

Integrated Landscape Management for Addressing Land Degradation, Food Security and Climate Resilience Challenges in The Bahamas

Part I: Project Information

GEF ID

10694

Project Type

FSP

Type of Trust Fund

GET

CBIT/NGI

☐ CBIT

☐ NGI

Project Title

Integrated Landscape Management for Addressing Land Degradation, Food Security and Climate Resilience Challenges in The Bahamas

Countries

Bahamas

Agency(ies)

UNEP

Other Executing Partner(s)

Department of Environmental Planning & Protection

Executing Partner Type

Government

GEF Focal Area

Land Degradation

Taxonomy

Agriculture, Forestry, and Other Land Use, Climate Change Mitigation, Climate Change, Focal Areas, Climate Change Adaptation, Climate resilience, Influencing models, Land Degradation, Sustainable Land Management, Integrated and Cross-sectoral approach, Community-Based Natural Resource Management, Income Generating Activities, Sustainable Agriculture, Improved Soil and Water Management Techniques, Ecosystem Approach, Sustainable Livelihoods, Drought Mitigation, Restoration and Rehabilitation of Degraded Lands, Land Degradation Neutrality, Land Cover and Land cover change, Carbon stocks above or below ground, Land Productivity, Transform policy and regulatory environments, Strengthen institutional capacity and decision-making, Demonstrate innovative approaches, Stakeholders, Private Sector, SMEs, Individuals/Entrepreneurs, Beneficiaries, Local Communities, Awareness Raising, Communications, Education, Public Campaigns, Behavior change, Civil Society, Non-Governmental Organization, Community Based Organization, Academia, Type of Engagement, Consultation, Partnership, Information Dissemination, Participation, Gender Equality, Gender Mainstreaming, Women groups, Gender-sensitive indicators, Sex-disaggregated indicators, Gender results areas, Capacity Development, Knowledge Generation and Exchange, Capacity, Knowledge and Research, Knowledge Generation, Knowledge Exchange, Learning

Rio Markers**Climate Change Mitigation**

Climate Change Mitigation 1

Climate Change Adaptation

Climate Change Adaptation 1

Duration

48 In Months

Agency Fee(\$)

506,298.00

Submission Date

10/16/2020

A. Indicative Focal/Non-Focal Area Elements

Programming Directions	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
LD-1-4	GET	4,103,678.00	13,321,000.00
LD-2-5	GET	1,225,774.00	3,979,000.00
Total Project Cost (\$)		5,329,452.00	17,300,000.00

B. Indicative Project description summary

Project Objective

To enhance climate resilient food production across productive agricultural landscapes through sound Integrated Landscape Management and Land Degradation Neutrality approaches in The Bahamas.

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount(\$)	Co-Fin Amount(\$)
Component 1: Strengthening the enabling environment for achievement of land degradation neutrality through improved policy and governance	Technical Assistance	<p>1.1: Three lead agencies with responsibility for land management in the Government of The Bahamas adopt an enhanced ILM decision making framework to achieve LDN in the longer term.</p> <p><i>Indicators: (i) National policy position on land degradation neutrality endorsed by government and stakeholders and reflected in policy pronouncements by the three lead agencies with responsibility for land management; (ii) Inter-sectoral coordination mechanisms on LDN institutionalized.</i></p>	<p>1.1.1: <i>Advisory and support services, including capacity building, to develop and implement a Strategy and Inter-Sectoral Operational Framework to achieve LDN in the Bahamas provided to selected personnel from at least 3 lead national agencies with responsibility for agricultural/rural land management.</i></p> <p>1.1.2: <i>Studies and recommendations conveyed in at least 5 policy papers to upgrade relevant land development policies, regulatory instruments and incentive regimes to encourage investments in the agricultural sector towards LDN conducted and made available to key audiences.</i></p>	GET	862,864.00	4,500,000.00
Component 2: Demonstration of regenerative	Investment	2.1: Effectiveness of SLM and regenerative climate smart	2.1.1: <i>Degraded areas rehabilitated across 10,000 hectares of productive</i>	GET	2,690,105.00	6,935,000.00

agriculture and resilient food production systems, practices and technologies

agriculture practices demonstrated in Abaco, Andros, Cat Island, Eleuthera, Grand Bahama, Long Island and New Providence. Results documented and disseminated to key stakeholders for replication.

Indicator: Increase by 10,000 ha the area of productive landscapes that incorporate climate-resilient SLM and restorative measures based on nature-based solutions that serve as demonstrations to stakeholders.

2.2: Farmers and community producer groups trained and supported to adopt SLM and regenerative climate smart agricultural practices.

Indicators: (i) Increase in adoption of SLM and climate smart measures by farmers and stakeholders within land

landscapes through demonstration and implementation of restorative nature-based solutions for uptake by farmers/stakeholders. Target islands:

- 2500 ha Abaco
- 3500 ha Andros
- 500 ha Cat Island
- 700 ha Eleuthera
- 2100 ha Grand Bahama
- 600 ha Long Island
- 100 ha New Providence

(targets to be finalized at PPG phase)

2.2.1: Suite of at least 10 SLM-LDN, restorative climate-smart agriculture, integrated waste management tools, practices, approaches, technologies and capacity building to support expanded adoption of SLM and regenerative climate-smart agriculture practices across 20,000 ha by at least 1,000 farmers.

*holdings based on field
assessment surveys; (ii)
No. of farmers trained.*

Component 3: Incentivizing uptake and replication of SLM and climate resilient agriculture	Technical Assistance	<p>3.1: Communities contribute to develop, operationalize and, replicate gender sensitive business investment plans and market access mechanisms to support livelihood enhancement.</p> <p><i>Indicator: Increase in number of agricultural-based investments that have access to markets that incorporate SLM and climate-smart approaches [relative increase in farmer income to be determined at PPG phase].</i></p>	<p>3.1.1: <i>Gender-sensitive business investment plans (inclusive of market access mechanisms), business development services and capacity building</i> to facilitate enhanced production of agricultural and other value-added products from restored landscapes and access to markets made available to farmers and community groups.</p> <p>3.1.2: <i>Grant mechanism</i> made available to support eco-social business ventures^[1] accessed by farmers and community groups.</p> <p>^[1] Businesses with ecological focus with social benefits</p>	GET	761,350.00	2,500,000.00
Component 4: Enhancing monitoring and knowledge management systems for land degradation neutrality assessment and agricultural production system resilience	Technical Assistance	<p>4.1: Enhanced evidence-based decision-making to support evaluation toward land degradation neutrality and agricultural production resilience and contribution to GEBs in productive agricultural landscapes.</p>	<p>4.1.1: <i>National Environmental-Agricultural Production Information System</i> developed and accessible through multi-stakeholder operational platforms for use to improve decision making by technical professionals, farmers, practitioners and other stakeholders.</p>	GET	761,350.00	2,500,000.00

assessment and tracking related GEB Indicators

Indicators: (i) Availability and utilization of new data products in national level reporting, research efforts and decision-making; (ii) LDN monitoring system operational; (iii) Functioning LDN reporting to the UNCCD; (iv) Lessons learned on ILM and LDN mainstreamed in land use related decision making and policies.

4.1.2: *Low-cost environmental/agrometeorological systems for land resource degradation and agro-climatic assessment, and accompanying capacity building* designed and pilot-tested in six of the target islands by researchers, students, technical professionals and relevant community stakeholders for monitoring trends in land degradation, food system resilience and GEBs at multiple scales.

4.2.1: *Knowledge Management Strategy and Plan and Communication Plan* for the systematization, publication and dissemination of best practices / lessons learned, and enhancement of awareness using innovative technologies and digital tools to support the scaling up and mainstreaming of interventions by target beneficiaries including policy and technical support professionals, practitioners, other beneficiaries.

4.2.2: *Suite of at least 15 specific public awareness resources, media outputs* developed and made accessible for use by policy and technical

support professionals,
practitioners, other beneficiaries
and wider civil society.

4.2.3: *Series of at least 10
knowledge sharing events for
exchanging lessons learned,
information dissemination and
networking* organized and
facilitated for participation
among policy and technical
support professionals,
practitioners and other
beneficiaries.

4.2.4: *Project monitoring and
evaluation system operating*
providing systematic
information on progress in
meeting project outcome and
output targets.

	Sub Total (\$)	5,075,669.00	16,435,000.00
Project Management Cost (PMC)			
	GET	253,783.00	865,000.00
	Sub Total(\$)	253,783.00	865,000.00
	Total Project Cost(\$)	5,329,452.00	17,300,000.00

C. Indicative sources of Co-financing for the Project by name and by type

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
Recipient Country Government	Min Env & Housing, Dept. of Environmental Planning & Protection (DEPP)	In-kind	Recurrent expenditures	3,550,000.00
Recipient Country Government	Ministry of Agriculture and Marine Resources	In-kind	Recurrent expenditures	1,500,000.00
Recipient Country Government	Forestry Unit	In-kind	Recurrent expenditures	1,000,000.00
Recipient Country Government	Department of Agriculture	In-kind	Recurrent expenditures	3,500,000.00
Recipient Country Government	Department of Physical Planning	In-kind	Recurrent expenditures	1,500,000.00
Recipient Country Government	Department of Gender and Family Affairs	In-kind	Recurrent expenditures	200,000.00
Others	University of The Bahamas	In-kind	Recurrent expenditures	2,500,000.00
Recipient Country Government	Bahamas Agriculture and Marine Science Institute (BAMSI)	In-kind	Recurrent expenditures	500,000.00
Recipient Country Government	Bahamas Agricultural and Industrial Corporation (BAIC)	In-kind	Recurrent expenditures	750,000.00
Others	Bahamas Development Bank	In-kind	Recurrent expenditures	500,000.00
Beneficiaries	Bahamas Agripreneur National Farmer group	In-kind	Recurrent expenditures	20,000.00

Beneficiaries	Bahamas Network for Rural Women Producers	In-kind	Recurrent expenditures	20,000.00
Beneficiaries	Cat Island Farmers Association	In-kind	Recurrent expenditures	20,000.00
Civil Society Organization	Cat Island Conservation Institute	In-kind	Recurrent expenditures	20,000.00
Civil Society Organization	One Eleuthera Foundation	In-kind	Recurrent expenditures	20,000.00
Others	IICA	In-kind	Recurrent expenditures	1,500,000.00
Others	CARDI	In-kind	Recurrent expenditures	50,000.00
Others	Partnership Initiative for Sustainable Land Management (PISLM)	In-kind	Recurrent expenditures	150,000.00
Total Project Cost(\$)				17,300,000.00

Describe how any "Investment Mobilized" was identified

In GEF "Guidelines on Co-financing" https://www.thegef.org/sites/default/files/documents/Cofinancing_Guidelines.pdf only 'Investment Mobilized' is defined. "Investment Mobilized means Co-financing that excludes recurrent expenditures". In defining recurrent expenditure the following definition from <https://meteor.aihw.gov.au/content/index.phtml/itemId/269132> was used "Recurrent expenditure on goods and services in expenditure, which does not result in the creation or acquisition of fixed assets (new or second-hand). It consists mainly of expenditure on wages, salaries and supplements, purchases of goods and services and consumption of fixed capital (depreciation)." All the co-financing is at this stage determined as recurrent expenditure, as it covers salaries and purchases of goods and services. The IA will make an assertive effort to identify additional co-financing during the PPG stage that will result in the 'creation or acquisition of fixed assets'.

D. Indicative Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
UNEP	GET	Bahamas	Land Degradation	LD STAR Allocation	5,329,452	506,298	5,835,750.00
Total GEF Resources(\$)					5,329,452.00	506,298.00	5,835,750.00

E. Project Preparation Grant (PPG)
PPG Required



PPG Amount (\$)				PPG Agency Fee (\$)			
150,000				14,250			
Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount(\$)	Fee(\$)	Total(\$)
UNEP	GET	Bahamas	Land Degradation	LD STAR Allocation	150,000	14,250	164,250.00
Total Project Costs(\$)					150,000.00	14,250.00	164,250.00

Core Indicators

Indicator 3 Area of land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
10000.00	0.00	0.00	0.00

Indicator 3.1 Area of degraded agricultural land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
10,000.00			

Indicator 3.2 Area of Forest and Forest Land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Indicator 3.3 Area of natural grass and shrublands restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Indicator 3.4 Area of wetlands (incl. estuaries, mangroves) restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Indicator 4 Area of landscapes under improved practices (hectares; excluding protected areas)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
10000.00	0.00	0.00	0.00

Indicator 4.1 Area of landscapes under improved management to benefit biodiversity (hectares, qualitative assessment, non-certified)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Indicator 4.2 Area of landscapes that meets national or international third party certification that incorporates biodiversity considerations (hectares)

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Type/Name of Third Party Certification

Indicator 4.3 Area of landscapes under sustainable land management in production systems

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
10,000.00			

Indicator 4.4 Area of High Conservation Value Forest (HCVF) loss avoided

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Documents (Please upload document(s) that justifies the HCVF)

Title	Submitted

Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO ₂ e (direct)	1516775	0	0	0
Expected metric tons of CO ₂ e (indirect)	0	0	0	0

Indicator 6.1 Carbon Sequestered or Emissions Avoided in the AFOLU (Agriculture, Forestry and Other Land Use) sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO ₂ e (direct)	1,516,775			

Expected metric tons of CO ₂ e (indirect)	
Anticipated start year of accounting	2021
Duration of accounting	20

Indicator 6.2 Emissions Avoided Outside AFOLU (Agriculture, Forestry and Other Land Use) Sector

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
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Expected metric tons of CO ₂ e (direct)
Expected metric tons of CO ₂ e (indirect)
Anticipated start year of accounting
Duration of accounting

Indicator 6.3 Energy Saved (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Total Target Benefit	Energy (MJ) (At PIF)	Energy (MJ) (At CEO Endorsement)	Energy (MJ) (Achieved at MTR)	Energy (MJ) (Achieved at TE)
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Target Energy Saved (MJ)

Indicator 6.4 Increase in Installed Renewable Energy Capacity per Technology (Use this sub-indicator in addition to the sub-indicator 6.2 if applicable)

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)
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Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	500			
Male	500			
Total	1000	0	0	0

Part II. Project Justification

1a. Project Description

1a. Project Description

1) Global environmental and/or adaptation problems, root causes and barriers that need to be addressed:

Overview and environmental context: The Commonwealth of The Bahamas is an archipelago of 700 islands and cays surrounded by coral reefs and extensive sand flats extending from latitude 20° 50'N and 27° 30'N and longitude 72° 35'W and 80° 30'W, covers 321,159 km² with a total land area of 15,000 km². The islands are flat and low-lying, the highest point in the entire archipelago, at 63 m above sea level, is found in Cat Island. The islands are composed of coral with a limestone base, covered by a thin layer of soil varying in fertility.

The Bahamas has a sub-tropical climate, moderated by warm waters of the Gulf Stream, with mean daily temperatures ranging between 17°C and 32°C, where May to November are considered the summer months and December to April the winter season. The average rainfall varies from approximately 1,470 mm to 865 mm, with the northern islands receiving more precipitation than the southern islands. Most rainfall occurs between May to June and September to October. The hurricane season, which lasts from June to November can be frequented by tropical storms and hurricanes. Most notably Hurricane Dorian, the strongest hurricane to hit the Bahamas in recorded memory and history, devastated the northern islands of Abaco and Grand Bahama in September 2019.

There are no rivers on any of the islands, but several have large brackish water lakes, and many others are deeply penetrated by tidal creeks, and numerous blue holes. Water that percolates into the ground from rain inputs is confined within Ghyben-Hertzberg freshwater lenses that generally lie within the 1.5 metres of the land surface and overlie brackish and saline waters at depth. The size, shape and orientation of the island, the subsurface geology and the amount of rainfall influence the shape, size and thickness of the freshwater bodies on each island. Compared to the rest of the archipelago, the islands of Andros, Abaco and Grand Bahama in the north have good supplies of freshwater. The groundwater in many of the central and southern islands is brackish, and some islands do not have freshwater.

The Bahamas is a globally recognized biodiversity hotspot. The geographic complexity and isolated nature of The Bahamas have led to the development of extremely high levels of endemism in this hotspot with at least 1,111 species of vascular plants, of which 10.6% are endemic and 5.2% are threatened. The Bahamas has some 406 known species of amphibians, birds, mammals and reptiles according to figures from the World Conservation Monitoring Centre. The coastal and marine resources of The Bahamas include an extensive ecosystem of about 700 islands and more than 2,000 cays, reefs and rocks, extending 1,225 km from north to south. These islands are spread over two shallow oceanic banks, the Little Bahama Bank and the Great Bahama Bank, with depths of

10 m or less, surrounded by extremely deep water of up to 4,000 m. The country's territorial waters span over some 13,880 km² which harbors a diverse aquatic ecosystem including an estimated 1,981 km² of reef area found throughout the archipelago. The Bahamas comprise about 5% of the world's total coral reef systems.

The islands in the northern Bahamas, Andros, Abaco and Grand Bahama, and smaller areas of New Providence are generally covered in self-regenerating Caribbean pine (*Pinus caribaea* var. *bahamensis*), forests, occasionally interspersed with coppices of hardwoods such as mahogany, while the southern islands are of mixed coppice vegetation and scrub lands. The pine forests cover a combined area of 618,500 ha. The coppice forest is dominated by West Indian mahogany (*Swietenia mahagoni*), cedar (*Cedrela odorata*), mastic (*Mastichodendron foetidissimum*) and horseflesh (*Lysiloma sabicu*). Mangrove forests are found throughout the islands that include red (*Rhizophora mangle*), black (*Avicennia germinans*) and white (*Laguncularia racemosa*) mangroves and buttonwood (*Conocarpus erectus*). One of the largest areas of mangrove swamp can be found along the northern coast of Grand Bahama Island.

The coastal ecosystems contained within the shallow bank waters, mangrove wetlands, and tidal creeks are critical spawning and nursery habitat for numerous ecologically and economically important marine species. These include the endangered Nassau grouper (*Epinephelus striatus*), snapper (Family *Lutjanidae*), tarpon (*Megalops atlanticus*), bonefish (*Albula vulpes*), Bahama Cavefish (*Lucifuga spelaeotes*), turtles (Hawksbill (*Eretmochelys imbricata*), Green (*Chelonia mydas*), and Loggerhead (*Caretta caretta*)), several species of shark, including Great hammerhead (*Sphyrna mokarran*), Bull (*Carcharhinus leucas*) and Nurse (*Ginglymostoma cirratum*), Queen conch (*Lobatus gigas*), Caribbean spiny lobster (*Panulirus argus*) and a variety of other marine invertebrates. Also found are the critically endangered Elkhorn coral (*Acropora palmata*), the endangered Boulder Star coral (*Orbicella annularis*).

The forests harbour a variety of faunal biodiversity that includes endemic and endangered species that include Bahama Parrot (*Amazona leucocephala bahamensis*), Bahama oriole (*Icterus northropi*), Bahama nuthatch (*Sitta pusilla insularis*), Bahama swallow (*Tachycineta cyaneoviridis*), Kirtland's warbler (*Setophaga kirtlandii*), West Indian flamingo (*Phoenicopterus ruber*), Bahamian Hutia (*Geocapromys ingrahami*), Bahamian pygmy boa constrictor (*Tropidophis canus*), several species of Rock iguana (*Cyclura* sp.) and the rare atalia hairstreak butterfly (*Eumaeus atala*). Given the biodiversity of global significance and the important ecosystem services that they provide, several of the hotspots identified across the archipelago have been designated key biodiversity areas (KBAs)[2].

Socio-Economic Context: The population of The Bahamas is 373,000 (mid-2016 estimates)[3]. New Providence, on which the capital city Nassau is situated, although among the smallest of the populated islands, has approximately 70% of the population of the entire country. The next most populous island is Grand Bahama, with a population of 51,368 (2010 population census). In terms of gross domestic product per capita, The Bahamas is one of the richest countries in the Americas (following the United States and Canada), with an economy based on tourism and finance. The tourism sector is by far the dominant sector, accounting for approximately 50% of GDP[4] and is built around the favourable climate and outstanding coastal and marine environment that is highly sought after by the sector. Tourism employs more than half the workforce. Agriculture and fisheries make up 5% of the GDP and about 5% employment.

The coastal areas of The Bahamas have been subject to competing increasing development demands, particularly from the tourism sector which has put pressure on the marine and coastal environment. Large tracts of land have been cleared for tourism and urban development projects. On New Providence urbanisation has resulted in a high degree of modification of the natural environment on that island, mainly on the eastern half. Development is now shifting to the west of the island, putting increased pressure on the rich biodiversity of the western and southern ends of New Providence. There has been expansion of illegal squatter settlements in several of the Bahama Islands including New Providence, Grand Bahama, Eleuthera and Abaco, with increased potential for adverse environmental impacts due to improper waste disposals contaminating freshwater well field areas and coastal environments. There is a mining industry in the country mainly for sand and aggregates associated with the construction sector, and there is an aragonite mining investment in Andros.

Quarrying and mining have resulted in varying degrees of land scarification over all the islands, degrading potential for future agriculture and other productive land uses. On Crown lands in many of the islands, there is unregulated (and in some cases illegal) land conversions from forests and agricultural lands to settlement areas.

Agricultural production which covers approximately 1.4% of land area in The Bahamas[5] is generally carried out throughout the archipelago. The majority of the estimated 2,000 farmers are smallholders, concentrated on Andros, Cat Island, Eleuthera and New Providence[6]. Larger-scale commercial production occurs on Andros, Abaco and Grand Bahama. Men and women in the agricultural sector constitute approximately 5.6% and 1.8% of the total workforce respectively. There is some level of economic differentiation between the sexes based on agricultural commodity type; for example, more women tend to be engaged in floriculture, handicraft and cascarilla production. The root causes of gender-based differentiation and associated challenges in the sector is not specifically tracked by the agencies with responsibility for development of the sector however. The Government owns 90% of the 95,000 ha of arable land available for farming in the country which is made available to farmers under lease arrangements[7]. For the most part, the bulk of the food is produced on small farms under semi-commercial/subsistence production systems. The main commodities produced include onions, melons, citrus, okra, and tomatoes. Other crops include corn, cassava, sweet potatoes, beans and pigeon peas. In terms of livestock, the most important are poultry with significant production output and small ruminants, namely goat and sheep. Both are large supermarket chains and wholesale club stores, the majority of which are located on the main islands of New Providence and Grand Bahama. The tourism industry accounts for the other main private sector linkage that services some six million visitor arrivals that has been growing at an average 7% per annum. Agribusiness development potential lies in fact that agri-food and ornamental crop import substitutions represent a potential value of US\$189.6 million, or 28% of total agri-food products and ornamentals imports of US\$678 million[8]. About 90% of The Bahamas' food supply is imported[9]. The Government of The Bahamas has made investments in the agricultural sector in an attempt to diversify the economy that is heavily reliant on the tourism sector and increase livelihood opportunities for a large segment of the population that is reliant on agriculture.

Commercial timber extraction within the pine forests on the northern islands of the archipelago up until the mid-1970s eventually resulted in contraction of the resource to small areas of old growth with large areas of immature trees. There are approximately 283,750 ha[10] of pine forests within the national Forestry Estate; the commercial forest industry is now non-existent and all rights to harvest timber falls under the jurisdiction of the State. The forest areas now provide the essential service of sustaining the underground freshwater reserves, the only natural source of freshwater in The Bahamas.

The enhancement of food security in the country is set against the context of rising food import bills and increasing incidences of chronic non-communicable diseases. The high dependence on food imports negatively impacts agricultural production, perpetuates underemployment in rural communities leading to increasing rural-urban migration. The growing reliance on imported processed foods has been linked to deterioration in the quality of diets consumed in The Bahamas. In this regard, the Government developed a Food and Nutrition Security Policy and Action Plan (FNSP) 2017-2020 in collaboration with the FAO, to guide efforts to increase the productivity and self-sufficiency of the country's agricultural production systems.[11] [12].

The Bahamas has been severely impacted by the COVID-19 pandemic, due to travel restrictions and the consequent abrupt halt in visitor arrivals upon which the tourism sector, the main industry of the country, depends. This circumstance had caused unemployment to rise and GDP to fall by historic levels where it is now estimated that some 50% of country are now unemployed due to closure of the large hotel resorts. The impacts of the pandemic have also brought into focus the vulnerability of food supply chains, particularly in the context where 90% of the food consumed is imported. The islands with larger populations such as New Providence have been hard hit, along with Grand Bahama and Abaco, where the pandemic has compounded the impacts from the passage of Hurricane Dorian in September 2019. However, unlike other countries in the region, The Bahamas has a more robust fiscal and macroeconomic situation, which allows it to develop a strong emergency response and the Government has put in place a series economic stimulus measures to offset the impacts of the crisis[13].

Policy and legal context: The general development strategy of the country is following the *Draft National Development Plan of The Bahamas Vision 2040*.^[14] This policy instrument considers the nexus between environment, agriculture and response to climate change under the strategy area related to Natural Endowments, the country will identify the best use for the natural endowments of The Bahamas so as to maximise the potential for high value added agribusiness and fisheries industries in line with SDG 14 Target 14.7 and SDG 15 Target 15.1. The Plan proposes to undertake ecosystem services valuation studies across The Bahamas on the land and marine resources including fisheries and forestry stock, arable land and type of soil for agriculture along with wetlands, streams, pond and or estuaries, etc. Studies should also include an assessment of the agricultural capacity and valuation of resources. The Plan also calls for a study on the long-term potential of agribusiness in The Bahamas, identifying the products and markets best suited for development. Other relevant policy instruments are the *Agriculture Sectoral Plan for The Bahamas* and the *Agriculture Land Policy*. The *Agriculture Land Policy* seeks to foster long term development and conservation of the national agricultural resources as well as to protect the country's future capacity to produce and under the policy, Crown land may be leased for periods of 21 through 40 years.

There is no single legislation relating to the development and management of land resources in The Bahamas^[15]. Land and resource planning and management in The Bahamas are governed by two principal pieces of legislation. The *Conservation and Protection of the Physical Landscape of The Bahamas Act* (1997) authorizes the Department of Physical Planning within MoE to protect the physical landscape from environmental degradation (e.g. regulate filling of wetlands, drainage basins or ponds; prohibit digging or removing sand from beaches and sand dunes); to regulate excavation, landfill, quarry / mine operations and indiscriminate land clearing and issuance of permits; to manage protected trees; and to levy fines for illegal movement of sand, trees, vegetation and excavation. The *Planning and Subdivision Bill* (2010) authorizes the same department to ensure appropriate and sustainable use of all land; provide for the orderly sub-division of land; protect and conserve the natural and cultural heritage of The Bahamas; and oversee the preparation of land-use plans for each island, the preparation of physical plans, development control and regulation, environmental impact assessments, among other aspects. Other relevant legislative instruments include the *Coast Protection Act* (1968), *Agriculture and Fisheries Act* (1963), *Town Planning Act* (1961), *Private Roads and Subdivisions Acts* (1961 and 1965 for the Out Islands), *The Bahamas National Trust Act* (1959), *Reclamation and Drainage Act* (1916).

Project sites: Seven islands in the Bahamian archipelago have been selected as targets for the project given that the land management practices typify the resultant land degradation challenges the country faces. These are (1) Abaco, (2) Andros, (3) Cat Island, (4) Eleuthera, (5) Long Island, (6) Grand Bahama and (7) New Providence. These islands are home to most of the country's population and harbours significant natural and biological resources the underpins the economy. Further, several of these islands experienced recent intense hurricanes that severely impacted landscapes, worsening land degradation with direct effects on ecosystems and livelihoods, driving the need for intervention. The project proposes to demonstrate the application of integrated landscape management approaches through a strengthened planning process and translated to demonstration of good practice within landscape areas that are subject to degradation, supported by strengthened monitoring and assessment tools for decision making. Climate-smart agricultural systems to be piloted in this project will incorporate climate resilient crops and agroforestry systems will generate multiple benefits that will include maintaining and mitigating further biodiversity loss, enhancing carbon sequestration and soil carbon storage along with moisture retention that will contribute to soil health and productivity. Further, the push to get economic investments back up and running to buffer impacts of the COVID19 pandemic will be assisted by contributions from the project in the context of demonstrating green recovery opportunity and avenues for building back better.

Refer to Annex A for more detail on the project areas. The PPG phase will evaluate the proposed locations in the final selection.

Causes of land degradation:

Agricultural landscape management: The majority of cultivation is practiced on Crown lands that are either under lease from the Government as is the case for the larger, more commercial farms mainly in the northern islands, or under smaller scale subsistence systems, typically employing shifting cultivation/slash-and-burn methods that are not authorized by Government, particularly on Crown lands. The shifting cultivation systems are highly damaging to the natural

environment and impacts native biodiversity and leads to relatively rapid soil fatigue as the nutrients are depleted. Once the nutrients are depleted, the cultivators move to a new clearing. Typically, no crop rotations or agronomic measures are implemented to conserve nutrients, enhance moisture retention and soil faunal health in the already marginal calcareous soils, thereby reducing overall land productivity over time. Due to the relatively poor quality of the soils, agro-chemicals including fertilizers, are required to ensure adequate crop yields but there is a tendency toward excessive and indiscriminate application. Agrochemical pollution has been identified as a great threat to the groundwater resources in The Bahamas and is of critical concern given that potable water supply on the islands depends on vulnerable freshwater lenses that lie relatively close to the surface. On the central and southern Bahamian islands, free-ranging small ruminants such as sheep and goats overgraze landscapes and contribute to degradation. Although there have been studies on the chemical composition of Bahamian soils[16] [17], the rates of land degradation and impacts on agricultural and ecosystem productivity has not been quantified in The Bahamas. It should be noted that surface erosion due to overland runoff in the Bahamian islands is minor given the high porosity of the soil and underlying limestone substrate; most rainfall incident on the land surface effectively infiltrates. However, soil loss can be significant from exposed landscapes due to inundation by major storm surges where retreating flood waters can dislocate topsoil.

Deforestation and land conversion: There is significant deforestation occurring on all of the islands associated with conversion from native forest to other uses including agriculture, mining/quarrying, commercial use and housing. In the coppice forests in the southern islands, shifting cultivation, harvesting for woodcarving and charcoal making have led to a reduction in forest extent and biodiversity. The Forestry Unit (Ministry of the Environment and Housing) estimates that annual forest cover/extent change across the islands ranges between 5 to 10%. On New Providence the average rate of change is estimated to be 10% annually while on Grand Bahama and Abaco the forest cover change is estimated at 5%. Most of the land use conversions are occurring on Crown lands and are substantially unregulated. Land clearing has facilitated access for developers to access property or enable illegal squatting. Many areas are subject to deforestation and habitat alteration due to indiscriminate land filling and dumping. Despite free solid waste disposal on the islands, residential and commercial dumping occurs within all the three forests types; pine, coppice and mangroves. The human activities in deforested areas has led to increase incidence of bush fires with negative impacts to adjacent forest lands. Deforestation has altered critical habitat and disturbed wildlife corridors across these natural forest areas. Unregulated land conversions are the manifestation of the generally inadequate regulatory environment and lack of land use planning, coupled with weak enforcement of existing legal instruments and low agency capacity to address the issue.

Quarrying and mining: There are numerous quarry operations across the islands from which aggregate is extracted for construction purposes. In many cases, mining operations are done without regulation and without measures installed to mitigate degradation. Many abandoned mined-out areas become a public health hazard due to mosquito breeding as they collect water.

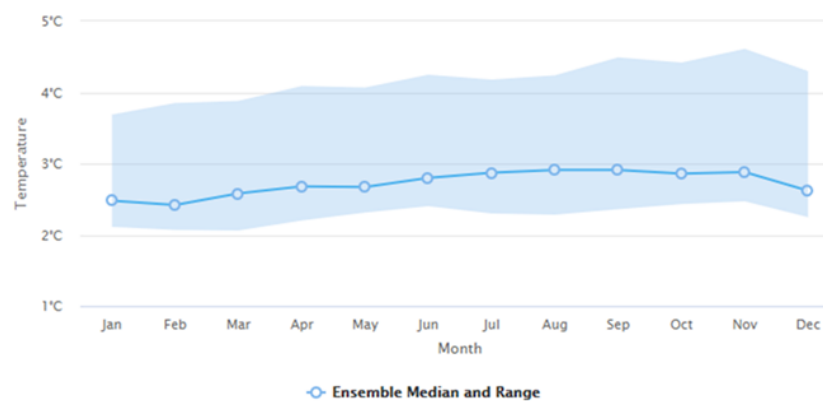
Water resource degradation: The freshwater resources of The Bahamas are inherently vulnerable to overexploitation given the shallowness of the water lenses and as mentioned above, are vulnerable to the impacts of land degradation and pollution from agricultural discharges, urban and commercial discharges, quarrying and other mining activities. There has been evidence of increasing trends toward significant nitrate, phosphate, and bacterial contamination in groundwater reserves as reported in the UNCCD National Action Plan[18]. Mismanagement of water in the agriculture sector is typically a result of poor irrigation scheduling which results in water wastage. Extraction in excess of natural recharge rates has been increasing risk of saline intrusion and salinization of soils under irrigation, contributing to loss of land productivity and land degradation[19] [20] [21].

Climate change influences: According to a 2007 World Bank *Comparative Analysis on the Impact of Sea Level Rise on Developing Countries* [22] The Bahamas was ranked the country most in danger in the Caribbean (out of ten countries[23]) from losses among coastal populations and declines in GDP that might result from storm surge intensification. The country was also listed as one of the top three countries most vulnerable to the climate change impacts of coral bleaching, increasingly powerful tropical hurricanes and rising sea level. The Bahamas Department of Meteorology has observed that rainfall in New Providence has decreased at a rate of 107 mm over 100 years. The rainfall on Long Island and Inagua has been decreasing at a rate of 259 and 427 mm over 100 years, respectively. Since 1905, the mean daily maximum temperature for July has been increasing[24]. Fluctuations in rainfall patterns over the past few

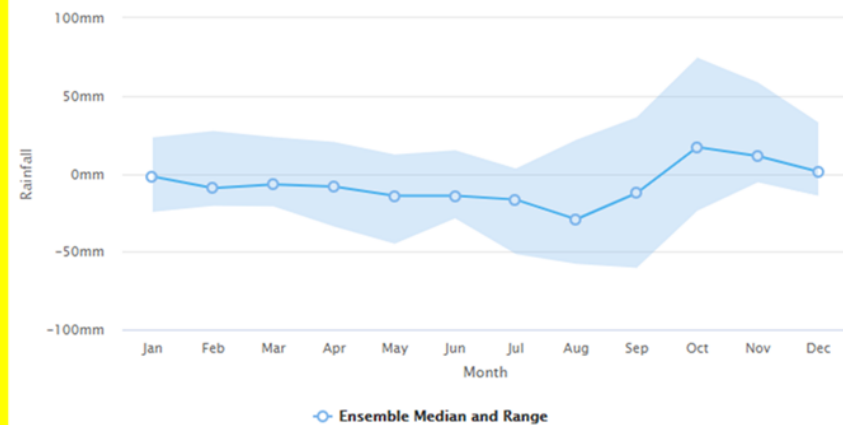
years, particularly in the southern islands have led to serious shortfalls in freshwater supplies. The Bahamas has been impacted by severe hurricanes and prevailing climate change trends are favoring increasing frequency of these extreme events. Most notable of these was Category 5 Hurricane Dorian of September 2019, the most intense tropical cyclone on record to strike the Bahamas, and the worst natural disaster for the country. The estimated damages and losses amounted to US\$3.4 billion (IDB, 2019), equivalent to a quarter of the country's GDP[25], with losses of over US\$60 million to the agriculture and fisheries sub-sectors[26]. The hurricane had devastating impacts on Abaco and Grand Bahama through flooding by seawater, topsoil erosion with retreating flood waters, and sediment deposition in many places. The hurricane destroyed forests and led to large amounts of wood wastes that need to be managed to support the revitalization of the forests, agricultural lands and the devastated landscape. The inundation of agricultural land by seawater and consequent heavy salinization will drastically affect long-term productivity of such lands. Similar impacts were experienced with the passage of Hurricane Joaquin in October 2015 in the southern Bahamas. The rising frequency of occurrence of catastrophic hurricanes such as Dorian will cumulatively result in (i) changes in the coastal ecosystems and degradation of marine resources, (ii) loss of productive agricultural land, resulting in loss of local agricultural production, (iii) reduction in food security and increasing in national import bills and (v) increased vulnerabilities in coastal agricultural communities due to economic and social stress. Sea level rise is threatening the highly vulnerable freshwater lenses through saline intrusion along with increasing the rate of coastal erosion.

Mean temperatures have been observed to have increased by around 0.5°C since 1960, at an average rate of 0.11°C per decade with seasonal variation in the rate of temperature increase, with the most rapid rate between June to August and September to November (0.13 and 0.15°C per decade respectively). It has been found that the rate of warming is more rapid in the northeastern islands compared to the southwestern islands. There have been increases in the frequency of 'hot' days and nights and decreases in 'cold' days and nights during the period 1973-2008. In terms of mean precipitation, there has been no significant or consistent changes observed since 1960. The modeled projections of mean annual temperature suggest an increase by 0.8-2.3°C by the 2060's, and 1.2-2.5°C by the 2090's, and it is forecasted that there will be substantial increases in the frequency of 'hot' days and nights and decreases in the frequency of 'cold' days and nights. Rainfall projections for The Bahamas suggest overall decreases mainly due to decreases in rainfall during the March-May and June-August periods. It should be noted that the proportion of total rainfall that falls in heavy events during the March-August period is projected to decrease[27].

Projected Change in Monthly Temperature for Bahamas, The for 2080-2099



Projected Change in Monthly Precipitation for Bahamas, The for 2080-2099



Source: <https://climateknowledgeportal.worldbank.org/country/bahamas>

Climate-change induced drought events and long-term changes in temperature regimes are equally threatening to agriculture and food production systems and biodiversity due to heightened fire risk across terrestrial landscapes, proliferation of pests and disease, and invasive species.

Barriers: The project considers the long-term solution to address the problems of land degradation to be increased implementation of SLM practices through an integrated landscape management planning approach, with translation to restorative measures that reduces the drivers of land degradation and mitigation of losses of productivity within agricultural and natural ecosystems, while enhancing resilience to climate change. There are four key barriers that need to be addressed in advancing integrated landscape management that balances competing land use demands to address land degradation.

Barrier 1: Ineffective and fragmented policy and planning processes and weak institutional capacities to effect integrated land management: The Bahamas does not have an integrated strategic planning framework for specifically addressing land degradation and associated threat of maintaining long-term productivity of agricultural landscapes through impositions forced by changing climate. The policy and institutional response framework are weak and remains rather fragmented with responsibility shared among multiple agencies. Policy instruments such as the *Conservation and Protection of the Physical Landscape of The Bahamas Act* and the *Planning and Subdivision Bill* among others, generally have not been put into effect to address integrated landscape management, and the legislative, regulatory and institutional response is inadequate. Ability to enforce provisions of relevant legislative instruments is challenging due to human resource capacity, which further compounds the situation. In general, planning and development pertaining to agricultural/rural lands is more responsive to short-term mandates rather than on a longer-term strategic outlook under the framework of sustainable land management. While there is wide recognition that climate change will have significant adverse impacts over productive landscapes in The Bahamas there is no comprehensive plan to address this specific issue and there is no consideration of land degradation neutrality target setting that will set the guidance for how these landscapes will be conserved to maintain the flow of goods and services. While there is growing recognition of the importance of integrating the value of ecosystem services in decision making, particularly pertaining to land management trade-offs to enhance climate resilience and achieve land degradation neutrality, the concept remains outside regulatory mandates as professionals charged with planning and policy development do not have the necessary tools or means to facilitate adoption. At the broader level there are limitations in effectively engaging in multi-sectoral planning and fully integrating private sector and the community in natural resource management planning. Political will remains relatively weak to be a driver for change on this issue, which is in large measure due to limited awareness among the key decision makers of the scope and scale of the issue and not having the policy and supportive technical guidance that is necessary to inform action. This challenge is particularly manifested in respect to conversion of productive agricultural lands into commercial and residential uses, compromising long-term national food security and increasing challenges to maintain the ecological integrity of landscapes and protection of water resources from pollution.

Barrier 2: Lack of demonstrable models to encourage adoption of integrated land management approaches that incorporate sustainable land management and climate-smart agriculture: One of the foremost challenges is limited knowledge on best practices for incorporating sustainable land management in agricultural landscapes in The Bahamas. It is well known that climate change will likely mean degradation in quality of soils through salinization and erosion but there are no protocols, technical resources, methodologies that are designed to implement remediation and restorative mea

asures for conditions in The Bahamas, and optimally those that incorporating nature-based solutions. Closely related is the general lack of technical knowledge on how to transition current agricultural systems to incorporate SLM and be more resilient to climate change. While there is some level of familiarity among technical specialists who are working with farmers and stakeholders in the field, their technical capacity is not adequate. Knowledge of these methods and how to implement them among farmers is virtually non-existent. Furthermore, tools in the form of guidelines and other forms of technical assistance packages are not available. Examples of such include guidelines for land conservation that include the creation and maintenance of buffer zones and green spaces/habitats within agricultural and other commercial landscapes that may assist in controlling the transmission of fertiliser and pesticide residues, facilitation of natural pollination, maintenance of wildlife habitats for threatened species, while safeguarding the hydrological resources. Another critical challenge is the fact that there is currently very limited field infrastructural capacity to replicate and produce planting material necessary to restore degraded landscapes and to support the integration of planting material into farming/grazing systems at the needed scale to have an impact to reduce land degradation. Substantial volumes of organic wastes are generated by households and the commercial sector that could be recycled and used in agricultural production for soil amelioration and land conservation. The destroyed timbers (on Abaco and Grand Bahama) as a result of Hurricane Dorian can also be recycled to organic material. However, there are no demonstrable models available to test applications and guide design of appropriate systems.

Barrier 3: Lack of fiscal incentivization to support the integration of sustainable land management and ecosystems-based climate resilient approaches into agricultural production systems: Another challenge is that there is an absence, or very limited business planning guidance and fiscal incentives to help transition agricultural systems to integrate more SLM practice. The investment climate is overall sub-optimal. This in turn means that interest among farmers and producers to change practices has remained limited and will remain in this condition unless active intervention in this area is made. Related to this issue is the limited access to potential markets for commodities, particularly non-traditional ones produced for the cottage industry that has the co-benefit of land and ecosystems conservation. There have been no market study analyses to assist stakeholders appreciate economic potentials from commodities derived from land conservation systems (e.g. non-traditional crops and non-timber forest products) that address land degradation. Active engagement of private sector is critical in terms of facilitating market access, particularly for local commodities that are produced more sustainably, however this dynamic supportive linkage with private sector interests remains rather weak, and will contribute to challenges for upscaling investments by farmers. Another challenge is absence of land titles that creates disincentives for investors and leads to difficulties accessing credit to make needed investments in SLM within agricultural systems.

Barrier 4: Lack of science-based decision support resources and lack of the knowledge support system to design response measures and means to monitor efficacy of investments in SLM and climate resilient agriculture systems and to adequately assess contributions to local and global environment benefits: The country lacks an integrated information management framework that is focused on assessment of land degradation and tracking of investments in sustainable land management across agricultural and rural landscapes in particular. This compromises the ability to invest in the process of establishing land degradation neutrality that may inform spatial development tradeoffs and decisions on land development. There have been other initiatives in the country that have included environmental data management components that are of relevance, however most of these systems have been developed around project-based directive

s and as a result, long-term application is generally not sustained beyond the project periods as they tend not to be mainstreamed into national accounts. Data collection and analytical work across related sectors remains disjointed and does not feed adequately to inform decision making to inform more sustainable land management approaches. There is limited in-field capability to systematically collect data, particularly for monitoring how climate change is affecting hydrological relations and changes in soil condition that has important implications in the context of degradation of ecosystems and agricultural land productivity potential. Planning for the agricultural sector is hampered by poor and/or inadequate agricultural statistics collection and data available to policy makers is limited and outdated, which compromises the government's ability to make informed policy decisions. Technical professionals do not have capacity in state-of-the-art research tools and methodologies that prevents them from employing them adequately in their work or maintaining them beyond initial investment when introduced under short-term initiatives. Farmers, communities and other beneficiaries are often not engaged in the process of data collection, where there is recognized good potential to mobilize additional data collection support through citizen science approaches. Consequently, there is low buy-in and limited recognition of the importance of data application by stakeholders. The other important element of under this barrier is the general lack of translation of knowledge gained from field data collection into public awareness products to drive behavior change among direct stakeholders and policy makers alike.

2) Baseline scenario and any associated baseline projects

Baseline - Government investments: The Government of The Bahamas through the Ministry of Agriculture and Marine Resources aims to expand food production in an effort to achieve some measure of food security, reduce the growing food import bill and generate foreign exchange in order to enhance incomes and livelihoods of the farming communities. Priorities have been to gain foreign investment to expand the production and export of poultry and pork, agro-processing and production of fruits and vegetables. Management and development of land is the mainly the responsibility of government given that as much as 90% of the 95,000 ha of the arable lands in the country are State lands. Further responsibilities are delegated to agencies mandated to support the sector. There is a fee method for access to commercial agricultural lands in place that has been established by the Department of Agriculture. The fee schedule depends on whether or not land conservation measures have been adopted. Users of commercial lands with conservation measures adopted, pay between 10 and 30% of the fee per acre paid for commercial lands without conservation measures adopted. This fee schedule also depends upon the location of the land, whether in New Providence or the Family Islands, and the length of time the land is being used for agricultural purposes. The Ministry of Agriculture will lend technical and policy advisory support to farmers over the project period and will spend an estimated US\$4 to 6 million related to these services over the duration of the project.

The government has invested in development of the agricultural sector since 2013 with contributions in excess of US\$20 million that included the commissioning of The Bahamas Agriculture and Marine Science Institute (BAMSI). BAMSI is a higher education center, a research center, and a producer of fruit, vegetables and livestock. In addition to providing extension and training services, BAMSI operates tutorial farms, which are involved in commercial activities. BAMSI also provides inputs and purchases output from farmers who fulfil their technology requirements. The agency is directly involved in marketing of commodities. It is anticipated that BAMSI's programme for agribusiness support will contribute to the baseline associated with this project, mainly in the area of capacity building for improved agricultural practice and over the project period it is estimated that the investment will approximate US\$500,000.

To encourage engagement of youth in agriculture the Ministry of Agriculture and Marine Resources has been running a Summer Employment Programme in partnership with the private sector and is open to Bahamian citizens and residents who are at least 15 years old. The Ministry of the Environment and Housing also manages a Youth Environmental Corps, which is providing apprenticeship and training to Bahamian youth in the development of green and blue economies. Approximately 1,200 jobs have been created to work with The Bahamas National Trust (BNT) and The Bahamas Public Parks and Public Beaches Authority and Forestry Unit of the Department of the Environment.

It is estimated that the Government of The Bahamas and allied national agencies will spend between US\$3 and US\$5 million under baseline actions over the expected course of the project in the joint environmental management and agricultural sectors related to climate resilience and improved land management through its lead agencies including the Ministry of Agriculture and Marine Resources, the Department of Environmental Planning and Protection, the Department of Agriculture, the Department of Physical Planning and the University of The Bahamas, The Bahamas Agriculture and Marine Science Institute and The Bahamas Agricultural and Industrial Corporation.

Baseline - donor and partner assistance programmes: The *Inter-American Institute for Cooperation on Agriculture* (IICA) collaborates closely with the Government of The Bahamas in contributing technical and policy guidance to development of the country's agricultural sector. The areas of priority of the government of The Bahamas include climate smart agriculture, integrated agricultural systems, organic waste management, apiculture development, sanitary and phyto-sanitary (SPS) framework development and training, research and industry development for specific industries unique to The Bahamas. Additionally, entrepreneurship, capacity building in governance and training for producer groups, development of youth in agriculture through garden-based programmes and creating a stronger linkage between agriculture and tourism, are areas of priority. In response to the recent hurricane impacts, IICA is providing support to the Ministry of Agriculture under a 'Climate Action Project' that is developing hydroponic systems to enhance resilience in crop production systems. Based on investment over the last 8 years, IICA will contribute on average US\$250,000 (US\$ 1 million over project period) to \$300,000 (US\$ 1.2 million over project period) of technical assistance, project management, direct internal funding and capture of external funds annually. One of IICA's major focuses will be the use of organic matter to remediate degraded soils which is part of the plans to reverse the soil degradation trends in The Bahamas. IICA will also offer technical cooperation related to sustainable agriculture, low-carbon production systems and climate-smart agriculture that restore degraded lands to enhance their productivity. The Institute has extensive experience in extension services, which contribute to effective participation at the community level and to the development of local technical capacities. The institute is currently working with the MAMR to establish an extension services app called the AgriEx App that will be a platform in which the MAMR can provide information through factsheets and other formats and communicate with stakeholders on a 24-hour basis. These programs ensure the sustainability of the actions carried out. IICA offers state-of-the-art technical cooperation in the bioeconomy, biotechnology, innovation and 'agriculture 4.0'[29] that allow the development of restoration schemes for degraded areas that respond to the current demands and needs.

Within the scope of the *Caribbean Agricultural Research and Development Institute* (CARDI)'s Strategic Plan 2018-2022,[30] the agency will collaborate with the Government of The Bahamas where the focus of cooperation is on developing resiliency in intensive crop and livestock systems with emphasis on roots and tubers, namely cassava and sweet potato, onions, corn, coconut, hot peppers, pigeon peas, poultry, livestock and small ruminants. The approach in The Bahamas has been leveraging the agro-tourism linkages and encouraging investment in organic agriculture and value-added product development. The agency had worked with partners on post-Hurricane Dorian response to assess damage to the agriculture sector noting that livestock and vegetable production was hard-hit in the affected islands[31]. CARDI intends to provide support to production of commercially important commodities with long term responses focused on building a resilient sector through the promotion and adoption of climate smart practices and technologies. As part of its agricultural resilience strategy, CARDI has been working with livestock farmers to establish silvo-pastures for sheep and goat production, thereby reducing soil and land degradation resulting from over-grazing. Continuous training of crop farmers is ongoing relative to pesticide use and abuse aimed at mitigating soil and

groundwater contamination. More adapted crop varieties are also being introduced, which have increased tolerance to pests and diseases so less chemicals are used in production. Rainwater harvesting techniques will also be demonstrated decreasing the reliance of sub surface water reservoirs, thereby conserving this natural resource. The estimated value of these support services over the project duration is US\$100,000.

The Government of The Bahamas collaborates with the *Food and Agriculture Organization* within the signed Country Programming Framework (CPF)^[32]. Recent projects in the agricultural sector of relevance includes *Technical Assistance to support the development of an Action Plan for the National Food and Nutrition Security Policy of The Bahamas (2016-2018)* that aimed to provide guidance and support to FNS Policy development and strengthen the capacity of the country to address its FNS issues in a systematic and integrated manner, *Towards a Caribbean Blue Revolution (2016-2018)* that sought to develop small- and medium-scale aquaculture and aquaponics farms in an economically viable, ecologically sustainable and socially acceptable manner. Following post-Hurricane Dorian assessments, the FAO is supporting a new project, *Rebuilding fisheries livelihoods in Abaco and Grand Bahama islands following Hurricane Dorian* and the *Hand in Hand Initiative*, both valued at \$200,000 each. The FAO-supported *Agro-Ecology Livestock Project* is winding down. The Ministry of Agriculture and Marine Resources is also collaborating with the FAO in assessment of the impact of the COVID-19 pandemic in the Agriculture and Fisheries Sector of the region including the Bahamas. The FAO will lend technical and policy support to sustainable agriculture and improved land and water resource use to the Ministry of Agriculture and Marine Resources over the project period.

3) Proposed alternative scenario with a brief description of expected outcomes and components of the project;

Project Overview: The GEF's incremental funding and co-financing resources will be used to overcome the identified barriers to that will prevent the country from advancing a more integrated landscape management agenda that reduces vulnerability from land degradation due to unsustainable land management practices in various economic sectors. The project design is reflective of a causal pathway as captured in the theory of change (Annex E). The project's theory of change is underpinned by the desired intermediate state of attaining reduced vulnerability to land degradation across productive landscapes in the country through (a) the institution of policy, planning and development processes that foster LDN integration, (b) the reduced potential for land degradation over some 10,000 hectares through the installation of SLM, nature-based solutions and climate resilient agriculture systems and (c) the enhancement of evidence-based decision-making on LDN among stakeholders. In this regard the project seeks to deliver intended outcomes under four project components that will contribute to the desired intermediate state and ultimately the desired impacts of improved and sustainable crop yields and healthy, resilient and productive ecosystems toward improved livelihoods and well-being and expanded global environmental benefits.

Investment under **Component 1** will realize the outcome of an enhanced enabling policy environment that will contribute to achieving land degradation neutrality. Investment under **Component 2** will realize two outcomes in terms of (i) expanded demonstration and replication of methods for SLM and regenerative climate smart agricultural practices and (ii) enhanced capacity among stakeholders to adopt SLM and regenerative climate smart agricultural practices. Investment under **Component 3** will contribute to expanded livelihood opportunities through uptake of business investment plans and market access mechanisms. Investment under **Component 4** will contribute to two outcomes, (i) enhanced evidence-based decision-making toward achieving LDN and (ii) increased understanding and awareness to trigger behaviour change and support scaling up of knowledge. These approaches will be tested on seven (7) islands in the Bahamian archipelago; Abaco, Andros, Cat Island, Eleuthera, Grand Bahama, Long Island and New Providence, across four components detailed below. The project will demonstrate opportunity for green recovery and building back better in the wake of the COVID19 pandemic, particularly addressing the needs in islands whose populations have been severely affected such as on Abaco, Grand Bahama and New Providence, also considering the fact that Abaco and Grand Bahama that were still in recovery from Hurricane Dorian.

The project is framed against the backdrop of assumptions that have bearing on the anticipated outcomes to be realized through the proposed causal pathways. A fundamental assumption is that the policy directive to enhance food security, conserve ecosystems and build resilience in its productive sectors, including agriculture, against the effects of climate change, will remain at the top of the policy agenda, thereby maintaining strong political buy-in. Decisive leadership and effective coordination by the Department of Environmental Planning and Protection (DEPP) in accordance with its legal mandate will be critical to successful project implementation. Another key assumption is that there will be wide stakeholder buy-in among beneficiaries and collaborators alike in support to the project to realize the desired outcomes, where it is further assumed that partner collaborations established and/or strengthened sustained under the project, will continue and post-project. Related, is the assumption that the private sector realizes value in building out the value-chain linkages that are possible with the investments in commodities that integrate SLM and climate smart approaches that mitigate degradation of terrestrial ecosystem services. Another critical assumption is that the knowledge and know-how developed and piloted under the project will positively influence behavior change from direct beneficiary to policy-maker level. The project also assumes that should hurricanes traverse The Bahamas during implementation, the impacts will not completely debilitate continuity and that adaptive mechanisms will be effected. Finally, with the ongoing COVID-19 pandemic, a crucial assumption is that the Government of The Bahamas through its frontline health care sector is able to mitigate and manage the impacts and that business continuity is maintained within mandated protocols.

Component 1: Strengthening the enabling environment for achievement of land degradation neutrality through improved policy and governance. This component focuses on the enabling environment' by tackling fragmented policy and planning processes and weak institutional capacities thorough **Outcome 1.1 with the adoption of an enhanced ILM decision making framework to achieve LDN in the longer term by the three lead agencies with responsibility for agricultural and rural land management in the Government of The Bahamas (the Department of Environmental Planning and Protection, the Department of Agriculture and the Department of Physical Planning)**

Building on the current national policy, legislative and regulatory frameworks of relevance to integration of SLM to mitigate land degradation, the project will develop an *Integrated Landscape Management (ILM) Strategy* and associated *Inter-sectoral Operational Framework*. The Strategy and Framework will define the pathway to reduce policy and institutional fragmentation and formulate recommendations for implementation to move the country toward land degradation neutrality, considering in particular the 95,000 hectares that are considered arable lands in the country, but with a focus on methodology adaptation to approximately 20,000 ha. The inter-sectoral ILM Strategy and Framework will be anchored within the provisions of the Environmental Planning and Protection Act (2019) that will enable the Department of Environmental Planning and Protection to provide a coordinating function across the relevant agencies to ensure continuity and scale-up post-project. This strategy to be aligned with the country's National Action Plan under the UNCCD, will incorporate elements on enhancing resilience to climate change and will follow the guiding framework *Land Degradation Neutrality in Small Island Developing States* published by the UNCCD Secretariat and the FAO (2020)[33]. The strategy will incorporate relevant situational assessments, incorporation of appropriate vulnerability indices, agroecological zoning, crop optimization based on land capability and other metrics, to guide integrated management of productive landscapes and sensitive ecosystems, balancing multi-stakeholder interests. The project will contribute toward the definition of national LDN targets consistent with the UNCCD guidance under the target setting programme[34]. Linked to the development of the Strategy and Framework the project will contribute to the *upgrade of relevant land development policies, regulatory instruments* and incentive regimes that will be needed to encourage investment in the agricultural sector as a primary focus. Key among the policy instruments, legislation and regulations to be evaluated and upgraded as needed will include *inter-alia* the Draft National Development Plan of The Bahamas - Vision 2040, Agriculture Sectoral Plan for The Bahamas, Agriculture Land Policy, Agriculture and Fisheries Act, Conservation and Protection of the Physical Landscape of The Bahamas Act and Planning and Subdivision Bill (to be further defined during the PPG Phase). In the process of development of the Strategy, personnel from the i) Department of Environmental Planning and Protection, ii) the Ministry of Environment and Housing, iii) the Ministry of Agriculture and Marine Resources, iv) the Department of Agriculture, v) the Department of Environmental Health Services, vii) the Department of Lands and Surveys, among others, will be solicited and engaged in its preparation and gain familiarity with the methodologies and approaches as a structured capacity building effort. Direct beneficiaries who will also be contributors to shaping the Strategy will gain enhanced

capacities through the participatory process. A series of capacity building activities will be designed and implemented taking various formats ranging from in-person in-class settings, workshops and seminars to online fora, a particularly useful modality given the dispersed geography and efficiency that can be gained via remote learning. The lessons from the landscape restoration activities to be undertaken under Component 2 will be used to inform the policy reform and capacity building under this component.

Component 2: Demonstration of sustainable land management, regenerative climate-smart agriculture production systems, practices and technologies. This component will contribute to reducing land degradation through development and demonstration of best practice land restoration and regenerative climate-smart agricultural models over 10,000 hectares in seven islands of The Bahamas, based on an integrated landscape management approach through **Outcome 2.1: Effectiveness of SLM and regenerative climate smart agriculture practices demonstrated in target islands with the results documented and disseminated to key stakeholders for replication; Outcome 3.2: Farmers and community producer groups trained and supported to adopt SLM and regenerative climate smart agricultural practices.**

The project will support the growing policy attention that Government of The Bahamas is placing on enhancing climate resilience within the agricultural sector given the increasing occurrence of extreme events. The pilot climate-smart agricultural systems will incorporate climate resilient crop and agroforestry systems that will enhance ecosystem functioning, carbon sequestration and soil carbon storage. This also comes against the backdrop of the COVID19 pandemic that exposed socio-economic vulnerabilities, amplifying the need to continue to invest in sustainable agriculture in the context of post-pandemic green recovery and resilience building in terms of expanding economic diversification and enhancing food security. To boost the very limited capacity to provide planting material in The Bahamas, a total of 10 nursery production facilities (number and required production capacity to be confirmed during the PPG phase) will be constructed across the target islands that will be dedicated to the propagation of species to be used in land restoration through incorporation of agro-forestry systems and other soil/water conservation measures. These will include tree species such as *Lignum vitae*, Honduras mahogany, Lucayan Red Cedar, Black Ebony and other native species, along with grasses (for soil retention and improved grazing) and fruit trees such as soursop, mango, citrus, breadfruit, to diversify and boost value of agricultural output. The facilities will not only serve as germplasm production centers but also as training centres to demonstrate land conservation methods. They will be operated by the MAMR and the Department of Forestry (modalities to be defined at PPG phase) to further enhance field collaboration to integrate execution of forest and agricultural restoration in an integrated manner with operational and maintenance mechanisms put in place to ensure sustainability post-project that includes community engagement. The facilities will feature vertical agricultural technologies and efficient water collection and irrigation technologies and be designed to be energy-efficient employing wind and photo-voltaic energy and will be designed for hurricane resilience. To reduce reliance on fertilizer inputs and boost capacity to generate organic soil conditioners and ameliorants that are highly needed given the fragile soils, the project will develop 2 pilot composting facilities (number to be confirmed during the PPG phase) on Grand Bahama and Abaco to convert existing massive stockpiles of organic material from toppled timber in the pine forests as a result of recent Hurricane Dorian impact^[35] and also to convert organic wastes from household and commercial waste streams. A third pilot composting facility will be installed on New Providence to process household and commercial green waste. The composted material will improve quality of degraded agricultural and forestry soils, enhance soil biodiversity and nutrient cycling, water retention and carbon storage. These facilities help divert organic wastes which constitutes 46% of the waste stream^[36] from entering landfills and dumpsites. Design and operation of the facilities will be informed by feasibility assessments. The project will support direct on-ground restorative investment across 10,000 hectares on degraded landscapes. Some 17 landscape acres that are under active utilization for agricultural production (including grazing) and other uses that are compromised by various forms of degradation have been tentatively identified for restoration. These are listed in the table below:

Island	Areas targeted for restorative measures	Area (ha)
Abaco	1. Treasure Key 2. Marsh Harbour 3. Sandy Point and Crossing Rock	2,500
Andros	4. North Andros – Mastic Point settlement, Nicholls Town 5. Fresh Creek, Stafford Creek, Standiard Creek 6. Draiggs Hill to Mars Bay	3,500
Cat Island	7. Orange Creek & Arthurs Town 8. Port Howe	500
Eleuthera	9. Upper and Lower Bouge & Gregory Town 10. Palmetto Point 11. Rock Sound	700
Grand Bahama	12. High Rock 13. Pelican Point 14. Sweetings Cay and McClean's Town	2,100
Long Island	15. Entire landscape	600
New Providence	16. Bonefish Pond 17. Carmichael Road north – govt subdivision	100

The issues to be addressed include indiscriminate forest clearance and degradation by slash-and-burn practice/shifting cultivation, agrochemical contamination, overgrazing and saline deposition/intrusion. Annex A contains a profile of land degradation issues. The interventions will be oriented in as far as possible around nature-based restorative solutions that stabilize landscapes, restore soil fertility and enhance carbon sequestration, reduce grazing impact, create natural buffers for diversion of pollutant flows away sensitive ecosystems and ground water lenses, and armour eroding areas. Quick-growing planting material derived from natural vegetation stock and conventional seedlings produced in the nursery facilities (described above) will be utilized based on land capability suitability assessments for the areas targeted for restoration. Baseline soil sampling and analyses to determine the degree of soil degradation in the targeted areas will be carried out, and sampling will be repeated after interventions to measure effectiveness of the actions (data collected will feed to the information system in Component 3). The project will target lands for interventions where clear ownership title exists or where access to land is under clear entitlement to the land user(s) to as to avoid challenges with respect to continuity post-project. In this regard, selection of the actual locations will be further evaluated at PPG phase that will inform the design of the remedial approaches. These approaches will consider the integrated

landscape management approach where the outcomes of interventions are to optimize multiple benefits to users and stakeholders. Mechanisms to facilitate contribution to enhancement of planning processes in Component 1 and knowledge management in Component 3 will be considered in project design. In support of the land restorative actions the project will contribute to development and or adaptation of a suite of tools and methodologies for use by professionals and practitioners based on best practice derived from local experience in The Bahamas and from similar environments in the region and at the global level. Important resources that will be drawn on in this effort will include the global SLM database hosted by World Overview of Conservation Approaches and Technologies (WOCAT)[37]. The project anticipates a tailored suite at least 10 products (to be defined during PPG phase) for The Bahamas that will include technical guidelines, manuals, and various tools made available in a variety of formats on relevant topics to the project including, but not limited to land conservation and rehabilitation, climate-smart agriculture systems, drainage and irrigation, pollution control, integrated pest management and composting. The project will take up approaches and relevant lessons from the regional GEF CSIDS-SOILCARE Project: *Caribbean Small Island Developing States (SIDS) multicountry soil management initiative for Integrated Landscape Restoration and climate-resilient food systems*. Professionals from the Ministry of Agriculture, BAMSI, BAIC, Department of Forestry, IICA and CARDI who will deliver extension and advisory services will participate in training programmes to build their capacity for service delivery across all technical areas of relevance to the project. The farmers and practitioners targeted under the project will be integrated into the capacity building programme; a key focus will be on capacity development of youth and women in the food production technology sector where it is anticipated that at least 1,000 young women and men (50:50 ratio) will be trained on integration of climate-smart agricultural approaches in new and existing production systems.

Component 3: Incentivizing uptake and replication of SLM and climate resilient agriculture. This component will contribute to assisting farmers and associated producer groups accelerate adoption of practices that will reduce adverse environmental impacts and enhance resilience of agricultural systems through provision of direct incentives to realize **Outcome 3.1: Communities contribute to develop, operationalize and, replicate gender sensitive business investment plans and market access mechanisms to support livelihood enhancement**.

To address the barrier that fiscal incentives currently offered tend not to couple SLM and climate resilience and enhance sustainability of the project investments, support to enterprise development for farmer/producer groups to encourage uptake of SLM methods into production systems will be provided. Gender-sensitive business investment plans (and market access options) that are either commodity-specific or around a commodity cluster, produced applying SLM methods that have good economic growth potential, will be developed for producer groups. Part of the market access element may include certification/branding for food and other commodities that are produced using low-carbon processes, low-water, and minimal agrochemical footprints. These plans will be informed by application of tools such as the Economics of Ecosystems and Biodiversity (TEEB/TEEBAgriFood)[38] among others, so that costs of biodiversity/ecosystem degradation at the landscape level from poor practices may be considered, and investment in sustainable trade-offs that incorporate the value of ecosystem services and biodiversity are demonstrated. Based on the guidance from the investment planning outputs, a grants mechanism will be developed to make micro-credit available to eligible entrepreneurs participating under the project, to encourage investment in land conservation-oriented/climate smart agricultural systems. These grants will be administered through existing mechanisms available through support agencies such as The Bahamas Development Bank, and others (to be determined during the PPG Phase), based on business and marketing plans developed for applicants under the project. In the development of business plans and the grants mechanism, the private sector will be consulted and engaged in the context of product development and market opportunity. This effort will be facilitated by the Bahamas Agricultural and Industrial Corporation (BAIC) and Bahamas Agriculture and Marine Science Institute (BAMSI) both of which purchase product from farmers and market them to hotels and foodstores. Bahamas Food Services (Sysco) is a private company that also aids farmers in accessing markets by taking on any liability related to food safety and quality. A capacity building programme for entrepreneurs built on existing initiatives of the Department of Agriculture and partners and targeted to grant beneficiaries will be implemented.

Component 4: Enhancing monitoring and knowledge management systems for LDN assessment and agricultural production system resilience assessment and tracking related GEB Indicators. The component focusses on enhancing science-based decision-making to support improved integrated landscape management based on capability to evaluate land degradation and environmental status of productive agricultural landscapes and contribution to global environmental benefits (GEBs) through ***Outcome 4.1: Enhanced evidence-based decision-making to support evaluation toward land degradation neutrality and agricultural production resilience and contribution to GEBs in productive agricultural landscapes,*** and ***Outcome 4.2: Increased understanding and awareness of relevant environmental issues among decision makers, farmers, the general public, facilitate mainstreaming and scaling-up of project approaches and interventions.***

The project will contribute to further mainstreaming of environmental assessment and data gathering efforts into policy-level decision making and learning opportunities, not only within academia but also among the beneficiary stakeholder community. The Department of Environmental Planning and Protection through its coordinating mandate, in partnership with the University of the Bahamas, will create avenues to extend application of the outputs beyond the project through integration into the university curricula, and promote long-term research based on the systems established under the project. The project will contribute to strengthening of the capacity of The Bahamas to build a National Environmental-Agricultural Production Information System through partnerships between the Ministry of Agriculture and Marine Resources, the Ministry of Environment and Housing and University of The Bahamas. It will support the requirements of the environmental management and agriculture/food sector, and for tracking relevant parameters including land use, productivity, degradation and land cover changes, weather, climate, water, soil conditions and other data associated with national assessments for the reporting to the UNCCD progress in implementing the national action plan. The general framework or rules and regulation, accreditation, data quality and curation will be established and designed. The project will contribute to the outfitting of 6 environmental/agrometeorological field stations on the islands of New Providence, Grand Bahama, Abaco, Andros, Eleuthera, Cat Island and Long Island that will support land resource assessment and monitoring of trends in land degradation. These will be low-cost sensor systems to obtain land/agricultural data (soil nutrients, water, etc), meteorological data (temperature, humidity, rainfall, etc) and ecological (soil type, soil fertility) data. This wireless ground-based data will be complemented by remote sensing networks to measure soil, vegetation and crop cover indicators and changes. The project will incorporate monitoring and reporting tools for land degradation developed by Trends Earth[39]. The project will build capacity among stakeholders with the development and delivery of courses and programs related to land degradation and land resource assessment that will include aspects on data collection, measurement, statistics, agroforestry, ecology, environmental science, remote sensing, data analysis, quality assurance and GIS applications. Citizen science approaches will be incorporated as appropriate and applicable, as a means to address the barrier of limited engagement among stakeholders in contributing to monitoring efforts. A Communications Plan will be developed to craft clear messaging, to increase stakeholder awareness of the land degradation issues that are being addressed by the project, the work and outputs of the project and to solicit buy-in among intended direct and indirect beneficiaries and other stakeholders. The project will build its profile in alignment with global agendas, notably the Sustainable Development Goals, the UN Decade for Ecosystem Restoration, the Bonn Challenge. A knowledge management strategy and plan will define how all the project outputs and learning from implementation will be captured and organized so that they are easily accessible by beneficiaries and users. The knowledge core or hub will be the Environmental data Information System that the project will develop but will also include existing data management systems that the partner agencies already manage. The KM Plan will detail recommendations for sustainability and replication of results for follow-on and related initiatives. A suite of awareness resources comprising of at least 15 specific products will be produced in support of all components of the project (the number and diversity of the products will be defined during the PPG phase). It is anticipated that resources will be made available in all commonly used formats ranging from conventional printed materials such as booklets, leaflets, fliers and posters to electronic media products distributed via social media channels. The project will host a series of at least 10 live in-person and online events in support of the various project activities and feature how project investments are contributing to addressing land degradation. These events will build a platform to generate local and international partnerships to share lessons learned on addressing land degradation and upscaling these experiences. The events will utilize commemorative days such as World Environment Day, World Food Day, World Day to Combat Desertification and Drought among others, to profile lessons and successes gained during project implementation. Associated with that

data management aspect of the project, will be the convening of an annual conference on environmental data management in The Bahamas for network participants, government organizations, academic and research institutions, non-profit organizations, citizen science groups, and others. A project monitoring and evaluation system will be put in place to ensure continual assessment of progress in meeting project outcome and output targets.

4) Alignment with GEF focal area and/or Impact Program strategies

Land Degradation Focal Areas LD-1-4 Reduce pressures on natural resources from competing land uses and increase resilience in the wider landscape; LD-2-5: Create enabling environments to support scaling up and mainstreaming of SLM and LDN: The project proposes to strengthen the policy and decision-making environment to facilitate investment in land degradation measures toward achieving LDN, with the underpinning of enhancing climate resilience, that in the case of The Bahamas is of critical importance given the impacts climate change, manifested in impacts from intense hurricanes. This will be in line with the proposal contained in the UNCCD National Action Plan of The Bahamas. The project will address the drivers of land degradation in The Bahamas within productive landscapes on the seven target islands that are under most intensive use, with the integration of innovative SLM and nature-based restoration measures along with climate-smart agriculture within the context of a comprehensive landscape approach. The project is expected to generate co-benefits to biodiversity conservation that will contribute to global environmental benefits. The project intends to support enhancement of local livelihoods through enterprise development opportunity for farmers through a grants program linked to an existing credit mechanism to make agricultural systems more climate resilient through adoption of SLM measures.

5) incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing;

Baseline	Incremental Cost
Under the baseline scenario, the national physical development planning process across all sectors; agriculture, tourism, extractives, urban development and other commercial expansion, will not incorporate the integrated landscape management / sustainable land management approaches that are based on definition of land degradation neutrality or related land conservation targets. There will be a continued disconnect between managing land resources and the process to transition the methods of agricultural production to become more climate resilient. Development decisions at the policy level will continue to be based on a rather ad-hoc regime, where short-term pressures may supersede balancing development with conservation needs, without arriving at optimal compromise or sustainable utilization with dual development and conservation outcomes. Policy makers and technical advisory personnel will not have the required tools to assist with	With the GEF incremental investment a new approach will be put in place that will blend Integrated Landscape Management and climate resilient food production that considers achieving land degradation neutrality within a strategic outlook and intersectoral operational framework. This will provide the basis for improving decision-making among policy makers based on the guidelines to be produced and used by responsible agencies in their planning and operational delivery. This will contribute to ensuring that land use decisions are made based on the best available information, increasing the possibility that decisions will have desired conservation and desired development impact. With the GEF investment, land degradation neutrality objectives will provide a basis to guide land use planning, assessment of trends in land degradation processes and lend to priority setting in targeting landscape areas for land degradation mitigation. The GEF investment will contribute to enhancement of stakeholder engagement in contribution to planning and development

<p>h decision making in this regard. Stakeholders outside governmental decision-making processes will not be sufficiently engaged in the consultative process toward creating policy and achieving land degradation neutrality and how livelihood opportunities in consideration of gender dimensions may be preserved and/or enhanced.</p>	<p>opment processes.</p>
<p>Under a business-as-usual scenario there will continue to be limited adoption of good land and soil management practices with the outcome of increased land degradation and pollution of soil and water resources and impacts to downstream ecosystems. This will predispose productive landscapes to becoming more marginal for agriculture, particularly considering climate change impacts that leading sea level rise and aquifer and soil salinization. There will be limited opportunity to hasten the rate at which technical personnel can deliver capacity to beneficiary stakeholders in assisting with reducing vulnerabilities in the agriculture sector to these threats, and there will be continued slow pace of adoption of climate-resilient agriculture if farmers are not incentivized. Opportunities to restore critical landscapes and enhance ecosystem resilience, and to generate national capacity and awareness for such activities, will not be realized. Under the business as usual scenario overall negative impacts will impact farming and fishing livelihoods, the tourism industry, and generally the country's ability to adapt to climate change and other challenges (such as extreme weather events), to which it is highly vulnerable.</p>	<p>The GEF investment will contribute a suite of tools and approaches based on best practice that are already being applied in The Bahamas and in other countries in addressing land degradation and vulnerability in productive agricultural landscapes. The investment will contribute to support infrastructure to multiply planting material to be used in restorative actions in degraded landscapes and provide means to ameliorate and enhance soil productivity. On-field best practice oriented around nature-based solutions to be deployed will include, but not limited to agroforestry and intercropping systems, soil erosion control, drainage management, buffer strip, hedgerow and windbreak installations, zero to low-tillage field preparations, composting and mulching systems, soil amelioration and low-water irrigation application. More efficient agrochemical use and biological control alternatives particularly where water resources and sensitive ecosystems may be threatened, will be applied. Under the GEF increment, farmers, with emphasis on women and youth, will be incentivized to invest in SLM and climate smart agriculture through a proposed grant mechanism that will be administered through existing credit mechanism(s). All these approaches will be supported through capacity building to guide adoption and replication toward sustainability of practice.</p>
<p>Without the GEF investment, capacity for conduct of monitoring and assessments on trends in land degradation and SLM practice will remain weak; where monitoring does occur, it will continue to be confined within narrow sectoral needs and based on project-driven requirements. Agriculture monitoring and research will continue be targeted more towards production ta</p>	<p>The GEF investment will strengthen science-based decision-making to support improved integrated landscape management, based on capability to evaluate land degradation and environmental status of productive agricultural landscapes and contribution to global environmental benefits. The GEF investment will contribute to enhancement of assessment tools and field methods, and build the capacities am</p>

<p>arget assessments and employment statistics. There will continue to be an inability to assess efficacy of investments in SLM and climate-smart agriculture (CSA), and to adequately assess contributions to local and global environmental benefits. In general, there will be limited uptake for mainstreaming within broader national accounts. Without the project investment, there will continue to be limited in-field capability to systematically collect data, particularly for monitoring land degradation trends, how climate change is affecting hydrological relations and changes in soil condition that has important implications in the context of assessing agricultural land productivity potential. Beneficiaries will continue to have limited engagement in contributing to knowledge management systems and consequently will have little awareness and interest in potential applications.</p>	<p>ong researchers, technical professionals, beneficiary and community stakeholders to employ these tools and methodologies with inclusion of citizen science approaches. A knowledge management system that pools the learning from all the project components and the scientific contributions will be put in place to facilitate publication and dissemination of best practices and lessons learned. The project will expand overall awareness and contribute to buy-in among stakeholders to realizing land degradation neutrality and achieving climate resilience in the agricultural sector.</p>
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6) Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF);

The project will generate the following benefits:

- Strengthened policy, regulatory and institutional environment that will foster adoption of SLM within productive landscapes with benefit of enhanced climate resilience, over 20,000 hectares in Abaco, Andros Island, Cat Island, Eleuthera, Grand Bahama, Long Island and New Providence;
- 10,000 ha of arable land under improved SLM (incorporating climate-resilient agriculture) that will contribute to enhanced adaptation to climate change through decreased vulnerability to land degradation induced by extreme weather events and longer-term climate change stressors, and reduced land-based pollution to ground water and coastal ecosystems;
- 1,516,775 tonnes CO₂eq greenhouse gas emissions mitigated through incorporation of improved cropping and agroforestry systems and enhanced carbon sequestration into soils within productive landscapes (CO₂ sequestration estimates will be reassessed during the PPG phase);
- Improved socio-economic returns from improved land productivity.

Components	Global Environment Benefits
Component 1: Strengthening the enabling environment for achievement of land degradation neutrality through impr	Addressing the national governance framework will enable implementation of necessary actions to achieve land degradation neutrality that will contribute to global environmental benefits. This work will be framed in the global aspiration specifically to Sustainable Development Goal 15 to protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and

<p>oved policy and governance</p>	<p>halt biodiversity loss. The strengthened national enabling framework will be consistent with the strategic objectives of the UNCCD 2018–2030 Strategic Framework^[40], and in the context of delivering on GEBs, will be aligned to Strategic Objective 4. In this respect it is anticipated that national policy will be shaped under the project through the development and adoption of an ILM Strategy and accompanying inter-sectoral operational framework that will be the basis for implantation of The Bahamas National Action Plan that seeks to realize co-benefits in terms of conserving ecosystem services, safeguarding biodiversity and providing expanded livelihood opportunities. This Strategy will incorporate voluntary LDN target-setting to guide national action that will contribute quantifiably to global commitments.</p>
<p>Component 2: Demonstration of regenerative agriculture and resilient food production systems, practices and technologies</p>	<p>The landscape restorative measures proposed under the project will be in line with strategic global directions under the UNCCD 2018-2030 Strategic Plan, with alignments to Strategic Objective 1: To improve the condition of affected ecosystems, Strategic Objective 2: To improve the living conditions of affected populations and Strategic Objective 3: To mitigate, adapt to, and manage the effects of drought in order to enhance resilience of vulnerable populations and ecosystems. The landscape restorative measures over 10,000 hectares adopting SLM will incorporate nature-based solutions yielding multiple co-benefits that include adaptation to climate change impacts and contribution to climate change mitigation through enhanced carbon sequestration. In the target islands several endemic species of global significance such as the Nassau grouper, Bahama Parrot, Bahama oriole, Bahama nuthatch, Bahama swallow, Bahamian pygmy boa among others that will benefit from restorative measures. This will be aligned to the proposed Post-2020 Global Biodiversity Framework in relation to Goal D where nature provides benefits to people in terms of improvements in nutrition and improvements in resilience to natural disasters. The measures will contribute at a global level to efforts to reduce greenhouse gas emissions through increased carbon sequestration via incorporation of agroforestry systems and improved soil management to preserve soil carbon. The project will contribute to the global commitment under SDG15 to protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss. The project will advance contributions to the global commitment under the UN Decade of Ecosystem Restoration.</p>
<p>Component 3: Incentivizing uptake and replication of SLM and climate resilient agriculture</p>	<p>The approach to be adopted in this project will catalyze processes needed to assist small and medium-sized enterprises (SMEs) in the agricultural sector enhance and develop new business opportunities, through more sustainable supply chains that create stable revenues that are based on integration of SLM and restorative agriculture, to maintain the integrity of ecosystems, and contribute at a broad level to achieving GEBs (alluded to under Component 2). The approach emulates the GEF7 private sector engagement strategy and the land degradation focal area strategy that recognizes the importance of enhancing sustainability of agricultural commodity supply chains for achieving land degradation neutrality and empathi</p>

	<p>zes that there must be commitment among farmer/smallholder enterprises, facilitated by mutually beneficial engagement with the private sector in realizing GEBs. The project will contribute positively to uplifting local livelihoods, considering gender balance through enterprise development opportunity, enhancing living conditions among direct beneficiaries. In this regard, the component fosters alignment with global commitments under SDG 5 that seeks to achieve gender equality and empower all women and girls; of direct relevance to this project is in respect to SDG Target 5a whereby reforms in agribusiness development will support equity in access to economic resources by women. Again, this approach is well-aligned to the proposed Post-2020 Global Biodiversity Framework in relation to Goal D that speaks to accrual of benefits to people in terms of improvements in nutrition and improvements in resilience to natural disasters.</p>
<p>Component 4: Enhancing monitoring and knowledge management systems for land degradation neutrality assessment and agricultural production system resilience assessment and tracking related GEB Indicators</p>	<p>Expanding the evidence base through strengthened monitoring systems will improve the quality of decision making by policy makers and lead to better choices by stakeholders in managing land and ecosystem resources under their stewardship contributing to overall global benefits. The project will contribute to the capability to evaluate land degradation and environmental status of productive agricultural landscapes, contributing to the basis for determining progress toward safeguarding and enhancing GEBs in line with the UNCCD 2018-2030 Strategic Plan and the Post-2020 Global Biodiversity Framework. Under the UNCCD Strategy 2018-2030 relevant global indicators include assessment of trends in land productivity or functioning of the land, and trends in carbon stocks above and below ground. Knowledge management systems will be put in place to facilitate publication and dissemination of best practices and lessons to stakeholders from local to global levels, to encourage uptake and replication of the approaches applied in this project.</p>

7) Innovation, sustainability and potential for scaling up.

Innovation: The project will contribute innovative approaches to Integrated Landscape Management that takes into account climate resilience with key focus on the agriculture sector that is of critical importance to economic development and sustainability of rural livelihoods in the country. The Bahamas has been affected by catastrophic hurricanes in recent years, bringing into sharp focus the urgent need to adopt measures that enhances resilience of landscapes and maintain productivity, in the face of climate change. The recent COVID19 Pandemic has further exposed the vulnerabilities of the economy of the country that is extremely reliant on tourism, underscoring the need to diversify the economic base through investment in other sectors such as agriculture. The project intends to introduce innovation in policy and planning processes that specifically addresses sustainable land management and ensures that it becomes mainstreamed into wider national development planning frameworks under the guide of an ILM Strategy to be produced under the project. Opportunity for innovation will be gained in the project's field investment in climate resilient agriculture, which at a global level, is a high-priority issue as climate change directly threatens means of food production and food security. The project will employ a combination of nature-based solutions and climate smart agricultural production practices that will help ameliorate soils, conserve water resources, reduce degradation and pollution, enhance carbon sequestration and conserve biodiversity. The project will build on innovation in initiatives already underway through GEF investments such as under *The Bahamas Pine Islands Project* and

the *Meeting the Challenge of 2020 in The Bahamas Project* that both have significant emphasis on carbon storage through improved terrestrial and marine ecosystem management. Innovation in scientific assessment and knowledge management systems will be introduced in this project with the establishment of state-of-art field data stations to collect agrometeorological, soil and other ecological data that is to feed into policy and technical responses.

Sustainability: Long-term institutional sustainability of the project outputs will be built around establishment of the ILM Strategy and associated inter-sectoral operational framework as a platform that fosters integrated landscape planning and management in the country. This framework will reduce the extent to which decision making fragmented and made in an ad-hoc manner as pertains to land resources management. This project will complement other related GEF and non-GEF interventions that aim to better structure policy and decision making in this regard. A key means to enhance sustainability of the on-ground interventions to enhance climate resilience in agricultural production systems will be through financial incentivization. This will entail the establishment of a grant mechanism and business service support that will facilitate more business-oriented agricultural production to foster agricultural enterprises that integrate SLM and nature-based solutions that ensure adverse impacts is reduced along the production cycle. This business support contribution by the project will be integrated within existing enterprise support platforms better guarantee sustainability of results. The project will cement collaborative partnerships among the agencies that will be involved in the project and will contribute to enhancement of the institutional support services as relevant, and importantly help build capacity of the direct beneficiaries to adopt and carry forward the outputs of the project. An approach will be developed for sustainability of the data collection platform that will be built under the project in partnership with the collaborating network of national agencies, researchers, and development partners. The inter-sectoral ILM Strategy and Framework will be institutionalized principally within the mandate of the Department of Environmental Planning and Protection that includes a multi-sectoral planning and development convening function within its governing legislative and policy framework. It is within this mechanism that project continuity and scale up will be assured. Sustainability will be enhanced through the institutionalization of capacity building opportunities within existing programmes with mandated government agencies and partner organizations. The University of the Bahamas as an indigenous entity will play a key role in this regard.

The scaling – up potential: The prospect for replication of project outputs and results in other islands in The Bahamas and to other SIDS is highly likely. The vulnerability of the country due to its location within the more actively traversed sector of the Atlantic Hurricane belt and the fact that it is a low-lying oceanic state renders it as a good candidate to be a demonstration of the best practice models and experiences to the wider Caribbean region and to the SIDS group of nations that share similar vulnerabilities. The innovation in tools and methods to enhance local technical capacity among producers and land users, and among technical support staff in government and allied agencies will be an essential aspect to successful scaling up and it is expected that persons trained will serve as resource persons to exchange experiences and knowledge within the country and in the wider Caribbean. The Department of Environmental Protection and Planning (DEPP) will exercise its cross-cutting mandate within government to facilitate scaling up of the successes of the project throughout the country, in close technical and policy cooperation with the Ministry of Agriculture, also in collaboration with the Land Administration Unit of that same ministry. The DEPP will maintain the policy-level convening platform under the ILM Framework, while the Ministry of Agriculture will play the role in on-ground policy execution.

Through Component 3, project will disseminate key achievements and lessons learned to facilitate uptake of applied technologies and approaches. The project will extend reach to the CARICOM Secretariat and the Caribbean Community Climate Change Centre (CCCCC) to contribute knowledge and sharing for policy development work across the region and to encourage technical exchange. The Partnership for Sustainable Land Management (PISLM) will be an important regional mechanism to support knowledge dissemination and upscaling in the Caribbean. The project will contribute to scaling-up at the global level with particular relevance to SIDS, where tools and methods available through knowledge hubs such as WOCAT and Trends Earth will be applied, and lessons learned are contributed to global efforts in assessing, monitoring and arresting land degradation.

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- [17] Soil and Land Resources of The Bahamas [https://www.bahamas.gov.bs/wps/wcm/connect/28b10019-6c14-4982-b90f-0fdfb316c2bd/Soil+and+Land+Resources+of+The+Bahamas+\(1\).pdf?MOD=AJPERES&CACHEID=28b10019-6c14-4982-b90f-0fdfb316c2bd](https://www.bahamas.gov.bs/wps/wcm/connect/28b10019-6c14-4982-b90f-0fdfb316c2bd/Soil+and+Land+Resources+of+The+Bahamas+(1).pdf?MOD=AJPERES&CACHEID=28b10019-6c14-4982-b90f-0fdfb316c2bd)
- [18] <https://knowledge.unccd.int/sites/default/files/naps/bahamas-eng2006.pdf>
- [19] <https://www.greengrowthknowledge.org/national-documents/bahamas-national-policy-adaptation-climate-change>
- [20] <https://www.sam.usace.army.mil/Portals/46/docs/military/engineering/docs/WRA/Bahamas/BAHAMAS1WRA.pdf>
- [21] <https://wsc.com.bs/wp-content/uploads/2020/01/The-Water-Resources-of-The-Bahamas-1.pdf>
- [22] <http://documents1.worldbank.org/curated/en/156401468136816684/pdf/wps4136.pdf>
- [23] Countries under consideration: Egypt, Suriname, The Bahamas, Argentina, Jamaica, Mexico, Myanmar, Guyana, Taiwan
- [24] Climate Change Policy and Adaptation Strategy for the Agriculture and Marine Resource Sectors (2017)

- [25] https://publications.iadb.org/publications/english/document/Impact_of_Hurricane_Dorian_in_The_Bahamas_A_View_from_the_Sky.pdf
- [26] <https://reliefweb.int/report/bahamas/minister-pintard-hurricane-dorian-caused-agriculture-and-marine-industry-over-60>
- [27] <https://climateknowledgeportal.worldbank.org/country/bahamas/climate-data-projections>
- [28] The 'Family islands' refer to the Bahamian islands excluding New Providence and Grand Bahama
- [29] Categorization of high technology infusion into agricultural systems. See <https://www.worldgovernmentsummit.org/api/publications/document?id=95df8ac4-e97c-6578-b2f8-ff0000a7ddb6>
- [30] <https://www.cardi.org/country-offices/bahamas/>
- [31] <https://www.cardi.org/blog/rebuilding-bahamas-agriculture-sector/>
- [32] <http://www.fao.org/jamaica-bahamas-and-belize/programmes-and-projects/en/>
- [33] <http://www.fao.org/3/ca8474en/CA8474EN.pdf>
- [34] <https://www.unccd.int/actions/ldn-target-setting-programme>
- [35] With the passage of Hurricane Dorian in September 2019, it was estimated that some 42,008 ha of Caribbean Pine was catastrophically impacted due to extreme winds and seawater inundation on Abaco (13,563 ha) and Grand Bahama (28,445 ha). The Government, through the Forestry Department, is conducting salvage operations to move the material to reduce fire risk and potential proliferation of pests that may pose risk to standing and regenerating forests, and adjacent agricultural production areas (source: Forestry Unit).
- [36] World Bank, 2018
- [37] <https://www.wocat.net/en/about>
- [38] <http://www.teebweb.org/>
- [39] <http://trends.earth/docs/en/index.html>
- [40] https://www.unccd.int/sites/default/files/inline-files/ICCD_COP%2813%29_L.18-1716078E_1.pdf

1b. Project Map and Coordinates

Please provide geo-referenced information and map where the project interventions will take place.

The project will focus on the primary agricultural production landscapes of The Bahamas, specifically on islands of Abaco, Andros Island, Cat Island, Eleuthera, Grand Bahama, Long Island and New Providence. Refer to Annex A for detailed profiles of each island.





2. Stakeholders

Select the stakeholders that have participated in consultations during the project identification phase:

Indigenous Peoples and Local Communities Yes

Civil Society Organizations Yes

Private Sector Entities Yes

If none of the above, please explain why:

Annex F Summary of stakeholder consultative process contributory to development of the PIF

Date(s)	Consultation outcomes	Participant organizations
7-8 Nov 2019	<p>Bahamas National Dialogue – GEF7</p> <p><u>Lead convener:</u> Department of Environmental Planning and Protection</p> <p><u>Format:</u> in-person workshop</p> <p><u>Key discussion points:</u></p> <ol style="list-style-type: none">1. GEF country programme support and focal area programming directions; GEF policies; national allocation2. National environmental/sustainable development priorities; on-going GEF support and programming3. Potential GEF programming directions under GEF74. Stakeholder inputs and agreement on general orientation for GEF7 and funding focal area	<ul style="list-style-type: none">· DEPP· IICA· University of the Bahamas· BAMSI· BAIC· Bah Dev Bank· Bahamas Agripreneur National Farmer group· Bahamas Network for Rural Women Producers· Cat Island Farmers Association· Cat Island Conservation Institute· One Eleuthera Foundation· Others?
3 Feb 2020	<p>Composting workshop (part of 6-country regional initiative) to inform Component 2 elements on composting</p> <p><u>Lead convener:</u> IICA</p> <p><u>Format:</u> In person with 90 participants from 5 islands</p>	<ul style="list-style-type: none">· Ministry of Agriculture· Bahamas Waste· Commerce Department· Bahamas Agripreneur National Far

	<p><u>Key discussion points:</u></p> <ol style="list-style-type: none"> 1. Integrated waste management and waste stream analysis approaches 2. Science and methods of composting, compost quality control and production 3. Hierarchical approach to debris management and applications in hurricane-generated debris management - 	<p>mer group</p> <ul style="list-style-type: none"> · Bahamas Network for Rural Women Producers · Cat Island Farmers Association · Cat Island Conservation Institute · One Eleuthera Foundation · Green Systems · GrowLife Urban Farms · Maggie's Farm
Jan – June 2020	<p>Follow-on bilateral discussions with producer organizations to inform overall project design; emphasis on Components 2 and 3</p> <p><u>Lead convener:</u> IICA</p> <p><u>Format:</u> in-person and virtual (under COVID19 protocols)</p> <p><u>Key discussion points:</u></p> <ol style="list-style-type: none"> 1. Technical requirements support needs 2. Training and general capacity development needs 3. Opportunities for enhancing for market access 	<ul style="list-style-type: none"> · Bahamas Network for Rural Women Producers · Cat Island Farmers Association · One Eleuthera Foundation · Bahamas Entrepreneur Group
27 July 2020	<p>Strategic directions for new GEF 7 proposal and draft project framework</p> <p><u>Lead convener:</u> Department of Environmental Planning and Protection</p> <p><u>Format:</u> Group - virtual</p> <p><u>Key discussion points:</u></p> <ol style="list-style-type: none"> 1. Agree on main project components, outcomes and indicative outputs 2. Provide Direction for UNEP to shape up initial draft of project based on core inputs from IICA and the University of the Bahamas 	<ul style="list-style-type: none"> · DEPP · IICA · University of the Bahamas · Ministry of Agriculture ·
Aug 2020	<p>Governance and capacity building workshop for producer organizations</p>	<ul style="list-style-type: none"> · Bahamas Network for Rural Women

	<p>ations in The Bahamas to assess stakeholder needs</p> <p><u>Lead convers:</u> IICA & FAO</p> <p><u>Format:</u> virtual</p> <p><u>Key discussions points:</u></p> <ol style="list-style-type: none"> 1. Assess how producer groups are functioning and define challenges and needs through application of an assessment tool 2. Identification of remedial actions to improve capacity 3. Sustainability considerations 	<p>Producers</p> <ul style="list-style-type: none"> · Grand Bahama Beekeepers Co-op
24 Aug 2020	<p>Presentation by UNEP of advanced draft PIF</p> <p><u>Lead convener:</u> Department of Environmental Planning and Protection</p> <p><u>Format:</u> Group - virtual</p> <p><u>Key discussion points:</u></p> <ol style="list-style-type: none"> 1. Final consensus on project outcomes and outputs 2. Agree on modalities for continued stakeholder discussion and inputs to the concept development. 	<ul style="list-style-type: none"> · DEPP · IICA · University of the Bahamas · Ministry of Agriculture
31 Aug 2020	<p>Presentation by UNEP of updated draft PIF</p> <p><u>Lead convener:</u> Department of Environmental Planning and Protection</p> <p><u>Format:</u> Group - virtual</p> <p><u>Key discussion points:</u></p> <ol style="list-style-type: none"> 1. Validation of PIF content 	<ul style="list-style-type: none"> · DEPP · IICA · University of the Bahamas · Ministry of Agriculture ·
2 Sep 2020	<p>Technical consultation inputs in PIF development</p> <p><u>Lead convener:</u> UNEP</p> <p><u>Format:</u> Bilateral - virtual</p> <p><u>Key discussion points:</u></p> <ol style="list-style-type: none"> 1. Further technical inputs on landscape restoration and target 	<ul style="list-style-type: none"> · Forestry Unit

	ed landscape areas	
3 Sep 2020	Technical consultation inputs in PIF development <u>Lead convener:</u> UNEP <u>Format:</u> Bilateral – virtual; 3 separate meetings with agencies listed <u>Key discussion points:</u> 1. Further technical inputs on project design (outcomes and outputs) 2. Information on fiscal incentive mechanisms to support agri-business development	<ul style="list-style-type: none"> · IICA · Ministry of Agriculture · Ministry of Agriculture – investment arm; linked to BAMSI and BIAC
4 Sep 2020	Technical consultation inputs in PIF development <u>Lead convener:</u> UNEP <u>Format:</u> Bilateral – virtual <u>Key discussion points:</u> 1. Work of FAO in The Bahamas and potential contribution to the project 2. Work CARDI in The Bahamas and potential contribution to the project	<ul style="list-style-type: none"> · Ministry of Agriculture – FAO · CARDI
22 Sep 2020	Presentation by UNEP of final draft PIF prior to submission to GEF <u>Lead convener:</u> Department of Environmental Planning and Protection <u>Format:</u> Group - virtual <u>Key discussion points:</u> 1. Validation of PIF content prior to submission to GEF.	<ul style="list-style-type: none"> · DEPP · IICA · University of the Bahamas · Ministry of Agriculture ·
		·

In addition, provide indicative information on how stakeholders, including civil society and indigenous peoples, will be engaged in the project preparation, and their respective roles and means of engagement.

Stakeholders	Roles in Project Preparation [<i>anticipated output contribution</i>]
Dept. of Environmental Planning & Protection (DEPP)	The DEPP will be the project Executing Agency and will lead and coordinate the development of the project with stakeholders and as Operational Focal Point will be the liaison with UNEP and GEF. The DEPP will provide overall project management on a day-to-day basis, guiding all project interventions [All outputs]
Ministry of Agriculture and Marine Resources (MAMR)	Guidance on policy and regulatory elements related to sustainable development of the agriculture and fisheries sectors and determine pathways for enhancing sustainability. High-level policy guidance on cross-sectoral integration. [All Outputs]
Forestry Unit	Provide expert advice on integration of forestry and agro-forestry systems in sustainable agriculture and sustainable land management for nature-based restorative solutions. [Outputs 1.1.1, 1.1.2, 2.1.1, 2.2.1, 3.1.1]
Department of Agriculture	Technical guidance in identification of suite of climate-smart solutions, infrastructure requirements for restorative measures. Inputs on policy directions related to incorporation of sustainable land management and enhancing enterprise development. [All Outputs]
Department of Physical Planning	Policy guidance on land management and integration across other development sectors. [Outputs 1.1.1, 1.1.2, 4.1.1]
Department of Gender and Family Affairs	Advisory role in ensuring gender considerations and safeguards are adequately built into the project design. [Outputs 2.2.1, 3.1.1, 3.1.2]
University of The Bahamas	Technical guidance on requirements for design and development of monitoring and knowledge management systems. [Outputs 1.1.1, 1.1.2, 2.2.1, 4.1.1, 4.1.2, 4.2.1, 4.2.2, 4.2.3]
Bahamas Agriculture and Marine Science Institute (BAMSI)	Guidance in design of the enterprise development and capacity building aspects of the project. Incorporate experience from its research and demonstration facilities to design the climate-smart agriculture solutions. [Outputs 3.1.1, 3.1.2]
Bahamas Agricultural and Industrial Corporation (BAIC)	Guidance in design of the enterprise development aspects of the project to include commodity marketing options. [Outputs 3.1.1, 3.1.2]
Bahamas Development Bank	Consultative inputs on modalities for establishment and operation of the proposed financial grant mechanism. [Outputs 3.1.1, 3.1.2]
Bahamas Agripreneur National Farmer group	Assist with engagement of farmers and solicit inputs to the project design. [Outputs 2.1.1, 2.2.1, 2.1.1, 2.1.2, 4.1.1]

onai Farmer group	<i>1, 4.2.1, 3.1.1, 3.1.2, 4.1.2]</i>
Bahamas Network for Rural Women Producers	Support to engagement of women farmers and producers on Andros, Cat Island and Eleuthera via their chapters on these islands. IICA is the secretariat for BAHNROP <i>[Outputs 2.1.1, 2.2.1, 3.1.1, 3.1.2, 4.1.2]</i>
Cat Island Farmers Association	Consultative inputs to design of proposed SLM practices in agriculture and required technical support. <i>[Outputs 2.1.1, 2.2.1, 3.1.1, 3.1.2, 4.1.2]</i>
Other farmers / farmer groups	Consultative inputs to design of proposed SLM practices in agriculture and required technical support. <i>[Outputs 2.1.1, 2.2.1, 3.1.1, 3.1.2, 4.1.2]</i>
Cat Island Conservation Institute	Consultative inputs to design of proposed monitoring systems and avenues for youth and community participation through evidence-based knowledge and participatory science. <i>[Outputs 2.1.1, 2.2.1, 4.1.1, 4.1.2]</i>
One Eleuthera Foundation	Provide logistical guidance and assist in making the connections with stakeholders on the island of Eleuthera <i>[Outputs 2.1.1, 2.2.1, 4.1.2, 4.2.3]</i>
IICA	Technical guidance on proposed SLM/climate-smart agricultural solutions and agency roles in technical support to the project. <i>[Outputs 1.1.1, 2.1.1, 2.2.1, 4.2.1, 4.2.2, 4.2.3]</i>
CARDI	Technical guidance on proposed SLM/climate-smart agricultural solutions and agency roles in technical support to the project. <i>[Outputs 2.1.1, 2.2.1, 4.2.1, 4.2.2, 4.2.3]</i>
FAO	Technical guidance on proposed SLM/climate-smart agricultural solutions and agency roles in technical support to the project. <i>[Outputs 2.1.1, 2.2.1, 4.2.1, 4.2.2, 4.2.3]</i>
Partnership Initiative for Sustainable Land Management (PISLM)	Guidance and regional cooperation support in component design in translating the UNCCD LDN framework to national policy and roles in knowledge dissemination to the wider Caribbean. <i>[Outputs 4.2.1, 4.2.2, 4.2.3]</i>

3. Gender Equality and Women's Empowerment

Briefly include below any gender dimensions relevant to the project, and any plans to address gender in project design (e.g. gender analysis).

The project will ensure gender equality in its design. Given the orientation of the project, the UNCCD's Gender Action Plan that seeks to enhance the implementation of the gender-related decisions and mandates adopted in the UNCCD process will be used as guidance. The *Manual for Gender-Responsive Land Degradation Neutrality Transformative Projects and Programmes*^[41] that provides guidance on integrating gender issues and promoting gender equality in the design of transformative LDN projects will be used as a base in project design. The country has not formally adopted a national gender policy although this process has been underway. The land restorative measures will be designed to be gender sensitive and create opportunities to maximize gender-based socioeconomic benefits, safeguard women's land access rights and contribute to empowerment. The design of LDN mainstreaming considerations in the project will have to reflect the realities, priorities, and knowledge of both women and men across different social levels, planning, implementation and delivery on results.

The inequalities between men and women in the agricultural sector in the context of broader socio-economic development dimensions has not been closely tracked beyond simple gender spilt, in terms of engagement in the sector. The partner agencies acknowledge this knowledge gap and better understanding will be gained during the PPG phase so that the project design adequately addresses gender-based inequity and enhance opportunities. There are recognized opportunities in non-food agricultural niche enterprises that may have gender-based economic potential (e.g. floriculture, handicraft, apiculture and cascarilla production) that can be explored during the PPG stage. The project design will incorporate gender-disaggregated indicators to measure and report on the gender equity in participation in project activities, both at the advisory and at the implementation levels. Indicators will also be developed to track contributions at the results/outcome level. The project preparation phase will ensure participation of a wide range of stakeholders that are active in promoting, seeking benefits and safeguarding gender-based rights. Roles for these partners will be identified across the four components in the project design so that gender sensitive perspectives are incorporated in the final project document. The PPG phase also will identify specific areas where gender diversity is key with respect to leadership roles in the implementation process. In developing the project components consideration will be given to vulnerable groups to include young women/girls as well as young men/boys at risk. The Department of Gender and Family Affairs and The Bahamas Network for Rural Women Producers will play key advisory roles in the project design.

[41] <https://www.unccd.int/publications/manual-gender-responsive-land-degradation-neutrality-transformative-projects-and>

Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment? Yes

closing gender gaps in access to and control over natural resources;

improving women's participation and decision-making; and/or Yes

generating socio-economic benefits or services for women. Yes

Will the project's results framework or logical framework include gender-sensitive indicators?

Yes

4. Private sector engagement

Will there be private sector engagement in the project?

Yes

Please briefly explain the rationale behind your answer.

The project will explore opportunities for public-private private sector partnerships. Private sector and government entities with responsibility for enterprise development, including *inter-alia*, The Bahamas Development Bank, the Small Business Development Centre, The Bahamas Chamber of Commerce, BAIC, BAMS, producer associations and other relevant organizations will be consulted during the PPG Phase to define the activities and outputs particularly under Component 3 of the project. Notwithstanding the analyses to be done in the PPG Phase to define the partnership arrangements, some crucial advisory roles anticipated from the private sector include guidance on best approaches to expand commodity market access for products that are produced under improved environmental management regimes, identification of constraints to investment in climate-smart agriculture and the measures the project needs to consider to remove constraints, and advice on opportunities to build on existing credit and financial mechanisms to facilitate the proposed grant arrangements proposed by the project to recipients. The private sector, through microcredit, cooperative and other financial mechanisms may leverage co-financing to the project resources, an aspect that will be further considered during the PPG Phase. Another important consideration that will be better assessed during PPG phase will be how to positively the profile efforts of private sector champions who may become engaged in the project. Successful engagement of the private sector is anticipated to generate buy-in to the environmental and climate resiliency approaches that are expected to be upscaled into wider business practice in the country.

5. Risks to Achieving Project Objectives

Indicate risks, including climate change, potential social and environmental risks that might prevent the Project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the Project design (table format acceptable)

Risk	Risk level	Mitigation Measures
Limited policy level buy-in in respect to perceived priority and other competing national priorities.	Medium	In design of the project, clear rationale for investment will need to be provided on how the project will contribute to enhancing resilience in productive sectors to climate change, through application of integrated landscape management, SLM and nature-based solutions. The associated benefits of the project against the business-as-usual scenario will need to be made. This will involve early sensitization during the PPG Phase that will be continued during implementation.
Climate change and climate variability and natural disaster occurrence associated with major hurricane, drought and extreme weather events, with disruption of institutional and project delivery processes, loss or compromise of field investments.	Medium-high	<p>The string of catastrophic hurricanes to affect The Bahamas in recent years has necessitated strengthening of resilience of administrative and business continuity processes. Data management systems are being built with redundancy and recovery measures in place. The same approach will be adopted by the project in keeping with best practice. In terms of on-site investments, the project will rely on local experience in reducing impact through hurricane resistant construction methods and where possible, employ designs that can be quickly dismantled and stored for safety. The project will be adaptively managed should natural disasters occur. In the event of a hurricane striking the country, the project will, through the monitoring and evaluation resources assess impacts to local project sites and determine recovery measures. Drought risk associated with changing climate could also have impacts on the success of field vegetative restoration measures and establishment of climate-smart measures within existing and new cultivations. Future precipitation projections from global climate modelling for the region of The Bahamas, suggest tendency toward decreasing precipitation in more of the model scenarios. There is also risk associated with projected predisposition to more intense rainfall events as projected by climate models.^[1]</p> <p>During the PPG phase, project development will carry out a more detailed climate risk screening and closely consider risks based on historical climatic conditions and projection scenarios in selection of demonstrable mitigation options through SLM and landscape restoration approaches. This will include for example identification of climate change resilient plant ma</p>

		will include for example reclamation of climate change resistant plant material for rehabilitation of landscapes with the integration of agroforestry and intercropping systems into cultivation that are suitable for projected climate change.
Imposition of COVID19 transmission mitigation measures (if crisis situation persists) and associated disruptions; challenges potentially related to post-pandemic economic recovery in terms of changing policy and priorities, personnel and material deployment.	To be determined	The full extent of the impact of the COVID19 Pandemic is not yet known nor is the influence it may have in the coming period when the project is expected to be implemented. Besides the international travel restrictions (as at mid-2020), there are also travel restrictions between islands as part of the transmission risk mitigation measures, that has implications for moving human resources/expertise. The pandemic has had implications for resource deployments at the government level, along with the other project partners in response to the economic fallout, that could have prolonged impacts in terms of implementation and co-financing commitments. The project design phase will need to consider how the course of the pandemic unfolds in the country and at the global level. The GEF COVID19 guidance on project design will be followed in assessing and designing to account for critical issues including <i>inter-alia</i> , possible re-instatement of COVID-19 containment measures, change in capacity of stakeholders, changes in the baseline, change in conditions of beneficiaries and processes for stakeholder engagement.
Limited buy-in of farmers, producers, practitioners and local communities to adopt tools, methodologies and practices	Medium	The project will encourage uptake of innovation and utility of approaches using means such as live demonstration and personal testimony. Experiences will be drawn from local expertise within The Bahamas and from technical support agencies and practitioners from other countries. There will be close collaboration with intended beneficiaries so that solutions are tailored to their needs. The capacity building under the project will be key to advancing adoption of practices. Wide awareness-raising to all stakeholders will be a critical element gain buy-in. The PPG Phase will ensure design meets needs.
Lack of private sector participation	Medium	The project will establish working relationships with private sector groups and cooperatives to gain inputs in the project design and to maintain buy-in and active participation over the course of the project.
Insecurity of land tenure /access that may hamper authorization for on-site investment and continued investment post project.	Low	During the PPG phase determinations will be made of land tenure arrangements to ensure that establishment of on-ground investments is not in violation of ownership or access rights. This will be important in respect to accessing State Lands for implementation of field activities. The PPG phase will consider how grievances related to land access may be addressed and include recommendations as per guidance on maintaining environmental and social safeguards.

Potential cost over-runs associated with technology investment alternatives.	Low	The technological options will be closely reviewed to ensure they are appropriately costed. With respect to equipment selection the project will endeavor to use most effective technologies within economic range for sustainability to facilitate scaling-up by partners.
Non-agreement on data management and data sharing protocols.	Low-medium	The DEPP and the Public Policy Institute (GPPI) at UB will support framing and executing the required policy actions to facilitate data sharing and access. The cooperation model between UB, Department of Forestry and Cat Island Conservation Institute (CICI) and the Department of Environmental Planning and Protection is a proof of concept that may be emulated.

[42] World Bank Climate Knowledge Portal <https://climateknowledgeportal.worldbank.org/country/bahamas>

6. Coordination

Outline the institutional structure of the project including monitoring and evaluation coordination at the project level. Describe possible coordination with other relevant GEF-financed projects and other initiatives.

Institutional project structure, monitoring, evaluation and coordination: The project Executing Agency will be the Department of Environmental Planning and Protection (formerly the BEST Commission). A Project Cooperation Agreement (PCA) will be issued by UNEP to the DEPP to establish this executing function, with provision of financial resources. A Project Steering Committee (PSC) comprising of relevant agencies will oversee the project implementation. The Chair of the PSC will be the Director of the DEPP or designate. A Project Management Unit (PMU) will be established under the supervision of the Director of the DEPP to undertake day-to-day management of the project and will be responsible for all technical and financial reporting. UNEP in capacity as Implementing Agency will have a seat on the PSC and be recipient of substantive technical reports (half-year, and annual Project Implementation Review reports) and quarterly financial reports. The PSC shall appoint as required, technical working groups (based on agreed TORs) to oversee and ensure technical quality of outputs. Given that the project will be delivering outputs over multiple islands, it will likely be necessary to designate focal points for each island. The PMU will ensure annual financial audits of expenditure conducted and contribute to the conduct of a mid-term review and terminal evaluation, with engagement of the PMU and beneficiary stakeholders.

Coordination with other relevant GEF-financed projects and other initiatives: (1) *Bahamas Pine Islands (BPI) – Forest/Mangrove Innovation and Integration (Grand Bahama, New Providence, Abaco and Andros)*: This project which commenced in 2016, seeks to integrate biodiversity considerations and ecosystem services into forest management and land use planning in the northern islands; Grand Bahama, New Providence, Abaco and Andros. The project is contributing to institutional systemic support to development of land use plans for Andros and New Providence that incorporate conservation ecosystem considerations, expansion and improved management of the forestry sector through upgrade of forestry management plans, completion of condition status assessment and formal gazettment of the Forest Estate. It will provide models for sustainable land and forestry management and contribute to sustainable livelihoods through expansion of silvertop palm and cascarilla production. (2) *Meeting the Challenge of 2020 in The Bahamas*: The project which commenced in 2020 and will run to 2025, will strengthen management of marine protected areas in The Bahamas and that they are integrated into broader landscape planning to reduce pressures on ecosystem services and biodiversity from competing resource uses. The project will contribute to integration of natural resource management within management of marine protected areas and adjacent landscapes, the enhancement of protected area management within 5 MPAs; Moriah Harbour Cay National Park, Lucayan National Park, Exuma Cays Land and Sea Park, Andros West Side National Park and Bonefish Pond National Park. It will engage local communities that derive direct economic benefits, in enhanced environmental stewardship of the MPAs and surrounding areas. (3) *Implementing Land, Water and Ecosystem Management (IWEco) in The Bahamas*: The project which commenced in 2018 aims to develop a model of integrated land, water and ecosystem management for The Bahamas and other Small Island Developing States in coordination with the main GEF-IWEco Project. The project will implement innovative solutions for maintenance of ecosystem health in East Grand Bahama, strengthen environmental monitoring and evaluation systems, and the policy, legislative and institutional enabling environment in support of natural resource management and enhance knowledge exchange and best practices. (4) The Bahamas is not part of the GEF-CSIDS-SOILCARE Phase 1 Project: *Caribbean Small Island Developing States (SIDS) multicountry soil management initiative for Integrated Landscape Restoration and climate-resilient food systems*, but through the Executing Agency, the Partnership Initiative for Sustainable Land Management and the FAO, linkages will be established to ensure there is cross-collaboration through the supporting agencies, both of which are anticipated partners under the project.

The DEPP will ensure there is policy and technical coherence between the projects on shared themes and this will be done via internal planning meetings among the managers of each project, and as needed, participate within the PSCs of the projects depending on decision and advisory support needs. For stakeholder communications and outreach the DEPP may capitalize on synergies between the projects in line with the broader mandates of the Department.

The project will augment existing programs, notably *Sustainable Agriculture Systems in the Aftermath of Hurricane Dorian* funded by the New Zealand High Commission, that is being undertaken in collaboration between the IICA, the Ministry of Education and the Ministry of Agriculture and Fisheries Resources.

7. Consistency with National Priorities

Is the Project consistent with the National Strategies and plans or reports and assessments under relevant conventions

Yes

If yes, which ones and how: NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc

UN Convention to Combat Land Degradation (UNCCD): The Bahamas became a signatory to the UNCCD on 10 November 2000, and the Convention came into force in The Bahamas on 8 February 2001. The country developed its National Action Programme in 2006 where it defined the vision as to set The Bahamas on a course of sustainable growth and development, through the responsible use of its land, coastal, marine and freshwater resources, in an effort to secure prosperity for present and future generations. The project will contribute significantly to the three Tiers of Programme Planning, addressing key elements that include development of science-based assessments of land conditions, formalisation of exchange of information between stakeholders to ensure better understanding of conditions leading to land degradation, identify existing data gaps, promotion of awareness of the causes and effects of land degradation, development and execution of initiatives programmes to combat land degradation, facilitation of capacity-building initiatives, development and implementation of an enabling strategic framework and strengthen support policies and legislation. The project will establish a functional relationship with the NAP National Co-ordinating Committee, to assure appropriate guidance during the project development process and under implementation. The project will contribute to the voluntary LDN target setting process.

UN Framework Convention for Climate Change (UNFCCC): Although The Bahamas' contribution to global greenhouse gas emissions is fairly negligible, its vulnerability to climate change is very high, and increasing. The Bahamas' vulnerabilities are due to and exacerbated by the island's location, topography, limited resources and economic dependence on primary production and the service/tourism industry. The country's response to climate change mitigation and adaptation is outlined in The Bahamas National Policy for Adaptation to Climate Change. In the Intended Nationally Determined Contribution (INDC) submitted to the UNFCCC in November 2015, the country intends to adapt to the impacts of climate change while pursuing a low carbon pathway in conformity to global commitment to reduce GHG emissions. The project will contribute to adaptation measures articulated in the INDC in respect to enhancing resilience through investment in SLM and climate-smart agriculture that will support enhancement of food security and sustainable food production. Through the integrated landscape management approach additional co-benefits will be realized in terms of water conservation and pollution mitigation offsetting impacts from sea level rise, saltwater intrusion, flooding and storm surges.

UN Convention on Biological Diversity (CBD): The Bahamas ratified the Convention in 1993 and formulated its National Biodiversity Strategy and Action Plan (NBSAP) in 1999. Recommendations of the NBSAP follow the integrated ecosystem management approach to biodiversity conservation. Among the recommendations most aligned to this project is the recommendation related to Sustainable Use of Natural Resources which called for the development of a comprehensive plan for sustainable agriculture including conservation and improvement of agricultural soils, programmes of integrated pest management, agricultural systems that are environmentally-friendly and evaluation and adoption of new product technologies.

8. Knowledge Management

Outline the Knowledge management approach for the Project, including, if any, plans for the Project to learn from other relevant Projects and initiatives, to assess and document in a user-friendly form, and share these experiences and expertise with relevant stakeholders.

The project will contribute to development of curricular appropriate to needs of direct and indirect beneficiaries and extend similar through formal education platforms, particularly those offered through schools (primary and tertiary), the University of The Bahamas and affiliated research agencies and development partners to ensure that knowledge and training is further formalized. It is proposed that the methods and tools be standardized across UB through its academic units in science, sustainability and educations and integrated into courses. The lessons from the project will be contributed to the UNCCD knowledge management mechanisms, for example the Capacity Building Marketplace and other LDN network opportunities under the Secretariat and within the Caribbean SIDS to build regional-level knowledge exchange through the Partnership Initiative on Sustainable Land Management (PISLM), particularly through the Caribbean SIDS SOILCARE Project. The project will utilize available tools and methods, and contribute lessons learned to global efforts in assessing, monitoring and arresting land degradation though knowledge hubs such as WOCAT and Trends Earth that will advance the country’s commitment to meeting obligations under the UNCCD. Knowledge on successful approaches on climate smart agriculture will be shared among the regional partner networks through IICA, CARDI and other organizations. The project will expand knowledge dissemination opportunities via a proposed annual conference. The knowledge management strategy and plan for the project that is in alignment with the GEF knowledge management framework, will be developed during the PPG Phase. All publications developed under this project will comply with the communications policies of the GEF and its partner Agencies.

9. Environmental and Social Safeguard (ESS) Risks

Provide information on the identified environmental and social risks and potential impacts associated with the project/program based on your organization's ESS systems and procedures

Overall Project/Program Risk Classification*

PIF	CEO Endorsement/Approval	MTR	TE
Medium/Moderate			

Measures to address identified risks and impacts

Provide preliminary information on the types and levels of risk classifications/ratings of any identified environmental and social risks and potential impacts associated with the project (considering the GEF ESS Minimum Standards) and describe measures to address these risks during the project design.

Attach the Safeguard Risk Identification Form (SRIF)

Supporting Documents

Upload available ESS supporting documents.

Title	Submitted
GEFID10694_Review Sheet - PIF Bahamas LD_UNEP 28Oct	
GEF 7 PIF_Bahamas LD project_V7_Resubmission (submitted)	
GEF 7 PIF_Bahamas LD project_V6_Resubmission (submitted)	
GEFID10694_Review Sheet - PIF Bahamas LD_UNEP 22Oct	
EX-ACT_Carbon calculations_Bahamas LD project_PIF submission	
GEFID10694_Review Sheet - PIF Bahamas LD_UNEP	
GEF 7 PIF_Bahamas LD project_Resubmission (submitted)	
GEF 7 PIF_Bahamas LD project_V4 (submitted)	
Safeguards_Bahamas LD project_rev	

Part III: Approval/Endorsement By GEF Operational Focal Point(S) And Gef Agency(ies)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the Operational Focal Point endorsement letter with this template).

Name	Position	Ministry	Date
Rochelle Newbold	Operational Focal Point	Dept. of Environmental Planning & Protection, Ministry of the Environment & Housing	9/25/2020

ANNEX A: Project Map and Geographic Coordinates

Please provide geo-referenced information and map where the project intervention takes place

Annex A

PROGRAM/PROJECT MAP AND GEOGRAPHIC COORDINATES



Abaco

Total area: 114,600 ha

Land use

- **Agriculture:** Mix of subsistence and large-scale commercial agriculture. Subsistence farming mainly in vicinity of settlements. Large tracts of crown lands are leased for commercial farming.
- **Forests:** Pine forests dominate with coppice/broadleaf forests. Mangroves in Marsh Harbour area
- **Urban:** Settlement and built-up areas concentrated along highways. New settlements include squatting (significant issue) in these areas with encroachments into forest areas. Land conversions for commercial activity.

Land degradation issues: Mechanized agriculture includes large-scale clearing of trees using heavy equipment; underlying rock pulverization and spreading on landscape. Forests are cleared for settlements and agriculture with negative biodiversity impacts. Slash and burn practice/shifting cultivation to increase fertility (ash content) mainly for subsistence agriculture results in biodiversity impacts and soil fatigue/fertility reduction. Chemical inputs needed to compensate with potential water resource pollution. Saltwater intrusion/ deposition on landscapes, exacerbated by Hurricane Dorian storm surge; all non-salt tolerant vegetation killed also due to significant wind damage. Soil loss in places due to retreating storm surge (surface soils carried out to sea). Landscape predisposed to bark beetle infestation and further biodiversity and forest impacts. Agricultural lands with heavy saline deposition and loss of soils with surge retreat with loss of productivity. Quarry operations scattered across island with land degradation impacts.

Landscape areas proposed for restoration (map at left):

1. Treasure Key
2. Marsh Harbour
3. Sandy Point and Crossing Rock

Estimated area for intervention under project: 2,500 ha [to be validated at PPG phase]



Andros

Total area: 343,900 ha

Land use

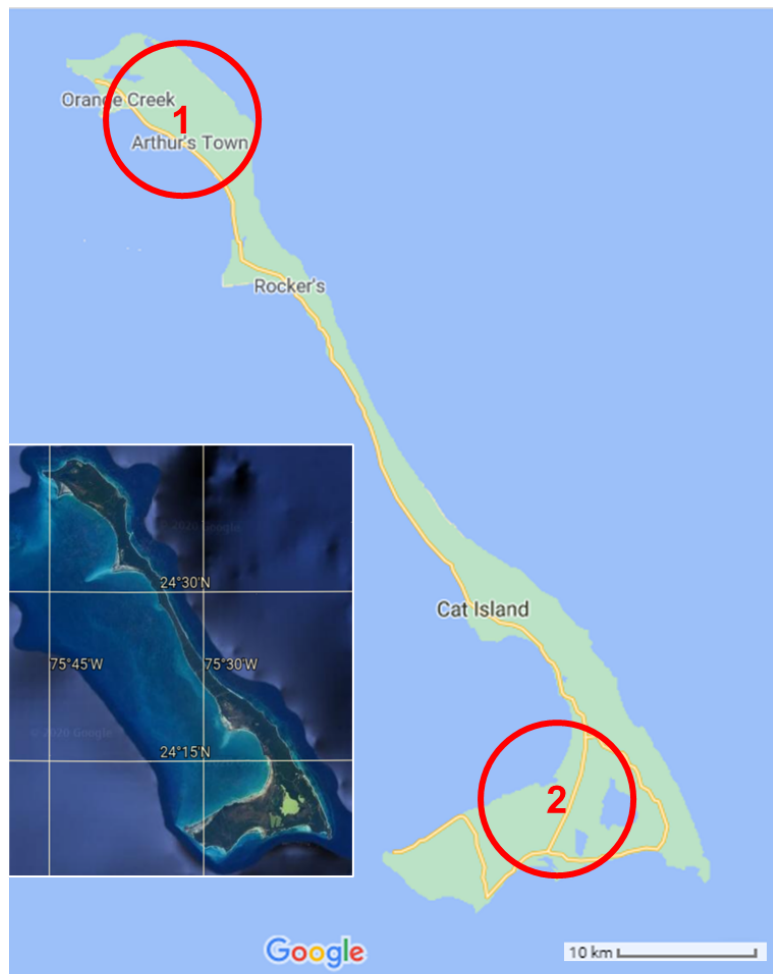
- **Agriculture:** Mix of large-scale commercial and subsistence agriculture. Subsistence agriculture mainly in vicinity of settlements. Large tracts of Crown lands are leased by Government to farmers for larger-scale farming.
- **Forests:** Pine forests dominate, wetlands on west side of island.
- **Urban:** Settlement and built-up areas mainly concentrated along roadways. New settlement areas include some squatting (associated with illegal immigration) encroachment into pine forests. These areas include commercial activities.

Land degradation issues: Mechanized agriculture includes large-scale clearing of trees using heavy equipment; underlying rock pulverization and spreading on landscape. Forests are cleared for settlements and agriculture with negative biodiversity impacts. Slash and burn practice/shifting cultivation to increase fertility (ash content) mainly for subsistence agriculture results in biodiversity impacts and soil fatigue/fertility reduction. Chemical inputs needed to compensate with potential water resource pollution. Saltwater intrusion/ deposition on landscapes due to storm surge. Soil loss occurs in places due to retreating storm surge - surface soils carried to sea.

Landscape areas proposed for restoration (map at left):

1. North Andros – Mastic Point settlement, Nicholls Town
2. Fresh Creek, Stafford Creek, Standiard Creek
3. Draiggs Hill to Mars Bay

Estimated area for intervention under project: 3,500 ha [to be validated at PPG phase]



Cat Island

Total area: 38,700 ha

Land use

- **Agriculture:** Subsistence agriculture dominates most of the cultivated areas, along with significant livestock production, mainly small ruminants. 'Pothole farming' within depressions in limestone for crop production (moisture conservation)
- **Forests:** Dominated by broadleaf coppice
- **Urban:** Settlement along main roads.

Land degradation issues: Slash and burn practice for subsistence agricultural production is typical. Negative biodiversity impacts and soil fatigue/fertility reduction. Chemical inputs needed to compensate with potential water resource pollution. Overgrazing is a significant issue with resultant land degradation and productivity loss. Saline intrusion/soil salinization is issue.

Landscape areas proposed for restoration (map at left):

1. Orange Creek & Arthurs Town
2. Port Howe

Estimated area for intervention under project: 500 ha [to be validated at PPG phase]



Eleuthera

Total area: 45,700 ha

Land use

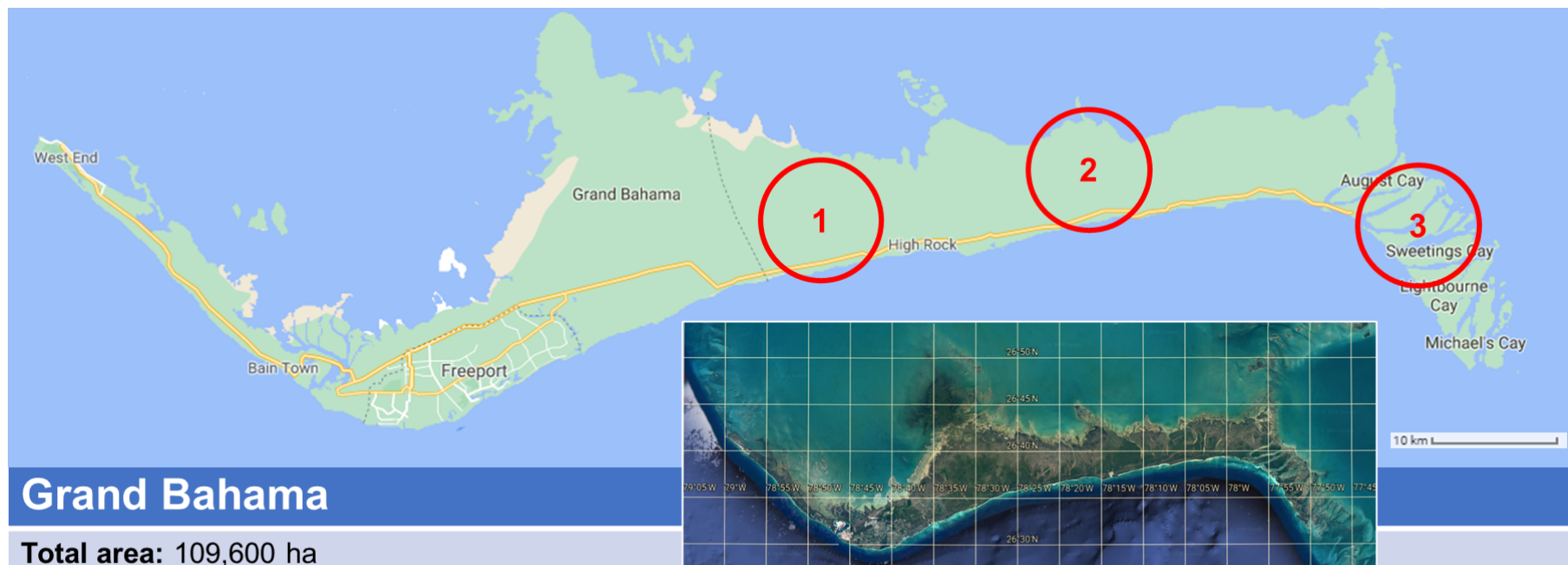
- **Agriculture:** Subsistence agriculture dominates most of the cultivated areas, along with livestock production, mainly small ruminants. Soils of better quality in north compared to south due to climatic variation across island.
- **Forests:** Dominated by broadleaf coppice
- **Urban:** Lands mostly under private ownership with some illegal squatting

Land degradation issues: Slash and burn practice for subsistence agricultural production is typical. Negative biodiversity impacts and soil fatigue/fertility reduction. Chemical inputs needed to compensate with potential water resource pollution. Overgrazing and resultant land degradation and productivity loss. Some forest conversion for squatter settlement. Saline intrusion/soil salinization is an issue.

Landscape areas proposed for restoration (map at left):

1. Upper and Lower Bouge & Gregory Town
2. Palmetto Point
3. Rock Sound

Estimated area for intervention under project: 700 ha [to be validated at PPG phase]



Grand Bahama

Total area: 109,600 ha

Land use

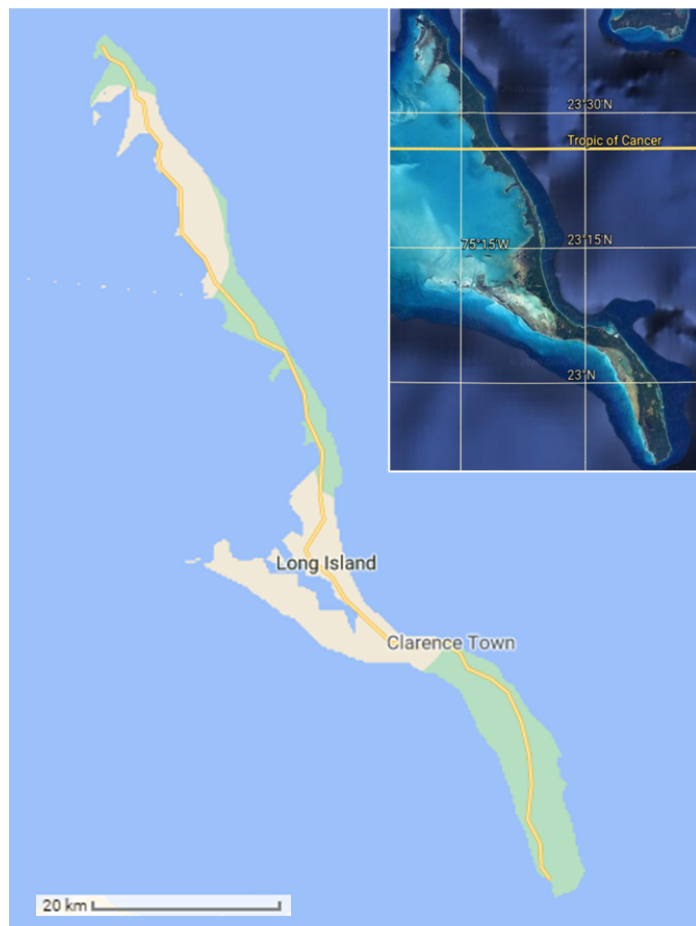
- **Agriculture:** Some large-scale farming areas, limited subsistence agriculture and animal husbandry.
- **Forests:** Eastern part island dominated by pine forest. The Cays are mangrove and pine forest.
- **Urban:** Settlement and built-up areas concentrated around west and southern areas. Small settlements along highway going east (destroyed by Hurricane Dorian)

Landscape areas proposed for restoration (map above):

1. High Rock
2. Pelican Point
3. Sweetings Cay and McClean's Town

Land degradation issues: Limited slash and burn practice. All non-salt tolerant vegetation has been killed off by Hurricane Dorian due to saltwater intrusion and wind damage. Predisposed to bark beetle infestation and further biodiversity and forest impacts. Agricultural lands with heavy saline deposition and loss of soils with surge retreat with loss of productivity.

Estimated area for intervention under project:
2,100 ha [to be validated at PPG phase]



Long Island

Total area: 53,800 ha

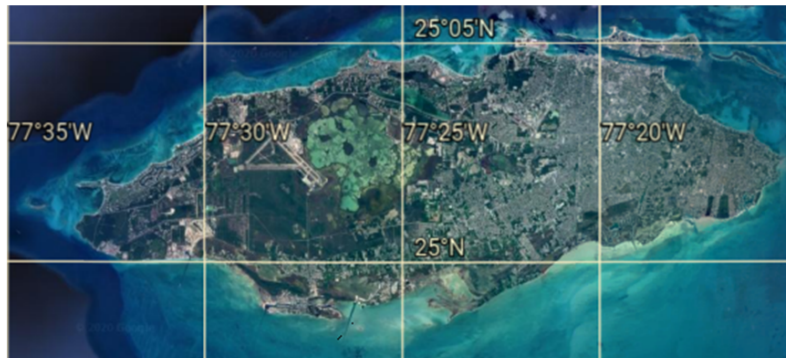
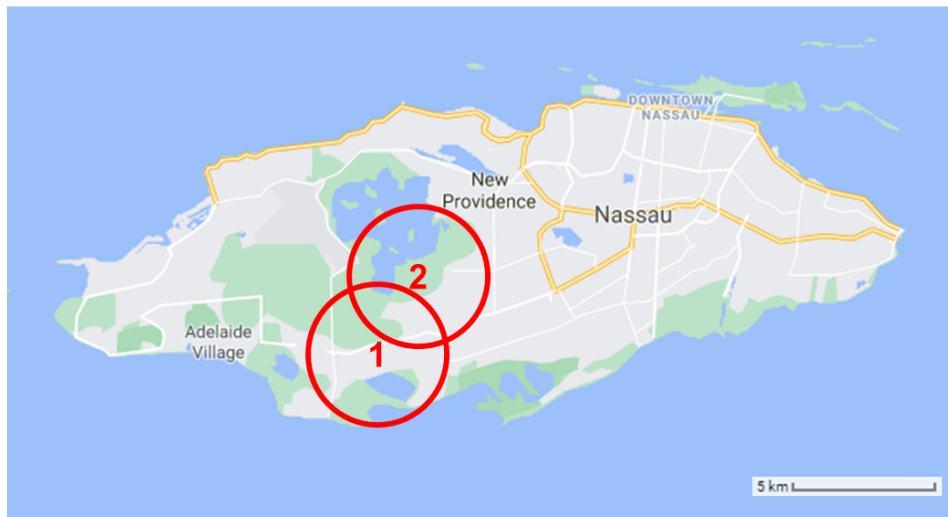
Land use

- **Agriculture:** Subsistence agriculture dominates most of the cultivated area with significant small ruminant (sheep and goat) production. 'Pothole farming' within depressions in limestone for crop production (moisture conservation)
- **Forests:** Dominated by broadleaf coppice and mangroves
- **Urban:** Settlement along roads

Land degradation issues: Slash and burn practice across island. Uncontrolled grazing is a significant issue. Saline intrusion/soil salinization is an issue.

Landscape areas proposed for restoration (map at left):
Over entire landscape

Estimated area for intervention under project: 600 ha [to be validated at PPG phase]



New Providence

Total area: 22,800 ha

Land use

- **Agriculture:** Mainly smaller holdings under subsistence systems under leasing land allotment arrangements at Bonefish Pond. Livestock production (cows, sheep, goats, pigs) in this area.
- **Forests:** Pine forests and mangrove dominate south of Lake Killarney wetland around Carmichael Village.
- **Urban/commercial:** Agricultural areas are being converted to settlement (illegally) now with a mix of squatting and is expanding. Light agro-industrial activities are interspersed within the areas. Quarrying/mining for aggregate spread through areas. Water extraction by the water utility from Lake Killarney. High degree of land conflict.

Land degradation issues: Remaining pine forests are subject to slash and burn practice/conversion for charcoal making with loss of land productivity and threats to biodiversity. Quarry extractions (mainly illegal) is compromising land productivity for agriculture.

Landscape areas proposed for restoration (map at left):

1. Bonefish Pond
2. Carmichael Road north – govt subdivision

Estimated area for intervention under project: 100 ha [to be validated at PPG phase]