities that will be undertaken at the national level.
115. The Participation Plans present the Stakeholders that are likely to be involved in each stage of the Iyanola Project and their anticipated role(s) in each stage; and the Project Component in which they are likely to be involved in. The type of stakeholder involvement has been defined as:
- i. Inform - I
 - ii. Consult - CT
 - iii. Partnership - P
 - iv. Control - CL
- The stages in the project have been identified as
- i. Identification
 - ii. Planning
 - iii. Implementation
 - iv. Monitoring and Evaluation
116. Every attempt was made to ensure opportunities to maximise social and gender benefits in the Participation Plan. Nevertheless, the stakeholders need to be validated at the time when the planning for each activity is being finalised. In addition, discussions need to be held with all those who have been identified as primary stakeholders in each project component in order to ensure that these stakeholders are informed of proposed activities and contribute to the final design of the activities.
117. Stakeholders who have been identified as secondary stakeholders should also be kept informed of the proposed activities either through the circulation of relevant documentation or through town hall meetings.
118. The analysis of the Participation Plans reveal that :
- v. The stakeholders vary between the project's components.
 - vi. There are different stakeholders for different project stages in the project cycle for each component.

¹⁷ African Development Bank (2001) Handbook on Stakeholder Consultation and Participation in ADB Operations

- vii. Stakeholders take on different types of involvement (Inform, Consult, Participate, and Control) in different project components and in different stages in the project cycle within each component.
- viii. Stakeholders also shift in type of stake (primary or secondary) between project components and between different stages in the project cycle with each component.
- ix. SDED, the Forestry Department and the Biodiversity Unit are Key Stakeholders in all project components; other key stakeholders vary with the project component. These 3 Key stakeholders are also important in the Monitoring and Evaluation stage for each project component.

119. This project will generate and input gender dimensions into the elaboration of Component 4 demonstration pilots to promote sustainable use of biodiversity friendly products and services to derive sustainable livelihoods, and in the development of results frameworks, budgets, implementation plans and work plans. To this end the concepts that were developed during project development were reviewed to ascertain the extent to which gender can be incorporated in the activities proposed for each of the concepts. These pilots will be refined and finalized at project inception. For the Iyanola project, gender considerations are not solely a women's issue but rather looks at yielding advantage to whole communities and benefitting both genders.

2.6. Baseline analysis and gaps.

The financial baseline is articulated in the Incremental Cost Analysis Annex.

120. Component 1: Enhanced Land use Planning and regulatory framework - as applied to NE Coast. The current situation is that there is no Land Use Plan and no legislation on land use. Current activities in the NE Coast quadrant include unregulated sand mining which seriously affects nesting iguanas and marine turtles; extensive loss of marine turtles (specifically *Dermochelys coriacea*) as a result of slaughters for meat and eggs; significant forest degradation by slash-and-burn for charcoal production and/or short cycle crops; ca 30% of charcoal makers practice clear cutting on abandoned estates. While some Government policies incorporate species and landscape protection considerations, the current land use policy does not substantially integrate ecological considerations. Of limited use is the existence of a NE Quadrant plan; however there is no systematic inventory of ecosystem goods & services and biodiversity in NE Coast, just isolated studies. Overall, there is limited qualitative and quantitative capacity and specialized knowledge and expertise.

121. At the national and regional level there are several projects which have or are building capacity in the OECS region for land use planning. They include the: *Saint Lucia Pilot Program for Climate Resilience (PPCR) & DVRP* which include discrete targeted land use planning, enhancement and application of the Saint Lucia's national GIS system, enhancing use of the Geonode system, slope stabilization and watershed management to increase resilience, building bridges and roads in accordance with international best practice and building codes. The *Saint Lucia Coastal Habitat Mapping Project* undertaken in Saint Lucia under the European Union-Special Framework for Assistance Project and has produced a digital database of coastal habitats and resources "to establish the basis for better informed planning, development and management decision making in respect of Saint Lucia's coastline." The data have been integrated into a flexible spatial database that can adapt to changing information technology requirements. The resultant database is compliant with other GIS systems, Saint Lucia's national GIS and/or future Spatial Database Infrastructure or information management systems on the island. The *Saint Lucia North West Coastal Conservation Project* was undertaken by the GOSL with funding support from the Canadian International Development Agency (CIDA) which build some capacity to collect data on aspects, impacts, objectives targets and environmental performance indicators within the Choc system. These data and indicators provide a

platform on which particular methodologies for determining coastal setbacks and work related to sea level rise which could be adapted for the NE Coast. The ongoing project, *USAID/OECS Climate Variability, Change and Mitigation*, recently provided a training workshop in Saint Lucia whereby participants from various government agencies working in water resources management were trained in: key principles of IWRM and Disaster Risk Reduction (DRR); implications of climate change and variability for water resources management; Policy, legislation institutional and requirements needed at the community level to facilitate DRR in IWRM; economics of disasters; and emergency response issues. UN-Habitat is present in ten Caribbean States supporting the Eastern Caribbean States including Saint Lucia, to *Improve Land Policies and Management*. In collaboration with National and Regional partners (Organization of Eastern Caribbean States (OECS), University of West Indies, National Land Agencies and Land Stakeholders), the agency supports OECS and National governments to develop the foundations for sustainable land management reflecting the Region's aspirations for equity, efficiency and sustainability. This is entailing development of regional Land Policy guidelines highlighting the crucial importance of land management to the achievement of economic development, poverty reduction, social stability and the protection of environmentally sensitive areas. Finally, a 3-phase project funded by the European Commission, entitled: *Climate Change Adaptation and Sustainable Land Management in the Eastern Caribbean* will support the implementation of National Land Management Policies dealing with climate change adaptation measures. Within this phase, the project also intends to identify a set of SLM physical investment best practices in relevant sectors and replicate them through pilot or demonstration projects possibly in each Member State. This will be coordinated through the executing agency, which the GEF project has in common.

122. **Component 2: Enhanced sustainable land management and carbon benefits in deciduous seasonal and low montane rainforest zones.** As noted above, a land use plan with zonation of intact and/or degraded forests does not exist. The identification and mapping of degraded forest areas (DFA) the NE Coast was conducted under PPG. There are no significant programmes in place in NE Coast. Depletion of stocks of intact forest areas that are unzoned with no legal status for conservation and protection; The Aus Aid Programme for nationwide forest restoration is in progress in specific locations. Land degradation causes erosion and siltation; e.g. Trou Salee River bank seriously affected by ATV tours. Uncontrolled negative ecosystem impacts from unsustainable physical and economic activity with deleterious effects; Land degradation causes erosion and siltation; significant beach degradation due to sand mining at approximately 50 tonnes per week at Grande Anse, and to a lesser extent at Louvet. Limited incentive mechanisms applicable to privately owned lands; No formal agreement with private land owners exist; responsibilities on lands owned by absentee owners not always clear. Conservation and management programmes of FD constrained due to limited resources.
123. Of some relevance is the GIZ funded regional project, *Enhancing the adaptive capacity of rural economies and natural resources to climate change in selected Caribbean small island and low lying coastal developing states* which has generated a complementary project on the management and protection of land based natural resources and agricultural production systems of the Caribbean small island and low lying coastal states. Its regional application has some limited value to the needs of the NE Coast.
124. **Component 3: Conservation of Iyanola.** The area of intervention is comprised of five fragmented Forest Reserves plus three Protected Areas (mangroves) totaling 1664 ha and ca 3000 ha of nominally protected forests with lack of active management and as such are vulnerable to encroachment, degradation, poaching, invasives. The Forest reserves consist of natural dry forest and exotic plantations; incursions into Forest Reserves are rare, but management levels are low. Interventions have previously been minimal to non-existent in this area. The Forestry Department has benefited from past exchange with French researchers in capture, tag release technique for *Iguana delicatissima*. There is on-going analysis of Iguana genetics in Americas with support of French

Government.

125. Grand Anse Beach and Mangrove is a designated Marine Reserve but the actual IUCN categories are not defined; no delineation of marine reserves for the areas exists. General outer limits described in relation to the extent of beachfront and fringing forest, and mangroves. There are several IAS and control strategies identified for NE Coast with some sustainable management projects ongoing. Curriculum and training programme have been developed, available for roll-out for NE Coast campaign. No overall management plan or stakeholder participation plan exists. There is a spatial map of mangrove. A list of vulnerable plant and animal species; list of community extractive and non-extractive activities have been compiled. A number of nature-based tourism products and associations exist, but these are uncoordinated and not tracked. There is also no cohesive structure and weak local linkages exist. No actual business plan exists for the area. Most initiatives at the community level are fragmented and lack proper management/operational structures, including guidelines for sustainable resource use two potential opportunities (mainland island and in situ iguana breeding) have been identified by stakeholder consultation; technical feasibility or draft action plans were prepared.
126. A GIZ project, *Improving the Management of Coastal Resources and the Conservation of the Marine Biodiversity in the Caribbean Region*, is strengthening the capacity of stakeholders through a common institutional framework for integrated coastal management and the strengthening of management of marine protected areas (MPA) in the Caribbean Region. This is being carried out at the regional level. Another regional initiative, *Environmental Protection under the Eastern Caribbean Marine Managed Areas Network (ECMMAN) Project* funded by the International Climate Initiative (ICI) via The German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) grant to The Nature Conservancy (TNC), 2013 – 2017, will invest over EC\$14.7 million, to improve fisheries and conserve and restore marine resources, while providing for sustainable job opportunities in coastal communities in 6 OECS countries including Saint Lucia. The project will focus on: (i) Establishing new and strengthening existing marine management areas; (ii) Supporting fisher organizations and providing support for new livelihood opportunities; (iii) Improving access to data and information regarding management of marine resources; and (iv) Instituting sustainable funding mechanisms to support marine management as part of the Caribbean Challenge Initiative. Links to this project (although not focused on NE Coast) will provide valuable opportunities for capacity building and knowledge sharing.
127. **Component 4: Enhanced Capacity for the production of biodiversity friendly goods and services in inland forest and coastal communities (National with emphasis on NE Coast).** At present there is limited knowledge/awareness of the criteria for sustainable production of biodiversity friendly goods as businesses are mostly informal and production is primarily undertaken at the subsistence level. The business component of the production of local biodiversity friendly products is not well developed as most products are mainly used for subsistence or sold locally and there is little evidence of record keeping. Insufficient data available to inform current availability of resources, level of production, market access, or revenue derived from biodiversity friendly goods and services. There is a complete absence of an institutionalised and regulated by national systems framework for production of biodiversity friendly goods and services. Extension services and other programmes provide information on conservation and sustainability measures, but there is no measure of compliance; No best practice guidelines and certification schemes (Some standards for latanye; lansen; honey). There is limited awareness of measures that inform the use of natural resources for sustainable livelihoods at the community level. Government ministries, agencies, and NGOs provide some support for development and implementation of BD friendly businesses but the support is not holistic. The following Saint Lucian initiatives will provide both baseline and opportunities for co-financing. They are: *Saint Lucia Youth Agricultural Entrepreneurship Programme (YAEP)*; *The*

National Initiative to Create Employment – NICE; Saint Lucia Holistic Opportunities for Personal Empowerment (HOPE); The James Belgrave Micro Enterprise Development Fund (BELFUND). These are explained in more detail in the following section.

128. Overall, UNEP's Programme Work under the Ecosystem Management Sub Programme, will also underpin project components. Expected Accomplishment (a): Use of the ecosystem approach in countries to maintain ecosystem services and sustainable productivity of terrestrial and aquatic systems is increased, delivered through Methodologies, partnerships and tools to maintain or restore ecosystem services and integrate the ecosystem management approach with the conservation and management of ecosystems. Expected Accomplishment (c): Services and benefits derived from ecosystems are integrated with development planning and accounting, particularly in relation to wider landscapes and seascapes and the implementation of biodiversity and ecosystem related MEAs, delivered through Biodiversity and ecosystem service values are assessed, demonstrated and communicated to strengthen decision-making by governments, businesses and consumers.

2.7. Linkages with other GEF and non-GEF interventions

A number of ongoing interventions contribute to the baseline situation, and also provide opportunities for collaboration and co-financing. These are previously referenced above as baseline components, and further described below. Coordination with these efforts will be taken up through implementation arrangements which call for regular updates and cooperation. A number are regional in nature, geared at building capacity and coordination region wide, and benefit St. Lucia. St. Lucia specific projects are in bold. By and large, the Ministry of Sustainable Development, Energy, Science and Technology is the executing agency for many of them or involved in their coordination

Other GEF Interventions

129. **Saint Lucia GEF Small Grants Program** will provide a particularly supportive interface for community level activities. Several meetings have taken place already to strategize a possible sub-focus on the NE Coast as a possible consideration for SGP programming prioritization.
130. **Saint Lucia NBSAP Revision and 5th National Report to the CBD.** UNEP implementation.
131. **St. Lucia - Increase St. Lucia's Capacity to monitor NEA implementation and sustainable development.** To strengthen institutional capacity for the implementation and monitoring of international conventions as a follow-up to the National Capacity Self Assessment (NCSA) of St. Lucia and to better integrate environmental concerns, and the value of ecosystems, into its broader development frameworks. Cross fertilization of project outputs will be taken up under coordination arrangements.
132. REGIONAL - The **Integrating Water, Land and Ecosystems Management in Caribbean Small Island Developing States (GEF-IWEco Project)** is a five-year multi-focal area regional project with **four components**; (1) Development and Implementation of Integrated Targeted Innovative, climate-change resilient approaches in sustainable land management (SLM), integrated water resources management (IWRM) and maintenance of ecosystem services; (2) Strengthening of the SLM, IWRM and ecosystems Monitoring, and Indicators framework; (3) Strengthening of the Policy, legislative and institutional reforms and capacity building for SLM, IWRM and ecosystem

services management taking into consideration climate change resilience building and **(4) Enhancing knowledge exchange, best practices, replication and stakeholder involvement.** The project will be implemented through a network of international, regional and national partners in accordance with their comparative advantage. The St. Lucian intervention of IWECO will address problems of land degradation and ecosystem degradation in the upper reaches of the Soufriere Watershed to restore agricultural land productivity, reduce risk to life and property from landslide occurrence and reduction of sedimentation into an adjacent marine protected area (for ecosystem restoration and improved ecosystem management).

133. **REGIONAL -The Caribbean Regional Fund for Wastewater Management Project (CReW)** is a four year project focusing on piloting revolving financing mechanisms, appropriate waste water management technologies and related wastewater management reforms in the wider Caribbean region (WCR). The project, which is being funded by the Global Environment Facility (GEF), is managed and implemented by the Inter-American Development Bank (IDB) and the United Nations Environment Program (UNEP). The St. Lucian pilot site corresponds to the other side of the island.
134. **REGIONAL - Sustainable Financing and Management of Eastern Caribbean Marine Ecosystems.** This regional project which includes Saint Lucia is funded by the GEF and implemented by the World Bank through The Nature Conservancy. Its purpose is to improve the management of existing and expanded marine protected area networks through the establishment of sustainable financing mechanisms. It is largely focused on setting up the financing mechanism and piloting in one MPA only in Saint Lucia, Soufriere. The eventual operationalization of the financing mechanism will provide added financial sustainability for the outcomes of this and other St. Lucian NRM initiatives.

Other Non-GEF Interventions

135. **Saint Lucia Forest Restoration and Rehabilitation Project.** This \$1M project is funded by the Government of Australia and intended to restore forest reserves damaged by Hurricane Tomas in October 2010 is drawing to an end but has provided substantive experience and cash influx into the Forest Departments efforts..
136. **Saint Lucia Pilot Program for Climate Resilience (PPCR) & DVRP:** This \$27 M program is being developed as targeted programming for different types of vulnerable groups. Elements of relevance and cooperation to the proposed GEF project include discrete targeted land use planning, enhancement and application of the St. Lucian GIS system, enhancing use of the Geonode system, slope stabilization and watershed management to increase resilience, building bridges and roads in accordance with international best practice and building codes.
137. The following four programmes will provide platforms for the delivery of Component 4 of the project: **Saint Lucia Youth Agricultural Entrepreneurship Programme (YAEP)** is sourced from the CARICOM Development Fund and the Government of Saint Lucia The main purpose of this project is to establish an entrepreneurship incubator programme geared at involving at least 150 young entrepreneurs in agriculture. **The National Initiative to Create Employment - NICE** Food and hygiene product assistance as well as Small Enterprise Training and Development and Joint Employment. **Saint Lucia Holistic Opportunities for Personal Empowerment (HOPE).** Community based employment opportunities, training and capacity building, project management monitoring and evaluation. **Saint Lucia: The James Belgrave Micro Enterprise Development Fund (BELFUND)** was established by the Government of St. Lucia, primarily to promote sustainable development through self-help micro enterprise projects for individuals, families and groups among the less privileged sectors, through the provision of low cost loans, enterprise training, technical assistance and other support services.

138. REGIONAL -USAID/OECS Climate Variability, Change and Mitigation Project: The USAID climate change support for the countries in the Eastern Caribbean will complement overlapping initiatives it previously supported under its biodiversity support to the region. Based on analysis gathered from two broad stakeholder workshops held in St. Lucia and Barbados, two critical areas were identified as requiring special attention. These are coastal zone management and resilience and freshwater resources management.
139. REGIONAL - Global Climate Change Alliance (GCCA) project on Climate Change Adaptation and Sustainable Land Management in the Eastern Caribbean: This 3-phase project is to be funded by the European Commission and will run parallel to the GEF proposal. During phase one, a comprehensive gap analysis will be carried out to assess the institutional preparedness and the technical and human capacity level in the land management domain of the OECS Secretariat and each member state. During phase two, which will run concurrent with this project, the gaps and the weaknesses identified in phase one will be addressed and dealt with. During phase three, the project will support the implementation of those segments of National Land Management Policies dealing with climate change adaptation measures. Within this phase, the project also intends to identify a set of **SLM physical investment best practices** in relevant sectors and replicate them through pilot or demonstration projects possibly in each Member State
140. REGIONAL - Environmental Protection under the Eastern Caribbean Marine Managed Areas Network (ECMMAN) Project funded by the International Climate Initiative (ICI) via The German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) grant to The Nature Conservancy (TNC), 2013 – 2017, will invest over EC\$14.7 million, to improve fisheries and conserve and restore marine resources, while providing for sustainable job opportunities in coastal communities in 6 OECS countries including Saint Lucia. The project will focus on:(i) **Establishing new and strengthening existing marine management areas;** (ii) **Supporting fisher organizations and providing support for new livelihood opportunities;** (iii) **Improving access to data and information regarding management of marine resources;** and (iv) **Instituting sustainable funding mechanisms to support marine management as part of the Caribbean Challenge Initiative.**

SECTION 3: INTERVENTION STRATEGY (ALTERNATIVE)

3.1. Project rationale, policy conformity and expected global environmental benefits

Background and Rationale

141. The island of Saint Lucia, despite its small size, possesses a high degree of diversity, not only in the ecosystems and habitats found on the island, but also in the variety of biological resources present, and the endemism of species found in the country. Biodiversity is important to the country for food, shelter, medicines, ecosystem services, sustainable livelihoods, agriculture and tourism industries and future untapped industries of the country. Iyanola is Saint Lucia's original name, means "the land where iguanas are found" – believed to refer to a once abundant population of the St Lucia iguana now restricted to the deciduous tropical dry forests of the North East Coast.
142. The North East Coast is considered the last stronghold for many rare and endemic animal and plant species including the rare and endangered Saint Lucia iguana. Birds (such as the white breasted thrasher and Saint Lucia nightjar) and reptiles (like the Saint Lucia iguana and leatherback turtle) are particularly well represented in this area, in addition to rare and restricted range plants. The habitats themselves – deciduous tropical dry forests, mangroves and xeric scrublands which threatened throughout the Eastern Caribbean – are best represented here.

143. The Iyanola National Park is one of the designated areas in the proposed national Systems Plan for Protected Areas (SPPA), and is documented as a Key Biodiversity Area (KBA) and an Important Bird Area (IBA). The proposed boundaries including privately held lands, covers an area of approximately 5090 hectares in the north east of the island and would serve to protect the only extensive area of undeveloped coastline remaining in Saint Lucia. This area encompasses most of the island's intact dry forest ecosystems and is critical to the continued survival of some of its most rare and threatened endemic species, most notably iguanas and turtles.
144. The NE Coast, Grande Anse to Louvet in particular, is an area with high environmental sensitivity and conservation significance.
145. However, these areas have been, and still are, used by St. Lucian's for a multiple range of purposes. Some of the more popular uses are traditional and include agriculture, hunting, fishing, charcoal production, timber, sand mining and deforestation among other unsustainable activities. Many communities carry out shifting cultivation within lands adjacent to the Government Forest Reserves (GEO Saint Lucia, UNEP 2006). This problem is compounded by the removal of large tracts of rainforests, particularly on private lands. Adverse effects of these practices include loss of the forest, which protect soil and water conservation, loss of valuable timber species, and destruction of the natural nutrient recycling systems. This also leads to fragmentation or destruction of crucial habitat types and forest ecosystems which ultimately resulting in loss of wildlife populations (GEO Saint Lucia, UNEP 2006).
146. Potential environmental threats include habitat destruction to these areas due to deforestation and improper land use management practices, e.g. squatting, itinerant agriculture, over hunting of iguanas, turtles, conchs and other wildlife as well as improper garbage disposal.
147. As can be seen in the previous Figure 13, farming and settlements have resulted in degradation and fragmentation of the forests and much of the land is in secondary forests, scrubland or open wood land.
148. These threats are further exacerbated by potential impacts of climate change and variability that can have devastating impacts on the freshwater system (GEO Saint Lucia, UNEP 2006) and by extension the forests. According to a Country Paper on National Climate Change Issues done on the island, changes in rainfall patterns will cause concern from two key standpoints namely total precipitation and temporal distribution. When precipitation patterns are affected by climate change, there is the possibility for extended drought periods to occur more frequently or for increased volumes of rain which lead to severe flooding and increase river sedimentation loads, which in turn can have great effects on damage to property, infrastructure and people's lives. To curtail the occurrence of such devastation proper land use management has to be enforced for sustainability.
149. If managed in a sustainable way the current land use could enhance the livelihood of the people and their respective communities. Hence, the proposal for development of the proposed mechanism for conservation and sustainable use of resources within the proposed Iyanola National Park and the resources contained within it.

Policy Conformity

150. The project is aligned to key national strategies and plans reports and assessments under relevant conventions, including: Saint Lucia's Draft 5th National Report and Revised 2nd National Biodiversity Strategy and Action Plan (2nd NBSAP), National Action Plan and Strategy Action Plan (NAPSAP) in support of the UN Convention to Combat Land Degradation (UNCCD), National

Action Plans (NAPA) and Saint Lucia's Second National Communication (SNC) for the UNFCCC (2012), NIP, Poverty Reduction Strategy and Plan (PRSP), and the GEF National Portfolio Formulation Document (NPF) for Saint Lucia finalized in late 2011, among others.

151. The project will also build on the following initiatives:

152. **Land Use Planning.** While there is widespread concurrence that a National Land Use Plan is long overdue, budgetary constraints have precluded this from being previously included in constrained government budgets. Piloting a forward looking land use plan for the NE Coast is viewed as a replicable precursor to the larger national land use planning exercise. A noted development priority is the construction of the North eastern highway which will create a more direct link between the south of the island and international airport from the north and vice versa. The Government expresses its commitment to: "preserving the natural environment and will ensure that such a major initiative is supported by the necessary land use planning requirements to ensure sustainable, quality development in this region." A feasibility study led by the Caribbean Development Bank is currently being launched and in concert with the development of this project with a view towards capitalizing on offsets and environmental sustainable choices. Through the Physical Planning Department and with the support of the Sustainable Development and Environment Division, the \$1.2 million Project, Supporting the Eastern Caribbean States to Improve Land Policies and Management (9 countries), Saint Lucia is currently revising the National Land Policy based on the OECS Land Policy guidelines as well as improve Land Records. A draft Land Use Policy is currently under consideration by the Cabinet for approval. Also working with the Physical Planning Department, the \$27 million St. Lucia Pilot Program for Climate Resilience (PPCR) will support enhancement and application of the St. Lucian GIS system, enhancing use of the Geonode system, slope stabilization and watershed management efforts to specifically increase resilience to climate change, building bridges and roads in accordance with international best practice and building codes.

153. **Management and carbon benefits in deciduous seasonal and low montane rainforest zones.** A preliminary analysis of the carbon storage of Saint Lucia's forests was conducted as part of the earlier referenced 2009 Biodiversity Assessment of Saint Lucia's Forests. The analysis showed that approximately 1.8 million tonnes are stored within the Forest Reserve and 1.2 million tonnes outside the Forest Reserve, with clear potential for the latter figure to increase by enabling young secondary forests to mature. The project will furthermore collaborate with the efforts of St Lucia Forest Restoration and Rehabilitation Project in restoration of forest reserves damaged by Hurricane Tomas in October 2010.

154. **Conservation and Sustainable Management of Ecosystems:** The project is closely aligned with the Forest Department's objectives to "meet the socio-economic, cultural, spiritual, and environmental development needs for forest goods and services, in ways that ensure their continued availability in the long term, through the conservation of soil, water, biodiversity, and biological resources." And is consistent with the threat analysis carried out with EC support of the 2009 National Forest Demarcation and bio-Physical Resource Inventory Project The referenced Biodiversity Assessment of Saint Lucia's Forests, clearly identifies the Dry Forests of the NE coast in first place as the priority area with "very high" conservation importance, for intervention both within and outside of Forests Reserves. The project will thus emphasize support to its first three priorities of:

- Within the Forest Reserves, establish and implement site management plans that integrate biodiversity conservation with other forest uses and services
- Safeguard important forests outside of the current Forest Reserves, with particular attention to deciduous and semi-evergreen seasonal forests

- Under the GEF project “Mitigating the Threats of Invasive Alien Species in the Insular Caribbean”, Saint Lucia has completed its National Invasive Species Strategy (NISS), Critical Situational Analysis and has drafted national IAS Legislation. Under the proposed project, management and control over the introduction and spread of alien invasive species that seriously endanger Iyanola’s forests, marine reserves and their related biodiversity would be integrated.

155. **The NE Coast reserves of Grande Anse and Louvet** are two of the 24 designated Marine reserves for the island. These reserves are declared under the Fisheries Act Number 10 of 1984 for the purpose of protecting the natural resources contained therein. Building on the experience of the Soufriere Marine Management reserve, which was supported through previous successfully completed GEF projects, the Fisheries Department and NGO partners are keen to replicate lessons learned in these designated reserves where little management exists. Project efforts will build on and in partnership with the work of the Durrell Wildlife Trust, Saint Lucia National Trust and Fauna and Flora International (FFI).

156. Overarching areas to be addressed in the context of GEF priorities, national and those specific to the NE Coast are:

- Land Use Planning. Lack of planned, guided and managed development of all types (residential, agricultural, touristic and access), which takes into account ecosystems goods and services.
- Lack of measures to ensure that areas of key global and national significance (forest, coastal and marine) are safeguarded, while taking into account development needs. Lack of follow up or financing for completed biodiversity assessment and priority setting exercises.
- Lack of sustainable options to reduce pressures on ecosystem services and goods.

Global environmental benefits (GEBs).

157. The project will deliver global environmental benefits along with domestic livelihood support and human development. These benefits are explicitly linked to the impact indicators of the GEF-5 focal area strategies relevant to the project Biodiversity, Climate Change, Land Degradation and Sustainable Forest Management (BD, CC, LD, SFM).

158. Changes in land cover would serve as one of the indicators that assesses the project contribution to delivering benefits in all four of the focal areas. Opportunities in identifying cross-cutting impacts are being missed. Specific Global Environmental Benefits under the GEF Biodiversity, Climate Change, Land Degradation (including SFM) and Sustainable Forest Management focal areas can be summarized as follows:

159. Biodiversity (and SFM), Incorporation of biodiversity and ecosystem services into land use planning will improve the management and regulate the use of biodiversity in productive sectors, particularly tourism development. The improved management and restoration of degraded forest areas will stem habitat loss and degradation thereby safeguarding habitat for forest plants and animal species of global significance, including migratory species and thereby improving ecosystem services provided by the forest; increase the management effectiveness of forest of high priority conservation value and restoration of high value mangrove ecosystems. The project will increase conservation and management effectiveness of coastal marine habitat and ecosystem of Grande Anse, of global importance to the Saint Lucia iguana, and leatherback turtle, whilst also addressing threats posed by invasive alien species. The development of alternative livelihoods, including nature-based tourism, agroforestry and non-timber forest products through the development of value chains for biodiversity

friendly products and services, will assist in alleviating pressure on forest resources, while providing opportunities for generation of income in remote coastal communities hard hit by the economic downturn and loss of tourism revenues.

160. Climate Change (and SFM). Adoption of sustainable forest and land management techniques and restoration efforts will result in enhanced resilience to climate change, rebuilding and conservation of carbon stocks and a reduction in emissions from forest deforestation and degradation. In terms of carbon benefits, the estimates are based on 2009 inventory data for St. Lucia. The carbon benefits of the project are estimated at an annual sequestration of 23,056 tons CO₂, with a potential total carbon benefit of 691,689 tons CO₂ at the end of a 30 year period (calculate using Tier 1 IPCC methodology).
161. Land degradation (and SFM). Improved provisioning of ecosystems services through restoration of riparian buffer zones, resulting in erosion and sediment control benefits, water quality benefits, flood control -- with contributions to carbon sequestration through forest restoration, sustainable forest management, and improved land use planning and management.

3.2. Project goal and objective

162. The project, Iyanola – Natural Resource Management of the North-East Coast’ *“will promote the conservation and sustainable use of biodiversity and the maintenance of ecosystem goods and services through the improved management of ecologically sensitive areas of interest towards long-term positive impacts in representation of terrestrial and marine ecosystems, and threatened species”*.
163. The overall goal of the project is increased management effectiveness and sustainable use of the North East Coast’s natural resource base to generate multiple global environmental benefits.
164. The Project aims to enhance land use planning; policy and regulatory frameworks and local and national capacities for the production of biodiversity friendly goods and services in inland forest and coastal communities, in order to create a platform for strengthening of the national enabling environment, as required to increase conservation and management effectiveness of terrestrial and coastal marine habitats and ecosystems in the NE Iyanola Coast region.

3.3. Project components and expected results

165. The Project aims to address some of the critical issues related to sustainable land and biodiversity management (with a sustainable forestry management- (SFM) bearing) and use in the NE Coast, within the context of the GEF priority focal areas of Biodiversity, Climate Change and Land degradation, and to deliver outcomes in the context of GEF priorities in the four overarching areas, namely: Land use planning and regulation; Safeguarding of key ecosystems and biodiversity areas; Continuity planning and Sustainable replacements. Implementation will involve small-scale pilot interventions, with a view to replication and up-scaling at the community and national level.
166. These priority outcomes will be delivered under four closely inter-related and inter-dependent projects components, with an accompanying overarching Project Management and Monitoring and Evaluation (M&E) element, as follows:
- Component 1: Enhanced Land use Planning and regulatory framework - as applied to NE Coast.
 - Component 2: Enhanced sustainable land management and carbon benefits in deciduous seasonal and low montane rainforest zones.
 - Component 3: Conservation of Iyanola

Component 4: Enhanced Capacity for the production of biodiversity friendly goods and services in inland forest and coastal communities (National with emphasis on NE Coast).

167. The key tasks outlined within the various output/result areas are very technical in nature and their achievement can be challenging even within a favourable institutional climate. Further, processes of change and introduction of new practices are more effective when the targeted beneficiaries feel as though they have some ownership of those processes/practices. People, projects and programmes like to be identified with success and it will be easier to overcome resistance to implementation of the recommendations and generate ownership if people see early benefits of the project. It is proposed therefore that the implementation team ensure that this ownership is fully assumed through:

- Active engagement of the key stakeholders, including i) Forestry Department staff; (ii) Sustainable Development and Environment Division - Biodiversity Unit, (iii) other relevant departments in Ministry of Sustainable Development, Energy, Science and Technology, iv) Ministry of Physical Development, Housing and Urban Renewal v) Fisheries, Agriculture and Extension Divisions of the Ministry of Agriculture, Food Production, Fisheries and Rural Development, relevant CSOs, NGOs and community groups, and other private sector persons, with a willingness to commit time and resources to the project; A cross-cutting training Plan aimed at enhancing the capacity of targeted personnel in lead decision-making and implementation agencies to uptake ecosystem services values considerations in planning and in decision making
- Sensitisation and awareness leading to strong stakeholders' understanding of the project results and involvement in ensuring sustainability of achievements; a targeted but broad based, communication, education and public awareness (CEPA) strategy will be a primary mechanism in this regard.
- Shared vision of the project's direction and methods of achieving its results through a participatory approach;

168. The following expands on the scope of work for the various components, by further defining the activities to be undertaken and the approach that is proposed for carrying out the various components of the project.

Component 1: Enhanced Land Use Planning and Regulatory Framework :

169. This component seeks to stimulate deeper integration of an ecosystems approach into the national policy and legislative framework for development planning with a primary focus on land use (terrestrial and marine resources), using the Iyanola N. E. Coast region as a platform. The Ministry of Physical Development and Ministry of Finance will be major players in this component of the project, with the Ministries of Infrastructure and Commerce to a lesser extent.

170. The primary tasks in this regard involves development of the means to promote integration of ecological considerations into planning policies, regulations and guidelines for development categories (*as a complement to PPCR exercise on integrating CC considerations*), delivering through 3 output areas:

- i. ***Review of the National Planning and Development Policies related to physical development*** (Activity C.1.1.1.1.) – with a strong emphasis on land use and development, forests, environmental management and conservation and sustainable use of BD, and related legislation and regulations such as the Physical Development Act and Draft Environmental Impact Assessment Regulations, and other relevant standards and guidelines, in the context of development in the Iyanola NE Coast region, to identify strategic entry points and measures to incorporate ES, biodiversity, SLM, SFM and other

ecological considerations for strengthening sustainable national land use planning and development for enhanced applicability in the NE Iyanola Region. Measures recommended will include modifications, revisions or new inclusions of provisions for enhancing the integration of ecological considerations into relevant policies, guiding principles and statements. In particular, revisions to EIA regulations will seek to address the issue of compensation for ecological damage which occurs as a result of development, through appropriate measures such as posting of bonds by developers, etc. Measures for enhancing land use planning policies will give particular focus to the issue of land classification.

The review exercise (Activity C.1.1.12) will also seek to identify and assess the viability of innovative economic and fiscal instruments and other options for effective management of non-government lands, such as: BD offsets, land lease/purchase, conservation easements, private nature reserve, conservation incentives, payment for ecosystem services, timber and NTFP production, tax incentives and other concessions for BD businesses (to be piloted for NE Coast) in consultation with the Ministry of Finance, and tax authorities, with a view towards exploring how such prospective instruments can be legislated. This aspect of the work will build on the experience obtained by the Ministry of Finance in the GEF supported Sustainable Financing of Marine Protected Areas Project, currently underway where they lead the Sustainable Fisheries component.

An evaluation of compliance of select BD enterprises¹⁸ with principles and guidelines outlined in criteria of classification system for BD friendly businesses, to be developed under Output C4.2.2., will also be undertaken towards the development of recommendations for appropriate reforms required to policy and other types of instruments (e.g. economic and fiscal), to support the development of BD friendly businesses to comply with BD friendly practices.

Activity C.1.1.1.3: The outputs of the review will inform the preparation of a Concept Note/Cabinet Paper to be developed through community consultation, demonstrating the strong inter-relationship between resource conservation and income generation using case studies (focus on both critical marine and terrestrial ecosystems in the Iyanola NE Coast region – e.g. sand mining issues and impacts on leatherback turtle; sustainable production of charcoal, etc.) and proposing development/ rehabilitation actions (building on case studies in C1.1.3.1 and information generated under activity C1.1.2.2.), in particular strategic entry points and recommended measures for the integration of proposed ecological considerations into the national planning and development policy framework. The latter will be supported through the conduct of Ecosystem Service Valuation (ESV) to be undertaken under activity C1.1.2.2, (inclusive of livelihoods and potential of bio-resources) and Cost Benefit Analysis (CBA), (including opportunity cost of lack of implementation of proposed actions), utilising lessons learned/best practices/socio-economic issues from case studies.

ii. Development of a Land Use Plan for NE Coast/Iyanola, based on the valuation of ecosystem goods and services is another key task.

It involves the conduct of an evaluation of relevant ecosystem goods and services in the NE Coast, to generate adequate data and information to assist in the prioritization of areas of high biodiversity and ecosystem services value, to inform the development of a Land

¹⁸ Enterprises impacting conservation and sustainable use of critical biodiversity and ecosystems in NE Iyanola Region.

Use Plan for NE Coast that incrementally incorporates ecosystem values and consideration of wildlife of global significance through the following activities:

Activity C1.1.2.1: Collate and update selected species and ecosystems baseline information in NE Iyanola Region: to include the development of criteria to identify and select critical species and ecosystems in NE Iyanola region; Conduct relevant research to expand baseline information on selected species and ecosystems to guide decision making, with particular focus on the:

- Identification and mapping of existing ecosystems and ecosystems goods and services, with particular focus on land use and land capability
- Identification of pressures on ecosystems and threats/conflicts (especially with respect to land use - land use trends and patterns), including proposals for a NE Coast highway and other proposed development Projects)
- Mapping of relationship between ecosystems and potential present and future stakeholders (with particular focus on the local communities)

Activity C1.1.2.2: Conduct valuation of selected species and ecosystems in NE Iyanola Region:

This involves the engagement of stakeholders to map their interest and conduct valuation of selected critical ES (marine and terrestrial, including sites of importance) in NE Iyanola Region, in their own terms (e.g. social, economic, cultural and environmental), including biological resources at Grand Anse and Louvet Marine Reserves; prioritising of ES; ratifying ES Assessments and valuation, including opportunities and risks assessment of selected ES. Ecosystem Services Valuation (ESV) will be supported by complementary activities under the Component of Economic Sustainability within the Transformative interventions of the Revised 2nd NBSAP (2014-2020), in particular TEEB studies where possible for financial quantification of social, economic, cultural value of ecosystems products/goods and services. In addition, comparative studies using scenario development will be undertaken to assess the impact of activities related to critical ES within the Iyanola NE Region. This will be developed further with continuous feedback with internal and external partners at time of inception. Tools including InVEST - Integrated Evaluation of Ecosystem Services and Tradeoffs, SWAT - Soil Water Assessment Tool will be assessed for relevance and best practices outlined in the GEF funded Project for Ecosystem Services(ProEcoServ) <http://www.proecoserv.org/> and GEF funded Landuse planning project in Mexico: <http://www.proyectomixteca.org.mx/> taken up as relevant.

Activity C1.1.2.3: Development of Land Use Plan (Terrestrial and Marine Resource Use) for the NE Iyanola Region with identification/Zoning of critical ecosystems:

- Using existing GIS system and planning tools, e.g. The Saint Lucia Integrated National GeoNode (SLING), input data to generate overlays to develop Land Use Plan for the NE Iyanola Region, that takes into account Resource use (terrestrial and marine) in the region(modelling to be replicable for future national exercise), and which delimits proposed Zoning of critical ecosystems, including the zoning (perimeters) of the marine reserves as well as other critical coastal areas in order to prioritize sites and maximize opportunities for expansion of ecological goods and services.

- Land Use Plan for NE Coast incrementally incorporates ecosystem values and consideration of wildlife of global significance.
- Sustainable capacity for land use planning is being supported by a number of complementary co-financing efforts (see section B.6) which together with this project, would be carefully coordinated by the executants to maximize synergies. The GEF project builds incrementally on these approved projects to achieve real results on the ground by generating new data and learning by doing through application of tools and innovative mechanisms and takes into consideration existing guidelines such as those produced by WWF and STAP references provided.

iii. Enhanced capacity of national and local leaders to uptake ecosystem services values considerations in planning and in decision making:

This involves primarily the development and/or customisation of Ecosystem valuation awareness and education/training modules (where possible incorporating work of WRI) and given to national and local community leaders, supported by the following activities.

Activity 1.1.3.1 Develop case studies for selected critical species and ecosystems in NE Iyanola Region to demonstrate and showcase the value (economic, social, intrinsic...) to national and local leaders.

Design and showcase initiatives in the form of case studies for selected critical species and ecosystems (terrestrial and marine) in NE Iyanola Region, demonstrating the economic value and the link between resource conservation and income generation, taking into account traditional knowledge (TK), pressures/threats, opportunities; using information from Activities C1.1.2.1 and C1.1.2.2

Activity 1.1.3.2: Develop/adapt and implement a targeted Public Education and Outreach (Awareness and Sensitization) strategy utilising where possible awareness and training modules based on work of WRI, that addresses NE Iyanola environmentally sensitive issues, incorporating:

- Case studies, stakeholder map and biodiversity inventory, etc., to inform the strategy, and giving particular focus to increased appreciation and valuation of important species such as the St Lucia Iguana and White-Breasted Thrasher as national flag-ship species.
- New and innovative tools such including social marketing, and other cost effective and impactful tools.
- Marketing and product sensitisation campaign to increase product awareness and visibility of (3) selected biodiversity friendly businesses (Activity C1.1.3.2.).
- Activity 1.1.3.3. Mechanisms for national, regional and international collaboration and partnerships, to foster exchange of knowledge and experiences and lessons learned regarding critical terrestrial and marine biodiversity and ecosystems in NE Iyanola Region (as part of 1.1.3.2); establish a framework for collaboration and partnership building on existing and potential networks (e.g. experiences with Martinique regarding WBT and Caribbean Iguana Delicatissima Conservation Network (CIDCN).
- Activity 1.1.3.4. Development/adaptation and implementation of a targeted education and training plan, (to support biodiversity and ecosystem management focused on NE Iyanola Region); inclusive of schedules, curricula and associated materials and

resources for identified relevant national and local leaders: conduct needs assessment to identify education and training needs for key national and local leaders; develop/adapt training resources utilising where possible the work of WRI (including modules for Ecosystem valuation, forest carbon monitoring, forest restoration methodologies; modules to promote nature-based tourism to include (i) Business development; (ii) best practices (conservation and sustainability); deliver interactive training through appropriate mechanisms (e.g. training-of-trainers workshops, seminars, etc.) with identified target groups (e.g. relevant policy-makers, consumers, private landowners, suppliers, and actors with a vested interest directly or indirectly in ESVs).

Component 2: Enhanced sustainable land management and carbon benefits in deciduous seasonal and low montane rainforest zones

171. Component 2 involves the development of an integrated sustainable forest management (ISFM) for the NE Iyanola region and the commencement of implementation in 6 output areas, including Participatory based Site Specific Management Plans and supporting research and monitoring, aimed at delivery of GEBs in through conservation and innovative sustainable use of dry forest, riverine, mangrove, coastal, and marine ecosystems of the NE Coast. Hence special emphasis to be given to the establishment and operation of local advisory committee(s) to develop and share plans, provide information, support livelihood opportunities, consultations and create complementary partnerships; GOSL-CSO capacity building; development of work plan and guidelines, monitor implementation process(see *Appendix 13 Carbon Assessment Monitoring System*); Community outreach/public education for local communities.

- iv. ***Develop a Zoning plan for restoration of degraded priority forest areas*** (DFAs) in NE Coast Iyanola Region which are priorities for wildlife corridors and habitats of globally significant species.

Activity C2.1.1.1: Spatially represent using appropriate tools the location and distribution of DFAs in the NE Iyanola region; zone and quantify special management areas (e.g. areas to be rehabilitated/restored); within the framework of national forest rehabilitation and restoration efforts and within the milieu of the Spatial Zoning Plan/Land Use Plan to be generated under Activity C1.1.2.3;

Activity C2.1.1.2: Formulate an integrated sustainable forest management (ISFM) plan for NE Iyanola Region to inform and integrate with the overall national forest management plan of the FD and NE Iyanola area Land Use Plan development under Activity C1.1.2.3. ISFM Plan to elaborate on the strategies and actions required for the implementation of the recommendations made in the Spatial Zoning Plan developed under Activity C2.1.1.1. - inclusive of appropriate SLM methodologies based on best practices for forest restoration/rehabilitation/ stabilisation of both terrestrial and marine resources in DFAs, including forest lands, and riverbanks and estuaries, with focus on 200 ha dry forest areas, etc.; types of species taking into account replacement of non-native trees with native ones (e.g. fire hazard pines at Caille Des [CWR]); IAS control—to involve the conduct of feasibility study to cover and exceed maintenance cost of a "mainland Island" in Marquis 2 re IAS control;

- v. ***Rehabilitation and restoration of degraded priority forest areas*** with a nationwide thrust aimed at enhancing connectivity in a 10,000 ha and a 5,090 ha overall areas), with potential total carbon benefit of 691,689 tons CO₂ at the end of a 30 year period:

Together with AusAid effort, rehabilitate and restore approximately 200 ha within priority degraded natural forest areas, to establish connectivity in the NE Coast, as part of 907 hectares nationwide; with a view towards increasing habitat quality, ensuring wildlife corridors, safeguarding rare and endemic species and consistent with biophysical assessment. Recovery and rehabilitation areas targeted are (consistent with management recommendations of 2009 Biodiversity Assessment of St Lucia's Forests and further supported by the ongoing Biophysical Resources Assessment) indicating:

- Soufrieres / Quillesse Ranges (low montane to montane rainforest – approximately 620 hectares (Aus Aid intervention)
- Castries Waterworks inc La Sorciere (low montane rainforest) – approximately 287 hectares (to establish connectivity with NE Coast Dry forests)

Activity C2.2.1.1: Develop and commence implementation of Participatory based Site Specific Management Plans based on the ISFM Plan developed in C2.1.1.2 for restoring/enhancing forests and lands with appropriate plant species to enhance carbon stocks while creating connectivity in Key Biodiversity Areas/Key Bird Areas; Restoration of secondary and degraded deciduous seasonal forests in the IBA which features St. Lucia's endangered white breasted thrasher and black finch and most of the world's population of Saint Lucia nightjars and other endemic birds.

Activity C2.2.1.2: Establishment of community based flying nursery facilities; in keeping with St. Lucia's adherence to IAS policy, appropriate native species are selected.

Activity C2.2.1.3: Production, distribution, planting and maintenance of at least 50,000 seedlings of appropriate plant species in designated areas, ensuring that restoration efforts are initiated in close coordination with local communities to maximize livelihood opportunities and equitable gender opportunities; taking into account issues such as men being generally closely involved with replanting activities, whilst women tend to be charged with nursery operations;

- vi. ***Rehabilitation of riparian, ravine, beach and migratory corridors*** of NE Coast/ Iyanola forest areas (200 ha)

Activity C2.3.1.1: Facilitate and integrate restoration of forest cover along riparian buffer zones (100 meters) on public and private lands (approximately 250 hectares) within the framework of the Participatory based Site Specific Management Plan in Activity C2.2.1.1. Additionally, forest cover to be maintained along ravines, along beaches identified as designated eroded/vulnerable riverbanks and estuaries in conjunction with Activities C 2.2.1.2 and 2.2.1.3. (e.g. in the Coccoloba fringe where iguanas and hawksbill turtles nest), and along migration corridors for iguanas moving to and from their traditional nesting areas.

- vii. ***At least 1 agreement negotiated for non-government (private) forest areas*** in NE Coast/Iyanola to enlarge the effective area under protection

Activity C2.3.2.1: Explore, discuss and recommend fit-to-purpose, including partnership, agreements, and options for compensation and incentives with appropriate stakeholders, consistent with planning and development legislation. A top priority is to maintain contiguous forest cover to the iguanas coastal nesting areas (options may include: regulation, biodiversity offsets, land purchase, conservation easements, private nature reserve, conservation incentives, payment for ecosystem services, timber and non-timber forest products, tax incentives)

Activity C2.3.2.2: Negotiate at least 1 private public partnerships for restoration efforts on private lands (e.g. Marquis (191 ha), Grande Anse (707 ha) or Louvet (294 ha)) to enlarge the effective area under protection.

viii. *Two private concessions established to raise revenue for SFM*

Activity C2.3.3.1: Identify opportunities/mechanisms for financing options for SFM including REDD Plus; based on review of among others, consultancy report for SLM – Investment Plan and Resource Mobilisation Strategy – W. Pierre et al.; Report on OECS Sustainable financing project; and reports of Fisheries Project on Sustainable Financing Mechanism

Activity C2.3.3.2: Identify, define and negotiate up to 2 pilot concessions for PPP with existing and potential business enterprises and communities based on service concessions (eg. zip lining, bird watching tours, hiking)

ix. *Research and Monitoring programme established for indicator species:*

Activity C2.3.4.1: Design and commence implementation of a comprehensive Pressure State response Monitoring Plan/Programme for the North East Dry Forests and selected wildlife indicator species in partnership with interested regional and international universities, non-governmental and community based organizations, and local communities, utilising existing monitoring programmes as a platform.

Monitoring plan/programme to be developed as part of an over-arching Iyanola management plan which focuses on key indicators for endemic and globally threatened (terrestrial and marine) species in core Iyanola National Park area, (such as: St Lucia iguana, leatherback sea turtle white-breasted thrasher, nightjar, pewee, oriole, wren, forest thrush and black finch; akoma, arkokwa, latanyé, gayak, mauby, lansan as well as invasive alien species that could threaten these indigenous, rare species); as well the monitoring of carbon stocks, and the BD friendly goods and services.

To include protocols for monitoring of nesting intensity of marine turtles (primarily the leatherback, *D. coriacea*) on Louvet and Grande Anse beaches, Assessment of nesting intensity and population density of adult green iguanas in the Louvet marine reserve and buffer zones; and assessment of nest success and recruitment through hatchling production for both species.

This would permit monitoring success of the restoration work in terms of positive impacts on key biodiversity components (e.g. endemic and or globally threatened species). Positive impacts might be measured as positive population trends or reproductive (e.g. nesting) success; Also mechanisms for monitoring of business performance (review) within the context of compliance with BD friendly practices to monitor business sustainability*. Monitoring these impacts would allow restoration efforts supported by the project to be adapted to meet biodiversity goals. This activity would be Inclusive of a methodology to measure and monitor carbon stocks above and below ground and to explore option to use the nascent Saint Lucia Integrated National GeoNode (SLING).

- Key elements of Monitoring Plan/Programme to include:
- Establishment and operation of Research and monitoring committee
- Develop prioritised research agenda and publicize in research institutions
- Negotiate agreements with research institutions

- Facilitate local participation in research projects
- Communication of research objectives and outputs to a wider audience

Component 3: Iyanola Conservation

172. This component delivers in 5 output areas, with the aim to establish management demonstration areas in existing North East Dry Forest Reserves (approximately 200 hectares) focused on enhanced provisioning and accounting of ecosystem goods and services. It purposes to enable the recovery and long term conservation of these sites in the context of the wider dry forest landscape. These areas would protect all indigenous wild animals and plants, and prohibit hunting (with possible exception of pig hunting as part of an invasives control programme), and develop systems for the collection of non-timber forest products that are strictly regulated within sustainable limits (or possibly developed as part of component 4). All efforts will be spent to encourage enhancement of native seasonal deciduous forest but including localized clearings that may help create the low forests favoured by the rare Saint Lucia nightjar (*Caprimulgus rufusotiosus*). Complementary with Component 2, production of nurseries to produce seedlings for the planting of rare trees that naturally occur in this habitat, e.g., arkokwa, akoumat, and gayak (*Guaiacum officinale*), would benefit these forests and the species concerned; and Component 4 which would develop a framework of the NTFPs, ensuring reduced pressure on the natural resources of the region.

x. Enhanced management effectiveness of 4 key NE Dry Forest Reserves (200 ha)

Activity C3.1.1.1: Facilitate Validation Assessment of status of Dry Forest in Forest Reserves and on private lands in Iyanola Region and zoning of critical forest areas in NE Iyanola Region - (to be undertaken within the framework of Activity C1.1.2.1: as part of the development of Land Use/Zoning Plan for NE Iyanola Region)

Activity C3.1.1.2: Conduct Baseline Assessment for Management Effectiveness (M.E.) of Dry Forest in NE Iyanola Region using appropriate tools such as management effectiveness score card; to include assessment of inter alia management parameters such as governance, enforcement, research and financing, etc.

Activity C3.1.1.3: Facilitate the development and commence the implementation of participatory based site specific management plans/guidelines based on the ISFM Plan developed in C2.1.1.2, for at least 4 Dry Forest areas in NE Iyanola Region; integrating into broader Management Plan under Activity C.2.2.1.1 for restoration/ rehabilitation and/or stabilisation of DFAs, including forest lands, and riverbanks and estuaries, based on the Spatial Zoning Plan developed under Activity C2.1.1.1; must address issues of governance, enforcement, research and sustainable financing options based on Output C2.3.3;

xi. Boundaries set for 2 marine reserves (Grande Anse and Louvet Marine Reserves)

Activity C3.1.2.1 Identification and demarcation of boundaries through use of field assessments, GPS coordinates and utilizing GIS to develop maps of the marine reserves (and include under the list of Marine Protected Areas of the SPAW Protocol). Map buffers. Install demarcation and signage as well as produce informational literature. (Demarcation will require legal action and possible re-gazetting of the proposed boundaries). Identification and demarcation exercise to focus on outer limits for the nature reserves undertaken through consultation with local residents, Dept. of Fisheries officials and officers from the Dept. of Forestry and from the Ministry of Planning.

Activity C3.1.2.2 Testing of proposed boundaries against conservation targets (including Aichi Target for 2020) and socio-economic goals and adjusting boundaries as needed.

Activity C3.1.2.3 Conduct Baseline Assessment for Management Effectiveness in Marine Reserves using appropriate tools (baseline management score card will include governance, enforcement and research, addressing more specifically boundary delimitation); Concomitant with Activity C3.1.1.2 which involves conduct of a baseline assessment for M.E. for Dry Forest areas.

xii. Management and sustainable financing plan established for Grand Anse Marine Reserves in NE Coast

Activity C3.2.1.1: Formulate and commence implementation of a Participatory based Site Specific Management Plan for Grand Anse Marine Reserve based on the SFM Plan developed in C2.1.1.2, that will focus on reducing pressures on threatened terrestrial and marine species, incorporating sustainable financing options from Output C2.3.3;

To be integrated into broader Management Plan developed under Activity C.2.2.1.1 for restoration/ rehabilitation and/or stabilisation of DFAs, including forest lands, and riverbanks and estuaries, based on the Spatial Zoning Plan developed under Activity C2.1.1.1; Plan to include means for improving capacity of community residents to sustainably utilize natural resources; to include for example Assessment of the feasibility of in situ breeding for release and ecotourism of the Saint Lucia iguana at Roots Farms, La Perle, as well as an international facility; Plan to include IAS predator removal pilot at Grand Anse during turtle and iguana nesting season (including the recording and analysis of quantitative data for two seasons); also a component for feral animal (cats, dogs, pigs, cattle) control/containment;

xiii. Community based management plan for Louvet Mangroves

Activity C3.2.2.1: Develop and incorporate as part of the Participatory based Site Specific Management Plan for Dry Forest (Activity C3.1.3), elements that will focus on reducing pressures on threatened terrestrial and marine species in Louvet Mangroves; to integrate into broader Management Plan to be developed under Activity C.2.2.1.1 for restoration/ rehabilitation and/or stabilisation of DFAs, including forest lands, and riverbanks and estuaries, based on the Spatial Zoning Plan developed under Activity C2.1.1.1.

xiv. Develop business plan to promote new tourism and other income generating activities and enhance existing ones, ensuring enhanced provisioning and accounting of ecosystems goods and services through linkages with Component 4

Activity 3.3.1.1: Conduct situational analysis for nature-based tourism product for the NE Iyanola region, incorporating BD friendly and cultural heritage products and services, with a view to promoting livelihoods which minimise pressures on threatened terrestrial and marine species in the region (esp. with respect to dry forest reserves, Grand Anse Marine Reserve and Louvet Mangroves);

Activity 3.3.1.2: Conduct gap analysis and feasibility/business opportunity study to enhance existing and inform potential new product and services initiatives

Activity 3.3.1.3: Define nature-based tourism product for the NE Iyanola region incorporating BD friendly and cultural heritage products and services, giving particular focus to the elements of community based management plans for NE Iyanola Dry Forest

Reserves, Grand Anse Marine Reserve and Louvet Mangroves and develop business plan for NE Iyanola Region nature-based tourism product (relate to Activity C4.1.1.2)

Component 4: Enhanced Capacity for the production of biodiversity friendly goods and services in inland forest and coastal communities (National with emphasis on NE Coast)

173. This component delivers in three output areas, and will be supported by complementary activities under the Transformative interventions of the Revised 2nd NBSAP (2014-2020), including activities related to expanding rural development initiatives in arts and craft, eco-tourism and other opportunities in biodiversity management to overcome development issues of poverty reduction through livelihood development; Design and/or customise biodiversity business enterprises for equitable sharing of benefits derived from use of biological resources (agriculture, forestry and fisheries); Identify and Implement tourism sector initiatives/business enterprises that integrate biodiversity conservation; and Integration of traditional knowledge in biodiversity enterprises, among others. Three categories of biodiversity friendly business enterprises were identified during the PPG phase, based on the consideration of elements such as the availability of resources (terrestrial and marine biodiversity), interest of persons in communities, as well as potential markets. Consequently, this component will facilitate the expansion of the NE Iyanola region's nature-based tourism product. This will include measures to ensure the adoption of conservation practices and risk mitigation strategies through the regulation of standards, and implementation of appropriate policies and guidelines. In addition, public sensitization to the inherent risks associated with various activities as well as measures to mitigate these risks will also be conducted. The proposed initiatives will thus take into account the following key elements:

- Policies guiding land use planning
- Public-private partnerships with respect to forest management (particularly as it relates to non-government lands)
- Business assistance partnerships
- Training and information needs

xv. Market, knowledge and capacity barriers for the community level production of biodiversity friendly goods and services removed

Activity C4.1.1.1: Conduct situational analysis and needs assessment to validate the 3 identified categories of biodiversity friendly goods and services (NTFPs, Nature-based tourism and Agro-Forestry) - including inventory of resources and Value Chain Analysis for specific high impact products, covering all the way from production to key markets. (linked to Activity C3.3.1.1); Develop market intelligence analysis , providing further understanding of the industrial trends at specific markets is key.

Activity C4.1.1.2: Develop participatory business management plans and promotional strategies for Piloting of up to three of the selected categories of products and services to include:

- Provide assistance for preparation of business/marketing plans, including development of proposals for grant funding or concessionary finance
- Plans to be designed to promote adoption/adaptation, and the assessment of best practice with regard to resource and community relations management, based on Activity C4.2.2.1

Activity C4.1.1.3: Commence implementation of Pilots for up to three selected categories of products and services (NTFPs, Nature-based tourism and Agro-Forestry) to assess best practice

- Establish Community based steering committee for Pilots. This steering committee oversees all the pilot projects, sharing experiences and working as a community of practice.
- Procure and install/refurbish and operate requisite model facilities for production, processing etc. of selected BD friendly products and services (e.g. model apiaries, mobile extraction facilities, beehives, nurseries for appropriate plant species for bee/honey production and agro-processing facilities for NTFPs). (Refer to the CBD Biotrade Criteria and Principles: <http://www.biotrade.org/aboutPRINC.asp>)
- Procure and install requisite equipment and supplies for facilitating of the pilot activities

Activity C4.1.1.4: Define and formalise the establishment of the framework for a national management system for linking markets with production management framework through appropriate instruments (e.g. policy, regulation under existing legislation, cabinet appointed committee, training, MIS, advisory services, etc.) to support the conduct of trade in BD friendly products and services (bio-trade)

Identify synergies and provide support for production, processing, marketing and other operational requirements for BD friendly goods.

Develop and enable the establishment of a Buyer-Seller Network to facilitate linkages between producers of BD friendly goods and services and local buyers

(Appoint individual to) provide incubation support for one year to ensure the successful implementation of the national management system framework

Establish institutional partnerships between BD friendly businesses and support entities (Government agencies, NGOs), building on existing frameworks for nature-based tourism businesses

Facilitate implementation of public education, advocacy and marketing campaign to improve product awareness and visibility

xvi. Assessment of marketing potential for BD friendly goods and services

Activity C4.2.1.1: Conduct market research for selected categories of BD friendly products and services; assess and evaluate product demand, supply, and current market arrangements for selected BD friendly products and services; identify and assess capacity to comply with industry standards for production and sale of BD friendly products; conduct comparative analysis for select categories of BD friendly products, including pricing, product quality, etc.; collaborate with relevant agencies, e.g. TEPA, to explore access to external markets; develop standard operating procedures for product development

xvii. Guidelines for 3 BD friendly goods and services produced

Activity C4.2.2.1: Identify international best practice and develop appropriate guidelines and operational standards for production and packaging at national level of bio-diversity

businesses, goods, and services, including recommendations for supporting policy and institutional framework (to support Activity C4.1.1.4)

- Collaborate with appropriate standards bodies to establish principles and procedures for environmental labelling/branding and declarations for certification and Eco labelling
- Identify, document, and compile best practices in management and operational procedures and processes for the production of selected BD friendly goods and services
- Develop standard criteria for selection of BD friendly business/ product/service

Activity C4.2.2.2: Identify and compile best practices adapted at the local level for production (including advisory and supporting services) and sale of BD friendly goods and services and develop manuals and protocols for community replication and upscaling nationally of successes in sustainable use of local biological resources

- Identify, Monitor and evaluate, and Document and Compile best practice in management and operational procedures and processes in the value chain for the selected BD friendly goods and services Pilots, (including extension/advisory services)
- Compile inventory of training programmes and training materials and resources relating to BD friendly business operations implemented in Pilots
- Develop manuals/guides for the operation of BD friendly products and services for sustainable livelihoods
- Facilitate coaching and mentoring in the application of best practices for replication and upscaling.

Project Management

174. The requirement for good project management in such a complex project cannot be overstated. The framework for effective project management will thus take into account not only the key technical aspects of the project, a clear understanding of the project, agreed objectives, activities and results, and agreed timeframes among all stakeholders. These will be backed up by a well-designed monitoring and evaluation plan, with verifiable indicators. Further, characteristics of the Project Coordinator selected will demonstrate one who is a good communicator, pragmatic and steadfast in action. This will be supported by:

- Sufficient delegation of responsibilities to the various executing partners – co-executing agencies and team of technical consultants, to allow for a responsive project;
- Strong managerial and technical input from the National Project Director and Forestry Department team and a supporting Technical Committee;
- Good managerial support from the National Project Coordinator who shall have demonstrated strong project management experience;
- Strong management of information systems.
- Clear and simple internal operating procedures (standard formats, clarity in lines of communication and reporting, roles and functions, etc);

- Established relationships with other programmes and projects using appropriate mechanisms such as MOUs;
- Planning for project completion at the outset (e.g. ensuring works envisaged can be completed in time), including a project exit strategy that ensures sustainability.

175. Project institutional framework and implementation arrangements are provided under Section 4. The Project will be embedded within the Ministry of Sustainable Development, Energy, Science and Technology supported by the in-house services, with regard to technical, administrative and accounting support to guarantee professional service delivery. The expertise of the professional network through the Iyanola Technical Committee will also be utilized for project implementation, in order to ensure quality control and quality assurance of the outputs.

3.4. Intervention logic and key assumptions

176. The Iyanola Natural Resource Management project of the North East Coast aims to support improving the effective management and sustainable use of the natural resource base of the NE Coast of Saint Lucia as part of the broader objective of contributing global environmental security. It will assist with the development of marine and terrestrial management areas, within the framework of an integrated sustainable forest management plan (ISFM) for the region, to safeguard and protect threatened species, ecosystems and habitats.

177. The communities in the NE Iyanola region have relatively limited capacity and limited past support to meet their immediate biodiversity challenges and assist them in the implementation of the island biodiversity programme of work. Hence, the information garnered from an extensive consultation process during both the PIF and PPG stages provides a multi-sectoral picture of convergent and divergent perspectives which facilitated consensus building on the proposed activities for implementation.

178. The project will facilitate the deeper integration of environmental sensitivities and priorities into the land use planning, policy and regulatory framework and the development of sustainable management systems into forthcoming development scenarios especially that proposed for the NE Iyanola Region towards strengthening of a national development planning approach. It is envisaged that the infusion of ecosystem values and considerations for sustainable use of biodiversity in land use planning will serve to create the requisite conditions at both the local and national level for the protection of biodiversity while pursuing development. Further, the marketing of BD friendly products and services and creation of networks among local producers/suppliers and buyers, particularly with regard to linkages to tourism, will assist in ensuring that the sustainable use of biodiversity is protected.

179. The project will pilot activities in the NE Iyanola region with respect to the development and application of participatory based site specific management plans and guidelines for different situations, giving due consideration to existing work on Protected Areas (PAs), Marine Management Areas (MMAs), and lessons learned will be documented for wider applicability. Similarly, lessons learned from the creation of a framework to support the production and marketing of three key categories of BD friendly products and services in the NE Iyanola region, will be documented for future replication at the local, national and global level.

180. In this regard the long-term benefits to be obtained from the Project are multi-faceted: firstly it addresses some of the key priority areas outlined with regard to biodiversity, SLM, SFM and CC, in the Revised 2nd NBSAP, NAPSAP and CCAP; it further seeks to generate fit-to-purpose solutions

with regard to sustainable management and use of natural resources including improved data and information systems and to inform development decisions based on the experiences of stakeholders. In addition, processes for information exchange among other areas and region are well woven into the project, to ensure future replication and upscaling of similar activities. The project will also assist in enhancing data and information management systems to facilitate under-resourced agencies in making informed decision with regard to environmentally sensitive development planning.

181. The project will utilize wide stakeholder engagement as it pursues a distinct focus of community empowerment for the management of their resources. This empowerment will involve the development of a pressure state response monitoring programme to gather relevant data to assist in the identification of the threats to biodiversity and determining the best options for sustainable management. Ongoing engagement at the community level will also ensure concrete buy in and public and political support to build on the gains made.
182. It is recognised that the project is more about creating a platform at the local level, to facilitate strengthening of and structures at the national level needed to manage threatened biodiversity and ecosystems over the longer term, than in achieving immediate conservation gains. The intention therefore is to enhance the fundamental capacity of communities, resource owners and users, particularly in the NE Iyanola region, to sustain the externally funded initiative beyond the time frame of this project.
183. The opportunity to secure funding from within GEF - 5 is recognized as one immediate way of building on existing frameworks towards achieving the overarching goal of management effectiveness with regard to high biodiversity, priority forest and marine areas in the NE Iyanola region.

3.5. Risk analysis and risk management measures

184. A number of assumptions and risks have been identified that could affect the successful outcome of the project preparation process. These threats/risks and barriers have already been elaborated above (Sections 2.1 and 2.2) and most of them have local, national and international dimensions. In the subsequent summary table those barriers and constraints that the project will confront most directly are highlighted because of their significance to the effective management of the resources in the Iyanola NE Coast Region. It is essential to evaluate possible threats/ risks that are likely to result from the implementation of development initiatives, given the importance of the NE Iyanola region's biodiversity to food security, livelihoods, sustainable development and addressing the challenges of climate change.

Assumptions

- There will be the willingness on the part of stakeholders, particularly local communities and private land owners to collaborate and participate in the process and continue to support the initiative; the Communication, Education and Public Awareness (CEPA) strategy will be undertaken as a project pre-requisite and commencement of implementation will be a component of the first phase of project implementation in order to ensure ongoing engagement of key stakeholders such as local communities, private land owners, and policy makers;
- Timely responses to requests and feedback from responsible bodies and oversight and technical committee will be provided for the assignment to proceed on schedule;
- That a mechanism exists to ensure availability, easy accessibility and accuracy of information required. If required information, such as reports, documents, data and other literature, are not received on time, or discrepancies exist which could affect the accuracy of the information, this

could mean additional time for verification and validation. Consequent delays, particularly in areas where the execution of an activity is dependent on the completion of another, are likely to result.

- The establishment of an appropriate mechanism to facilitate inter-agency collaboration, coordination and participation, particularly coordination with other projects;
- The services of the requisite Technical Consultants will be easy to procure.
- Funding will be made available on a timely basis so that persons who undertake various activities in each of the work packages can be paid on a timely basis; and that adequate funding is made available for the project to be undertaken with the requisite number of specialists.

Risks

185. Consequent project risks, including climate change risks that might prevent the project objectives from being achieved, and proposed measures that address these risks are outlined in Table below:

Table 3: Risk Management

RISK	Risk Level (L-low, M-Medium, H-High)	Risk Mitigation Strategy
Capacity of the national executing agencies overstretched or compromised by limited personnel, resulting in inadequate support to the project	M	Required expertise will be supplemented through partnerships with non-governmental and community based organizations. Synergies will be built on similar initiatives in communities to enable the pooling and maximum use of resources. These are identified in the stakeholder table.
Lack of Project buy in from agencies, businesses and communities in NE Coast Iyanola Region	M	Design and implementation of a public sensitization and training and information strategy presenting the opportunities and benefits available for various actors; Formation of community groups and networks; Creation of business assistance partnerships.
Environment and regulations are in place but monitoring and enforcement remain weak	M	Project will include capacity building for environmental management and monitoring at the local and national levels, including CBOs and NGOs – and specifically at sites/areas of GEF interventions. Co-management /participatory approaches will be undertaken in implementing activities. Development of standards and guidelines to support the production and marketing of BD friendly goods and services.
New regulations and guidelines for land use planning and enforcement	M	Consultative processes and citizen recourse are stipulated in a number of legislative acts including the Land Use Planning Act. Project

RISK	Risk Level (L-low, M-Medium, H-High)	Risk Mitigation Strategy
thereof may meet with resistance		will ensure adherence to robust consultative processes outlined in existing legislation that will work on overcoming challenges. Mobilization and coordination of enforcement personnel and activities across key agencies with the Physical Development Section /DCA as the coordinating agency.
Land Ownership	H	Public-private partnerships with respect to forest management (particularly as it relates to private lands)
Construction of proposed NE Coast Highway	M	Coordination and cooperation among relevant agencies currently underway at feasibility stage for road.
Biodiversity destruction and ecosystem services disruption due to impacts of climate change such as intensified storms and drought.	M	Replanting with native species, and integrating resiliency into forest and mangrove management. The proposed GEF project is concurrent with \$27 million PPCR project whose focus is to build CC resiliency and associated capacity

3.6. Consistency with national priorities or plans

186. National strategies and plans or reports and assessments under relevant conventions, that are applicable to the Project include: NBSAP, NAP, NAPA, 2nd National Communication (SNC), NIP, PRSP, NPFD, among others.
187. UN Convention on Biological Diversity (CBD): The project will contribute to achievement of the key objectives of biodiversity conservation of the Saint Lucia's Draft 5th National Report and Revised 2nd National Biodiversity Strategy and Action Plan (2nd NBSAP) including: mainstreaming of biodiversity conservation and sustainable use issues into development planning (incl. land use and sustainable livelihoods). The project will prioritize promotion of innovative, fit-to-purpose (e.g. co-management) approaches to biodiversity conservation and sustainable use, enhance capacity for data collection and monitoring (for both coastal/marine and terrestrial ecosystems), and build public awareness. The Project will thus directly support Saint Lucia's contribution to the Convention on Biodiversity's (CBD's) Strategic Plan, and the Aichi Targets adopted at the 10th Conference of the Parties of the CBD primarily: the Aichi reduction in loss of natural habitats and decreasing degradation and fragmentation specifically of forests ecosystems (Target 5), to the restoration of biodiversity hotspots (Target 15) and contributing to the national protected areas system for management and conservation of biodiversity (Target 11).

CBD Aichi 2020 Targets	Project activities that will support the achievement of each
Target 1 (awareness of biodiversity values)	Develop/adapt and implement a targeted Public Education and Outreach (Awareness and Sensitization) strategy highlighting the value of biodiversity and ecosystem services values.
Target 2 (BD integrated in local and national poverty reduction strategies...)	Through the development of alternative livelihoods, including agroforestry and non-timber forest products (NTFPs), pressure on forest resources will be relieved while providing opportunities for generation of income in remote coastal communities hard hit by the economic downturn and loss of tourism revenues.
Target 4 (sustainable production)	The project's Component 4 will develop and implement a framework for a national management system for linking markets with production management framework through appropriate instruments to support the conduct of trade in BD friendly products and services (bio-trade).
Target 5 (loss of natural habitats)	Rehabilitation and restoration of degraded priority forest areas with a nationwide thrust aimed at enhancing connectivity in a 10,000 ha and a 5,090 ha overall areas) will be delivered in Component 2.
Target 6 (sustainable use of marine BD)	A Participatory based Site Specific Management Plan for Grand Anse Marine Reserve will focus on reducing pressures on threatened terrestrial and marine species, incorporating sustainable financing options for local communities.
Target 11 (inland water and coastal and marine areas)	Formulate and commence implementation of a Participatory based Site Specific Management Plan for Grand Anse Marine Reserve that will focus on reducing pressures on threatened terrestrial and marine species, incorporating sustainable financing options.
Target 14 (ecosystem services - ES)	Component 1 will support the: Development of a Land Use Plan for NE Coast/Iyanola, based on the valuation of ecosystem goods and services is another key task.

188. UN Convention to Combat Land Degradation (UNCCD). The Country Report on National Action Programme for Saint Lucia priorities of rehabilitation and restoration; increasing public awareness; development of successful model interventions; and promotion of environmental conservation in development and enterprise will be supported through targeted project activities.
189. UN Framework Convention for Climate Change (UNFCCC). The project will reforest and restore degraded lands with native species, and sustain the existing forest, including coastal dry forest habitats and mangroves, as outlined in Saint Lucia's Second National Communication for the UNFCCC (2012). The project is consistent with the Policy directives outlined in Saint Lucia's National Climate Change Adaptation Policy and Strategy (http://www.climatechange.gov.lc/NCC_Policy-Adaptation_7April2003.pdf), particularly those relating to coastal and marine resources and Terrestrial Resources, Terrestrial Biodiversity & Agriculture.
190. Saint Lucia has ratified The Convention for the Protection and Development of the Marine Environment in the Wider Caribbean Region – Cartagena Convention: and its supporting Protocols. Of particular relevance is the Protocol Concerning Specially Protected Areas and Wildlife (SPA) in the Wider Caribbean Region, committing to protect, preserve and manage in a sustainable way: 1) areas and ecosystems that require protection to safeguard their special value, 2) threatened or endangered species of flora and fauna and their habitats, and 3) species, with the objective of preventing them from becoming endangered or threatened.

191. **Saint Lucia has ratified the Ramsar Convention, listing 2 sites.** The Ramsar Convention's mission is "the conservation and wise use of all wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world".
192. The GEF National Portfolio Formulation Document (NPF) for Saint Lucia <http://www.thegef.org/gef/sites/thegef.org/files/documents/document/FINALDRAFTofNPFJanuary20132012.pdf> was finalized in late 2011 on the basis of extensive consultations. The project proposed will contribute to at least 7 of the stated priorities (I, II(1,2,3), III, IV, V, VI, VII) as laid out under 3 of the focal areas (Biodiversity, Climate Change, and Land Degradation) -- with a Sustainable Forest Management Overlay and focused on the NE Coast -- meeting a maximum number of global environmental priorities with incremental GEF resources.
193. The Vision Plan for the North-East quadrant recognizes the potential for tourism, and in particular, eco-tourism. It is anticipated that eco-tourism developments, such as eco-resorts near the Grand Anse, Marquis, Louvet, and Fond d'Or areas, will serve to foster greater interest in the region. Growth in the product offering, as well as enhancement of existing touristic activities are regarded as significant prospects for the generation of employment and facilitation of entrepreneurial activities within the region.
194. The Revised Systems Plan for Protected Areas – SPAA2 (completed in 2009) has been submitted for endorsement by the Cabinet of Ministers during SLNT 2013-2014 financial year and for further incorporation into the national development plan.

3.7. Incremental cost reasoning

195. Without GEF interventions, land use planning would continue to undervalue biodiversity and ecosystem services in the planning and management processes. The GEF intervention will build on existing legal framework to develop appropriate supporting regulations and guidelines which integrate environmental sensitivities, priorities and sustainable management options in forest, coastal and marine ecosystems. In the absence of the possibility of a national land use plan, a pilot land use plan for an area of critical global significance would constitute an incremental building block to move towards this overarching goal. Without the GEF intervention the high biodiversity, priority forest, and marine areas of the NE Coast would continue to be degraded and imperiled by development initiatives which fail to take into account local, national and global environment considerations.
196. A GEF intervention, focusing on prevention and informed decision making strengthens sensitive planning, conservation and management measures in lieu of ad hoc development and inaction. Building on anti-poverty initiatives, GEF support will permit testing of innovative sustainable use of biodiversity resources. Of particular emphasis is the opportunity to integrate biodiversity concerns and sustainable land use options into the forthcoming development scenario for the NE Coast (highway, tourism development).

3.8. Sustainability

197. Strengthening benefits to communities around project interventions will underpin sustainability of all aspects of the project. Hence, the project will promote sustainability at both the institutional and community level by working with, and strengthening, the technical capacities of existing Governmental and non-Governmental institutions, in order that they are able to continue the provision of technical and other support in the long term. It will also work with and strengthen local institutional mechanisms such as local government/constituency councils and multi-stakeholder groups, thereby creating a solid basis of local governance that will further social sustainability.

198. Sustainable Use of Biodiversity. In response to economic challenges over the last few years, one of resounding themes with regards to national priorities in the Budget Statements (2012-2013, 2013-2014 Budget Statements) and even up until recently (2014-2015) has been Job Creation and entrepreneurship, thus establishing a foundation for creating opportunities to develop sustainable livelihoods. These Budget Statements commit to a process to create the institutional framework to guide the development of high growth segments of the tourism industry and modernizing the legislative framework for tourism. An agricultural transformation programme is also being rolled out supported by the EU Banana Accompanying Measures (BAM), to address among other things, issues of technology, capacity development and skills training, as well as the development of value chains and retrofitting of related incubation facilities.
199. At the national level, a number of associations have recognised that there are opportunities in agro-eco production consistent with sustainable use of biodiversity which can complement and build on Saint Lucia's important agricultural sector which still plays a dominant role in the economy. The following associations have indicated a willingness to provide the platforms from which to incrementally build on, including Rural Women's Network-Babonneau Cluster, Superior Broom Producers, Rural Women's Network- Micoud, Saint Lucia Cooperative for essential oils and, Saint Lucia Youth Agricultural Entrepreneurship Programme (YAEP), Saint Lucia Koudmen Sent Lisi, Saint Lucia Holistic Opportunities for Personal Empowerment (HOPE), Saint Lucia The James Belgrave Micro Enterprise Development Fund (BELFUND).
200. In order to safeguard long-term sustainability, "binding mechanisms in terms of legislation and regulatory framework" are key to ensuring that developers do not pursue interests which may be lucrative in the short term, while compromising long-term benefits (ITC Executive Forum, Ministry of Trade and Industry Republic of Trinidad and Tobago, Commonwealth Secretariat , 2004). As such, within the local context, a number of policies have been developed to regulate developmental activities with a view to ensuring sustainable use of natural resources.
201. The equitable distribution of resources or benefits from the industry is also a key element to be considered, as unequitable distribution has the potential to jeopardize the stability of the industry through leakages, and other negative economic and social impacts. The Nagoya Protocol to the Convention on Biodiversity makes reference to the need for policy arrangements to ensure that local community benefits from the utilization of indigenous resources are contained within the said community.
202. The National Systems Plan for Protected Areas in Saint Lucia outlines a proposal for an Iyanola National Park within the region. The proposed Iyanola National Park would cover an area of just over 5,000 hectares, and provide a system to protect the vulnerable resources within the area, including the only extensive area of undeveloped coastline remaining in the island. The proposed area also contains most of the island's intact dry forest ecosystems and is therefore critical to the survival of some of the rarest endemic species.
203. The National Vision Plan also provides an initial framework to "ensure that development can move forward, in a controlled manner...." Preliminary goals for the North Eastern region, as outlined in the plan "include a new road providing access throughout the quadrant, new housing settlements, a water intake initiative, and new eco-tourism developments" (IDEA, 2008). (Jules, 2005)
204. The emphasis of the project on market-based solutions, linked to sustainable use options that have demonstrated the potential to yield concrete and significant financial benefits, increases the probability that the resource management practices will be continued by the project beneficiaries into the long term, following the withdrawal of support by the project and its partner institutions.

205. In order to promote the sustainability of producers of bio-friendly products and services and ensure their continued participation in certification schemes, the project will seek to integrate BD guidelines into existing certification schemes (e.g. Fair Trade, Green Globe) and encourage producers to participate in these schemes in order to reduce their certification and audit costs. This grouping of producers will also be positioned to generate incidental benefits in terms of increased market influence and negotiating power.
206. The project will also seek to package the available incentive mechanisms, for example working with land development and investment agencies, to facilitate land owners to invest in good land management practices and thereby maximize the chances of meeting the objectives of balanced resource conservation and sustainable use.

3.9. Replication

207. The Project will build on the existing policy and legal framework to develop appropriate supporting regulations and guidelines which integrate environmental sensitivities, priorities and sustainable management options in forest, coastal and marine ecosystems. Within the prospect for a national land use plan, a pilot land use plan for an area of critical global significance would constitute an incremental building block to move towards this overarching goal.
208. The Iyanola Land Use plan and in particular the ecosystems approach it proposes to adopt, can thus be replicated at a national scale by enshrining ecosystem planning requirements and criteria provisions in the national enabling legislation and regulations, planning and development policy framework and planning/development application approval process. Moreover, the island can be divided into a system of national ecosystem zones which can serve as the spatial unit for ecosystem planning. Also, the spatial strategy of the NLUP can include an ecosystems strategy.
209. The project is focusing on prevention and informed decision making for the Iyanola NE Coast, will strengthen sensitive planning, conservation and management measures, in lieu of ad hoc development and inaction at the national level. Of particular emphasis is the opportunity to integrate biodiversity concerns and sustainable land use options into the forthcoming development scenario for the NE Coast (highway, tourism development).
210. The capacities developed will include increased skill sets and expertise of public sector planning technocrats in ecosystem driven land use planning by virtue of garnering experience, information and skills transfer from consultant /expert to technocrat, facilitated by the latter's practical hands-on involvement in the plan formulation process.
211. Building on anti-poverty initiatives, the Project will permit testing of innovative sustainable use of biodiversity resources. The lessons learned, marketing and innovative successes of the Components 3 and 4 will be shared at regularly convened inter-community venues to encourage replication, and will have a positive and sustainable impact on women.
212. Tools developed and experiences generated under the Project, especially SEED¹⁹ related tools, such as manuals, guidelines and standards incorporating principles of the Bio Trade Initiative, will be shared in other parts of the country or with other products.

¹⁹Supporting Entrepreneurs for Environmental Development Initiative, implemented in partnership with UNEP, given that the goal of SEED is to support the ability of such entrepreneurs to scale up or replicate their activities.

213. The Saint Lucia GEF Small Grants Program which is in the process of being established will also be utilized as a supportive interface for scaling up or replicating BD friendly activities at the community level.

3.10. Public awareness, communications and mainstreaming strategy

214. The need for sustained and continuous communications and mainstreaming of project interventions at community, sectoral and national level is critical to the success of the project. Thus, a communications, education and public awareness (CEPA) strategy to raise awareness, aid wider integration of biodiversity and ecosystem values, facilitate resource conflict resolution and stakeholder management, and package requisite information suited to each of the various stakeholders (including policy makers, community persons, land owners to mention a few) who impact on or are impacted by the issues in the Iyanola Region, will be developed as a pre-requisite to project implementation.
215. To ensure that there is regular and sustained communication on the Project itself, the CEPA Strategy will seek to address the key messages of:
- i. What is significant about NE Iyanola Region – value and potential benefits
 - ii. What is at stake in the NE Iyanola Region
 - iii. What has been done and what is yet to be done
 - iv. Why the Iyanola project
216. In addition the CEPA Strategy will highlight and profile ecosystem services and biodiversity conservation in terms of their contribution to development, growth and equity to economists, political leaders and policy makers.
217. There are several related awareness messages being communicated to the Saint Lucian public. Saint Lucians have been urged to preserve the environment and conserve biodiversity but the reasons have largely been related to:
- Environmental Responsibility
 - Climate Change
 - National Pride
 - Tourism Product
 - Biodiversity conservation
218. The newly revised 2nd NBSAP reflects a new trend for biodiversity management with regard stewardship and sustainable use for economic prosperity and health.
219. The CEPA strategy will build on and utilise wherever possible the existing platforms for these messages to raise awareness the appropriate target audience. Specific tools and activities will also be identified and employed in order to specifically raise awareness of, facilitate communication and encourage participation in the Project by the various stakeholders.
220. The CEPA Strategy will also define specific activities for engaging and communicating with key project stakeholders, in particular, Private Sector/ Land owners and the communities, focusing on creating key advocates of and stewards for biodiversity and the benefits it provides for people; help communities appreciate existing and identify new enterprises linked to proper biodiversity stewardship. Support entrepreneurship in the productive and sustainable use of bio-diversity income generating and job creation as it relates to Poverty Reduction; create an ‘Idea Tank’ for new enterprise opportunities; and communicating lessons learned to facilitate replication in other communities

221. Mechanisms to incentivize individuals, groups, communities that are crucial in executing the Project will be devised, to bring them on board to:
- Undertake resource mapping and validation
 - Participate in the preparation of management plans supported through small grants, technical support, training, awards, etc.
222. Finally, there needs to be a continuous reminder of project status and updates on outputs and outcomes. The CEPA strategy will devise appropriate templates to facilitate regular bulletins in this regard.

3.11. Environmental and social safeguards

223. In accordance with the GEF Policy on Environmental and Social Safeguards²⁰, safeguard measures will be built into national project design and implementation. Under this project, Strategic Environmental and Socio-economic Assessments (SEAs) will help to streamline and focus the incorporation of environmental and social concerns into the decision-making process, often making project-level EIA a more effective process. Strategic Environmental Assessments are currently not mandatory in Saint Lucia.
224. For the purposes of the Iyanola Project, an SEA Scoping Exercise will be undertaken at the commencement of the project to ensure that particular attention is paid to environmental and social concerns with regard to the project interventions, and also to create a platform for integrating the concept of Strategic Environmental Assessments in projects that are undertaken in Saint Lucia.
225. The Scoping of the SEAs will consider the implications of the Project for biodiversity and ecosystem conservation and on the creation of sustainable livelihoods. It will also ensure that the interventions identified in the Project components give due consideration the comments and recommendations of stakeholders and how these comments and recommendations are incorporated into the Project delivery. The Scoping exercise will also evaluate opportunities to consolidate and implement other environmental and social initiatives pursued by local stakeholders, NGOs and other partnerships.
226. Paramount in the SEA scoping is the determination of the extent to which the Project will change prospects for biodiversity conservation and its sustainable use in Saint Lucia. Key general questions, to be asked during the scoping exercise will include inter alia:
- What are the Project's objectives and how do these relate to safeguarding environment and social integrity?
 - How important is biodiversity and ecosystems services to persons in NE Iyanola region and their livelihoods?
 - What are the likely impacts of the Project on people who need and use biodiversity and ecosystem services?
 - Does the Project provide for interventions which are 'biodiversity friendly' and socially beneficial?
 - Does the Project provide for interventions which enhance positive benefits for conservation and sustainable use?
 - Will current or traditional biodiversity uses and values be sustained/sustainable following implementation of the Project?

²⁰ GEF Policy on Environmental and Social Safeguards (2011) online at http://www.thegef.org/gef/sites/thegef.org/files/documents/C.40.10.Rev_1.GEF_Policies_on_Safeguards_and_Gender.May_25_2011.pdf

- Does the Project provide opportunities for protected areas and for species protection
- Does the Project provide opportunities for stakeholder consultation

227. The SEA scoping will assure that the Project is indeed consistent with policies and priority actions for environmental and social stewardship. This includes various multilateral environmental agreements that Saint Lucia is party to, as well as any national policies for biodiversity or environmental protection; various other resource management policies and plans in Saint Lucia; etc.
228. The SEAs will be undertaken through a process of extensive consultation, taking into account the already extensive consultation throughout the length and breadth of the Iyanola region and among relevant stakeholders undertaken during project planning and PPG stage.
229. The Project seeks to promote the “No Net Loss” principle through interventions that seek to maintain or enhance environmental and social safeguards in Saint Lucia.
230. Challenges to be overcome in the conduct of the scoping exercise:
- Availability of baseline data on the various biodiversity resources and ecosystems and socio-economic status that will be impacted by the Project;
 - The large volume of plans, policies and programmes that will have an influence on the Project, make it difficult to categorically illustrate the effect of specific plans, policies and programmes.
 - However, for the three (3) categories of biodiversity friendly goods suggested for piloting, socio-economic indicators will be developed to measure the impact of improved management of timber resources and ecosystem services, together with increases in income for targeted communities and replication efforts. Restoration efforts also offer gender neutral opportunities by involving women in nursery operations. The project will generate gender data and input gender dimensions, especially into the elaboration of Component 4 [(3) demonstration pilots to promote sustainable use of BF products and services to derive sustainable livelihoods], and in the development of results frameworks, budgets, implementation plans and work plans. As part of this effort, disaggregated gendered impacts of increased income generation will be tracked as part of the M & E system. The PPG process has however, determined that gender considerations are not solely a women’s issue but rather looks at yielding advantage to whole communities and benefitting both genders and vulnerable groups.

SECTION 4: INSTITUTIONAL FRAMEWORK AND IMPLEMENTATION ARRANGEMENTS

231. This 4 year project will be executed by under external national execution modality, according to the standards and regulations for UNEP-GEF cooperation in Saint Lucia. The Executing Partner (EP) of the project will be the Ministry of Sustainable Development, Energy, Science and Technology (MSDEST), with the Department of Forestry (DoF) as the Lead Project Implementation Entity (LPIE). The project’s organizational structure is shown in **Appendix 9: Decision-making flowchart and organizational chart**.
232. Institutional arrangements for the administration and implementation of the Iyanola NE Coast Project are based on recommendations emanating from an extensive stakeholder consultation process, and builds on the current portfolios of the relevant government agencies and counterparts. Given that diverse nature of the project, with the impact areas of the 4 components straddling the gamut of mandates from land use, biodiversity, sustainable forest management, sustainable land management, environmental services valuation (ESV), sustainable livelihoods including agriculture, fisheries and tourism, among others, the responsibility for project implementation and management must be shared,

and as such a key responsibility of the executing agencies is to ensure that the requisite elements of various project components be well-embedded into their existing and future programme implementation plans of their sectoral ministries, agencies / organisations, communities and enterprises.

233. One of the first actions that will be undertaken as soon as the Project is approved is the conduct of a situational analysis towards the development of a more detailed Annual Work Plan, and the development of enhanced institutional arrangements for Project implementation.

Project Steering Committee

234. The success of project implementation is predicated on the commissioning of a Project Steering Committee (PSC) by the IP, to provide oversight to the Lead Project Implementation Entity. The current committee which was originally established in 2010 to guide the National Portfolio exercise and further extended to provide oversight during the PPG process, will be commissioned as the PSC. The PSC is thus a multi-sectoral body, comprising representation at the senior level of the range of national implementation entities (Agencies, CSOs and CBOs), and the GEF Implementing Agency, UNEP -- all of whom have been involved with the project from the project planning phase.

Table 4: Proposed Composition of the Iyanola Project Steering Committee (PSC)

Organisation	Department/Unit/Section
United Nations Environment Programme (UNEP)	<ul style="list-style-type: none"> • Co-Chair (once annually)
Ministry with responsibility for Sustainable Development, Energy, Science and Technology	<ul style="list-style-type: none"> • Forestry Department (Chair) • Sustainable Development and Environment Division (Chair) • National Biodiversity Unit • Accounting Section •
Ministry with responsibility for Finance, Economic Affairs and National Development	<ul style="list-style-type: none"> • Finance and Economic Development Unit • National Development Unit
Ministry of Agriculture, Food Production, Fisheries and Rural Development	<ul style="list-style-type: none"> • Department of Agriculture • Department of Fisheries • Department of Extension • Department of Cooperatives • Corporate Planning Unit
Ministry of Physical Development and the Housing	<ul style="list-style-type: none"> • Physical Planning Section/DCA • GIS Section • Crownlands Department
Ministry of Infrastructure	<ul style="list-style-type: none"> • Department of Infrastructure (NE Coast Road Development Initiative)
Ministry of Tourism	<ul style="list-style-type: none"> • SLHTP • Tourism Planning
Ministry of Social Transformation	<ul style="list-style-type: none"> • Local Government • Community Development Department

Organisation	Department/Unit/Section
Ministry of Commerce and Industry	<ul style="list-style-type: none"> • Small Enterprise Development Unit • Invest Saint Lucia • Trade and Export Development Agency
CBOs	<ul style="list-style-type: none"> • Youth Synergy • The Trust for the Management of Rivers • Constituency Councils
CSOs and Private Sector	<ul style="list-style-type: none"> • Saint Lucia National Trust • National Conservation Authority • Land owners - Representative • Saint Lucia Manufacturers Association (SLMA) /Saint Lucia Small Business Association (SLISBA)

235. In so far as the pursuit of sustainable livelihoods will require the active engagement of the private sector, the SLMA and SLISBA are given permanent representation on the PSC. Likewise, civil society is represented by the Saint Lucia National Trust, inclusive of its youth chapters and a Community Development Foundation.

236. The composition, responsibilities and rules of operation of the PSC however, will be confirmed during its first meeting. Subject to the decision of this meeting, it is proposed that the PSC will be responsible for approving the operational plans and annual reports of the project as well as the terms of reference and appointments of key project staff.

237. The PSC will be responsible for making executive decisions for the project, in particular when guidance is required by the GEF Implementing Agency, UNEP and the Lead Executing Agency through the National Project Director. The PSC will play a critical role in facilitating inter-ministerial coordination, project monitoring and evaluations by quality assuring these processes and products, and using evaluations for performance improvement, accountability and learning. It will ensure that required resources are committed and will arbitrate on any conflicts within the project or negotiate a solution to any problems with external bodies. In addition, it will approve the appointment and responsibilities of the National Project Coordinator and any delegation of its Project Assurance responsibilities.

238. Based on the approved Annual Work Plan, the PSC will also consider and approve the quarterly plans and will also approve any essential deviations from the original plans.

239. The PSC will meet at least four times per year (every quarter) and in addition could be convened extraordinarily by the Chair, or on the request of individual members.

National Project Director

240. The project will be under the overall leadership of a National Project Director (NPD), who will be the head of the Department of Forestry, functioning under the supervision of the Permanent Secretary of the MSDEST. The NPD will be responsible for orienting and advising the National Project Coordinator on Government policy and priorities. The NPD will also be responsible for maintaining regular communication with the lead institutions in the other sectors and ensuring that their interests are communicated effectively to the National Project Coordinator.

Project Executing Parties - Executing Agencies

241. The Department of Forestry as the Lead Overall Executing Agency will be responsible for coordinating the implementation of the Project and shall collaborate with relevant stakeholders in executing this mandate.
242. Four key responsible parties, Co-executing agencies, will be involved in Project Execution:
- Ministry of Physical Development in the execution of Component 1
 - Department of Fisheries supporting implementation in Components 2 and 3
 - SDED and the Biodiversity Unit in the MSDEST will be key in the execution of Components 2 and 4, respectively
 - Ministry of Agriculture (Departments of Agriculture and Extension) in the execution of Component 4
243. Theco-executing agencies will operate through designated Focal Points, (with designated alternates) to provide (i)ongoing guidance on project implementation, with particular focus on administrative related matters and (ii) serve as liaison between the agency and the Lead Project Implementation Entity – DoF and these other relevant agencies.
244. Memoranda of understanding (MOUs) will be established between the IP and the project executing parties, including Co-operating Agencies and Project Partners, stipulating roles and functions, as well as specific allocations with regard to staff time and schedules. As far as possible, Project Implementation Entities would be required to incorporate project reporting including monitoring and evaluation parameters, within their respective agency reporting mechanisms.

Project Implementation Unit

245. Project implementation will be the responsibility in practice of a Project Implementation Unit (PIU), established within the DoF.
246. The PIU will be led by a National Project Coordinator (NPC), who will be contracted through a selection process by the MSDEST, and paid directly from UNEP-GEF funds. The NPC will have specific responsibility for project Outputs through day to day management of project implementation. The NPC will also:
- Be the signing authority of requests to UNEP-GEF for disbursements of project funds.
 - Ensure the logistical, administrative and financial effectiveness of the IP in fulfilling its roles setout above
 - provide monitoring, supervision and guidance to the technical teams based in the project areas
 - Promote collaboration and coordination with the MSDEST/DoF, and the donor agency, other project executing agencies and other project stakeholders, accordingly.
247. The PIU will serve as the Secretariat to the PSC and IPTC, and the NPC will serve as Secretary to the two entities. The NPC will be supported by a Monitoring and Evaluation Specialist and a Technical/Administrative Assistant. The PIU will also be supported by the a designated officer within the Accounts Division of the Ministry of Sustainable Development, with additional support when necessary coopted from staff from other areas of the Ministry such as administration.

Iyanola Project Technical Committee (IPTC)

248. The PSC will be supported by a technical advisory grouping, the Iyanola Project Technical Committee (IPTC) that will meet monthly or as frequently as necessary in the earlier stages of the project, to provide technical expertise to the PIE and other Executing Entities, to support project implementation, assist in oversight of technical elements, and project monitoring and evaluation.
249. The IPTC (Refer to Box 2) will be a multidisciplinary group drawn from technical personnel in the various executing entities and other relevant bodies, and will utilize and recommend appropriate S&T and information management systems in project implementation. The IPTC will appoint members on an 'as needed' basis. As such, in cognizance of the important role of gender relations, community development and cooperatives, the relevant expertise will be appropriately sourced.
250. The composition of both the PSC and IPTC is purposed to engender equitable participation of the various sectors and societal groups in the Iyanola NE Coast development dialogue, thereby facilitating more effective internalization and integration of ecological considerations in planning and development at the sectoral, business and community level. More so, it provides a platform to facilitate knowledge management and, with the option to co-opt other members, to further extend the reach of knowledge sharing.

Table 5: Proposed Members of Saint Lucia's Iyanola Project Technical Committee (IPTC)

1. Ministry of Sustainable Development, Energy, Science and Technology
 - Forestry Officers
 - SDED Technical Officers (Climate Change, Protected Areas, etc.)
 - Biodiversity Officer
2. Ministry of Finance, Economic Affairs and National Development
 - Economist with Ecosystem Valuation Skills
 - Development Planning Officer
3. Ministry of Physical Development
 - o GIS Expert
 - o Physical Planning Officer
 - o
4. Ministry of Agriculture, Food Production, Fisheries Rural Development and Cooperatives
 - o Crop and Livestock Officers
 - o Fisheries Officer
 - o Marketing and Agri-business Officers
5. Ministry of Infrastructure
 - Planning Officer
 - Road Engineer
6. Ministry of Commerce
 - o Business Development Officer
 - o Invest Saint Lucia
7. Saint Lucia National Trust
 - Environmental Officer
8. Community Development - Youth Synergy
9. Other members on an 'as needed' basis

Collaborative arrangements with related projects

251. The project will collaborate with the Saint Lucia Small Grants (GEF- SGP) Programme (SGP) and PPCR projects such as the Saint Lucia Forest Restoration and Rehabilitation Project, both being implemented country wide, and with strong linkages to the issues being addressed in the NE Iyanola region. These will provide opportunities for productive finance and technical support for community level activities in terms of investment in sustainable/climate resilient livelihood practices, while the project will help to mainstream sustainability issues into the operations of these projects in the Iyanola region, and will help them to identify potential beneficiaries.
252. Several meetings have taken place already to strategize a possible sub-focus on the NE Coast as a possible consideration for SGP programming prioritization. The \$27M Saint Lucia Pilot Program for Climate Resilience (PPCR) & DVRP: is being developed as targeted programming for different types of vulnerable groups. Elements of relevance and cooperation to the proposed GEF project include discrete targeted land use planning, enhancement and application of the St. Lucian GIS system, enhancing use of the Geonode system, slope stabilization and watershed management to increase resilience, building bridges and roads in accordance with international best practice and building codes.

SECTION 5:STAKEHOLDER PARTICIPATION

253. A Stakeholder analysis conducted during project design identified the range of individuals, groups, or institutions which have an interest or "stake" in the outcome of the Project or will be potentially affected by it. There are very many stakeholders in Iyanola who will be impacted upon or will impact the project. In addition to these stakeholders who are from the area itself or who create livelihoods in the area, there are a number of public sector agencies and international agencies who also have a stake in Iyanola.
254. Stakeholder mapping also provided knowledge of all the stakeholders in the communities within the project site and who use the natural resources within the site; all those from outside of the site but who earn livelihoods from the natural resources in the site; and the stakeholders in public and private sector agencies, community organisations, and regional and international agencies that are involved, in some way, in the management and scientific research of the natural resources in the site.
255. The Stakeholder Map identifies and ranks all stakeholders who presently have a stake in the North east Coast. This Map also includes key agencies that will be involved in some aspect of the project and/or who have been involved in or will be involved in some aspect of resource management in the project site.
256. Key stakeholders involved in the project including the private sector, civil society organizations, local and indigenous communities, and their respective roles, are identified as follows:

Table 6: Key Stakeholders

Stakeholders	Role
United Nations Environment Programme	GEF Implementing Agency.
Ministry of Sustainable Development, Energy, Science and Technology <ul style="list-style-type: none">• Forestry Department• Sustainable Development and Environment Division• Biodiversity Unit	Lead overall Executing Agency Co- Executing Agency for Component 2 Co- Executing Agency for Component 4
Ministry of Physical Development, Housing and Urban Renewal <ul style="list-style-type: none">• Physical Planning Division	Co-Executing Agency for Component 1

Stakeholders	Role
<ul style="list-style-type: none"> Development Control Authority (DCA) 	
Ministry of Agriculture, Food Production, Fisheries and Rural Development <ul style="list-style-type: none"> Fisheries Department Departments of Agriculture and Extension 	Co-Executing Agency for Components 2 & 3 Co-Executing Agency for Component 4
Ministry of Tourism, Heritage and Creative Industries	Cooperating Agency
Ministry for Social Transformation	Cooperating Agency
Ministry of Infrastructure, Port Services and Transport	Cooperating Agency
Ministry for Commerce, Business Development, Investment and Consumer Affairs	Cooperating Agency
Office of Private Sector Development(OPSR)	Cooperating Agency
St. Lucia National Trust	Partner
Durrell Wildlife Trust	Partner
IICA	Partner
Fauna and Flora International	Partner
Employment initiatives	Partner
Land owners	Private sector
Producer Associations	Private Sector
Tourism Ventures (e.g. ziplining)	Private Sector
Local communities & assoc. groups (eg. Des Barras Sea Turtle Watch Group)	Partners

257. The Project Stakeholder Participation Plan is elaborated in Appendix 13. It identifies by project component, stakeholders, their possible interest in the project, and the strategies that will be necessary to meet their interests. This Plan is supported by another matrix that attempts to disaggregate the stakeholders by project component and Stages in the project cycle. Every attempt has been made to ensure opportunities to maximise social and gender benefits in the Participation Plan. Nevertheless, the stakeholders need to be validated at the time when the planning for each activity is being finalised. In addition, discussions need to be held with all those who have been identified as primary stakeholders in each project component in order to ensure that these stakeholders are informed of proposed activities and contribute to the final design of the activities. A detailed budget is also provided for such discussions and consultations.

258. The Plan demonstrates that :

- i. The stakeholders vary between the project's components.
- ii. There are different stakeholders for different project stages in the project cycle for each component.
- iii. Stakeholders take on different types of involvement (Inform, Consult, Participate, and Control) in different project components and in different stages in the project cycle within each component.
- iv. Stakeholders also shift in type of stake (primary or secondary) between project components and between different stages in the project cycle with each component.
- v. SDED, the Forestry Department and the Biodiversity Unit are Key Stakeholders in all project components; other key stakeholders vary with the project component. These 3 Key stakeholders are also important in the Monitoring and Evaluation stage for each project component.

259. The 4 components that have been developed were reviewed to ascertain the extent to which gender can be incorporated in the activities proposed for each of the concepts. The project will thus generate and input gender dimensions into the elaboration of Component 4 [(3) demonstration pilots to promote sustainable use of BF products and services to derive sustainable livelihoods], and in the development of results frameworks, budgets, implementation plans and work plans. The proposed categories of biodiversity friendly goods, non-timber forest products (NTFPs) for piloting have traditionally been dominated by women. Socio-economic indicators will be developed to measure the impact of improved management of timber resources and ecosystem services, together with increases in income for targeted communities and replication efforts. Restoration efforts also offer gender neutral opportunities by involving women in nursery operations. As part of this effort, disaggregated gendered impacts of increased income generation will be tracked as part of the M & E system. The lessons learned, marketing and innovative successes of the Components 3 will be shared at regularly inter-community venues to en(gender) replication, and will have a positive and sustainable impact on women.
260. It must be noted that for the Iyanola project, gender considerations are not solely a women's issue but rather looks at yielding advantage to whole communities and benefitting both genders.
261. The project will also benefit from the recognized expertise of the Caribbean Environment Programme Regional Coordinating Unit/Secretariat to the Cartagena Convention in matters related to the marine and coastal environment and in working in a multi-lingual environment, as well as its expertise in implementing the Cartagena Convention and particularly its SPAW Protocols. CAR RCU's specialized Regional Activity Centre for the Implementation of the Protocols on Specially Protected Areas and Wildlife is located in Guadeloupe and supported by the Government of France. The project will include this specialized technical RAC in its networking and coordination activities, in any stakeholder and partnership arrangements.

SECTION 6: MONITORING AND EVALUATION PLAN

262. The project will follow UNEP standard monitoring, reporting and evaluation processes and procedures. Substantive and financial project reporting requirements are summarized in Appendix 7, the Costed M & E Plan. Reporting requirements and templates are an integral part of the UNEP legal instrument to be signed by the executing agency and UNEP.
263. The project M&E plan is consistent with the GEF Monitoring and Evaluation policy. The Project Results Framework presented in Appendix 4 includes SMART indicators for each expected outcome as well as mid-term and end-of-project targets. These indicators along with the key deliverables and benchmarks included in Appendix 6 will be the main tools for assessing project implementation progress and whether project results are being achieved. The means of verification and the costs associated with obtaining the information to track the indicators are summarized in Appendix 7. Other M&E related costs are also presented in the Costed M&E Plan and are fully integrated in the overall project budget.
264. The M&E plan will be reviewed and revised as necessary during the project inception workshop to ensure project stakeholders understand their roles and responsibilities vis-à-vis project monitoring and evaluation. Indicators and their means of verification will also be fine-tuned at the inception workshop. Day-to-day project monitoring is the responsibility of the project management team comprising the project implementation unit and FD staff. However, other project partners will have responsibilities to collect specific information to track the indicators. It is the responsibility of the Project Manager/Coordinator to inform UNEP of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely fashion.

265. The project Steering Committee will receive periodic reports on progress and will make recommendations to UNEP concerning the need to revise any aspects of the Results Framework or the M&E plan. Project oversight to ensure that the project meets UNEP and GEF policies and procedures is the responsibility to the Task Manager in UNEP-GEF. The Task Manager will also review the quality of draft project outputs, provide feedback to the project partners, and establish peer review procedures to ensure adequate quality of scientific and technical outputs and publications.
266. Project supervision will take an adaptive management approach. Overall, UNEP supervision of the project is to be carried out by UNEP/DEPI-GEF staff posted in UNEP's Regional Office for North America (UNEP/RONA) in Washington DC. UNEP supervision will be further enhanced by technical staff located in UNEP's Regional Office for Latin America and the Caribbean (UNEP/ROLAC) in Panama City, Panama, and UNEP's Caribbean Environment Programme (UNEP/CEP) in Kingston, Jamaica, and in UNEP's headquarter staff in Nairobi, Kenya.
267. The Task Manager however, will develop a project supervision plan at the inception of the project which will be communicated to the project partners during the inception workshop. The emphasis of the Task Manager supervision will be on outcome monitoring but without neglecting project financial management and implementation monitoring. Progress vis-à-vis delivering the agreed project global environmental benefits will be assessed with the Steering Committee at agreed intervals. Project risks and assumptions will be regularly monitored both by project partners and UNEP. Risk assessment and rating is an integral part of the Project Implementation Review (PIR). The quality of project monitoring and evaluation will also be reviewed and rated as part of the PIR. Key financial parameters will be monitored quarterly to ensure cost-effective use of financial resources.
268. The project will be reviewed or evaluated at mid-term (i.e. 24 months after project start). The purpose of the Mid-Term Review (MTR) or Mid-Term Evaluation (MTE) is to provide an independent assessment of project performance at mid-term, to analyze whether the project is on track, what problems and challenges the project is encountering, and which corrective actions are required so that the project can achieve its intended outcomes by project completion in the most efficient and sustainable way. In addition, it will verify information gathered through the GEF tracking tools. The review will be carried out using a participatory approach whereby parties that may benefit or be affected by the project will be consulted. Such parties were identified during the stakeholder analysis (see section 5 of the project document). The project Steering Committee will participate in the MTR or MTE and develop a management response to the evaluation recommendations along with an implementation plan. It is the responsibility of the UNEP Task Manager to monitor whether the agreed recommendations are being implemented. An MTR is managed by the UNEP Task Manager at DEPI. An MTE is managed by the Evaluation Office of UNEP. The Evaluation Office will determine whether an MTE is required or whether an MTR is sufficient.
269. An independent Terminal Evaluation (TE) will take place at the end of project implementation. The Evaluation Office of UNEP will be responsible for the TE and liaise with the UNEP Task Manager at DEPI throughout the process. The TE will provide an independent assessment of project performance (in terms of relevance, effectiveness and efficiency), and determine the likelihood of impact and sustainability. It will have two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP and executing partners (Government of St. Lucia and the Sustainable Development and Environment Division of the Ministry of Sustainable Development, Energy, Science and Technology in particular). The direct costs of the evaluation will be charged against the project evaluation budget. The TE report will be sent to project stakeholders for comments. Formal comments on the report will be shared by the Evaluation Office in an open and transparent manner. The project performance will be assessed against standard evaluation criteria using a six point rating scheme. The final determination of project ratings will be made by the

Evaluation Office when the report is finalised. The evaluation report will be publically disclosed and will be followed by a recommendation compliance process." An independent terminal evaluation will take place at the end of project implementation. The Evaluation and Oversight Unit (EOU) of UNEP will manage the terminal evaluation process. A review of the quality of the evaluation report will be done by EOU and submitted along with the report to the GEF Evaluation Office not later than 6 months after the completion of the evaluation. The standard UNEP Terms of Reference of the Mid Term Evaluation/Review and Terminal Evaluations will be adjusted to the tailored needs of the project.

270. The GEF tracking tools are attached as Appendix 16. Relevant BD-2, CC-5, LD-2 and SFM Tracking Tool with baselines completed. These include selected CC, LD, SFM impact indicators (with baseline values) to monitor progress of project interventions, developed as preliminary elements to facilitate innovative monitoring and enforcement systems, including recommendations for sampling approach and model engagement with local communities, NGOs, educational institutions (local, national and international). These will be updated at mid-term and at the end of the project and will be made available to the GEF Secretariat along with the project PIR report. As mentioned above the mid-term and terminal evaluation will verify the information of the tracking tool.

271. Project approaches discarded regarding the components of the project:

- Piloting land use planning for the NE Coast is cost effective with scale up potential, a national land use planning effort is not economically feasible at this time.
- Focus on protected areas only would limit the possibility of interventions in privately held areas which feature habitat and species of global biodiversity significance.
- Grassroots options to address head on the staggering unemployment are a win-win economic and ecological strategy for meeting the needs of the St. Lucian people in a manner sensitive to the rich biodiversity of the country. Human capital will drive the success of the innovations in sustainable use of biodiversity.

272. Manifestly, an unclear development planning framework, coupled with poor land management processes continue to undervalue biodiversity and ecosystem services, resulting in the degradation of land, biodiversity, priority forest, and marine areas. Accordingly, many regional and national level efforts have sought to address these issues through project-driven interventions targeting specific types of challenges associated with poor land use planning, poverty reduction and sustainable livelihoods. However, implementation of these interventions have for the most part been dis-jointed with a still under-developed framework for sustainable use of natural resources and the dwindling of livelihood opportunities in inland forest and coastal communities, and more specifically, the NE Coast of Saint Lucia. Evidently, the development of alternative livelihoods, including agroforestry and non-timber forest products, can serve to relieve pressure on forest resources while providing opportunities for generation of income in these remote coastal communities which have been hard hit by the economic downturn and loss of tourism revenues.

APPENDICES

Appendix 1: Budget by project components and UNEP budget lines (sep file)

Appendix 2: Co-financing by source and UNEP budget lines (sep file)

Incremental Cost Analysis

Incremental Cost Reasoning in project development:

1. Project design and elaboration was undertaken in accordance with the GEF Operational Guidelines for the Application of the Incremental Cost Principle²¹. This involved the application of five phases to the process of negotiating incremental costs, and the use of incremental cost analysis to guide result-based management and inform the project cycle. It is expected that these five levels will serve to provide strong incremental reasoning for the project through its implementation:

- Phase (1) - determine the environmental problem, threat, or barrier, and the “**business as-usual**” scenario (essentially, ‘what would happen without the GEF project?’);
- Phase (2) - identify of the **global environmental benefits (GEB)** and fit with GEF strategic programs and priorities linked to the GEF focal area;
- Phase (3) – develop the Project **result framework** and logframe;
- Phase (4) - provide the **incremental reasoning** and GEF’s role; and
- Phase (5) - Clarify the role of **co-financing** resources to ensure a suitable match for the incremental costs of the GEF investment.

Phase 1: Presentation of “Business-as-Usual”²² (or: What would happen without the GEF investment)

Without the GEF intervention the high biodiversity, priority forest, and marine areas of the NE Coast could potentially continue to be degraded and imperiled by development initiatives which fail to take into account local, national and global environment considerations. Current practices in land use planning would thus continue to undervalue biodiversity and ecosystem services in the development planning and management processes. The GEF intervention will build on the existing legal framework to develop or update relevant supporting policies and guidelines which integrate environmental sensitivities, priorities and sustainable management options in forest, coastal and marine ecosystems.

In the absence of the possibility of a national land use plan, a pilot land use plan for an area of critical global significance would constitute an incremental building block to move towards this overarching goal. A GEF intervention, focusing on prevention and informed decision making strengthens sensitive planning, conservation and management measures in lieu of ad hoc development and inaction.

Building on anti-poverty initiatives, GEF support will permit testing of innovative sustainable use of biodiversity resources. Of particular emphasis is the opportunity to integrate biodiversity concerns and sustainable land use options into the forthcoming development scenario for the NE Coast (highway, tourism development).

Phase 2: Global Environmental Benefits and Strategic Fit

6. This project is designed to deliver global environmental benefits along with domestic livelihood support and human development, which are aligned with GEF strategic programs and priorities linked to the GEF focal areas of: Biodiversity, Climate Change, Land Degradation and Sustainable Forest Management (BD, CC, LD, SFM).

²¹ 1 GEF/C.31/12 May 14, 2007

²² The “business as usual” was previously called the “baseline”.

Phase 3: Incremental Reasoning and GEFs' Role

7. The identification of GEF's incremental role in resourcing this project grew from a process started more than 3 years ago when countries first considered their biodiversity conservation priorities for funding from GEF-4.

Phase 4: Results Framework for Project

8. Based on the GEF alternative, project preparation consultations identified and negotiated the vision, objective and expected outcomes. These decisions are enshrined in the results framework (see the logical framework). The results framework illustrates both the GEF increment (i.e. achieving GEBs) and the contributing interventions related to the "business-as-usual" (achieving local and national benefits). The project's overall contribution to achieving the strategic objective and outcomes of the focal areas is demonstrated in the indicators and targets. Outcome indicators show the expected global environmental and national benefits. Information from the "business-as-usual" analysis provided important information for the assumptions and risks for the project, elaborated within the main project document.

Phase 5: Defining the role of co-financing

9. Project co-financing is defined as the non-GEF project resources that are essential for meeting the GEF project objectives, and directly contributes to the outcomes of the future project. Finance for activities that are essential for achieving the GEF objectives are either part of the project or in-country projects as on-going interventions. Co-financing commitments from the contributing projects have been confirmed by the various participating agencies in Appendix 2 and Appendix 15. All activities are considered as incremental as they will achieve GEBs and allow GEF to share the incremental costs of the future implementation of biodiversity conservation with the participating governments and agencies. The outcome-based budget table provided shows the level of sharing of project resources between the GEF and co-financing each project outcome.

10. During project implementation, UNEP will report on the progress towards achieving the targets for co-financing, including any unanticipated sources of co-finance. If benchmarks are not met, corrective measures will be taken in consultation with National Executing Agency and the GEF Secretariat.

Results Framework – Mid Term Targets to be established at Project Inception

Iyanola - Natural Resource Management of the NE Coast Approach					
	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
BD-1 Outcome 1.1: Improved management effectiveness of existing and new protected areas	(i) IUCN Category of protection; (ii) area (ha) under protection; (iii) METT Tracking Tool	Forest reserves (ca 1600ha) with few fragmented PAs of international recognition (terrestrial: 21 ha), with information gaps and minimal management (e.g. status "proposed"): 18 terrestrial and marine protected areas with IUCN category not reported, 5 with IUCN category VI;	(i) Majority of currently undesignated PAs are formalized; (ii) Improved management effectiveness and financial sustainability of existing protected areas encompassed within proposed Iyanola National Park area (5,090 hectares) (iii) METT Scores increased by 20% over baseline scores	Technical and financial reports; international databases on PAs and species they contain METT at mid term and final	Risks: (i) Private absentee land owners may not be cooperative; (ii) a major development (resort, road) is approved within the project area; Assumptions: (i) PA management remains GOSL priority; (ii) designation as Protected Area leverages improved management
BD-2: Outcome 2.1: Increase in sustainably managed landscapes and seascapes that integrate biodiversity conservation.	Extent/Acreage of land and seascape under sustainable environmental management METT Tracking Tool	No adopted Land Use Plan Ecosystem Services not taken into account in developments Minimal income generating alternatives to unsustainable land use practices	Adopted Land Use Plan and enhanced regulatory framework for the NE Coast incorporates biodiversity and ecosystem services valuation; Increase size of landscape by 25-35% (mid-term) or 50% of total acreage under management; Production of at least 3 biodiversity friendly goods and services (with increased income by 10%);	Land Use Plan, management plans, technical reports, sales figures of target community members; Ministry of Agriculture and Ministry of Sustainable Development Reports and Documents METT at mid term and final	Risks: (i) Private absentee land owners may lack interest in sustainable land management approaches; (ii) squatters and sand miners may not be from NE communities; (iii) a major development (resort, road) is approved within the project area; Assumptions: (i) Adequate community buy-in and internal control mechanisms are created; (ii) Improved regulatory

Iyanola - Natural Resource Management of the NE Coast Approach					
	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
			METT Targets achieved.		framework can be enforced where internal control does not apply (e.g. external squatters); Capacity to assess seascapes currently exists.
LD-2: Outcome 2.2 Improved dryland forest management	Increased Management of dryland forest.	No Private managed concessions in NE Coast area	Two private forest concessions established and managed	Concession documents	Risks: (i) ; Assumptions: (i)
LD-2: Outcome 2.4 Increased investments in SFM dryland forest ecosystems .	LD Portfolio Monitoring and Tracking Tool (PMAT)	Degradation of dry forest is caused by slash-and-burn	20% increase in scores relating to the LD Portfolio Monitoring and Tracking Tool (PMAT)	LD Portfolio Monitoring and Tracking Tool (PMAT) at Mid Term and Final	
SFM/REDD 1: Outcome 1.2: Good management practices applied in in existing forests	(i) Conservation of forests (ii) Avoided deforestation and forest degradation SFM Tracking Tool	Five fragmented Forest Reserves plus three Protected Areas (mangroves) totaling 1664 ha and ca 3000 ha of nominally protected forests with lack of active management 250 ha of government owned forest reserve managed	1,157 hectares forest lands restored Additional 200 hectares forest lands under sustainable management	Technical reports SFM Tracking Tool Mid Term and Final	Risks: (i) ; Assumptions: (ii) No major natural disaster (hurricane, wildfire) upsets implementation and forest regeneration; (i) Adequate community buy-in and internal control mechanisms are created; (iii) Improved regulatory framework can be enforced where internal control does not apply (e.g. external squatters)

Iyanola - Natural Resource Management of the NE Coast Approach					
	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
CC-5: Outcome 5.2 Restoration and enhancement of carbon stocks in forests and non forest lands	(i) Conservation and advancement of carbon in forests	Five fragmented Forest Reserves plus three Protected Areas (mangroves) totaling 1664 ha and ca 3000 ha of nominally protected forests with lack of active management, active degradation.	Projected annual tons CO ₂ savings of 23,056. (691689 CO ₂ eq. 10,000 ha avoided degradation - 113948011 CO ₂ eq.) Potential total carbon benefit of 691,689 tons CO ₂ over 30 years.	Technical reports, including carbon accounting	Risks: (i) ; Assumptions: (i) No major natural disaster (hurricane, wildfire) upsets implementation and forest regeneration
Component 1: Enhanced land use planning and regulatory framework (as applied to NE Coast)					
Component 1 Outcomes	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
Outcome C1.1: Integration of ecosystems approach into legal and policy framework	Land Use trends and patterns; extent of sand mining; extent of turtle poaching of Grande Anse and Louvet nesting beaches; area cleared by slash-and-burn for charcoal production and/or short cycle crops	No Land Use Plan; sand mining seriously affects nesting iguanas and marine turtles; extensive loss of marine turtles (specifically <i>Dermochelys coriacea</i>) as a result of slaughters for meat and eggs; significant forest degradation by slash-and-burn for charcoal production and/or short cycle crops; ca 30% of charcoal makers practice clear cutting on abandoned estates	Land Use Plan adopted by Cabinet (end-of-project target); Recommendations for policy and regulatory framework reform adopted; Sand mining and poaching of sea turtles and their eggs at Grand Anse and Louvet stopped; forest clearing for charcoal and agriculture limited to selective cutting by owners/care-takers on their private land (mid-term target);	Land Use maps, project reports, technical reports; Development Project Proposals	Risks: (i) Illegal sand miners and squatters from outside NE project area largely escape internal community control and GOSL monitoring & enforcement mechanisms; Assumptions: (i) Land Use Plan remains GOSL priority; (ii) Adequate community buy-in and internal control mechanisms are created; (iii) Improved regulatory framework can be enforced where internal control does not apply (e.g. external squatters and sand miners); (iv) Au

Iyanola - Natural Resource Management of the NE Coast Approach					
	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
					Picon Charcoal and Agricultural Producers' experience can be adapted to NE coast users; (v) Continued technical assistance from the French Government to collaborate on WBT and iguana conservation.
Component 2: Enhanced sustainable land management and carbon benefits in deciduous seasonal and low montane rainforest zones					
Component 2 Outcomes	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
Outcome C2.1: Improved ecosystems restoration and management	Land Use Zoning developed and taken up.	Land use plan with zonation of intact and/or degraded forests does not exist; Identification and mapping of DFAs in NE Coast conducted under PPG.	Statutory land use zoning plan of DFAs to be restored completed, approved and adopted; national scale map identifying location, distribution, density and road network linkage	Project reports, Technical reports, including carbon accounting	Risks: (i) Assumptions: (i)
Outcome C2.2: Restoration of 1,157 hectares of forest of global BD significance, enhancing carbon stocks	Number of planted trees	No restoration programmes targeting NE Coast.	50,000 seedlings planted over baseline;	Project reports, Technical reports, including carbon accounting	Risks: (i) Assumptions: (i) acceptable survival rates of tree seedlings
Outcome C2.3: Restoration efforts and avoided degradation lead projected annual tons CO ₂ savings 23,056. Potential total carbon benefit of 691,689 tons CO ₂ over 30 years.	Length of restored and stabilized river banks and riparian vegetation strips; Carbon accounting/forecasting;	Land degradation causes erosion and siltation; e.g. Trou Salee River bank seriously affected by ATV tours;	2km of riverbanks restored/stabilized;	GIS maps; Technical reports and international databases	Risks: (i) Potential conflicts of interest with private sector stakeholders; Assumptions: (i) Continued overlap of interest in riparian conservation with

Iyanola - Natural Resource Management of the NE Coast Approach					
	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
					BYS; (ii) no major flooding event interferes with riparian restoration; (iii) buy-in from private land owners can be created;
Component 3: Iyanola Conservation					
Component 3 Outcomes	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
Outcome C3.1 Increased management effectiveness score of 20% for Forest and Marine Reserves in NE Coast.	Area of forest protected by Reserve status or active management on private lands	Five fragmented Forest Reserves plus three Protected Areas (mangroves) totaling 1664 ha and ca 3000 ha of nominally protected forests with lack of active management	20% increase over baseline management effectiveness score in Forest and Marine Reserves	Technical reports	Risks: (i) None foreseen; Assumptions: (i) Regular presence by responsible agencies; (ii) adequate expert input
Outcome C3.2 Population of threatened species (iguana, turtle, birds) maintained or increased.	Species population statistics for selected indicator species (animals and plants); Nesting data of marine turtles, iguanas and birds stable or increasing;	2 terrestrial species rated CR, 2 VU, 3 EN, and 3 not assessed# of nesting marine turtles (only females), size of nesting female turtles; size and number of large male iguanas. Number of bird species, number of individual birds of each species. Technical feasibility study for "Mainland Island" at Marquis 2 prepared; Draft Iguana Species Action Plan;	Populations of at least one rare animal and two rare plant species show increasing trends; Nesting intensity of marine turtles, birds and iguana. Population counts indicate an increase in population size over the average for the past 5 years.	Population assessment reports and international databases and technical reports; Feasibility studies; Publication/presentation record	Risks: (i) Natural disasters and external impacts on migratory species for example, can mask project impact; Assumptions: (i) Continued support by international NGOs with relevant technical expertise; (iii) buy-in from private land owners can be created; Data collection is accurate, and standardized. Capacity exists in country to monitor

Iyanola - Natural Resource Management of the NE Coast Approach					
	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
					population trends; or community or data collectors are willing and able to be trained. Willingness to carry out annual population assessments for a minimum of 3 consecutive years.
Outcome C3.3 Increase capacity & income derived from tourism by 10% in NE Coast	Income generated (sales revenue) by Iyanola-based tourist enterprises; Feasibility studies; tourism-based enterprises in NE Coast; linkages with BD friendly producers at the local level	Curriculum and training programme developed by Media Impact Plc available for roll-out for NE Coast campaign; A number of nature-based tourism products and associations exist, but there is an unknown number. There is also no cohesive structure and weak local linkages exist	Awareness and pride in NE Coast assets increased by 25% across Saint Lucia; 2 costed studies on novel, BD-related tourism products; increased income derived from tourism by 10% in NE Coast; Increased viability of nature-based tourism businesses through implementation of a cohesive operational structure, greater adoption of conservation and sustainability measures, and expansion of markets and local linkages.	Training reports; Feasibility studies; business reports/accounts; Business performance reports; sales data; operational structure; contracts/agreements	Risks: (i) Novel products selected for feasibility studies turn out to be not economical upon detailed analysis; Assumptions: (i) Continued support by international NGOs with relevant social marketing and technical expertise; Existing operators are willing to include NE nature-based products in their offerings; improved data collection measures; accurate record keeping.
Component 4: Enhanced Capacity for the production of biodiversity friendly goods and services in inland forest and coastal communities (National with emphasis on NE Coast)					

Iyanola - Natural Resource Management of the NE Coast Approach					
	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
Component 4 Outcomes	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
Outcome C4.1 Reductions in pressure on biodiversity and forest ecosystem services	Poaching levels of threatened species reduced; Criteria for conservation and sustainable use of biodiversity incorporated in policies, standards, and regulations for production and sale of biodiversity friendly products	Turtle mortalities due largely to poaching around 20% of nesting, deforestation at ~10%; At the local level, there is limited knowledge/awareness of the criteria for sustainable production of BD friendly goods as businesses are mostly informal and production is primarily undertaken at the subsistence level.	Marine turtle poaching levels reduced to < 5% of nesting. Forest loss is 0%; Increased adoption of biodiversity friendly practices in keeping with criteria and indicators for conservation and sustainable use of natural resources	Technical reports; Nesting data from turtle watch teams. Forest loss data; Standards; policies; guidelines; operating procedures; compliance checklists	Risks: (i) Assumptions: (i) Data collection is accurate. Capacity exists locally to monitor the poaching and deforestation levels. Resource loss is reversible; Buy-in to policy recommendations; Compliance mechanisms are supported
Outcome C4.2 Producers adopt best practices for production of BD friendly goods	Number of producers, disaggregated by gender, employing best practices for production of BD friendly goods at one marine reserve; Best practices documented and promulgated among local producers of BF friendly products	Few producers employ best practices; Extension services and other programmes provide information on conservation and sustainability measures, but there is no measure of compliance; No best practice guidelines and certification schemes (Some standards for latanye; lansen; honey)	Number of producers, disaggregated by gender, that adopt best practices in production of biodiversity friendly practices increase to 75%	Technical reports; business reports/accounts; Data based on research on production activities ongoing at the marine reserves; Documented best practices; training curriculum and other relevant materials; compliance evaluations	Risks: (i) Assumptions: (i) Best practices have been identified, tested and approved; Buy-in to policy recommendations; Producers understand the value of conservation and sustainability efforts
Component 1: Enhanced land use planning and regulatory framework (as applied to NE Coast)					
Component I Outputs	Indicator	Baseline	Target	Sources of verification	

Iyanola - Natural Resource Management of the NE Coast Approach					
	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
Output C1.1.1: Ecological considerations integrated into planning policies and regulations for development categories	Policy guidelines for incorporating ecological considerations into Land Use and Development Policy	Existing DCSG document does not cater for ecological considerations; Some Government policies incorporate species and landscape protection considerations; Current land Use Policy does not integrated ecological considerations; No legislation on land use	Revised and approved DCSG document with ecological requirements The Physical Planning Dept. & the DCA evaluates planning applications from a multidimensional perspective, including ecological considerations	Existing and revised DCSG document Technical reports; Government / national policy documents.	Risk of competing land use, private ownership resistance, acceptance of zoning
Output C1.1.2: Land Use Plan for NE Coast/Iyanola, incorporating valuation of ecosystem goods and services	Land Use Plan; electronic inventory of ecosystem goods and services and biodiv in NE Coast	Existence of NE Quadrant plan; No local Land Use Plan exist for NE Coast; no inventory of ecosystem goods & services and biodiv in NE Coast	Formulation of local and integrated land use plan; Land Use Plan adopted by Cabinet (end-of-project target)	Completed land use plan document and strategy map; Technical Reports and documents, databases/ electronic documentation - videography	Existence of NE Quadrant plan, low priority status, financial constraints and acceptance
Output C1.1.3: Enhanced capacity of national and local leaders to uptake ecosystem services values considerations in planning. in decision making	Training opportunities and sensitization meetings/ workshops and seminars Number of trainees and weeks training; conservation techniques employed; tools and techniques for mapping and valuing ecosystem services. Awareness Surveys.	Limited awareness of ecosystem services valuation. Limited qualitative and quantitative capacity and specialized knowledge and expertise;	At least 3 major planning decisions which consider ecosystem services values are documented. A cadre of practitioners with the requisite capacity - trainees, increased capacity and increased levels of integration; At least one exchange with overseas agency;	Technical and training reports; publications/presentations	Risk of low awareness, recognition lack of technical and financial support and assuming priority acceptance by authorities
Develop					
Component 2 Outputs	Indicator	Baseline	Target	Sources of verification	

Iyanola - Natural Resource Management of the NE Coast Approach					
	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
Output C2.1.1: Zoning plan for restoration of degraded forest areas NE Coast	Spatial map showing location, distribution, area and severity	Land use plan with zonation of intact and/or degraded forests does not exist	Statutory land use zoning plan of DFAs to be restored completed, approved and adopted; national scale map identifying location, distribution, density and road network linkage	GIS maps; Technical reports and databases	Risk of competing land use, private ownership resistance; Approval from central govt , acceptance of zoning, sterilization of land in terms of alternative options, private land rights
Output C2.2.1: Restoration of degraded priority forest areas nationwide, enhancing connectivity in a 10,000 ha and a 5,090 ha overall areas), with potential total carbon benefit of 691,689 tons CO ₂ at the end of a 30 year period	Extent of Forest areas and acreages planted	Depletion of stocks of intact forest areas that are un-zoned with no legal status for conservation and protection	Planting/replacement of 250 ha in NE Coast within nationwide frame of 15,090 ha of forest lands integrated into a national land use plan	Project reports; Forestry and other department reports	
Output C2.3.1: Rehabilitation of riparian, ravine, beach and migratory corridors of NE Coast/ Iyanola forest areas (200 ha)	Functional and effective mitigative measures such as buffers; Length of restored and stabilized beach fronts, river banks, and riparian vegetation strips; Area of migratory corridors rehabilitated;	Uncontrolled negative ecosystem impacts from unsustainable physical and economic activity with deleterious effects; Land degradation causes erosion and siltation; significant beach degradation due to sand mining at approximately 50 tonnes per week at Grande Anse, and a lesser extent at Louvet. e.g. Trou Salee River bank seriously affected by ATV tours; poor management	Inclusion in zoning regime proposals and strategy of land use plan for implementation; 2km of riverbanks restored/stabilized; total of 200ha of non-fragmented migratory corridors rehabilitated; Quantity of beach sand loss as a result of mining on Grande Anse and Louvet beaches halted or reduced by 70 - 90% of baseline.	Technical reports and databases	

Iyanola - Natural Resource Management of the NE Coast Approach					
	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
		on private lands between Forest Reserves creating fragmented landscape;			
Output C2.3.2: At least 1 agreement negotiated for non government forest areas NE Coast/Iyanola	Incentive mechanisms and MOUs/Agreements	Limited incentive mechanisms applicable to privately owned lands; No formal agreement with private land owners exist; responsibilities on lands owned by absentee owners not always clear	Model Framework for conservation PPP; At least 1 agreement negotiated for non government forest areas NE Coast/Iyanola	Project reports; Signed MoU/Agreement	
Output C2.3.3: Two private concessions established to raise revenue for FD	Signed agreements, revenue generation	No revenue for FD operations at Iyanola sites	Two signed agreements, resulting in revenues to cover at least 20% of recurrent basic management costs of Iyanola sites.	Agreements and records.	
Output C2.3.4: Research and Monitoring programme established for indicator species	Populations of selected indicator species (animals and plants); Research Plan	Knowledge base on rare species limited, but recent assessments of some birds and plants exist; Several additional candidate indicator species have been identified; IUCN assessment: 2 terrestrial species rated CR, 2 VU, 3 EN, and 3 not assessed .	Increased IUCN assessments; Quantity of beach sand loss as a result of mining on Grande Anse and Louvet beaches halted or reduced by 70 - 90% of baseline. Assessment of species and ecosystem responses to human activities including CC; Populations of at least one rare animal and two rare plant species show increasing trends	Project Reports, Technical reports, international and national databases and statistics; publications and records	
Component 3: Iyanola Conservation					
Component 3 Outputs	Indicator	Baseline	Target	Sources of verification	

Iyanola - Natural Resource Management of the NE Coast Approach					
	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
Output C3.1.1: Enhanced management effectiveness of 4 key NE Dry Forest Reserves (200 ha)	Areas of degraded and of reforested land	Forest reserves (200 ha) consist of natural dry forest and exotic plantations; incursions into Forest Reserves are rare, but management levels are low.	Regular and proactive management in at least 4 key NE Dry Forest Reserves, totaling 200 ha	Technical reports, reports to relevant Conventions, publications and presentations	
Output C3.1.2: Boundaries set for Grande Anse and Louvet Marine Reserves	Map boundary parameters - upper limits and buffer zones	Marine reserve designated under SPPA; No delineation of marine reserves for the two areas exist; General outer limits described in relation to the extent of beachfront and fringing forest, and mangroves	Defined boundaries spatially represented in map format - Marine and terrestrial boundaries set and include demarcation around freshwater, swamps, forested sites	Technical reports from Fisheries Department, Survey Dept; Maps	Risk of development policy conflicts and assumption that policymakers will accede
Output C3.2.1.: Management and sustainable financing plan established for Grand Anse Marine Reserve	Populations of selected indicator species (animals and plants)	2 terrestrial species rated CR, 2 VU, 3 EN, and 3 not assessed by IUCN; indicator species, marine turtles / <i>Dermochelys coriacea</i> CR and <i>Chelonia mydas</i> , <i>Eretmochelys imbricata</i> , EN; Grand Anse Beach and Mangrove is designated Marine Reserve (WDPA ID 31421) but IUCN category not defined; Several IAS and control strategies identified for NE Coast; A Number of sustainable management projects ongoing.	Management and sustainable financing plan; Increased IUCN assessments of species and protected areas; Populations of at least one rare animal and two rare plant species show increasing trends; IAS contained or show decreasing trend	Technical and financial reports, reports to relevant Conventions, international and national databases and statistics, publications and presentations; Reports on biodiversity loss and commercial activities in marine reserves	
Output C3.2.2:	Engagement and inputs	Stakeholder Participation	Designate mangroves as	Fisheries` Dept and LU	

Iyanola - Natural Resource Management of the NE Coast Approach					
	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
Community based management plan for Louvet Mangroves	from local council and local groups; Size and distribution of mangrove species; Populations of selected indicator species (animals and plants)	Plan; No management Plan; Spatial map of mangrove, and list of vulnerable plant and animal species; list of community extractive and non-extractive activities	part MRM Area of LU zoning plan; Management plan produced through broad-based community consultation, formally endorsed by community representatives, and being implemented. GPS markers established for all outer boundaries, (land and offshore), and key ecosystems such as mangroves, river beds, wetlands demarcated and assessed, with clearly defined harvest control mechanisms.	Zoning Plan; Management Plan document, endorsement signature; GPS markers	
Output C3.3.1: Develop business plan to promote new tourism and other income generating activities and enhance existing ones	Business plan, tourism-based income; new nature-based business enterprises	No business plan exists; Most initiatives at the community level are fragmented and lack proper management/operational structures, including guidelines for sustainable resource use two potential opportunities (mainland island and <i>in situ</i> iguana breeding) have been identified by stakeholder consultation; technical feasibility or draft action plans were prepared	Business plan developed and adopted by stakeholders; at least 1 novel revenue-generating enterprise piloted; 10% increase in tourism-related income in NE Coast; Revenue from nature based tourism activities at the community level increased through implementation of a structured and sustainable business approach	Business Performance Reports; Sales Data; Business Plan; Feasibility study on cost-recovery for maintenance of "mainland Island" in Marquis 2; Training reports; Press releases on special events	
Component 4: Enhanced Capacity for the production of biodiversity friendly goods and services in inland forest and coastal communities (National with					

Iyanola - Natural Resource Management of the NE Coast Approach					
	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
emphasis on NE Coast)					
Component 4 Outputs	Indicator	Baseline	Target	Sources of verification	
Output C4.1.1: Market, knowledge and capacity barriers for the community level production of biodiversity friendly goods and services removed	Access to markets with gender equitable opportunities; mechanisms for sharing of information at community level; training programmes; trends in sustainable livelihoods; trading agreements; production and sale of products from three categories of BD friendly businesses	Insufficient data available to inform current availability of resources, level of production, market access, or revenue derived from biodiversity friendly goods and services; absence of an institutionalised and regulated by national systems framework for production of BD friendly goods and services; Government ministries, agencies, NGOs provide support for development and implementation of BD friendly businesses but the support is not holistic; Selected categories for pilots have been identified based on available resources and current activities.	Increased viability of enterprises for the production of biodiversity friendly goods and services facilitated through increased market access, research and training initiatives and piloting of national management system; Pilot management plans and promotional strategies for 3 BD friendly goods and services; Structured/ coordinated approach to providing support at the national level for the production and sale of BD friendly products for the enhancement of sustainable livelihoods; Community Replication Framework established to support the upscaling in production B D Friendly businesses	Market data; Business Performance Reports; Training Materials; Operational structure; Government instrument formalising system; Buyer-Supplier trading agreements; contracts; Business Performance Reports	
Output C4.2.1: Assessment of marketing potential for BD friendly goods and services	Market information	The business component of the production of local biodiversity friendly products is not well developed as most products are mainly used	Market information for application of a more strategic approach to production and trade of biodiversity friendly goods and services	Project Reports; Market data;	

Iyanola - Natural Resource Management of the NE Coast Approach					
	Indicator	Baseline	Target	Sources of verification	Risks and Assumptions
		for subsistence or sold locally and there is little evidence of record keeping.	researched		
Output C4.2.2: Guidelines for 3 BD friendly goods and services produced	Standards, codes of practice and operational procedures for production of BD friendly goods and services	There is limited awareness of measures that inform the use of natural resources for sustainable livelihoods at the community level; No best practice guidelines and certification schemes (Some standards for latanye; lansen; honey)	Pilot guidelines for the production of 3 biodiversity friendly goods and services	Standard operating procedures; Policies, guidelines for the production of BD friendly products	

Key Deliverables and Benchmarks

Component	Activities	Deliverables	Benchmarks
Component 1: Enhanced land use planning and regulatory framework (as applied to NE Coast)			
OUTCOME C1.1: Integration of ecosystems approach into legal and policy framework			
Output C1.1.1: Ecological considerations integrated into planning policies and regulations for development categories	Activity 1.1.1.1: Review of the National Planning and Development Policies	Prepare TORs for policy review and conduct review.	Measures for enhancing land use planning policies
	Activity 1.1.1.2: Identification and assessment of viability of innovative economic and fiscal instruments	Prepare TORs in conjunction with Activity 1.1.1.1 and conduct assessment on innovative economic and fiscal instruments and other options for effective management of non-government lands and promoting business compliance with BD principles and guidelines.	Recommendations on innovative economic and fiscal instruments and other options for effective management of non-government lands and promoting business compliance with BD principles and guidelines
	Activity 1.1.1.3: Develop Concept Paper	Prepare TORs in conjunction with Activity 1.1.1.1 and 1.1.1.2, and conduct community consultations for compilation of outputs of same into a Concept/Cabinet Paper.	Concept/Cabinet Paper proposing measures for requisite policy reform
Output C1.1.2: Land Use Plan for NE Coast/Iyanola, incorporating	Activity 1.1.2.1: Collate and update selected species and ecosystems baseline	Prepare TORs for resource inventorying and carry out consultations for resource assessment. Electronic database developed. Information added.	Electronic inventory of selected species and ecosystems, and ecosystem goods and services in NE

Component	Activities	Deliverables	Benchmarks
valuation of ecosystem goods and services			Coast established/updated.
Output C1.1.3: Enhanced capacity of national and local leaders to uptake ecosystem services values considerations in planning in decision making	Activity 1.1.2.2: Conduct valuation of selected species and ecosystems	Prepare TORs and conduct consultations and ecosystem valuation studies for selected ecosystems and species.	Ecosystem valuation report for selected species and ecosystems in NE Iyanola region.
	Activity 1.1.2.3: Development of Land Use Plan	Prepare TORs and develop integrated Land use Plan for NE Iyanola region.	Integrated land use plan for NE Coast Iyanola region.
	Activity 1.1.3.1 Develop case studies	Prepare TORs and compile case studies demonstrating socio-economic value of sustainable use of select BD friendly goods and services of importance to NE Iyanola region.	Case Studies using ecosystem valuation to demonstrate socio-economic importance of critical BD friendly goods and services in NE coast.
	Activity 1.1.3.2: Develop and implement a national Public Awareness and Sensitization Strategy	Prepare TORs and develop National public awareness and sensitization (PAS) Strategy to promote the importance of the NE Coast Iyanola region.	PAS strategy completed and implementation underway
	Activity 1.1.3.3: Initiate and cultivate national, regional and international collaboration and partnerships	Establish a framework and mechanisms for collaboration and partnership building on existing and potential networks.	Qualitative and quantitative capacity and specialized knowledge and expertise;
	Activity 1.1.3.4: Develop and/or adapt and implement training plan inclusive of training	Prepare TORs and develop Training Plan and materials. Training delivered to key national and local leaders ; CBD Biotrade Criteria and	Training Plan completed and implementation underway.

Component	Activities	Deliverables	Benchmarks
	material and resources	Principles learn more: http://www.biotrade.org/aboutPRINC.asp	
Component 2: Enhanced sustainable land management and carbon benefits in deciduous seasonal and low montane rainforest zones			
OUTCOME C2.1: Improved ecosystems restoration and management			
Output C2.1.1: Zoning plan for restoration of degraded forest areas NE Coast	<p>Activity C2.1.1.1: Spatial Zoning Plan - Spatially represent using appropriate tools the location and distribution of DFAs; zone and quantify special management areas (e.g. areas to be restored);</p> <p>Activity C2.1.1.2: Develop an integrated sustainable forest management (ISFM) plan for NE Iyanola Region - restoration/ rehabilitation/ stabilisation based on Spatial Zoning Plan developed under Activity C2.1.1.1</p>	<p>Prepare TORs and complete, approve and adopt land use Zoning Plan for DFAs in NE Iyanola region;</p> <p>Prepare TORs and develop an integrated ecosystem approach management plan for sustainable resource management for the NE Iyanola region</p>	<p>Statutory land use zoning plan of DFAs to be restored; national scale map identifying location, distribution, density and road network linkage</p> <p>Consultations and ISFM plan drafted with input from all stakeholders</p>
Outcome C2.2: Restoration of 1,157 hectares of forest of global BD significance, enhancing carbon stocks			
Output C2.2.1: Restoration of degraded priority forest areas nationwide	Activity C2.2.1.1: Develop and commence implementation of Participatory based Site Specific Management Plans restoring/enhancing forests and lands with	Conduct consultations and develop specific site/area management plans for forest and land component	Consultations and critical site/area management plans

Component	Activities	Deliverables	Benchmarks
	appropriate plant species		
	Activity C2.2.1.2: Establish community based flying nursery facilities	Identify sites/areas for community nurseries; assist in establishment of facilities	Facilities for forest restoration – tree planting in place
	Activity C2.2.1.3: Production, distribution, planting and maintenance of at least 50,000 seedlings	Carry out assessments and establish pilot planting programme for re-establishment and restoration of critical forests and degraded lands in the NE Iyanola region	Total of 200ha of forest restored to rehabilitate fragmented migratory corridors
Outcome C2.3: Restoration efforts and avoided degradation lead projected annual tons CO ₂ savings 23,056. Potential total carbon benefit of 691,689 tons CO ₂ over 30 years.			
Output C2.3.1: Rehabilitation of riparian, ravine, beach and migratory corridors of NE Coast/ Iyanola forest areas (200 ha)	Activity C2.3.1.1: Develop and commence implementation of Participatory based Site Specific Management Plans based on the ISFM Plan developed under activity restoring/stabilising eroded/vulnerable riverbanks and estuaries in conjunction with Activities C 2.2.1.2 and C2.2.1.3	Conduct consultations and develop specific site/area management plans for riverbank, and estuaries component	Consultations and critical site/area management plans; approx.. 2km of riverbanks restored/stabilized;
Output C2.3.2: At least 1 agreement negotiated for non- government (private) forest areas NE	Activity C2.3.2.1: Explore, discuss and recommend partnership agreements, and options for compensation and incentives Activity C2.3.2.2:	Prepare TORs, conduct consultations to explore and recommend fit-to-purpose, options for compensation and incentives for conservation on private lands. Prepare TORs in conjunction with	Model Framework for conservation PPP At least 1

Component	Activities	Deliverables	Benchmarks
Coast/Iyanola	Negotiate at least 1 private public partnerships for restoration efforts on private lands	C2.3.2.1 and negotiate agreement for forest restoration on private lands.	agreement negotiated for forest restoration in non- government (private) forest areas NE Coast/Iyanola
Output C2.3.3: Two private concessions established to raise revenue for SFM	Activity C2.3.3.1: Identify opportunities/mechanisms for financing options for SFM including REDD Plus Activity C2.3.3.2: Identify, define and negotiate up to 2 pilot concessions for PPP with existing and potential business enterprises and communities	Prepare TORs, conduct consultations to identify opportunities/mechanisms for financing options for SFM. Prepare TORs, conduct consultations to identify, define and negotiate up to 2 pilot concessions for PPP with existing and potential business enterprises and communities.	Model Framework for Sustainable Financing Up to 2 pilot concessions for PPP identified, defined and/or negotiated with existing and potential business enterprises and communities.
Output C2.3.4: Research and Monitoring programme established for indicator species	Activity C2.3.4.1: Design and implement a comprehensive Pressure State response Monitoring Programme (building on existing monitoring programmes)	Develop TORs and conduct, test and adopt standardized research monitoring methods. Support local training initiatives. Monitor selected species. Use information to influence planning and policy development.	Research and Monitoring programme established and information documented and shared with policy makers and planners.
Component 3: Iyanola Conservation			
Outcome C3.1 Increased management effectiveness score of 20% for Forest and Marine Reserves in NE Coast.			
Output C3.1.1:	Activity C3.1.1.1: Rapid	Carry out resource assessment – specific	Resource inventory

Component	Activities	Deliverables	Benchmarks
Enhanced management effectiveness of 4 key NE Dry Forest Reserves (200 ha)	assessment of status of Dry Forest in Forest Reserves and on private lands in Iyanola Region and zoning of critical forest areas in NE Iyanola Region (concomittant activity with Land use Plan - C1)	focus on Dry Forest areas in NE Iyanola Region and confirmed identification and zoning of critical dry forest areas.	completed; Spatial map showing critical dry forest areas.
	Activity C3.1.1.2: Conduct Baseline Assessment for Management Effectiveness of Dry Forest in NE Iyanola Region using appropriate tools such as management effectiveness score card	Prepare TORs and design/adapt and apply tool/instrument to assess management effectiveness for terrestrial ecosystems.	Assessment tool/instrument and baseline assessment for terrestrial ecosystems.
	Activity C3.1.1.3: Develop and commence Implementation of Participatory based Site Specific Management Plans/Guidelines based on the SFM Plan developed in C2.1.1.2 for at least 4 Dry Forest areas in NE Iyanola Region in conjunction with Activities C.2.2.1.1-3; C2.3.2.1 and C2.3.4.1	Conduct consultations and elaborate aspects of the ISFM Plan and site/area management plans – specifically for forest and land, with particular focus on 4 dry forest areas.	Consultations and Participatory based Site Specific Management Plans for 4 dry forest areas.
	Output C3.1.2: Boundaries set for Grande Anse and	Activity C3.1.2.1 Identification and demarcation of	Prepare TORs and identify and map boundary parameters - upper limits and buffer zones, including demarcation
			Preliminary map of Marine and terrestrial

Component	Activities	Deliverables	Benchmarks
Louvet Marine Reserves	boundaries through field assessments, GPS coordinates and utilizing GIS to develop maps of the marine reserves (demarcation will require legal action and possible re-gazetting of the proposed boundaries).	around freshwater, swamps, forested sites, etc.	boundaries for Grand Anse and Louvet Marine Reserves.
	Activity C3.1.2.2 Testing of proposed boundaries against conservation targets (e.g. Aichi Target for 2020) and socio-economic goals and adjusting these boundaries as needed.	Conduct consultations and analysis to test boundary parameters - upper limits and buffer zones.	Completed map of Marine and terrestrial boundaries for Grand Anse and Louvet Marine Reserves.
	Activity C3.1.2.3 Conduct Baseline Assessment for Management Effectiveness using appropriate tools (prelim mgmt score card will include governance, enforcement and research, will speak more specifically to boundary delimitation)	Prepare TORs and design/adapt and apply tool/instrument to assess management effectiveness for marine ecosystems.	Assessment tool/instrument and baseline assessment for marine ecosystems.
Outcome C3.2 Population of threatened species (iguana, turtle, birds) maintained or increased.			
Output C3.2.1.: Management and sustainable	Activity C3.2.1.1: Formulate and commence implementation of a	Prepare TORs, conduct consultations, elaborate specific aspects of the ISFM Plan for Grand Anse Marine Reserves,	Consultations and Participatory based Site Specific

Component	Activities	Deliverables	Benchmarks
financing plan established for Grand Anse Marine Reserves in NE Coast	Participatory based Site Specific Management Plan for Grand Anse Marine Reserve based on the SFM Plan developed in C2.1.1.2 , that will focus on reducing pressures on threatened terrestrial and marine species, incorporating sustainable financing options from Output C2.3.3	and commence implementation.	Management Plan including options for sustainable financing for Grand Anse Marine Reserve.
Output C3.2.2: Community based management plan for Louvet Mangroves	Activity C3.2.2.1: Develop and commence implementation of a Participatory based Site Specific Management Plan based on the SFM Plan developed in C2.1.1.2, that will focus on reducing pressures on threatened terrestrial and marine species in Louvet Mangroves	Prepare TORs, conduct consultations, and develop specific site/area management plan for Louvet Mangrove within the context of the riverbank, and estuaries component, and commence implementation.	Consultations and Participatory based Site Specific Management Plan for Louvet Mangroves.
Outcome C3.3 Increase capacity & income derived from tourism by 10% in NE Coast			
Output C3.3.1: Develop business plan to promote new tourism and other income generating activities and	Activity 3.3.1.1: Conduct situational analysis for nature-based tourism product for the Iyanola region incorporating BD friendly and cultural heritage products and	Finalise TOR and conduct feasibility/business opportunity study. Identify at least one nature-based tourism activity for revenue generation at the community level.	Completed feasibility/business opportunity study with recommendations for implementation of at least one

Component	Activities	Deliverables	Benchmarks
enhance existing ones	<p>services (relate to Activity C4.1.1.1)</p> <p>Activity 3.3.1.2: Conduct gap analysis and feasibility/business opportunity study to inform new product and services initiatives</p> <p>Activity 3.3.1.3: Define nature-based tourism product for the Iyanola region incorporating BD friendly and cultural heritage products and services and develop business plan (relate to Activity C4.1.1.2)</p>	<p>Proposed measures and recommendations used to inform formulation of a Business Plan for implementation of nature-based tourism product, incorporating 3 selected categories of BD goods and services in Component 4 through implementation of a structured and sustainable business approach.</p>	<p>tourism-related revenue generating enterprise at the community level in NE Coast;</p> <p>Business Plan for nature-based tourism product in NE Iyanola developed and at least one revenue generating enterprise piloted; Increase in revenue from nature based tourism activities at the community level.</p>
Component 4: Enhanced capacity for the production of biodiversity friendly goods and services in inland forest and coastal communities (National with emphasis on NE Coast)			
Outcome C4.1 Reductions in pressure on biodiversity and forest ecosystem services			
Output C4.1.1: Market, knowledge and capacity barriers for the community level production of biodiversity friendly goods	Activity C4.1.1.1: Conduct situational analysis and needs assessment to validate the 3 identified categories of BD friendly goods and services - including inventory of resources; (linked to Activity	Consult with local communities to review recommendations from sustainable uses study from PPG phase. Prepare TORs and conduct further research as required for a situational assessment of markets, knowledge and capacity needs; including identification of sites/areas for pilot	Situational assessment and results of needs assessment for production of 3 selected categories of BD friendly goods and services. (completed under
			0 43,236

Component	Activities	Deliverables	Benchmarks
and services removed	C3.3.1.1)	demonstration of 3 select BD friendly goods and services in NE Iyanola region.	PPG)
	Activity C4.1.1.2: Develop management plans and promotional strategies for Piloting of up to three the selected categories of products and services to adopt/adapt and assess best practice based on Activity C4.2.2.1	Use situational assessment and results of needs assessment to develop Management Plans for implementation of sustainable use demonstration pilots of 3 selected categories of BD products and services.	Management Plans and promotional strategies.
	Activity C4.1.1.3: Commence implementation of Pilots for up to three selected categories of products and services to assess best practice	Consult with local communities to identify and implement pilot demonstration sites/areas for the 3 selected categories of BD products and services.	Consultations and 3 demonstration BD friendly ventures piloted.
	Activity C4.1.1.4: Define and formalise the establishment of the framework for a national management system for linking marketing with production management framework through appropriate instruments (e.g. policy, regulation under existing legislation, cabinet appointed committee, training ,	Undertake capacity development; coordinate implementation of a cohesive operational structure, greater adoption of conservation and sustainability measures, and expansion of markets and local linkages.	Qualitative and quantitative capacity and specialized knowledge and expertise to support ventures in BD friendly goods and services.

Component	Activities	Deliverables	Benchmarks
	MIS, advisory services, etc.) to support the conduct of trade in BD friendly products and services (biotrade)		
Outcome C4.2 Producers adopt best practices for production of BD friendly goods			
Output C4.2.1: Assessment of marketing potential for BD friendly goods and services	Activity C4.2.1.1: Conduct market research for selected categories of biodiversity friendly products and services	Review of existing information from PPG phase. Develop TORs and conduct further research as required.	Market information for application of a more strategic approach to production and trade of biodiversity friendly goods and services.
Output C4.2.2: Guidelines for 3 BD friendly goods and services produced	Activity C4.2.2.1: Identify international best practice and develop appropriate guidelines and operational standards for production and packaging at national level of bio-diversity businesses, goods, and services, including recommendations for supporting policy and institutional framework (to support Activity C4.1.1.4)	Documented best practice recommendations in BD management for at least 3 selected categories of BD products and services.	Manuals and protocols and other appropriate documentation tools describing best practice for sustainable use of BD friendly goods and services.
	Activity C4.2.2.2: Identify and compile best practices adapted at the local level for production	Documented local successes of best practice recommendations in BD management for demonstration pilots of 3 selected categories of BD products and	Promotion of adapted documentation of best practice for

Component	Activities	Deliverables	Benchmarks
	(including advisory and supporting services) and sale of BD friendly goods and services and develop manuals and protocols for community replication and upscaling nationally of successes in sustainable use of local biological resources	services.	sustainable use of BD friendly goods and services to support replication.
Project Management			
Outcome: 5.1 Effective Project Management and Coordination in place		Project deliverables identified elsewhere in the logical framework, all UNEP and GEF reporting requirements met.	All project benchmarks identified elsewhere in the logical framework, PIR and annual financial reporting.
Output : Project deliverables produced on time within budget and reporting, monitoring and evaluation requirements met	Project support offices set up, staff hired. Accounting and reporting (M&E) systems developed and implemented.	Monitoring and evaluation, and reporting systems developed and implemented.	Project work plans, progress reports, and financial reports finalised.
	Evaluations (Independent)		

Carbon Assessment Monitoring System

Data gaps and costed steps to implement a carbon assessment monitoring system for sustainable forest restoration and management. The key elements for the carbon assessment monitoring system using CAT-AR are as indicated in the following Table.

Key Element – Carbon Assessment	Description	Monitor and Reporting
1. Baseline –	<p>The baseline is a hypothetical scenario that describes changes over time in carbon stocks and GHG emissions <u>within</u> the project boundary that would occur in the absence of project activities (<i>see IPCC tier 1 baseline</i>)</p>	
General	<ul style="list-style-type: none"> • Number of baseline strata (the tool normally assumes 1 stratum if no more information is provided by user) • Area of the baseline strata – ha • Stratum name (descriptive), activity to be undertaken • Land-use category of stratum (Descriptive)-cropland, grassland • Baseline land-use activity (Descriptive)– cropland, abandoned 	<p>Conduct routine assessment and measurement of the carbon stocks in trees, woody and non-woody vegetation within the project boundary. To be reported at least annually once trees are of DBH >5cm.</p>
Non-Woody Biomass	<p>The tool assumes that non-woody vegetation biomass remains roughly constant over the project lifetime. This is due to the fact that non-woody biomass turns over annually or within a few years; hence, the biomass growth may remain roughly balanced by losses through grazing, decomposition and fire (IPCC-GNGGI).</p> <p><u>Peak biomass</u> (tdm.ha⁻¹)</p> <ul style="list-style-type: none"> • If this parameter is unknown, the tool will guide the user to a list of default values from Table 6.4 of IPCC-GNGGI (“Default biomass stocks present on grassland, after conversion from other land use”). 	

Woody Biomass	<p><u>Root to shoot ratio (tdm/tdm)</u></p> <ul style="list-style-type: none"> If this parameter is unknown, the tool will guide the user to a list of default values from Table 6.1 of IPCC-GNGGI (“Default expansion factors of the ratio of below-ground biomass to above-ground biomass (R) for the major grassland ecosystems of the world”). <p><u>Carbon fraction (ton of carbon/tdm)</u></p> <ul style="list-style-type: none"> The user can enter a site-specific value or choose a default value, set at 0.5 <p><u>Is there pre-existing woody vegetation on the BLSx? yes / no</u></p> <ul style="list-style-type: none"> If this is the case, the user must enter information on this pre-existing woody vegetation <p><u>Data unit for woody vegetation must be specified.</u> The user can enter information in either volume ($\text{m}^3.\text{ha}^{-1}$) or biomass ($\text{tdm}.\text{ha}^{-1}$) units.</p> <p><u>Living stand volume at the project beginning ($\text{m}^3.\text{ha}^{-1}$).</u></p> <ul style="list-style-type: none"> If this parameter is unknown, the tool will guide the user to a list of default values from Table 4.7 <p><u>Living stand volume at the end of the project ($\text{m}^3.\text{ha}^{-1}$).</u></p> <ul style="list-style-type: none"> If this parameter is unknown, the tool will assume the living stand volume at the end of the project is the same as the one at the project beginning. <p><u>Wood density of existing trees ($\text{tdm}.\text{m}^{-3}$)</u></p> <ul style="list-style-type: none"> If this parameter is unknown, the tool will guide the user to a list of default values from Table 4.13 of 	
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	<p>IPCC-GNGGI (“Basic wood density (D) of tropical tree species (oven-dry tonnes (moist m³)”).</p> <p><u>Biomass expansion factor</u> (dimensionless).</p> <ul style="list-style-type: none"> This table includes maximum, mean and low default values for different climatic zones and forest types. <p><u>Living above-ground biomass at the project beginning</u> (tdm.ha⁻¹)</p> <p><u>Living above-ground biomass at the end of the project</u> (tdm.ha⁻¹)</p> <ul style="list-style-type: none"> If this parameter is unknown, the tool will assume the living stand volume at the end of the project is the same as the one at the project beginning. <p><u>Root to shoot ratio</u> (tdm/tdm).</p> <ul style="list-style-type: none"> (“Average below-ground to above-ground biomass ratio (root-shoot ratio, R) in natural regeneration by broad category (tonne dry matter/tonne dry matter) (to be used for R in Equation 3.2.5)”). <p><u>Carbon fraction</u> (ton of carbon/tdm)</p> <ul style="list-style-type: none"> If this parameter is unknown, the tool will guide the user to a list of default values from Table 4.3 IPCC-GNGGI (“Carbon fraction of above-ground forest biomass”) after choosing the corresponding ecological zone and tree part. The list of default values includes a “Not available in this list” option. 	
2. Project Activity	<p>The project activity is the scenario that describes changes over time in carbon stocks and GHG emissions <u>within</u> the project boundary that occur due to the AR project activities.</p>	<p>Measuring the different rates of carbon stock change with each activity undertaken in the area. From land preparation to planting, fertilizing, thinning, etc. To be reported bi-annually if</p>

General Plantation Info	<p><u>How many Stand Models does your project activity have?</u></p> <p><u>What type of growth and yield data do you have?</u></p> <p><u>Area to be planted</u> (ha)</p> <p><u>Name or code used in the project</u> (descriptive)</p> <ul style="list-style-type: none"> It can be a name or a description of the SM <p><u>Number of years to complete planting</u> (number)</p> <ul style="list-style-type: none"> This refers to the total number of years to complete the plantation <p><u>Calendar year of first planting</u> (e.g., 2010)</p> <p><u>Rotation</u> (number of years)</p> <ul style="list-style-type: none"> CAT-AR accepts up to 30 years. <p><u>Mean Annual Increment</u> ($\text{m}^3 \cdot \text{ha}^{-1} \cdot \text{yr}^{-1}$)</p> <ul style="list-style-type: none"> (“Above-ground net volume growth of selected forest plantation species”) and Table 4.12 of IPCC-GNIGG. 	possible.
Woody vegetation	<p><u>Wood density of main species</u> ($\text{tdm} \cdot \text{m}^{-3}$)</p> <p><u>Biomass expansion factor of main species</u> (dimensionless).</p> <ul style="list-style-type: none"> The tool uses BEF₂ mean default values, which, according to IPCC, must be used in connection with growing stock biomass data. <p><u>Root to shoot ratio of main species</u> (tdm/tdm).</p> <ul style="list-style-type: none"> (“Average below-ground to above-ground biomass ratio (root-shoot ratio, R) in natural regeneration by broad category (tonne dry 	

Management Activities	<p>matter/tonne dry matter).</p> <p><u>Carbon fraction of main species</u> (ton of carbon/tdm).</p> <ul style="list-style-type: none"> • (“Carbon fraction of above-ground forest biomass”) after choosing the corresponding ecological zone and tree part. • Site preparation: based on the information requested in this section, CAT-AR estimates emissions that result from the treatment of pre-existing vegetation, such as harvest or burning of pre-existing biomass. <p><u>Treatment of pre-existing woody biomass</u> (descriptive)</p> <ul style="list-style-type: none"> • Left standing: the pre-existing trees and woody biomass are left standing; • Partial harvesting, no burning: 50% is left standing and 50% is harvested; • Total harvesting, no burning: 0% left standing, 100% harvested; • Total harvesting, partial burning: 0% left standing, 100% harvested where 50% of the harvest is burned; • Total harvesting, total burning: 0% left standing, 100% burned when harvested; • Unknown treatment: the tool will assume that 50% will be standing stock and 50% harvested and burned. <p><u>Treatment of pre-existing non-woody biomass</u> (descriptive)</p> <ul style="list-style-type: none"> • Manual cutting, no burning: 0% stock standing, 0% burned; • Partial burning: 0% stock standing, 	
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Fertilization	<p>50% burned;</p> <ul style="list-style-type: none"> • Total burning: 0% stock standing, 100% burned; • Unknown treatment: the tool will assume 0% stock standing, 50% burned. <p><u>Will there be fertilization?</u> (descriptive)</p> <p><u>Number of years with synthetic fertilization</u> (number of years)</p> <p><u>Tons of synthetic Nitrogen applied</u> (tN.ha⁻¹)</p> <p><u>Number of years with organic fertilization</u> (number of years)</p> <p><u>Number of years with organic fertilization</u> (number of years)</p>	
Liming	<p>With this information, CAT-AR will estimate emissions resulting from the application of CaCO₃ and CaMg(CO₃)₂. The data required in this section must be known for each SM</p> <p><u>Will there be liming?</u> (descriptive)</p> <p><u>Number of years with CaCO₃ application</u> (number of years)</p> <p><u>Tons of CaCO₃ applied</u> (tCaCO₃.ha⁻¹)</p> <p><u>Number of years with CaMg(CO₃)₂ application</u> (number of years)</p> <p><u>Tons of CaMg(CO₃)₂ applied</u> (tCaMg(CO₃)₂.ha⁻¹)</p>	
Thinning and harvesting	<p>The information required in this section is used to estimate CO₂ emissions resulting from thinning and harvesting.</p>	

Fossil fuel consumption within the forest stand	<p><u>Will there be thinning?</u> yes / no</p> <p><u>Will there be final harvesting?</u> yes / no</p> <p><u>First thinning:</u> age, in years</p> <p><u>First thinning:</u> volume extracted ($\text{m}^3 \cdot \text{ha}^{-1}$).</p> <p><u>Second thinning:</u> age, in years</p> <p><u>Second thinning:</u> volume extracted ($\text{m}^3 \cdot \text{ha}^{-1}$).</p> <p><u>Third thinning:</u> age, in years</p> <p><u>Third thinning:</u> volume extracted ($\text{m}^3 \cdot \text{ha}^{-1}$).</p> <p><u>Fourth thinning</u> :age, in years</p> <p><u>Fourth thinning:</u> volume extracted ($\text{m}^3 \cdot \text{ha}^{-1}$).</p> <p><u>Final harvest:</u> age, in years.</p> <ul style="list-style-type: none"> • Must be lower than or equal to the length of the rotation. <p><u>Final harvest:</u> volume extracted ($\text{m}^3 \cdot \text{ha}^{-1}$).</p> <p>The data required in this section must be provided for the entire project, not per SM, and will be used to estimate the project emissions. Not all activities consuming fossil fuel must be counted as project emissions: fossil fuel used for transporting project inputs or products are considered leakages.</p> <p><u>Liters of gasoline consumed per m^3 harvested</u> ($\text{l} \cdot \text{m}^{-3}$)</p> <p><u>Liters of diesel consumed per m^3 harvested</u> ($\text{l} \cdot \text{m}^{-3}$).</p>	
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The CAT-AR tool has its own self-generated formulas/equations that compute values based on the input. The calculations for the designed project activities and baselines are in the attached spreadsheet.

In documenting activities for the restoration of Iyanola the CAT-AR tool can assist in capturing pertinent data for carbon stock determination. The tool is able to give a comprehensive analysis of all activities employed in the afforestation/restoration process. Therefore, the use of CAT-AR will support the objectives of the project. There are no insurmountable data gaps that cannot be filled. The main gaps and the recommendation on how they can be filled are described below.

Existing Gap	How accomplished by the project	Outcome with CAT/AR Tool
No existing plantation data was collected from the area	Find out if there are any data on plantation in Iyanola available from Forestry Department.	Use default values along with Literature
Living stand volume data at the end of the project was missing	This data can be obtained either through current yield tables available for the species or from the project over time. Three (3) years would not be a sufficient time period to collect this information as trees will still be in their infancy stage of development. However, through assessment and monitoring efforts growth data can be collected.	Default value used and Literature
Plantation type (monoculture) data was required	We are proposing a mixed planting approach for the project to preserve and conserve biodiversity. However, strategic plantation type can be included with careful planning.	Default values were used

N.B. The aboveground oven-dry-weight of trees can be measured directly by felling them, oven-drying all components and then weighing them. However, it is not realistic to do this for all inventories. Instead, a practical solution is to develop regression equations based on data from felled trees where this is possible. Such functions should use some easily measurable

dimension such as diameter (and sometimes height). As discussed above, the equations presented in this primer are based on a relatively limited data base, especially for dry forest and conifer forest formations, and improvements in biomass estimation can be made with additional tree data.

From the data collected, two key variables (volume and above ground biomass) were calculated. Note for biomass calculations an allometric equation by Brown et al., was used. The equation presented is based on a relatively limited data base, especially for dry forest and improvements in biomass estimation can be made with additional tree data (Brown et al., 1989).

Upon computing the volume and above ground biomass MS Excel descriptive statistics was used to determine the mean and standard deviation values for each sample within the sample plots. This was done for all 18 psp provided by the Forestry Department to ensure a true representation of the sample area.

The monitoring and assessment activities required to use CAT-AR as a tool within the project and an estimate of the level of effort is provided below.

Activity	Duration
Pilot – Planning / training	3-4 days
Field Assessment	
✓ Natural Forest	8 -10 days
✓ Plantation	
✓ Project Area	
Data Collection/Analysis	10-14 days
Consultant	30 days
Administration	Ongoing

The results obtained from the monitoring and assessment activities should be reported in both electronic and hardcopy formats.

Bibliography

Brown et al. 1989, Brown and Iverson 1992, Brown and Lugo 1992, Gillespie et al. 1992. Estimating biomass and biomass change in tropical forests. FAO repository <http://www.fao.org/docrep/W4095E/W4095E00.htm>

Delaney Matthew. 1999. Field Test of Carbon Monitoring Methods in Agroforestry Systems in the Phillipines. In Forestry Projects. Winrock International.

Reyes, Gisela, Brown Sandra, Chapman Jonathan, Lugo Ariel E. 1992. *Wood Density of Tropical Tree Species*. US Department of Agriculture. Forest Science. General Technical Report 80-88.

Based on 2009 Inventory data						Annual estim	
	Project area in hectares	Defores tation rate	Growth rate C tonnes/ha /year	Average C/ha above ground biomass potential increase	Coefficient	Project annual carbon savings by benefit of the project	C ec en
Restore Soufrieres/Quillesse Ranges (low montane to montane rainforest) - Aus funds	620	0	5.08333	152.5	3.66666667	3,152	
Restore Castries Waterworks inc. Sorciere (low montane rainforest)	287	0	5.08333	152.5	3.66666667	1,459	
Restore river buffers NE Coast (deciduous seasonal forests) in/out Estates	250	0	5.08333	152.5	3.66666667	1,271	
Total restoration efforts	1157					5,881	
Enhanced management in four NE Forest Reserves (deciduous seasonal forests)	200	0	2.03333	61	3.66666667	407	
Total potential carbon benefit from restoration						407	
Total potential carbon benefit (tC) as a result of successful restoration, forest carbon stock enhancement and conservation						6,288	