

Food and Agriculture Organization of the United Nations



Signature Page

PROJECT DOCUMENT

Upon request from the Government of Jamaica, represented by the Forestry Department, the Food and Agriculture Organization of the United Nations (FAO) will provide technical assistance for the following Project:

Project Title:	Jamaica Mangroves Plus: Protection and Sustainable Management of Jamaica's
	Mangrove Ecosystems and Biodiversity
Project Symbol:	GCP /JAM/021/GFF

Upon signature of this project document by the duly authorized representatives of both parties, the project will be implemented in accordance with the background, rationale and management arrangements described herein.

On behalf of:		On behalf of:			
The Government of Jamaica The Forestry Department		The Food and Agriculture Organization of the Unite Nations			
Name:	Ainsley A. Henry, JP	Name:	Crispim Moreira		
Title:	CEO & Conservator of Forests	Title:	FAO Representative for Jamaica, The Bahamas and Belize		
Date:	19 June 2023	Date:	29 March 2023		





FAO-GEF PROJECT DOCUMENT

Project Title:	Jamaica Mangroves Plus: Protection and Sustainable Management of Jamaica's
	Mangrove Ecosystems and Biodiversity

GEF ID: 10653	FAO Entity Number: 669884 FAO Project Symbol: GCP /JAM/021/GFF			
	Countries: Jamaica			
	EOD (Implementation start): 1 May 2023			
	NTE (Implementation end): 30 April 2027			
Environmental and Social Risk	Low risk € Moderate risk x High risk €			
Classification:				
Gender Marker ¹ :	$G0 \in G1 \in G2a \times G2b \in$			
Contribution to FAO's Strategic	 Strategic Objective/Organizational Outcome: 			
Framework:	 Country Outcome(s): 			
(Indicate as appropriate)	 Country Programming Framework(s) Output(s): 			
	Regional Initiative/Priority Area:			
	Project Budget (GEF/SCCF/LDCF): USD 1 648 630			
	Co-financing: USD 7 703 436			
Total Project Budget: USD 9 352 066				
Executive Summary				

¹ See <u>Guidance Note on Gender Mainstreaming</u> in project identification and formulation

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Acronyms

A complete list of all acronyms used within the text can be provided.

Note: the first time a term is introduced in the text it must be spelled out in full followed by the bracketed acronym (example: FAO (Food and Agriculture Organization of the United Nations).

Acronym	Description
AWP/B	Annual work-plan and budget
BH	Budget Holder
CBD	Convention on Biological Diversity
C-CAM	Caribbean Coastal Area Management Foundation
CITES	Convention on International Trade in Endangered Species of Wild Flora and Fauna
CMS	Centre for Marine Sciences
CSO	Civil society organization
DOs	Development Orders
EHU	Environmental Health Unit
EIA	Environmental Impact Assessment
EP	Environmental Permit
EU-BSP	European Union Budget Support Programme
FAO	Food and Agriculture Organization
FLO	Funding Liaison Officer
FD	Forestry Department
FPMIS	Field Program Management Information System
FW	Forested Wetland
GEF	Global Environment Facility
GIS	Geographic Information System
GOJ	Government of Jamaica
GHG	Greenhouse gas
ha	Hectare (10 000 square metres; 0.01 square kilometre)
IUCN	International Union for Conservation of Nature
JCF	Jamaica Constabulary Force
JFB	Jamaica Fire Brigade
JNHT	Jamaica National Heritage Trust
JSIF	Jamaica Social Investment Fund
JTB	Jamaica Tourist Board
KHEAM	Kingston Harbour Eco-System Adaptation Measure
LSDP	Local Sustainable Development Plan
LTO	Lead Technical Officer
MDAs	Ministries, Departments and Agencies
MEGJC	Ministry of Economic Growth and Job Creation (includes Housing & Environment portfolios)
M&E	Monitoring and Evaluation
MGD	Mines and Geology Division
MTR	Midterm review
NDC	Nationally Determined Contribution (under UNFCCC)
MLGRD	Ministry of Local Government and Rural Development

NGO	Non-governmental Organisation
MOE	Ministry of Education
MOT	Ministry of Tourism
NBSAP	National Biodiversity Strategy and Action Plan
NEPA	National Environment and Planning Agency
NFMCP	National Forest Management and Conservation Plan
NGO	Non-governmental Organization
NLA	National Land Agency
NMMP	National Mangrove Management Plan
NMSFMP	National Mangrove and Swamp Forest Management Plan
NPD	National Project Director
NRCA	Natural Resources Conservation Authority
NSDMD	National Spatial Data Management Division
NSWMA	National Solid Waste Management Authority
NWA	National Works Agency
NWC	National Water Commission
OP	Operational Partner
OPA	Operational Partnership Agreement
OPIM	Operational Partnership Implementation Modality
PAC	Protected Areas Committee
PASMP	Protected Areas System Master Plan
PDC	Parish Development Committee
PES	Payment for Ecosystem Services
PIOJ	Planning Institute of Jamaica
PIR	Project Implementation Review
PMU	Project Management Unit
PoWPA	Programme of Work for Protected Areas
PPG	Project Preparation Grant
PPR	Project Progress Report
PSC	Project Steering Committee
PTF	Project Task Force
REDD+	Reducing Emissions from Deforestation and Degradation Plus
SA	Situational Analysis
SEP	Stakeholder Engagement Plan
SFMP	Strategic Forest Management Plan
SWOT	Strengths, Weaknesses, Opportunities and Threats
tCO2eq	Metric tons of carbon dioxide equivalent
TCPA	Town and Country Planning Authority
TE	Terminal Evaluation
TEF	Tourism Enhancement Fund
TNC	The Nature Conservancy
TOR	Terms of reference
TPDCo.	Tourism Product Development Company
UDC	Urban Development Corporation
UNCBD	United Nation Conservation on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification

UNFCCC	United Nations Framework Convention on Climate Change
UNFF	United Nations Forum on Forests
UWI	University of the West Indies
WRA	Water Resources Authority

PART I: PROJECT INFORMATION

Project Title: Jamaica Mangroves Plus: Protection and Sustainable Management of Jamaica's Mangrove Ecosystems and					
Biodiversity					
Country(ies):	Jamaica	GEF Project ID:	10653		
GEF Agency(ies):	FAO	GEF Agency Project ID (FAO entity number):	669884		
Project Executing Entity(s):	Forestry Department of Jamaica	Submission Date	12 September 2022		
GEF Focal Area (s):	Biodiversity	Expected Implementation Start	1 February 2023		
		Expected Completion Date	31 January 2027		
Name of Parent ProgramParent Program ID:					

C. FOCAL/NON-FOCAL AREA ELEMENTS

			(in USD)	
Programming Directions	Focal Area Outcomes	Trust Fund	GEF Project Financing	Co- financing
BD 1-1	Mainstream biodiversity across sectors as well as landscapes and seascapes through biodiversity mainstreaming in priority sectors	GEFTF	419 652	1 960 878
BD 1-3	Mainstream biodiversity across sectors as well as landscapes and seascapes through natural capital assessment and accounting	GEFTF	104 913	490 220
BD 2-7	Address direct drivers to protect habitats and species and Improve financial sustainability, effective management, and ecosystem coverage of the global protected area estate	GEFTF	1 124 065	5 252 338
Total project costs			1 648 630	7 703 436

b. PROJECT DESCRIPTION SUMMARY

Project Objective: To support the implementation of the National Mangrove Management Plan for promoting a biodiversity-positive approach towards sustainable management of mangrove ecosystems

Project	Com pone Pr nt Type	Project Outcomes F	Project Outputs	Trust Fund	(in USD)	
Components/ Programs					GEF Project Financing	Co- financing
1. National mangrove policy strengthening to support implementation of National Mangrove Management Plan	ΤΑ	1.1 Strengthened policy enabling environment for successful implementation of the National Mangrove Management Plan	<u>Output.1.1.1</u> Relevant provisional Parish Development Orders (DO) and Local Sustainable Development Plans (LSDP) revised and/or updated with appropriate zoning of forested wetlands, recommended uses and conservation status <u>Output.1.1.2</u> Permitting requirements and processes related to wetland replanting,	GEFTF	382 750	1 788 449

		nahabilitation and/on			
		restoration projects revised			
		to minimise illegal entry			
		into mangroves			
		Output.1.1.3			
		Mangrove and Coastal			
		Wetlands Protection Draft			
		Policy and Regulation			
		1007 reviewed undeted			
		1997, leviewed, updated			
		and finalised to compel and			
		coordinate action to protect			
		and sustainably use forested			
		wetlands			
		Output 1.1.4			
		Five policy briefs tailored			
		to specific sectors (Port and			
		Coastal Infrastructure			
		Tourism Oliveste Oliveste			
		Tourism, Chimate Change			
		and Environment, Waste			
		Management, Agriculture			
		and Fisheries) that raise			
		awareness on the value of			
		mangrove ecosystems and			
		biodiversity			
		blodiversity.			
		0 + +115			
		Output.1.1.5			
		Potential for acquisition of			
		privately owned forested			
		wetlands by GOJ			
		institutions investigated,			
		with indicative costs for the			
		acquisitions			
	1 2 Ecosystem based	Output 1.2.1			
	1.2 ECOSYSTEIII-Dased	$\frac{Output 1.2.1}{A \text{ minimum of } 7,600 \text{ ha of}}$			
	mangrove	formated wetler de Chief			
	management, with	Torested wetlands of high			
	emphasis in resource	ecosystem value and/or			
	users and livelihoods,	special interest designated			
	mainstreamed into	as protected areas/forest			
	land use planning	reserves, with boundaries			
	processes.	for gazetting and			
		corresponding regulations			
		drafted			
	GEF Core Indicator				
	4.1:	Output 1.2.2 Gender and			
	Area of landscapes	vouth mainstreaming			
	under improved	strategy and plan for			
	management to benefit	suategy and plan for			
	biodiversity.	ecosystem-based			
	Target: 7 600 ha of	management of priority			
	mangrove landscapes				
	mangrove ranuscapes		l	l	

		under improved	forested wetland areas			
		management to banafit	developed and implemented			
		hiadiyarsity	developed and implemented			
		biodiversity	Output 1.2.3 Feasibility of a			
			payment for accession of a			
			somulases (DES) program in			
			services (PES) program in			
			selected forest wetland			
			areas and adjacent			
			communities examined			
			(pilot)			
		1.3 New mangrove	Output 1.3.1: COL forested wetlands in			
		protected areas	need of urgent conservation			
		established	and to be transformed to ED			
			and to be transferred to FD			
		<u>GEF Core Indicator</u>	prioritised (from identified			
		<u>1.1:</u> Terrestrial protected	sites on FD working list)			
		areas newly created	Output 1.2.2.			
		Target • 4 297 ha of	Output 1.5.2:			
		mangroves	lands transforred to the			
		6				
			Forestry Department by the			
			Commissioner of Lands, as			
			well as Ministries,			
			Departments and Agencies			
			(MDAs), for the			
			management of forested			
			wetlands			
2. Mangrove	INV	2.1 Restored health of	Output 2.1.1 Forested	GEFTF	736 450	3 441 157
ecosystem		priority mangrove	wetlands in need of urgent			
improved		habitats to improve	conservation/ restoration			
ecosystem		associated biodiversity	prioritised (from identified			
services and		and mangrove	sites on FD working list)			
protection of key		ecosystem services,	Output 2.1.2: Postoration			
biodiversity		including support to	Output 2.1.2. Restoration			
		marine ecosystems and	plans developed for			
		iisneries.	prioritised "restorable"			
			mangrove areas in Jamaica			
			with the costs for effecting			
		GEF Core Indicator	conservation and/or			
		Area of wetlands	hydrological restoration			
		(including estuaries,	Output 2 1 3. Hydrological/			
	1	monorouse) restand	<u>Supur 2.1.3.</u> Hyurological/	1		
		mangroves) restored	hydrodynamic and			
		Target: 2 212 ha of	hydrodynamic and			
		Target: 2 212 ha of mangroves	hydrodynamic and vegetation features and natural resource values of			
		Target: 2 212 ha of mangroves	hydrodynamic and vegetation features and natural resource values of			
		Target: 2 212 ha of mangroves	hydrodynamic and vegetation features and natural resource values of FD working list of forest			
		Target: 2 212 ha of mangroves	hydrodynamic and vegetation features and natural resource values of FD working list of forest wetland sites, to be			
		GEF Core Indicator 6.1:	hydrodynamic and vegetation features and natural resource values of FD working list of forest wetland sites, to be conserved/protected,			
		GEF Core Indicator6.1:Carbon sequestered or	hydrodynamic and vegetation features and natural resource values of FD working list of forest wetland sites, to be conserved/protected, analysed			
		GEF Core Indicator6.1:Carbon sequestered oremissions avoided in	hydrodynamic and vegetation features and natural resource values of FD working list of forest wetland sites, to be conserved/protected, analysed			
		GEF Core Indicator6.1:Carbon sequestered oremissions avoided inthe AFOLU sector	hydrodynamic and vegetation features and natural resource values of FD working list of forest wetland sites, to be conserved/protected, analysed <u>Output 2.1.4:</u> Restoration/			

		Target: 1 635 732 mt	degraded mangrove areas			
		$CO_2 - eq$	completed			
		002 04	completed			
			Output 2.1.5:			
			Mangrove ecosystem			
			education "Mangrove			
			Matters" hillboards			
			designed and erected			
			alongsida restored			
			mangroup group			
A. W. 1.1				GEETE	250.020	1
3. Knowledge	TA	3.1 Improved	Output 3.1.1:	GEFTF	379 830	1 7/4 805
management and		management and	A standard and GOJ entity			
monitoring and		dissemination and	used/agreed repository or			
evaluation		awareness of Jamaica	webpage with forested			
e (urbation		mangrove habitat	wetlands use, status and			
		knowledge	management data in			
			Jamaica created			
		GEF Core Indicator 11				
		Number of direct	Output 3.1.2: Relevant			
		beneficiaries	agencies trained on the			
		disaggregated by gender	purpose and use of the			
		as co-benefit of GEF	Jamaica forested wetlands			
		investment	database and granted			
		Target: 400 (50 percent	appropriate access			
		Female)	······································			
			Output 3.1.3:			
			Existing GIS portal on			
			Forestry Dept website			
			modified to include revised			
			forested wetland locations			
			as a layor/foatura			
			as a layer/leature.			
			Output 2.1.4. Landaus			
			Output 3.1.4: Land use			
			and/or zoning maps created			
			with an overlay to illustrate			
			forested wetland locations			
			and physical boundaries			
			using data collected and			
			verified by FD			
		3.2 Effective project	<u>Output 3.2.1:</u>			
		management and	Monitoring and Evaluation			
		evaluation to inform	Strategy developed with			
		adaptive management	relevant stakeholders,			
			clearly defining expected			
			results, the expected time			
			periods for their			
			completion, and their			
			confirmation through			
			objectively verifiable			
			indicators and means of			
			verification.			

		Output 3.2.2: Mid-term review and final evaluation conducted to constructively inform and guide project implementation, sustainability considerations, and the application of adaptive measures when necessary		
Subtotal			1 499 030	7 004 411
Project Management Cost (PMC)		149 600	699 025	
Total project costs			1 648 630	7 703 436

For multi-trust fund projects, provide the total amount of PMC in Table B, and indicate the split of PMC among the different trust funds here: ()

D. Confirmed sources of $\underline{\text{Co-financing}}$ for the project by name and by type

Sources of Co- financing	Name of Co-financier	Type of Co- financing	Investment Mobilized	Amount (USD)
Recipient Country	Forestry Department	In-kind	Recurrent	6 903 436
Government			Expenditures	
	Caribbean Coastal Area Management	Grant	Investment	50 000
	(C-CAM) Foundation		Mobilized	
Recipient Country	National Fisheries Authority (NFA)	In-kind	Recurrent	700 000
Government			Expenditures	
	The Nature Conservancy	In-Kind	Recurrent	50 000
			Expenditures	
Total Co-financing				7 703 436

Please include evidence for co-financing for the project with this form.

Describe how any "Investment Mobilized" was identified.

During the project period, The Caribbean Coastal Area Management Foundation (C-CAM) will be conducting work in one of the main project sites: the Portland Bight Protected Area (PBPA). This work considers the implementation of the following initiatives and activities related to this project:

(i) The European Union funded project 2021-2023 - "Enhancing the capacity for management of dry forests in the Portland Bight Protected Area, Jamaica" including the following activities: assess management plans of the PBPA to protect some of the world's most endangered and threatened species including the Jamaican Iguana (*Cyclura collei*), the Portland Ridge Land Frog (*Eleutherodoctylus cavernicola*) and the Jamaican Skink (*Spondylurus fulgidus*). (ii) the Critical Ecosystems Partnership Fund project 2022 – 2025 "Participatory preparation and implementation of the Portland Bight Protected Area Management Plan, Jamaica". Specific activities related to this project include the support from the Natural Conservation Authority (NRCA) for overall management of the PBPA including monitoring forest and mangrove areas.

E. TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES), FOCAL AREA AND THE PROGRAMMING OF FUNDS

					(in USD)			
GEF Agency	Trust Fund	Country Name/Global	Focal Area	Programming of Funds	GEF Project Financing (a)	Agency Fee (b)	Total (c)=a+b	
FAO	GEFTF	Jamaica	Biodiversity	Biodiversity	1 648 630	156 620	1 805 250	
Total GEF Resources					1 648 630	156 620	1 805 250	

F. DOES THE PROJECT INCLUDE A "NON-GRANT" INSTRUMENT? NO

(If non-grant instruments are used, provide in Annex D an indicative calendar of expected reflows to your Agency and to the GEF/LDCF/SCCF Trust Fund).

G. PROJECT'S TARGET CONTRIBUTIONS TO GEF 7 CORE INDICATORS

Pro	ject Core Indicators	Expected at CEO Endorsement
1	Terrestrial protected areas created or under improved management for conservation and sustainable use (Hectares)	4 297
3	Area of land restored (Hectares)	2 212
4	Area of landscapes under improved practices (excluding protected areas)(Hectares)	7 600
6	Greenhouse Gas Emissions Mitigated (metric tons of CO2e)	1 635 732
11	Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment	400 (50 percent female)

PART II: PROJECT JUSTIFICATION

1. **Project Description**

4) Global environmental and/or adaptation problems, root causes and barriers that need to be addressed (systems description)

GLOBAL ENVIRONMENTAL SIGNIFICANCE

- 1. Mangroves are one of only a few tropical plants that have adapted to survive in salty water along the shores, estuaries and coastal areas of tropical countries like Jamaica. Salt normally kills plants, but mangroves have created an elaborate root system that can filter out as much as 90 percent of the salt in the seawater. Meanwhile the leaves store freshwater and excrete excess salt. The mangrove breathes by growing many long thin roots that stick up out of the sea water like snorkels. These roots also help stabilise the mangrove tree. Furthermore, some species of mangrove have developed a unique way to reproduce itself by producing seed pods that germinate on the tree. When these seed pods fall, they are ready to take root immediately. There are four species of mangrove in Jamaica: red (*Rhizophora mangle*), black (*Avicennia germinans*), white (*Luguncularia racemosa*) mangrove and buttonwood (*Conocarpus erectus*).
- 2. Mangrove ecosystems are considered globally significant ecosystems because they provide multiple ecosystem services, including supporting the resource base of several economic and subsistence livelihood activities. Mangroves act as natural barriers to waves and storm surges and help mitigate flooding by reducing wave energy and slowing down storm surges. Mangroves provide an array of benefits to coastal communities, including wood and non-wood forest products and environmental services encompassing shoreline protection, erosion control, water filtration, nutrient cycling and biodiversity conservation, recreational and educational opportunities in addition to their role as nursery habitats for a variety of fish species. Mangroves are also recognized as valuable to climate change mitigation efforts due to the outsized amounts of carbon contained in above and below ground mangrove biomass and trapped within the soils between mangrove root systems.
- 3. Environmental services of mangroves may be grouped into regulating, supporting, provisioning, and cultural benefits (Webber et al. 2016^[1]).
 - a. Regulating: 1. Climate regulation; 2. Shoreline stabilization; 3. Water filtration and pollution regulation.4. Coastal Protection and Resilience.
 - b. Supporting: 1. Habitat for various biota, including juvenile fish that are important both as essential components of coral reef and other ecosystems and are important commercial species; 2. Carbon sequestration; 3. Spawning ground for numerous marine species.
 - c. Provisioning: 1. Fisheries production 2. Aquaculture production 3. Pharmaceutical generation 4. Charcoal and lumber resources 5. Honey 6. Tannins 7. Salt.
 - d. Cultural benefits: 1. Recreation & tourism; 2. Educational opportunities 3. Aesthetic & cultural values.
- 4. It is generally agreed that mangrove forests and swamps are the most cost-effective method of shoreline defence. They are part of nature-based solutions for protecting shorelines from storms and floodplains from absorbing excess water runoff. These natural services performed by mangrove forests as part of the 'living shoreline' have an infrastructure-like function.
- 5. Mangrove forests help reduce coastal flooding by acting as physical obstacles to the flow of water and waves. The dense roots and stems of a mangrove forest provide a drag resistance that is strongly related to wave reduction (Mendez and Losada, 2004^[2]). Increasing the area of mangrove forests can lead to more drag on incoming waves and storm surges, thus reducing the flooding that these waves and surges will cause inland. In addition to their direct effects on water levels, healthy mangrove forests have the capacity to build land elevation and keep pace with sea-level rise (McIvor et al., 2013^[3]). As ecosystem-based adaptation measures, healthy mangrove forests provide the unique advantage of self-maintenance in this respect, unlike traditional

structures such as levees which will require costly upgrades to maintain current standards of protection (Hinkel et al., 2014^[4]).

- 6. The value of Jamaica's mangrove forests for flood risk reduction to the nation's built capital is estimated at more than USD 2 500 [JMD 336 000] per hectare per annum. The loss of Jamaica's mangroves would further result in a 10 percent increase in the total number of people flooded every year. Mangrove benefits are most apparent for high intensity storms of 1 in 500-year return periods. During these storms, mangrove forests protect 770 000 people and nearly USD 2.4 billion [JMD 322 billion] or 50 percent of the total affected population and built capital. This translates to economic benefits of more than USD 186 million [JMD 25 billion] per hectare of mangroves. For instance, analysis of recently lost mangroves in Old Harbour Bay show that the loss of these mangroves has resulted in the loss of flood protection benefits of more than USD 1 million [JMD 136 million] each year^[5].
- 7. The mangroves and sand dunes of the Palisadoes and Port Royal Protected Area are well documented to provide natural coastal protective services associated with the relatively calm waters of the Kingston Harbour. This vegetation flanking the southern harbour boundaries, and which keeps the tombolo intact from erosion, makes for calm weather conditions allowing regular ship docking and transhipment activities, which are essential to the Jamaican economy.
- 8. In addition to coastal protection, which has not been valued rigorously so far, Jamaica's mangroves also provide other ecosystem services that are critical to local communities. These services include timber supplies for construction and daily-use and artisanal products, small-scale farming, and firewood.
- 9. Because of their submerged root system, mangroves retard water movement and trap suspended materials and the remains of organisms associated with the mangroves. The accumulation of this organic material contributes to raise the soil level. Continued accumulation of soil, particularly by sea fringing mangrove stands, builds the shoreline seaward. In the course of this process, the rich protected substrata provide a habitat for a large variety of organisms that serve as food for marine fauna, including oysters and crabs, which are a harvestable source of protein.
- 10. Jamaica is home to four types of mangroves that play important ecosystem and socio-economic roles. Moving inland from the sea, the four types of mangroves transcend from the red mangrove (*Rhizophora mangle*) (closest to the sea) to the black mangrove (*Avicennia germinans*) and then the white mangrove (*Laguncularia racemose*), and the button mangrove (*Conocarpus erectus*). These mangroves are typified by a low diversity of species with black mangrove dominating. The red mangrove is the second-most dominant species found in Jamaica.
- 11. *Rhizophora mangle* dominates the coastline as it is the most resistant to water movement generated by tides and occasional waves and has viviparous seedlings that are adapted to the lower intertidal areas and associated water movement. *Rhizophora* roots are also believed to play a successional role in trapping both *Rhizophora* species and other smaller seedlings of the other species. Mangrove forests normally show zonation with *Avicennia germinans* and *Laguncularia racemose* occurring further back from the deeper tidal zone as their propagules are smaller, less resistant to water movement and physical injuries, and are often washed further inland.
- 12. Jamaican records and literature suggest a fourth species of mangrove tree; the buttonwood or button mangrove, *Conocarpus erectus*. However, this species should be classified as a mangrove associate and not a true mangrove species, as it does not possess viviparous seedlings, the wind dispersed seeds cannot germinate in salty water and it lacks special root adaptations to deal with prolonged inundation.
- 13. Jamaican mangroves ecosystems provide habitat for many threatened species, including the West Indian manatee (*Trichechus manatus*) listed as Endangered on the IUCN Red List and the West Indian Whistling Duck (*Dendrocygna arborea*) and the American Crocodile (*Crocodylus acutus*) that are listed as Vulnerable on the IUCN Red List and listed in Appendix I of the Convention on International Trade in Endangered Species (CITES). The majority of American crocodile populations in Jamaica inhabit the mangrove swamps and marshes along the southern coast of the island, including the Black River Great Morass in St Elizabeth parish

and Milk River in Manchester parish, with a few isolated populations on the north coast in the parishes of Hanover and Trelawny.

- 14. Mangrove habitats further support a large group of animals belonging to a range of taxonomic groups. Many of these animals live in association with the prop roots of the red mangrove or may be found on the benthos of the mangrove lagoon. Yet others live in the mangrove forest, occupying forest floor or canopy. More common mangrove species identified by studies conducted by the University of West Indies include (a) *Cnidaria* (anemone and jellyfish), (b) *Annelida* (ringed worms); (c) *Crustaceans* (including such animals as lobster, crab, shrimp, oysters, barnacles, clams, conch, snails, urchins, sand dollars, sea stars and brittle stars, and sea cucumbers), and; (d) and many types of vertebrata. Jamaican mangroves are also home to many stationary and migratory birds, including the green heron (*Butorides virescens*), great egret (*Ardea alba*), mangrove cuckoo (*Coccyzus minor*), brown pelican (*Pelecanus occidentalis*), and near threatened migratory birds such as the West Indian whistling duck (*Dendrocygna arborea*).
- 15. Jamaican mangrove habitats are known to host a vibrant community of other flora and fauna, including several additional halophytic plant species. Jamaica has 40 Key Biodiversity Areas (KBAs). The mean percent coverage of all KBAs by Protected Areas (PAs) or Other Effective Area-Based Conservation Measures (OECMs) in Jamaica is 22.1 percent. At least 13 of KBAs include areas of coastline all around Jamaica that include wetland mangrove ecosystems or are directly adjacent and ecologically connected to wetland areas. The largest KBAs that include areas in the coastal zone are the Black River Great Morass, Portland Blight Protected Area and Negril.
- 16. Jamaica has a high level of endemism for many species of animals. One of the most important endemic species to Jamaica is the Jamaican iguana (*Cyclura collei*). The Jamaican iguana is known to live in low-lying dryland ecosystems and marshlands that are adjacent to and highly connected to mangrove ecosystem health. The Jamaican Iguana was once widely distributed across Jamaica, but now only a small population survives in the Hellshire Hills, located on the south-central part of the Jamaica and within the Portland Blight Protected Area. The Jamaican iguana is currently listed as critically endangered
- 17. Mangroves provide home and shelter for many fish species and the sustainability of Jamaica's artisanal, recreational, and commercial fisheries are directly dependent upon mangrove ecosystems. These include fish species that spend part of their lifecycle in wetlands during breeding and spawning. Mangroves also serve as a nursery for juvenile fish. Commercially important species of fish found in Jamaican mangrove ecosystems include parrotfish, snapper, grunt, snook, tarpon, and jack. The reef fish of economic importance in Jamaica include representatives from the families: *Mullidae* (goatfishes / red mullets), *Haemulidae* (grunt), *Serranidae* (sea basses and groupers), *Acanthuridae* (surgeonfishes and unicornfishes), *Lutjanidae* (snappers), *Carangidae* (jacks), *Holocentridae* (squirrelfish), *Holacanthus* (angelfishes), *Balistidae* (triggerfishes), and *Scaridae* (parrotfishes). Several popular finfish species also rely on mangrove habitats at early stages in their life history that later in life provide a valuable socio-economic service. For example, a marlin tournament in Portland Parish has been an extremely popular event for over 50 years. Mangroves are also important breeding grounds for several species of fresh and brack water.
- 18. The National Environment and Planning Authority (NEPA), in an effort to protect the country's wetlands, has declared four Ramsar sites. These are the Black River Lower Morass in 1997, Palisadoes–Port Royal Protected Area 2005, the Portland Bight Wetlands and Cays, 2006 and Mason River Protected Area, 2011.

^[1] Webber, M., Calumpong, H., Ferreira, F., Granek, E., Green, S., Ruwa, R., & Soares, M., 2016. Mangroves. *The First Global Integrated Marine Assessment: World Ocean Assessment I*, 877-886.

^[2] Mendez, F.J., Losada, I.J., 2004. An empirical model to estimate the propagation of random breaking and nonbreaking waves over vegetation fields. *Coast. Eng.* 51, 103–118.

^[3] McIvor, A.L., Spencer, T., Möller, I., Spalding, M., 2013. The response of mangrove soil surface elevation to sea level rise. *Nat. Coast. Prot. Ser.* Rep. 3.

^[4] Hinkel, J., Lincke, D., Vafeidis, A.T., Perrette, M., Nicholls, R.J., Tol, R.S.J., Marzeion, B., Fettweis, X., Ionescu, C., Levermann, A., 2014. Coastal flood damage and adaptation costs under 21st century sea-level rise. *Proc. Natl. Acad. Sci. U. S. A.* 111, 3292–7.

^[5] Ortega, Saul Torres; Losada, Inigo J.; Espejo, Antonio; Abad, Sheila; Narayan, Siddharth; Beck, Michael W. 2019. *The Flood Protection Benefits and Restoration Costs for Mangroves in Jamaica*. Forces of Nature; World Bank, Washington, DC. © World Bank. <u>https://openknowledge.worldbank.org/handle/10986/35166</u>

THE GLOBAL ENVIRONMENTAL PROBLEM

- 19. Coastal ecosystems including mangrove forests continue to be lost and degraded. Globally, mangrove forests have seen area losses of about 35 percent (Valiela et al., 2009^[11]) since original global recordings in the early 1980s. Their annual loss rate is about 2.1 percent from natural forces such as hurricanes and associated winds, and anthropogenic forces such as coastal development and aquaculture (Valiela et al., 2009). The loss of mangroves and coral reefs will result in the loss of their ecosystem services, and specific to coastal flooding, will result in an increase in flood damages to communities that are otherwise protected by these ecosystems.
- 20. Jamaica like much of the Caribbean region is at high risk from coastal hazards due to its exposure to tropical storms, high levels of coastal development, and vulnerable coastal communities. Approximately 70 percent of Jamaica's population lives in coastal areas, and over 50 percent of its economic assets such as airports, harbours and tourism infrastructure are located on the coast (Richards^[2], 2008). Between 1988 and 2011, 11 major storms made landfall in Jamaica, causing significant damages to people and property. Such natural disasters remain a main risk to the country's economy and economic outlook with significant challenges for disaster recovery and re-development. Meanwhile, human coastal development and economic activity continue to increase across the country.
- 21. In general, there is very limited data on the spatial extents of mangroves since mangroves in Jamaica are typically classified and counted together with fresh-water 'swamp' forests and only recently have mangrove extents been recorded separately (NEPA, 2014). Though data on individual wetlands exist, there is little documentation of long-term trends in the extent, status and health of Jamaica's mangroves (Henry et al., 2018^[3]). FAO (2005) indicates that in the 1970's that mangroves might have extended across more than 15 000 ha in Jamaica.
- 22. Estimates of mangrove extents since then vary a lot but it appears that the main coastal wetland areas of the country where mangroves are found amounted to approximately 11 674 ha in 2010. This increased to 16 735.40 ha and then declined to about 9 800 ha in 2013 due to human activity (Ortega et al., 2019^[4]).
- 23. It was thus assumed until recently that coastal mangroves in Jamaica covered an area of around 9 800 ha as per the penultimate estimate from 2013, making up less than 3 percent of Jamaica's total forest cover while 82 percent of the mangrove habitats were found on the country's southern coastline (Forestry Department of Jamaica, 2017). This area under mangroves represents a linear coverage of 291 km or 30 percent of the 955 km of the coastline of Jamaica.
- 24. Between 2019 and 2021, the Jamaican Forestry Department conducted detailed assessments of Jamaica's mangrove habitats with support from the European Union Budget Support Programme (EU-BSP) to underpin the National Mangrove Management Plan which is under development. The assessment reports revealed that there are 96 mangrove habitats in Jamaica today covering an area of 13 784 ha. The most significant percentages of coastal mangroves are found in the southern sections of St. Thomas, St. Catherine, Clarendon, St. Elizabeth and Westmoreland parishes, primarily in sheltered bays, estuaries, and inlets. Wetland parcels were identified as mangroves and swamp forests by the spatial mapping software if these areas had over 1 ha mangrove forest species.
- 25. Although most mangrove forests across the island are showing a decrease in area, most of the decline is seen for areas where coastal developments have taken place particularly along the north coast. For instance, Jamaica's northern parishes (main tourism belt) have seen a decline in nearly 300 ha of mangroves between 2005 and 2010 (NEPA, 2010). These changes are however relatively recent and are built on a long history of mangrove loss and degradation. Prior to 1997, mangroves in Jamaica were cleared or converted for other land-uses, often in irreversible ways (McDonald et al., 2003^[5]).
- 26. According to the Forestry Department's land use cover assessment of 2015, wetlands, comprising mangrove forest and swamp, experienced a loss of approximately 95 percent or 2 123 ha between 1998 and 2013. However, this

relates mainly to a loss of swamp forest, largely due to agricultural activity and infrastructure development including buildings and roadways.

27. Mangrove losses and gains across Jamaica are not spatially uniform, with some areas seeing significant losses and other coastlines witnessing gains (Figure 1). For example, Jamaica's southern coastline has seen some increases in mangrove cover in recent years, for example in the protected region of the Negril Great Morass. Mangrove extents however declined in two southern coastal parishes – St. Catherine and Clarendon – by over 40 percent (Mandal et al., 2019^[6]).





28. Recently, Worthington and Spalding^[7] (2019) assessed the global change in mangrove distribution with satellite derived data from surveys in 1996 and 2016 and used these to assess the potential for mangrove restoration in areas of loss. This report estimates that more than 770 ha of mangroves were lost in Jamaica over the past two decades. While these analyses are conducted at a global scale, they nonetheless are very useful for showing the broad patterns of change across Jamaica (Figure 2). Not surprisingly, mangrove losses are highest in the southern parishes of St. Elizabeth, Clarendon and St. Catherine and in the parish of Trelawny in the north (Worthington and Spalding, 2019). Mangrove losses are lowest in the St. Thomas Morass in the east and in the mangrove forests of Westmoreland in the west.



FIGURE 2 CHANGE IN MANGROVE EXTENT IN JAMAICA FROM 1996 TO 2016 FROM WORTHINGTON AND SPALDING (2019).

29. The Situational Analysis^[8] that was carried out as part of the development of the National Mangrove Management Plan presents verified accounts of mangrove losses and gains between 2017 and 2021. Over the past five years, 19.6 ha of mangrove appear to have been lost while 2.7 ha have been regained through restoration initiatives, resulting in a net loss of 16.9 ha. These figures do not capture all recent changes in mangrove forests in Jamaica, but only include losses that were documented or permitted (Wetland modification permits granted by NEPA). There were likely more losses from unplanned/unpermitted developments, or via developments which were not granted NEPA permits.

- 30. Jamaica's forests have experienced higher temperatures and decreased rainfall and this trend will continue. Sea levels are projected to rise from a mean of 0.24 to 0.30 metres according to the various RCP models (Mandal et al., 2019^[9]) resulting in raising water salinity in mangroves and other coastal forested wetlands, which may result in dieback of the mangroves.
- 31. Evidence thus strongly suggests there is an overall declining trend in Jamaica's mangroves. Losses and gains across the island are not spatially uniform and the main drivers of loss vary. Northern parish mangrove loss is more often associated with tourism and residential development, while port and industrial development have been a main driver in southern parishes. Of the seven south coast parishes, five showed an increase in wetland coverage between 2005 and 2011 suggesting renewed possibility for successful mangrove restoration. In a recent global assessment, an estimated 770 ha of mangroves have been lost in Jamaica between 1996 and 2016, more than 70 percent of these mangroves could be potentially restorable. Between 2017 and 2021 another 19.6 ha was lost while 2.7 ha were regained through restoration initiatives.
- 32. In addition to loss of mangrove areas due to documented and permitted tourism and infrastructure developments, there have been undetected losses due to small-scale developments, such as single house lots, where no NEPA Development Plan/Order is required, in which case permits are issued by the local authorities. NEPA Development Orders are neither required for:
 - a. Works carried out by a Road Authority for the purpose of maintenance or improvement on land within the road boundaries,
 - b. The carrying out by any local authority or statutory body of works for the inspection, repairing or renewing of sewers, mains, pipes, cables or other apparatus or the breaking open of any street for that purpose.
 - c. The use of any land for the purpose of agriculture or forestry and the use of any building occupied with the land and used for this purpose.
- 33. Mangrove losses should be seen as any unnatural reduction in size of natural mangrove forest vegetation, including its soil and hydrology (excluding hurricanes etc). This would include direct reclamation (dumping) or mangrove "die-back" associated with human induced changes in hydrology e.g. where a roadway lacks culverts and a section of mangroves dies in response to reduced water flows.
- 34. The net loss over the last five years of only 16.9 ha or 0.1 percent of the 13 784 ha of mangrove areas, as assessed by the recent Forestry Department reports, conceals the fact that the health status of many mangrove areas has been deteriorating. The Forestry Department's EU-BSP Year 3 Mangrove and Swamp Forest Verification Report reports on 35 mangrove habitats covering in all 7 614 ha. Of the 35 sites, nine had a fair health status and two a poor health status. Anthropogenic disturbance was observed on 74 percent of the sites and invasive species were found on 51 percent of the sites. Overall, 845 ha or 11 percent of the assessed area suffered anthropogenic disturbance.

^[1] Valiela, I., Kinney, E., Culbertson, J., Peacock, E., Smith, S., 2009. Global Loss of Mangroves and Salt Marshes. In: Duarte, C.M. (Ed.), *Global Loss of Coastal Habitats Rates, Causes and Consequences*. Fundacion BBVA, pp. 107–142.

^[2] Richards, A., 2008. Development trends in Jamaica's coastal areas and the implications for climate change. Plan. Inst. Jamaica.

^[3] Henry, A., Webber, D., Webber, M., 2018. Rapid Assessment Methods Developed for the Mangrove Forests of the Great Morass, St. Thomas, Eastern Jamaica. In: Dorney, J., Savage, R., Tiner, R.W., Adamus, P. (Eds.), *Wetlands and Stream Rapid Assessments*. Academic Press, London, UK, pp. 529–538.

^[4] Ortega, Saul Torres; Losada, Inigo J.; Espejo, Antonio; Abad, Sheila; Narayan, Siddharth; Beck, Michael W. 2019. *The Flood Protection Benefits and Restoration Costs for Mangroves in Jamaica. Forces of Nature*; World Bank, Washington, DC. © World Bank. <u>https://openknowledge.worldbank.org/handle/10986/35166</u>

^[5] McDonald, K.O., Webber, D.F., Webber, M.K., 2003. Mangrove forest structure under varying environmental conditions. *Bull. Mar. Sci.* 73, 491–505.

^[6] Mandal A., Smith R.A.J, Edwards T, Kinlocke R, Mitchell S, Trench C, Webber M, Francis P, Spence A. *Local Scale Assessments* on Mangrove Ecosystems Status and their Role in Coastal Resilience. Technical Report. World Bank, 2019.

^[7] Worthington, T., Spalding, M., 2019. Mangrove *Restoration Potential: A global map highlighting a critical opportunity*. Cambridge, UK.

^[8] Trench, Camilo; Nembhard, Danielle A.; Ross, Demesha and Javel Noble. 2022. Development of a National Mangrove Management Plan – Situational Analysis (April 2022)

^[9] Mandal A., Smith R.A.J, Edwards T, Kinlocke R, Mitchell S, Trench C, Webber M, Francis P, Spence A. *Local Scale Assessments* on Mangrove Ecosystems Status and their Role in Coastal Resilience. Technical Report. World Bank, 2019.

- 35. Jamaica's mangrove ecosystems are currently experiencing several key direct and indirect threats. Collectively these threats have resulted in a significant decline in the area of mangrove and associated wetland ecosystem, resulting in a major decline in ecosystem services that have had an immediate impact on both local communities and a national economy that relies heavily on nature-based tourism.
- 36. Mangrove forests in Jamaica suffer two distinct environmental problems, namely habitat loss and/or a decline in biodiversity and health of mangrove ecosystems. The reasons for this loss and degradation of Jamaica's mangrove forests are multiple.

Infrastructure development

- 37. Direct threats to mangrove ecosystems in Jamaica resulting in habitat loss stem mainly from the direct clearing and reclamation of mangrove habitat for coastal development through cutting mangrove trees and dredging and filling the wetland areas to construct buildings, roads, and other types of infrastructure.
- 38. Coastal development has been the main driver of mangrove loss across Jamaica. In the north of the country clearing and reclamation of mangrove habitat has been particularly driven by residential and tourism development, especially where hotels and restaurants seek land as close to the coastline as possible driven by tourist preferences, whereas in the south, port and industrial development has contributed substantially to losses.
 - With the growth of Kingston on the south coast, and Montego Bay, Ocho Rios and Port Antonio on the north, much of Jamaica's original mangroves and coastal wetlands have been destroyed by coastal development and rapidly urbanizing tourist areas are threatening many of the remaining areas.
 - The greatest destruction has occurred in the larger estuaries now used for harbor facilities such as along Hunt's Bay and the Kingston waterfront as a result of an expansion of marine terminals and warehouses, freeport sites for industry, and residential subdivisions (particularly in estuarine locations harbour facilities such as along Hunt's Bay and the Kingston waterfront)
 - In Port Royal and Palisadoes, on the south coast of Jamaica mangroves were destroyed to facilitate road, airport and marina construction.
 - Shoreline hardening using artificial structures and developing coastlines with hard barriers has preventing landward mangrove migration, resulting in a process commonly known as 'coastal squeeze'.
- 39. As highlighted by the Forestry Departments EU-BSP Mangrove reports (2019-2021), most of the mangrove losses were related to tourism development. This data further validates the opinions reflected from the stakeholder engagement surveys, where tourism related developments were regarded by respondents, as the most detrimental industry to forested wetland conservation in Jamaica. A NEPA State of the Environment Report stated that tourism expansion alone in Trelawny parish was responsible for over 160 ha of mangrove forest reclaimed between 2005 and 2010 (NEPA 2010).
- 40. The NMMP team's review of recent mangrove losses revealed at least one case where mangrove losses were facilitated and/or implemented by GOJ Agencies: The Port Authority and Trelawny Municipal Corporation. The relocation of the Falmouth Market involved the reclamation of 6 ha of mangrove forest, and perhaps unwittingly facilitated further expansion of an adjacent informal settlement. The reclaimed market area was thereafter used as an access road for the adjacent community.
- 41. Overwhelming evidence points to the notion that tourism-related pressure in the last decade has been the main motivation for mangrove forest loss in Jamaica. Jamaica's northern parishes (main tourism belt) have seen a decline in nearly 300 ha of mangroves between 2005 and 2010. However, it must be stated that tourism related developments receive a natural "bias" as they are often publicly documented and circulated in the mainstream

media. The FD EU-BSP report and the NMMP consultant team unearthed a few cases where mangrove lands were degraded unwittingly through aquaculture or agricultural expansion, especially in Southern Clarendon. The expansion of fish farms in Old Harbour Bay, Milk River and Mitchell Town have removed mangrove ponds.

42. There is currently no requirement for wetland modification permits, and thus no reports submitted, when smallscale (e.g. single houses) development is permitted by municipal corporations

Resource over-exploitation / Unsustainable harvesting

- 43. Mangrove forests have played an important historical and traditional role in many Jamaican coastal communities with services such as wood supplies for construction, daily-use and artisanal products, small-scale farming, firewood (charcoal) and subsistence fishing in canals and rivers. As a result, these forests are threatened in some areas due to over-exploitation of resources.
- 44. Common human activities of mangrove forests in the region include grazing of cattle and other livestock, subsistence agriculture, charcoal production and construction from mangrove wood and timber, and subsistence fishing in the canals and rivers (Henry et al., 2018).
- 45. Extractive industries (removal of fish, shellfish, reptile skins, and honey at subsistence and artisanal levels) are less damaging, as they require the mangrove tree to replenish to give more of its product over time, while the trees continue to sequester carbon, produce oxygen and support biodiversity in most cases (Trench, 2021 ^[11]). Most extractive industries are more damaging to trees than to the hydrology of the forest.

Pollution (marine litter, trash via storm drains)

- 46. Mangroves are also increasingly facing threats from marine litter, especially in lagoon and riverine areas where trash is directly dumped or is flushed into coastal waters through storm drains. Mangrove prop roots and soils can be covered in plastic and other litter, preventing uptake of important gasses and nutrients. Mangrove roots also trap and collect litter into localized areas, having a major impact on the mangrove ecosystem biodiversity.
- 47. Another indirect human impact is pollution from human activity, such as outfalls from waste-water treatment plant or waste from construction activities that can cause already stressed mangrove habitats to either degrade or be completely lost, and negatively impact their ability to recover after natural stressors such as a hurricane or drought (Mott McDonald, 2007^[2]).
- 48. The city of Kingston discharging its waste into an enclosed harbour has many consequences to the organisms inhabiting the area, including humans. Mansingh et al. (1995 [3]) documented that pesticide contamination (e.g., diazinon and aldrin) was evident in oysters and fish sampled within the Kingston Harbour and its mangroves.

Altered hydrological conditions

- 49. The most pronounced indirect threat to biodiversity and health of mangrove ecosystems in Jamaica is the numerous ways in which the hydrological conditions have been altered. Among the many ways this can occur include the alteration of river flows for irrigation for large-scale sugarcane and banana agriculture and more localized aquaculture, to impacts on surface and water table levels and salinity due to road and housing construction, unsustainable pumping, and illegal settlements and unchecked urban sprawl.
- 50. In many case studies of mangrove land-use changes, features to connect and maintain mangrove hydrology (e.g., culverts) are often omitted due to cost, lack of proper planning and monitoring or ignorance (Trench, 2021).
- 51. The most recent diagnosis by the University of the West Indies, Centre for Marine Sciences team for The Nature Conservancy revealed that 13.3 ha of mangrove forests in Old Harbour Bay experienced die-back resulting from hypersalinity conditions which were created by anthropogenic actions. In this case study, shrimp farm operations in the 1980's redirected riverine waters from a small tributary which historically entered a mangrove area into their operations and then out into the area's main inlet canal. The operators diverted their effluent water into a solitary culvert, which lead into and sustained the mangrove area up to 2007. This culvert was unwittingly blocked by residents due to construction failure, preventing fresh water from entering the mangroves. This mangrove forest was converted to a salina over three decades

Water quality (discharge of pollutants)

- 52. While less impactful, mangroves ecosystems are also subject to water quality issues. Mangroves tend to trap and concentrate pollutants. The extent to which various types of pollutants, other than oil and sediments, contribute to mangrove destruction is uncertain. However, it is known that in mangrove-fringed estuaries, the concentration of pollutants, and/or temperature and salinity changes, tends to upset the delicate balance of microscopic life, drastically altering the entire coastal ecosystem.
- 53. Significant mangrove degradation may also be attributed to sugar cane farming

Invasive species

54. Mangroves are further indirectly threatened by the introduction of several invasive species, including several plant species like hydrilla (*Hydrilla verticillata*) and cattail (*Typha domingensis*) and numerous land and marine animals, including feral goats, green mussels, ship worms, and lionfish.

Climate change

- 55. A last recognized threat, especially to overwash and intertidal mangroves ecosystems, is the impacts of climate change. In general, adverse impacts to mangroves from climate change include increases in sea-level, frequency and/or intensity of storms and associated storm surges, temperature and aridity (Gilman et al., 2008 ^[5]; Jennerjahn et al., 2017 ^[6]). This is leading to increasing wave energy uprooting mangrove trees, accelerating shoreline erosion, and making natural repopulation and replanting efforts more unsuccessful.
- 56. While mangroves in the Caribbean appear to be keeping pace with current sea-level rise rates of 1 to 2.5 mm/year this may not remain the case with accelerated sea-level rise in the future (McKee et al., 2007^[7]).
- 57. Increases in the frequency of droughts and reduced rainfall, related to extreme El Nino events in the Caribbean, can further impact mangroves by limiting sediment supplies (Galeano et al., 2017 ^[8]).

^[1] Trench, C. 2021. *Hydrological Restoration Approaches to Mangrove Forests in Jamaica*. PhD thesis. The University of the West Indies, Mona. Kgn 7

^[2] Mott McDonald, 2007. Falmouth Cruise Terminal Environmental Impact Assessment. Surrey, UK.

^[3] Mansingh, Ajai, and Arlene Wilson. 1995. Insecticide Contamination of Jamaican Environment III: Baseline Studies on the Status of Insecticidal Pollution of Kingston Harbour. *Marine Pollution Bulletin* 30, no. 10: 640-45. <u>https://doi.org/10.1016/0025-326X(95)00038-0</u>.

^[4] Lewis III, Roy, Eric Milbrandt, Benjamin Brown, Ken Krauss, André Rovai, James Beever, and Laura Flynn. 2016. Stress in Mangrove Forests: Early Detection and Preemptive Rehabilitation Are Essential for Future Successful Worldwide Mangrove Forest Management. *Marine Pollution Bulletin* 109, no. 2: 764–71. <u>https://doi.org/10.1016/J.MARPOLBUL.2016.03.006</u>.

^[5] Gilman, E.L., Ellison, J., Duke, N.C., Field, C., 2008. Threats to mangroves from climate change and adaptation options: A review. *Aquat. Bot.* 89, 237–250.

^[6] Jennerjahn, T.C., Gilman, E., Krauss, K.W., Lacerda, L.D., Nordhaus, I., Wolanski, E., 2017. Mangrove Ecosystems under Climate Change - <u>In</u>: Rivera-Monroy, V.H., Lee, S.Y., Kristensen, E., Twilley, R.R. (Eds.), *Mangrove Ecosystems: A Global Biogeographic Perspective: Structure, Function, and Services*. Springer International Publishing, Cham, pp. 211–244.

^[7] McKee, K.L., Cahoon, D.R., Feller, I.C., 2007. Caribbean mangroves adjust to rising sea level through biotic controls on change in soil elevation. *Glob. Ecol. Biogeogr*. 16, 545–556.

^[8] Galeano, A., Urrego, L.E., Botero, V., Bernal, G., 2017. Mangrove resilience to climate extreme events in a Colombian Caribbean Island. *Wetl. Ecol. Manag.* 25, 743–760.

ROOT CAUSES

58. The future health of mangroves in Jamaica, in the absence of targeted action to conserve or restore these forests, depends to a large extent on how easily accessible the forest is to human use and activities. One example is the St. Thomas Great Morass in eastern Jamaica that covers around 1 660 ha (Henry et al., 2018). This area of mangrove forests has remained relatively undisturbed due to its remoteness from urban regions. Yet, even in this region a variety of human uses potentially threaten the mangrove forests particularly if they are not well managed.

- 59. The private ownership of mangroves represents a further root cause, in the context of the inherent difficulties and challenges about incentivizing owners to prevent fragmentation, destruction and degradation and undertake implement positive management actions.
- 60. The 2016-2021 NBSAP identifies several important factors that contribute to the loss of biodiversity in Jamaica, including poverty, population growth, lack of public awareness about the importance of conserving biodiversity. The loss in habits is largely seen as a result of population growth, coupled with subsistence use, agricultural, industrial, and commercial expansion, which resulted in intense competition for land, leading to encroachment and fragmentation of natural habitat.

Specific root causes (source: Camilo Trench, personal communication)

- 61. Gaps and deficiencies in existing policy, legislative framework and enforcement of laws for the protection and conservation of forested wetlands
- 62. A need for improved integration of relevant biodiversity targets and approaches (RAMSAR, NBSAP) across sectoral development plans
- 63. Unsustainable livelihood practices are embedded as a part of Jamaican society, and are widespread and mostly unreported
- 64. Mangrove forest monitoring and enforcement has numerous gaps, as there is inadequate coordination and responsibility between relevant institutions
- 65. There is currently no requirement for wetland modification permits, and thus no reports submitted, when small-scale (e.g., single houses) development is permitted by municipal corporations
- 66. Minimal public education programs specific to wetland conservation
- 67. Lack of education and understanding of the communities with chronic wetland degradation on activities which impact wetland ecosystem health and function.
- 68. Insufficient wetland conservation steps and actions implemented by "non-core" GOJ agencies [e.g., National Works Agency (NWA), Min of Local Govt./Municipal corporations, Jamaica National Heritage Trust (JNHT), National Land Agency (NLA)] that can approve development within wetland areas
- 69. Several protected and conservation areas where wetlands are found have multiple designations declared under different acts and therefore managed by multiple institutions. This can and has created confusion in their overall management. There does not exist a full list of protected and conservation areas which indicates under which legislation and organisation they are managed.
- 70. There is inadequate coordination between institutions which lead to policy incoherence, lack of common standards, policy gaps, lack of implementation of policy and lack of infusion of environmental issues into sectoral policies.
- 71. The Ministry of Local Government and Rural Development (MLGRD) and Municipal Corporations lack staff complement to review building permits for Ecological compliance e.g., permit locations in mangrove forests that require reclamation and wetland modification
- 72. Mangrove restoration approaches undertaken by NGO's in Jamaica are "biased" towards "mangrove gardening" approaches, which gives the poorest results and wastes resources
- 73. Improper solid waste disposal is rampant and "anti-litter" laws are not consistently enforced island wide
- 74. High level wetland modification is legal and feasible if the developer has the resources to acquire permits and pay associated fees (wetland modification, environmental permits, mitigation costs, fines)
- 75. Numerous permitted and unpermitted housing developments in forested wetlands, especially on GOJ lands
- 76. Numerous cases of incidental forested wetlands damage by utility companies, due to lack of guidelines and/or enforcement
- 77. Lack of political will or human resources to alleviate squatting and illegal encroachment, especially in Government owned lands
- 78. The use of buffer zones around protected and conservation areas and heritage and cultural sites is largely not done in Jamaica. It is only done for World Heritage Sites and Game Reserves.
- 79. System for monitoring wetland modifications etc. requires improvement no culture of enforcement, roles and responsibilities not well defined, oftentimes resulting in agency conflict and overlap.

BARRIERS

- 80. <u>Barrier 1:</u> For Jamaica's mangrove ecosystems, the most significant barrier is formed by the numerous policy gaps that exist in current laws and regulations that continue to allow many of the above biodiversity threats to exist, often based on an incomplete knowledge of Jamaica's mangrove ecosystems. This has led to very limited incentives to protect mangrove ecosystems from many government agencies beyond the Forestry Department and NEPA, and especially on private lands.
- 81. <u>Barrier 2:</u> Further, the current policies are outdated, often lacking the latest scientific research, leading to weak disincentives. For example, private developers are increasingly opting to offset reclamation of primary mangrove areas with replanting mangrove seedlings, but with little regard for the long-term survival rate of the mangroves nor to restore lost ecosystem services from the original mangrove area. This "no net loss" approach has become a relatively simple way for land developers to pay their way out of environmental issues but fails to consider an ecosystem-based approach.
- 82. <u>Barrier 3:</u> Further, the lack of economic valuation of mangroves and incorporation of the value into land use planning and other resource decision making processes, has incentivized short-term profits, largely from tourism, over long-term revenue generate by the multitude of ecosystem services provided by mangrove ecosystems, especially the protection of important biodiversity and coastal ecosystem health that underpins Jamaica's tourism sector as well as consideration of impacts to local livelihoods like fishing communities.
- 83. <u>Barrier 4:</u> The private ownership of mangroves also represents a major policy barrier. Private land ownership leads to inherent difficulties and challenges with regard to incentivizing owners to prevent fragmentation, destruction and degradation and undertake implement biodiversity-positive management actions.
- 84. Thus, the overall main project barriers include gaps in policy and incomplete mangrove ecosystem knowledge and awareness that are allowing resulting in multiple and site-specific drivers of mangrove ecosystem degradation.
- 85. Table 1 presents the threats to mangrove forests, and by extension the challenges to mangrove conservation across the Island. Some of these threats have linked socio-economic barriers that are also explored.

TABLE 1 MANGROVE CONSERVATION THREATS/CHALLENGES WITH LINKED SOCIAL AND ECONOMIC BARRIERS (SOURCE: TRENCH ET AL., 2022 ^[1])

Mangrove Threats/Conservation Challenges	Socio-economic Obstacles
Coastal developments-Planned/Permitted (hotels and housing)	 New developments usually equate to employment and growth in businesses which helps to promote rural-urban migration and a proliferation of unplanned developments/informal communities. Governmental pressure to fast-track developments. Low regard for environmental conservation. High unemployment rate.
Civic Projects (roads and bridges, etc.) Illegal logging; cutting for firewood and	 Lack of civil infrastructure slows productivity. Governmental pressure to fast-track developments. Community support Only source of income for some households.
charcoal burning	High percentage of community living in poverty.Social norm
Natural Disaster (Hurricanes, Storms, floods, etc.)	 Low-income earners may occupy easily accessible lands, i.e., wetlands. Relocation of informal unplanned communities from government lands (wetlands) is politically unpopular and unfeasible in many instances. Critical infrastructure (e.g., airports, ports) and buildings in wetland areas at higher risk of damages

Disrupted hydrology	 Lack of proper planning involvement from government and civic planning agencies. Unplanned or poorly planned developments and informal communities can severely disrupt mangrove forests.
Lack of knowledge about the system, how valuable it is (in monetary terms and otherwise).	 Minimal or no public education programs specific to wetland importance. Insufficient public education budget for wetlands in government institutions.
Lack of long-term funding	 Grant funding opportunity is more accessible to established institutions, and individuals with higher educational levels. Wetland conservation grants are normally available short-term (1 to 5 years).
Unplanned settlements; multiple squatter settlements	 High occurrence in wetland areas, makes these settlements difficult to remove/relocate economically or politically. High occurrence in GOJ owned wetlands due to limited monitoring and management of these lands. Lack of property rights. Proximity to job opportunities and city centers. Inflation and poverty- wetlands are easily developed compared to hilly areas.
Pollution; lack of garbage collection, improper disposal of solid waste and incidental marine litter	 Lack of garbage collection in volatile communities. Insufficient enforcement of anti-litter laws. Unplanned informal settlements sited close to storm drains/gullies. Improper waste disposal normalized in Jamaican culture. Population growth.
Siloed and uncoordinated legislative framework in place to legally protect wetlands	 Need for a comprehensive financial strategy for mangrove management and conservation.
Lack of enforcement activities and project implementing agency for mangrove areas	 Paucity of field enforcement officers. Low political will. Enforcement activities fall under multiple agencies' jurisdiction; no clear ownership.
Climate change impacts	 Original Infrastructure for the country is coastally based and designed prior to climate change realities/thoughts. Small island developing states are significantly vulnerable to the impacts of climate change and are largely dependent on funding from development or multilateral agencies.

^[1] Trench, Camilo; Nembhard, Danielle A.; Ross, Demesha and Javel Noble. 2022. *Development of a National Mangrove Management Plan – Situational Analysis* (April 2022)

2) Baseline scenario and any associated baseline projects

OVERVIEW AREAS IN JAMAICA

86. Jamaica, the third largest island in the Caribbean, is situated about 145 kilometres south of the island of Cuba, with a total landmass of 10 991 square kilometres and a population of approximately 2.7 million people. The country has several rugged mountain ranges, with the highest point, the Blue Mountain Peak, rising over 2 256 metres (7 402 feet). More than 120 rivers flow from the mountains to the coast.

- 87. Jamaica's Land Use Cover Assessment ^[11] of 2015 shows that 40 percent or 439 938 ha of Jamaica's land is covered by forest. This compares with 30 percent in 1998, an increase in forest cover for the country over the intervening sixteen years and is attributed mainly to the increase of secondary forest cover and to the improvement in technology and higher resolution satellite images which has resulted in more accurate assessments. Of Jamaica's total forest cover, 59 percent is classified as broadleaf forest, which comprised closed broadleaf (19 percent) and disturbed broadleaf (40 percent) forests. Secondary forest experiencing even greater disturbance accounts for 28 percent of forest cover. Open dry tall limestone forest makes up 8 percent, mangrove forests and swamp forests contribute 3 percent and plantation forest accounts for 2 percent of forest cover.
- 88. A recently published 2019 report by NEPA and the World Bank assessing mangrove ecosystem valuation in Jamaica concluded that: "there is a serious need for preservation of Jamaica's mangrove ecosystems considering that majority of the country's economy and business is from these coastal areas." Despite an increasingly accepted view that mangrove ecosystems and the biodiversity contained within are important both to Jamaica's tourism-based economic and the livelihoods of local communities, the conservation and restoration of mangrove ecosystems are recognized to include a lack of coordination and science-based decision making in land-use planning and poorly supported by inconsistent policy and regulatory gaps
- 89. The summary report emanating from the Forestry Department's EU-BSP mangrove assessments revealed that Jamaica has 13 784 ha of forested wetlands. In the report the mangrove sites were examined for: location and size, land ownership, status and threats and vegetation characteristics. The report stated that the most significant percentages of coastal mangroves were found in the southern sections of St. Thomas, St. Catherine, Clarendon, St. Elizabeth and Westmoreland parishes, primarily in sheltered bays, estuaries, and inlets. Wetland parcels were identified as mangroves and swamp forests by the spatial mapping software if over 75 percent of these areas had over 1 ha mangrove trees or swamp forest species.
- 90. Despite the data collection gaps stated by the FD, the data collected by these surveys represent a significant milestone in the management of Jamaica's mangrove forest, with a government agency having reviewed known and suspected mangrove forest by aerial image analysis, in addition to physically verifying the location and status of over 95 percent of Jamaica's mangrove forest lands. While some impacts like pollution were quantified per parish, others like land reclamation in mangrove forests were only mentioned, as no specific metric was denoted.
- 91. The largest areas of mangroves are found in the Black River Lower Morass (approximately 6 000 ha) and the Negril Great Morass (approximately 2 300 ha). These wetlands together represent 70 percent of wetland cover in Jamaica and contain not only large areas of mangrove forest, but also swamp forests and marshlands.
- 92. The land ownership data extracted from the EU-BSP reports revealed that most forested wetlands (swamp forest or mangrove lands) in Jamaica are in the possession of the GOJ ministries and/or agencies and statutory bodies. These two categories totalled over 6 800 ha of the 10 600 ha investigated for those surveys. These data are presented below:
 - Bauxite/Mining Companies: 27.9 ha
 - Government entities: 5 277.29 ha
 - Private/Individual Ownership: 3 705.38 ha
 - Statutory Bodies (e.g., UDC): 1 610.39 ha
- 93. As will be discussed in detail later in the SWOT analysis section, the ownership figures for mangrove forests lands in Jamaica may be a positive factor for the Forestry Departments' Mangrove conservation plans and ambitions. This factor may afford government entities with greater accessibility to these parcels as privately owned parcels of land may be more subject to development pressure and more may be more difficult to designate with protected status. Conversely, stakeholder surveys and desktop review by the consultancy team revealed that several wellknown and traditionally large parcels of unplanned development settlements occur on government owned lands island wide, with a high occurrence of these parcels cited close to major resort towns e.g., Falmouth, Savana-lamar, Green Island and Orange Bay.
- 94. Mangrove habitats, along with coral reefs and other coastal habitats provide significant economic value to nations and coastal communities in Jamaica, the Caribbean, and globally in terms of coastal protection, carbon sequestration, tourism and fisheries benefits (Ortega et al., 2019). Jamaica's mangrove forests provide USD 32.6 million [JMD 4.38 billion] in flood risk reduction benefits every year. These are in addition to the billions of dollars in other ecosystem services such as tourism, carbon sequestration, fisheries, timber and firewood that are critical for enhancing the resilience of coastal communities (Edwards, 2019^[2]).

95. Table 2 presents an overview of the mangrove areas in Jamaica across parishes. It is shown that mangroves are mainly found in the parishes of St. Catherine, Clarendon, St. Elizabeth, Westmoreland, St. Thomas and Trelawny parishes. The parishes of St. Ann, Portland and St. Mary have the least area of mangroves.

^[1] Forestry Department, Jamaica's Land Use Cover Assessment: A comparative assessment of Forest Change between 1998 & 2013 (Forest Resource Information Management Branch, GIS Unit, 2015).

^[2] Edwards, P.T. 2019. Valuation of Selected Ecosystem Service Co-Benefits Beyond Coastal Protection. World Bank. Kingston, Jamaica.

 TABLE 2 DESCRIPTION OF MANGROVE AREAS ACROSS PARISHES (STATUS OF JAMAICAN MANGROVES, 2014, NEPA – NUMBER OF

 SITES AND AREAS FROM FORESTRY DEPARTMENT'S EU-BSP MANGROVE AND SWAMP FOREST VERIFICATION REPORTS)

Parishes	Nr. of	Total	Description of Mangrove Areas across Parishes
	sites	area (ha)	
Kingston & St.	14	480	Most wetlands are found within the Palisadoes-Port Royal
Andrew			Protected Area as well as sections of Hunt's Bay. The variety of
			wetland types are found in this area including cays, shoals,
			mangrove lagoons and islands
Clarendon and	15	5 859	The Portland Bight Protected Area is found in both Clarendon and
St. Catherine			St. Catherine. The Protected Area is the largest on the island and
			includes approximately 187 515 ha of coastal lands and marine area
			to a depth contour of 200 metres. Of that amount, approximately
			8 288 ha is covered by wetlands which are distributed across the
			coastal areas of the wetland and offshore cays.
Manchester	5	286	The main wetlands are found within Canoe Valley and Alligator
			Hole, Guts River and Alligator Pond. Canoe Valley is a game reserve
			but is not yet a protected area. Guts River has tourism, fishing, coal
			production and recreational activities. Alligator Pond is designated
			as a conservation area on the existing development orders
St. Elizabeth	5	1 728	Most mangroves are located within the Black River Lower Morass
			and is formed by the Black River and its tributaries making a large
			freshwater swamp, with a complex of shallow brackish lagoons,
			limestone islands, tidal marshes, mudflats and mangroves near the
			coast, and extensive freshwater marshes with peat formations.
			Font Hill represents the second largest area of wetland occurring
			within the parish.
Westmoreland	8	2 201	A significant portion of the wetlands are found in the Negril Great
			Morass which straddles both Westmoreland and Hanover. It covers
			an area of approximately 2 289 ha. The remaining portions of
			wetland are located within the Savanna-la-mar area and coastal
			sections of Little London.
Hanover	11	482	Like Westmorland, a large expanse of the Negril Great Morass is
			located along the southern boundary of Hanover. Smaller pockets
			of mangrove is located within coves along the mouths and along
			the banks or rivers and tributaries throughout the parish. Other
			mangrove areas in the parish include Green Island, Mosquito Cove,
			Industry Cove, Copperwood, Lucea and Point.
St. James	5	157	The largest continuous wetlands in St. James are located around
			the Bogue Lagoons, the Donald Sangster International Airport and
			Greenwood – Long Bay. Mangroves are also located at the Half

		1	
			Moon Hotel and at the Wyndham Rose Hall sewage ponds. The
			mangroves within this area are disappearing at an alarming rate
			due to the development of hotels, shopping centres and housing.
Trelawny	14	797	Trelawny represents the north coast parish with the largest
			wetland distribution. The largest wetland area is in Falmouth with
			smaller areas located in Duncans, Coral Spring and Rio Bueno.
St. Ann	8	91	Wetland distribution in the parish is scattered in small clusters
			along the coastline. These include sections of the Rio Bueno River,
			Discovery Bay, Green Grotto, Pear Tree Bottom and Priory.
St. Mary	1	12	St. Mary has the lowest mangrove coverage of all north coast
			parishes. Mangroves are mainly found in small patches along the
			banks of rivers and tributaries throughout the parish. These include
			Annotto Bay, Salt Bay, Port Maria and Oraccabessa.
Portland	3	56	Portland does not have a vast expanse of mangroves; those areas
			where mangroves are found have been heavily impacted by
			development nonetheless a few areas exist with intact forest.
			mangrove areas include West Harbour, Salt Creek, Turtle Crawl and
			Manchioneal. The largest distribution with the most significant
			functionality is located at Turtle Crawl, with Manchioneal being the
			second largest.
St. Thomas	5	1 565	The major wetlands are located with the Bowden and Great Morass
			with smaller areas distributed along the Yallahs Salt Ponds.
Total	94	13 714	

THE NATIONAL MANGROVE MANAGEMENT PLAN (NMMP)

- 96. There are several major baseline initiatives related to mangrove ecosystem conservation currently in Jamaica, of which the most important is the ongoing development of a National Mangrove Management Plan (NMMP), led by the Jamaica Forestry Department as part of the 11th European Development Fund Budget Support Program titled "*Addressing Environmental and Climate Change Challenges through Improved Forest Management for Jamaica*." This four-year programme began in 2018 and is expected to be completed by the end of 2022.
- 97. When completed, the NMMP will be the main government document to guide mangrove management in Jamaica. Based on the National Forest Management and Conservation Plan (NFMCP - described in detail below), the NMMP functions as a technical guidance document that provides direction for a national comprehensive, consistent, and science-based approach for the management of mangrove habitats. The NMMP will not be a legal or policy document, nor will it include site specific management prescriptions. The main objective of this GEF project is to support the implementation of the NMMP to promote a biodiversity-positive approach towards sustainable management of mangrove ecosystems.
- 98. The development of the NMMP was informed by mangrove ecosystem field assessments led by the Forestry Department. These field assessments are the most comprehensive nation-wide assessment of mangrove ecosystems and associated biodiversity for Jamaica. The information collected from the field assessment serves as the baseline for future monitoring efforts incorporated into the NMMP. The NMMP is scheduled to be completed by the end of August 2022 and overlaps with the development of this GEF project, providing critical stakeholder engagement opportunities across both initiatives and informing this full project development.
- 99. The goal of the NMMP is formulated as follows: "To implement strategies that will achieve the conservation of a minimum of 60 percent (7600 ha) of Jamaica's government-owned forested wetlands and 20 percent of privately owned forested wetlands by 2062" (Trench et al., 2022).
- 100. The Strategic Objectives of the NMMP are:
 - a. Reverse the loss and degradation of forested wetlands and to conserve those that remain through wise use and management, strengthening the legislative, policy and institutional framework and mainstreaming forested wetlands across government and society.

- b. Improve the technological, technical, staffing capacity, participatory planning and knowledge management within the Forestry Department, NEPA, its partners and communities to enhance implementation.
- c. Increase public awareness, information dissemination, and formal education levels about forested wetlands, to complement increased protection, conservation and restoration of these ecosystems
- d. Enhance the fair and equitable economic, social and environmental benefits to all from forested wetlands ecosystem services
- e. Identify the existing and potential sources and novel mechanisms to fund proposed forested wetland conservation and management, including innovation and non-financial resources (whether public or private)
- 101. In line with the five strategic objectives, seven Sub-Programmes are presented in the NMMP:
 - i. Legal and Regulatory Framework
 - ii. Monitoring, Reporting and Data/Information Management
 - iii. Public Awareness and Education
 - iv. Capacity Building
 - v. Sustainable Livelihoods
 - vi. Conservation and Restoration
 - vii. Research and Development

POLICY, LEGAL AND REGULATORY FRAMEWORK

- 102. The NMMP is being developed to align with the Government of Jamaica (GOJ) Vision 2030: National Development Plan (Government of Jamaica, 2009): "to protect biodiversity and enhance adaptive capacity towards sustainable use of natural resources". The Vision 2030 Jamaica is the latest strategic plan to guide the country towards a set of development goals. One such goal is for Jamaica to achieve a healthy and natural environment. As a part of this goal, the issues related to coastal management are addressed through the Plan's aim of developing a sustainable management framework of the country's natural resources and by developing a comprehensive approach for hazard risk management and climate change. Other Plans and Policies which pre-date Vision 2030 Jamaica, however, are still relevant and must be considered when developing interventions and planning for Jamaica's forested wetlands.
- 103. Even with the existence of this legislative and policy framework, mangrove ecosystems, or more specifically, forested wetlands in Jamaica are experiencing tremendous anthropogenic pressures from the various productive sectors and unplanned developments, compounded by climate variability and climate change. This underscores the importance of the NMMP which will serve as the main science-based advisory document to guide the Government of Jamaica (GOJ) on mangrove ecosystem management, and build on the existing legislative, regulatory and policy framework.
- 104. The key legislative mechanisms, policies and plans are presented in Table 3 below, along with their relevance to the NMMP and this GEF project.

Name	Description	Relevance to NMMP
The Constitution of Jamaica	The 1962 Constitution protects property rights and establishes principles on the	Many forested wetland areas are present on private lands, which may present
	ownership of property in Jamaica. The legal	challenges, as well as some opportunities for
	status of owned property applies to the	collaborative and sustainable protection,
	ownership of flora and fauna in Jamaica. The	conservation or management.
	proprietor owns all flora on his/her property	
	and if he/she catches wildlife on his/her	
	property to the Wild Life Protection Act)	
	then he/she owns these wild animals,	
	subject to the Wild Life Protection Act.	
	In 2011, the Constitution of Jamaica was	
	amended to provide for a Charter of	
	Fundamental Rights and Freedoms. Section	
	13(3) (I) of the Constitution now recognizes,	
	inter alia, "the right to enjoy a healthy and	

TABLE 3 LEGISLATIVE, REGULATORY AND POLICY FRAMEWORK FOR MANGROVE PROTECTION IN JAMAICA

	productive environment free from the threat of injury or damage from environmental abuse and degradation of the ecological heritage."		
	LEGISLATION		
The Natural Resources Conservation Authority Act, 1991 and its Regulations	 This Act is the overarching legislation for environmental protection and management in Jamaica. Under the Act, the NRCA may "take such steps as are necessary for the effective management of the physical environment of Jamaica so as to ensure the conservation, protection and proper use of its natural resources." The Authority may also "promote public awareness of the ecological systems of Jamaica and their importance to the social and economic life of the Island; and advise the Minister on general policies relevant to the management, development, conservation and care of the environment." The Act also gave power of enforcement of several environmental laws to the NRCA, namely the Beach Control Act, Watershed Act and the Wildlife Protection Act, as well as a number of regulations and orders including: The Natural Resources (Permit and Licences) Regulations 1996 and (Amendment) Regulations 2015; Natural Resources (Marine Parks) Regulations 1993 and (Amendment) Regulations 2003, and (Amendment) Regulations 2003; The Natural Resources (Prescribed Areas) (Prohibition of Categories of Enterprise, Construction and Development) Order 1996 and (Amendment) Regulations 2015; The Natural Resources (Prescribed Areas) (Prohibition of Categories of Enterprise, Construction and Development) Order 2015; The Natural Resources (Prescribed Areas) (Prohibition of Categories of Enterprise, Construction and Development) Order 2015; The Natural Resources (Prescribed Areas) (Prohibition of Categories of Enterprise, Construction and Development) Order 2015; The Natural Resources (Prescribed Areas) (Prohibition of Categories of Enterprise, Construction and Development) Order 2015; The Natural Resources (Prescribed Areas) (Prohibition of Categories of Enterprise, Construction and Development) Order 2015; The Natural Resources (Dategories of Enterprise, Construction and Development) Order 2015; 	The Natural Resources Conservation (Prescribed Areas) (Prohibition of Categories of Enterprise, Construction and Development) Order, 1996, prescribes the island of Jamaica and the territorial sea of Jamaica as the area in which specified activities- e.g. reclamation of wetlands - are prohibited without a permit. The Natural Resources Conservation (Permits and Licences) Regulations, 1996 set out the requirements for application for a permit or licence. The NRCA embraces a "no net loss" approach towards mangrove habitat management, with a specific focus on tree species and not the broader biodiversity within mangrove ecosystems. This no net loss approach has translated into a system where developers clear cutting mangrove land often opt to pay for mangrove replanting efforts in areas that are not conducive to replanting and lead to high mangrove seeding mortality. There are no regulations governing the use of mangroves/wetlands/forested wetlands under the NRCA Act, and thus no specific restrictions on the activities that may or may not take place in these areas.	
Wild Life Protection Act 1945 and Wild Life Protection (Amendment of Second and Third Schedules) Regulations 2016	The Wild Life Protection Act of 1945 is mainly concerned with the protection of specified faunal species and is the only statute in Jamaica specifically designated to this. This Act protects several rare and endangered faunal species and the Wild Life Protection (Amendment of Second and Third Schedules) Regulations 2016 provides	Plants, such as mangrove trees, are not protected under the Act. The establishment of two types of protected areas, namely Game Sanctuaries and Game Reserves is authorized under this Act. A Game Sanctuary / Game Reserve is a parcel of land, body of water or area comprising both land and water within which, the	

The Endangered Species (Protection, Conservation and Regulation of Trade) Act 2000 (Amended 2015)	Schedules of the principal Act which lists these species. The Endangered Species (Protection, Conservation and Regulation of Trade) Act was created in 2000 in order to ensure the	of eggs or the nest of any bird and the use or possession of any dog, gun, catapult or any other weapon which could be used to hunt any animals or birds is prohibited. In addition, all Forest Reserves are also designated as Game Reserves and form part of the Protected Areas System of Jamaica. For each Game Sanctuaries/Game Reserve, there is a 50-meter distance from the boundary; this is called a protective zone (National Environment and Planning Agency, 2017) Several recognized endangered species inhabit or can be found in forested wetland areas.
	codification of Jamaica's obligations under the Convention for the International Trade in Endangered Species of Wild Fauna and Flora. This Act governs international and domestic trade in endangered species in and from Jamaica. The regulations associated with this Act were amended in 2015 and include updated fees for the various permits and certificates granted through this legislation	
The Forest Act, 1966 and Forest Regulations, 2001	The Forest Act gives details for the declaration of Crown lands or Private lands (if the owner applies) to be listed as forest reserve or forest management units. Once declared, a forest management plan must be developed for each forest reserve and forest management area every five years. The Act also lists what is considered an offence within a forest reserve or forest management area and the fines for committing such offences.	It is an offence to destroy trees, cause damage, light fires, carry axes, or kill or injure wild birds or animals in a forest reserve or forest management area. This includes mangrove trees. The Act is limited to forest estates/crown lands and would only cover those forested wetlands found there. Order 42 in the Forest Regulations (2001) states explicitly that <i>"a person shall not cut,</i> <i>damage, disturb or cause to be disturbed the</i> <i>forest produce within any wetland, swamp</i> <i>or mangrove forest in a forest estate or</i> <i>protected area and an adjacent buffer</i> <i>zone."</i>
The Town and Country Planning Act, 1948 (amended in 1999)	The objective of this Act is to ensure the orderly development of land. Development Orders provide detailed, local land use policies and zoning covering most of Jamaica. The content of Development Orders (DOs) is prescribed in Section 10 (1) of the Act. At subsection (b) it is stated that a DO for any defined area shall 'contain such provisions as are necessary or expedient for prohibiting or regulating the development of land in the area to which the development order applies and generally for carrying out any of the objects for which the order is made.' In areas covered by a Development Order, planning permission is required from	The Act provides for the making of Tree Preservation Orders (Section 25) whereby a local authority may seek to preserve trees or woodlands in their area and prohibit willful damage or destruction of trees or require the replanting of trees. The Act provides for notification of, designation, and the right to submit objections to the declaration of such an Order including provisions for compensation. The Order may also secure the replanting of any Sector of the woodland area in which trees were felled during the forestry operations permitted under the order.

The Beach Control Act, 1956 (amended 2004)	the local authority or from the Town and Country Planning Authority if the area is "called in" or if the development does not conform to the zoning in the Development Order The Beach Control Act regulates rights to the foreshore and the floor of the sea in Jamaican waters. Provisions contained in the Act govern commercial and recreational activities; the control and management of development on the beach through licensing provisions; and the protection of the marine ecosystem. Marine protected areas may be declared under the Act. The Act provides for the NRCA to apply to the Court for an order, if so warranted, for a person who has caused any damage to the foreshore or the floor of the sea, to rehabilitate the area or in the case of damage to a natural resource pay damages to the Authority	Mangrove forests or wetland areas may fall under the protection of the Act by virtue of their physical location.	
The Fisheries Act, 2018	This Act repeals the Fishing Industry Act and provides for efficient and effective management and sustainable development of fisheries, aquaculture	Forested wetlands serve as important nursery grounds for commercial fisheries. The industry may have a vested interest in their protection to for viability. However, there are no provisions within the Act to protect/conserve mangrove forests.	
	NATIONAL POLICIES, PLANS AND STRATEGIES		
Vision 2030 Jamaica - National Development Plan, 2009	 NATIONAL POLICIES, PLANS AND STRATEGIES Vision 2030 Jamaica is the Government of Jamaica (Gol's) National Development Plan (2009) and outlines the Government's stated policy intent for achieving a better future for the country. The actions outlined in the Vision 2030 Jamaica document are informed by four mutually reinforcing and interlinked goals, which are detailed below: Goal 1: Jamaicans are empowered to achieve their fullest potential Goal 2: The Jamaican society is secure, cohesive and just Goal 3: Jamaica's economy is prosperous Goal 4: Jamaica has a healthy natural environment Each goal has clearly articulated national outcomes, many of which hinge on the forest sector. Goal 4 which states that Jamaica has a Healthy Environment, is supported by the following national outcomes: 13-Sustainable Management and Use of Environmental and Natural Resources 	Vision 2030 Jamaica gives focuses on increasing environmental awareness of the general population and their participation in the management of natural resources; providing an effective regulatory framework for the conservation of our natural resources; incorporating environmental considerations into decision-making processes; determining the economic value of our biodiversity and ecosystem services, as well as the long-term economic consequences of the continuing loss of biodiversity; and preserving and renewing ecological capital. The NMMP will align with this focus.	

	 14-Hazard Risk Reduction and Adaptation to Climate Change 15-Sustainable Urban and Rural Development. 	
Policy for Jamaica's System of Protected Areas, 1997	This policy represents Jamaica's commitment to protecting its environment and resources that are recognized nationally and internationally. It describes the types of protected areas in Jamaica, the roles and responsibilities of stakeholders and the planning for and establishing of protected areas. The goals of the Protected Areas Policy include economic development, environmental conservation, sustainable resource use, recreation, public education, public participation, local responsibility and financial sustainability.	Two RAMSAR sites overlap with NRCA protected areas i.e. Portland Bight and Cays in the Portland Bight Protected Area (PBPA) and Palisadoes-Port Royal in the Palisadoes- Port Royal Protected Area (P-PRPA). However, there are no regulations governing the activities in these protected areas.
The Forest Policy for Jamaica, 2017	The revised Forest Policy for Jamaica, 2017 is aligned with the national sustainable development goals of Vision 2030 Jamaica. It also builds on the Strategic Forest Management Plan (SFMP) 2010–2015, which was developed as a framework for increasing the Forestry Department's capacity to manage state-owned forests by "increasing the participation of the private sector, community-based organizations, and Nongovernmental Organizations (NGOs) in the sustainable management and conservation of Jamaica's forests"	As stated previously, several forested wetlands occur on private lands and hence with no comprehensive legislative framework to govern their protection. The new Forest Policy ⁵⁶ identified that without deliberate action by the Government, the quantity and quality of forest cover on private lands will decline. It outlined those appropriate incentives need to be developed to encourage private landowners to retain standing forests; engage in reforestation practices; conduct habitat enhancement activities and prevent soil erosion.
Jamaica National Land Policy, 1996	The goals and objectives of this Policy are to ensure the sustainable, productive and equitable development, use and management of the country's natural resources. The Policy establishes the framework for the planning, management and development of Jamaica's resources. It takes into consideration that Jamaica, including the foreshore, territorial waters and exclusive economic zone, is a finite resource and a national asset	Wetlands, comprising mangrove forest and swamp, experienced a loss in forest cover of approximately 95 percent or 2 100 ha. This was largely due to agricultural activity, herbaceous wetland and infrastructure including buildings and roadways. Land planning must consider the finite nature of forested wetlands, the current rate of loss and the important role they play in providing essential services such as flood control, recharging ground water and carbon sinks.
Climate Change Policy Framework for Jamaica, 2015	The general objective of the Policy Framework is to create a sustainable institutional mechanism to facilitate the development, coordination and implementation of policies, sectoral plans, programmes, strategies, and legislation to address the impacts of climate change. These sectors, which have so far been identified, are: water, energy, agriculture, fisheries, forestry, coastal and marine resources, health, mining, tourism,	 These principles of the policy as well as the overall strategic framework outlined in the policy will guide the development of the NMMP. In relation to Jamaica's forested wetlands, the Framework outlines the following strategies: Expand and strengthen coastal monitoring and data collection, to aid decision making;

	transportation, solid waste management, planning and disaster risk reduction and response management. The Climate Change Policy Framework's five objectives are: (i) to mainstream climate change considerations into national policies and all types and levels of development planning, and to build the country's capacity to develop and implement climate change adaptation and mitigation activities; (ii) to support the institutions responsible for research, data collection, analysis and projections at the national level on climate change, its impacts, and appropriate adaptation and mitigation measures, to facilitate informed decision-making and strategic actions at all levels; (iii) to facilitate and coordinate the national response to the impacts of climate change and promote low carbon development; (iv) to improve communication at all levels on climate change impacts and also adaptation and mitigation related opportunities so that decision makers and the general public will be better informed; and (v) to mobilize climate financing for adaptation and mitigation initiatives.	 Promote and facilitate national assessment of coastal areas and of coastal areas and of coastal and fisheries resources at risk; Identify measures to restore coastal wetlands as a defence to storm surges; Identify and delineate vulnerable areas (including marine areas) in the formulation of a National Spatial Strategy which will utilize hazard mapping;
The Protected Area Systems Master Plan: Jamaica, 2013-2017	The plan is a requirement under the Convention for Biological Diversity's (CBD's) Programme of Work for Protected Areas	There are 10 existing protected area system categories in Jamaica that are legislated by various laws and several responsible
The Jamaica National Moritory Truct Act	Programme of Work for Protected Areas (PoWPA). The Protected Areas Committee (PAC) has overall responsibility for guiding and monitoring the implementation of the PASMP. The plan is consistent with several national policies and plans, including the Policy for Jamaica's System of Protected Areas 1997, the National Strategy and Action Plan on Biological Diversity in Jamaica (2003) and Vision 2030 Jamaica: National Development Plan (2009). The aim of the PASMP is to develop a comprehensive and representative system of protected areas including landscape, seascape and natural and cultural heritage. The Plan is the primary national policy document for strengthening management and extending protected area coverage.	 various laws and several responsible agencies. In addition, a number of other government entities (such as the Forestry Department, Fisheries Division and Jamaica National Heritage Trust), local management entities, non-governmental entities, private sector and individuals are outlined as important role players as well. Forested wetlands can be found within various protected area categories including: Protected Area, Forest Reserve (Forest Act, 1996 and Forest Regulations; Forestry Department) Protected National Heritage (JNHT Act 1985; Jamaica National Heritage Trust, JNHT) Environmental Protected Area (NRCA Act, 1996; NEPA) Additionally, the plan states that by 2020, 20 percent of the coastal and nearshore habitats to the 200m bathymetric contour will be effectively managed.
1985	Heritage Trust as a statutory body to protect Jamaica's national heritage, including any	protection should they fall within a heritage area e.g. Seville Heritage site in St Ann and
		Port Royal, Kingston

	place, animal or plant species or object/building.	
National Forest Management and Conservation Plan, 2016-2026	The National Forest Management and Conservation Plan (NFMCP) 2016-2026 was developed to ensure Jamaica's alignment with key national policies geared towards achieving national sustainable development objectives.	The NFMCP has incorporated in its actions plans to conduct research and manage mangrove habitats and restore mangrove forest cover. the NFMCP (2016-2026) also indicated that the "high vulnerability of mangrove and swamp forests may allow the Department to pursue the transfer of Government-owned mangrove and swamp forest parcels outside of the Forestry Department's management responsibility from the National Land Agency (NLA)".
Assessment and Economic Valuation of Coastal Protection Services Provided by Mangroves in Jamaica	 A World Bank funded project designed to support the Government of Jamaica in promoting cost-effective coastal protection provided by mangrove and wave energy reduction measures through mangrove ecosystems enhancement. The project has the following outcomes: Mangrove Monitoring and Evaluation Manual – Jamaica Online tool for coastal management and risk reduction Forces of Nature: Assessment and Economic Valuation of Coastal Protection Services Provided by Mangroves in Jamaica 	
Coastal Management and Beach Restoration Guidelines – Jamaica, 2017	The focus of these Guidelines is to identify ways to ensure that coastal flood and erosion adaptation techniques, as well as wider land use developments, can be made resilient against climate change threats in a more cost-effective and socially acceptable way. It provides guidance to ensure that current and future Jamaican coastal management schemes (to include those for forested wetlands) are planned appropriately and are adaptive to predicted climatic change.	Provides important guidelines on mangrove restoration and rehabilitation interventions.
Guidelines for dealing with informal settlements (undated)	The fundamental aim of the squatter management guidelines is to provide guidance to the implementing agencies by way of recommended actions to avert future increase of unplanned/illegal developments and to assist in resolving shelter needs among the targeted population. A major objective of these guidelines is to: - prevent unplanned and unauthorized developments especially those that are detrimental to human health, the environment and the community.	There are several instances of informal settlements occurring in or adjacent to forested wetland areas. These settlements are at risk from natural hazards such as flooding and storm surge, while also causing damage to or removal of mangrove trees.

^[1] Forestry Department, Jamaica's Land Use Cover Assessment: A comparative assessment of Forest Change between 1998 & 2013 (Forest Resource Information Management Branch, GIS Unit, 2015).

^[2] Edwards, P.T. 2019. Valuation of Selected Ecosystem Service Co-Benefits Beyond Coastal Protection. World Bank. Kingston, Jamaica.

SOCIO-ECONOMIC BASELINE

- 105. A recent study conducted by (Bennett, 2021)² showed that the economic situation of most mangrove users in the study was challenging, as most persons reportedly earned <JMD 20 000 per month. Contextually, this is less the USD 150 monthly. Income levels such as this are mere hand-to-mouth existence, a feature that plagues many fishing communities. Most members of fishing communities close to mangrove sites fall within the lower-and middle-class socio-economic status in Jamaica. As such, they depend heavily on additional financial support through remittances, family, and the Programme of Advancement through Health and Education (PATH).
- 106. Several community members may identify fishing or other mangrove ecosystems as their main source of income. However, they tend to participate in other income-generating activities such as shipwright, infrastructure upgrades, and construction among other things, to take care of their family and sustain their livelihood

Parish	Project Restoration Site	Socio-Economic Activities
Kingston	Port Royal (Refuge Cay, Gallows Point, Palisadoes), Port Royal (CMU)	 fishing fish nursery Heritage site recreation construction habitats; eco-tourism cruise ship pier educational institutions Defence (National security) housing; and grocery shops, bars, and restaurants.
St. Catherine	Old Harbour Bay, Hellshire (Including Half-moon Bay), Manatee Bay	Fishinggrocery shops; bars and restaurantswaste treatment close to Hellshire
St. Thomas	Morant Point, Cow Bay (Albion), Grants Pen, Albion	Fishing;grocery shops, bars, and restaurants

107. The main Socio-Economic Activities in Proposed Restoration and conservation Sites are described below:

Parish	Project Conservation Site	Socio-economic Activities
Trelawny	Falmouth	Eco-tourismCultural activities, andfishing

² Bennett, NG (2021). National Mangrove Socio-Economic Survey Report
Parish	Project Conservation Site	Socio-economic Activities
St. Catherine	Manatee Bay, Goat Island - Little	Fishing
St. Thomas	Dalvey & Pera	Fishing
		• Farming
Westmoreland	Negril Great Morass	Eco-tourism
		hotel development
		• Cultural activities and,
		• fishing
Hanover	Orange Bay	Eco-tourism
		hotel development
		• Cultural activities and fishing
St. Ann	Seville	horseback riding
		Heritage site
		• tourism

- 108. Proposed mangrove management strategies should consider the most vulnerable groups, communities, and ecosystems. The aim is to ensure that the needs of affected stakeholders are addressed effectively and equitably in the implementation of the NMMP and the GEF project. Specific stakeholder groups and ecosystems listed below include those that may be disproportionately impacted by climate change, disaster and the other drivers of change outlined previously. From the ecosystem perspective, consideration is given to those areas, that if managed, protected or restored, can bring significant benefits to the widest range of stakeholders. These groups and ecosystems include primarily, but are not limited to:
 - Fisherfolk including capture fishers, oyster collectors, scalers, and vendors. This group of stakeholders is heavily reliant on ecosystem-based livelihoods.
 - Extractive mangrove resource users including bee farmers, post harvesters, crab hunters and livestock owners.
 - Communities located in flood prone areas.
 - Women, youth, the elderly, and those living at or below the poverty line.

3) Proposed alternative scenario with a brief description of expected outcomes and components of the project and the project's Theory of Change

PROJECT INTERVENTION STRATEGY

109. The objective of the project is to promote a biodiversity-positive approach towards sustainable management of mangrove habitats by contributing to the implementation of the National Mangrove Management Plan (NMMP). The project will achieve this objective through three project components that collectively are designed to address the direct drivers of mangrove ecosystem degradation and threatening important biodiversity. The project's design follows a logical theory of change that aims to address the main identified threats to mangrove habitats and associated biodiversity, including an incomplete mangrove policy environment, immediate mangrove forest degradation and associated threats to biodiversity due to a larger decline in ecosystem health, and a lack of mangrove knowledge to inform sound local and national decision making.

- 110. The intervention strategy rests on three fundamental and interrelated axes, which are not currently being covered adequately by the baseline activities, with interventions at the institutional level and interventions at the field level, and that underlie the project's Theory of Change (see Figure).
- 111. A first axis comprises the strengthening of the legal and regulatory framework for the management of mangrove areas with an emphasis on a biodiversity-positive approach towards sustainable management of mangrove habitats, thereby addressing the policy gaps that are allowing development in mangrove and adjacent ecosystems to continue unmanaged.
- 112. The second axis concerns interventions in the field related to on-ground restoration of mangrove ecosystems for an improved flow of ecosystem services and protection of important biodiversity.
- 113. These two technical components are supported by a third project component targeting project knowledge management and project monitoring and evaluation.
- 114. The project is designed on a Theory of Change (*see Figure 3*) that makes several key assumptions. To start, the proposed project design assumes the NMMP will be fully completed and adopted by the time the project begins to ensure the policy and field restoration activities are guided following national priorities. With only a small fraction of Jamaica's coastline home to mangroves ecosystems, the Forestry Department's analysis shows that the majority of mangrove ecosystems are located on government-owned land. The project will simultaneously focus on government owned and managed lands through declaration of new protected areas, as well as work at the national and local level to better integrate mangrove science into land-use decision making. One final key assumption of the project is the role mangrove data can serve to inform decision making. The project assumes that mangrove ecosystems and associated key biodiversity can be collected and synthesized in a timely manner so that it can inform local land use decision making as well as key project reports for broader sectoral and multi-sectoral knowledge dissemination.

PROJECT OBJECTIVES, OUTCOMES AND OUTPUTS

- 115. The objective of the project is to promote a biodiversity-positive approach towards sustainable management of mangrove habitats by contributing to the implementation of the National Mangrove Management Plan (NMMP). The goal of the NMMP itself is "to implement strategies that will achieve the conservation of a minimum of 60 percent (7 600 ha) of Jamaica's government-owned forested wetlands and 20 percent of privately owned forested wetlands by 2062".
- 116. The project has been organized into three components:
 - i. National mangrove policy strengthening to support implementation of National Mangrove Management Plan;
 - ii. Mangrove ecosystem restoration for improved ecosystem services and protection of key biodiversity; and
 - iii. Knowledge management and project monitoring and evaluation.
- 117. The fundamental objective of the project is to promote conservation, sustainable use, and where necessary restoration (or rehabilitation), of mangrove ecosystems and their associated habitats to benefit all Jamaican people and their livelihoods fairly and equitably.

Component 1: National mangrove policy strengthening to support implementation of National Mangrove Management Plan

- 118. The mainstreaming of ecosystem-based management approaches and strategies is needed across all government agencies charged with economic development, land-use planning and natural resource management. Mangrove ecosystems provide important ecosystem services and their protection and sustainable use should be prioritised. However, there is a lack of integration of relevant biodiversity targets and approaches throughout policies, regulations, planning and economic development strategies across all levels of government and sectors of the economy.
- 119. Component 1 therefore considers three outcomes. The first outcome concerns a strengthened policy enabling environment for successful implementation of the NMMP. The second outcome supports mainstreaming mangrove ecosystem-based management, with emphasis on resource users and livelihoods, into existing land use

planning processes. The third outcome is focused on establishing new mangrove protected areas.

OUTCOME 1.1: STRENGTHENED POLICY ENABLING ENVIRONMENT FOR SUCCESSFUL IMPLEMENTATION OF THE NATIONAL MANGROVE MANAGEMENT PLAN

120. Jamaica has several key legislative mechanisms and agencies with the responsibility for the protection of the environment, including forested wetlands. However, the institutional, policy and legislative framework is marked by gaps and overlapping mandates as it related to wetland management which have, in several cases, facilitated uncoordinated and siloed efforts towards enforcement and effective use of available resources. There are numerous government agencies whose activities and responsibilities have direct and indirect impacts on the condition of forested wetlands. Activities related to coastal development, waste management, agricultural production, infrastructure improvement and tourism development along the coast have resulted in declines in the coverage and/or health of Jamaica's forested wetlands. Unplanned and/or informal development in forested wetlands was recognized as one such class of development that is poorly enforced or regulated, due to a lack of cross agency coordination. Therefore, there is an urgent need for better coordination between sectors, agencies and levels of government to ensure harmony among the various legislative instruments and policies that dictate wetland conservation enforcement and regulations, and therefore impact the conservation and sustainable use of these important ecosystems.

Town and Country Planning & Development Orders

- 121. A central component in the TCPA is the preparation, confirmation, and modification of Development Orders (DOs) to guide and regulate the types of development to be permitted within a specific boundary (mainly at the parish/municipal level). The confirmation of a DO was seen as an important prerequisite to guide Local Planning Authorities in the granting of planning permission and in supporting elaboration of local development plans (LDPs). Many of the DOs were prepared and promulgated in the 1960s (Jamaica State of the Environment Report, 2013).
- 122. Of the 24 DOs currently in place, 12 have been updated in the last 10 years and only three have since been promulgated. DOs (whether provisional or confirmed) are the Town and Country Planning Authority's principal regulatory instrument. However, permission can only be granted if a development application confirms with the NRCA Act (1991). There is an opportunity to integrate local, regional and international conservation and biodiversity targets for forested wetland ecosystems in the DOs to ensure local development guidelines and long-term planning objectives are aligned. DOs should be viewed collectively as one spatial mapping unit (or masterplan) to ensure biodiversity targets for forested wetland (and other ecosystems) protection are strategically comprehensively captured at macro and micro scales.
- 123. The removal of mangroves, seagrass beds, and coral reefs to facilitate the multi-purpose use of the coastal zone has increased Jamaica's vulnerability to hurricanes and storm surges and poses a major threat to coastal ecosystems and marine wildlife (Climate Change Policy Framework, 2015). It is anticipated that climate change impacts will increase the vulnerability of human settlements to floods, storm surges, sea level rise and hurricanes. DOs (and Local Sustainable Development Plans) should be updated to ensure core areas of forested wetland ecosystems are zoned appropriately to promote their conservation and/or sustainable use. DOs should also be reviewed to ensure current and future zoning addresses the main causes of wetland degradation and biodiversity (relative to each parish) that can be mitigated through strategic ecosystem-based planning.

Output 1.1.1: Relevant provisional Parish Development Orders and Local Sustainable Development Plans revised and/or updated with appropriate zoning of forest wetlands, recommended uses and conservation status

Activities:

- 124. Review Parish Development Orders to ensure current and future zoning addresses the main causes of wetland degradation and biodiversity (relative to each parish) that can be mitigated through strategic ecosystem-based planning.
- 125. Update Parish Development Orders to ensure core areas of forested wetland ecosystems are zoned appropriately to promote their conservation and/or sustainable use.
- 126. Update Local Sustainable Development Plans to ensure core areas of forested wetland ecosystems are zoned appropriately to promote their conservation and/or sustainable use.
- 127. Courses for local government and other sectorial agencies to sensitize staff of GOJ agencies, who approve (infrastructure) development, on mangrove conservation best practices. These courses can include:
 - Wetland conservation certificate course to improve the capacity of local government (GOJ development approval committees) to issue Development Orders and Local Sustainable Development Plans related to mangrove habitats

Subjects:

- main causes of wetland degradation and biodiversity
- strategic ecosystem-based planning
- appropriate zoning of forested wetlands,
- recommended uses

Indicators:

- Number of training/certification sessions held on local sustainable development planning in mangrove habitats
- Number of persons trained and/or certified in local sustainable development planning in mangrove habitats
- Number of agencies/organizations represented at training sessions
- Wetland conservation certificate course to improve the capacity of other sectorial agencies to issue Development Orders and Local Sustainable Development Plans related to mangrove habitats

Output 1.1.2: Permitting requirements and processes related to wetland replanting, rehabilitation and/or restoration projects revised to minimise illegal entry into mangroves

Activities:

- 128. Develop project brief & terms of reference for consultancy to revise permitting requirements and processes
- 129. Prepare guidance on protocols & conditions for replanting, rehabilitation, or restoration projects
- 130. Revise permitting process specific to replanting, rehabilitation, or restoration projects.

Output 1.1.3: Mangrove and Coastal Wetlands Protection Draft Policy and Regulation, 1997, reviewed, updated and finalised to compel and coordinate action to protect and sustainably use forested wetlands

Activities:

- 131. Review and update Mangrove and Coastal Wetlands Protection Draft Policy and Regulation, 1997, based on the updated situational context for forested wetlands in Jamaica based on the many assessments that have been completed since the first draft of the policy.
- 132. Draft revised Mangrove and Coastal Wetlands Protection Draft Policy and Regulation, 1997, ready for enactment

Output 1.1.4: Five policy briefs tailored to specific sectors (Port and Coastal Infrastructure, Tourism, Climate Change and Environment, Waste Management, Agriculture and Fisheries) that raise awareness on the value of mangrove ecosystems and biodiversity.

Activities:

- 133. Develop five policy briefs that are tailored to specific key sectors to raise awareness on the benefits of mangrove ecosystems. The five sectors are identified as government, non-government and private sector stakeholders with actions that directly or indirectly impact mangrove habitats, including: (1) port and coastal infrastructure; (2) tourism; (3) climate change and environment; (4) waste management; and (5) agriculture and fisheries.
- 134. Disseminate five policy briefs that are tailored to specific key sectors to raise awareness on the benefits of mangrove ecosystems.

Output 1.1.5 – Potential for acquisition of privately owned forest wetlands by GOJ institutions investigated, with indicative costs for the acquisitions

Activities:

135. Conduct a feasibility study to investigate the potential for acquisition of privately owned FW lands by GOJ institutions

OUTCOME 1.2: ECOSYSTEM-BASED MANGROVE MANAGEMENT, WITH EMPHASIS IN RESOURCE USERS AND LIVELIHOODS, MAINSTREAMED INTO LAND USE PLANNING PROCESSES.

136. The results of the FD EU-BSP mangrove assessments revealed that close to 14 000 ha of forested wetlands were examined for: location and size, land ownership, status and threats and vegetation characteristics. The Situational Analysis and the National Mangroves Socio-economic Survey that were prepared as part of the development of the National Mangrove Management Plan provide socio-economic livelihood assessments. Aspects of the demographic, social and economic actions for livelihood, land tenure, land use, as well as community issues and communication media were covered in the Socio-economic Survey.

Output 1.2.1 - A minimum of 7 600 ha of forested wetlands of high ecosystem value and/or special interest designated as protected areas/forest reserves, with boundaries for gazetting and corresponding regulations drafted

Activities:

- 137. Identify forested wetlands (FW) of high ecosystem function and value, and/or special interest, amounting to a minimum of 7 600 ha for designation as protected areas/forest reserves under the NRCA Act, 1991 and/or the Forest Act with corresponding regulations.
- 138. Generate the boundary descriptions for the (minimum) 7 600 ha of high ecosystem value or special interest FW identified, including recommended buffer zones and zoning for type of use (e.g., general use, habitat protection, preservation etc.)
- 139. Draft boundaries and regulations under the Forest Act (1996) and/or the Natural Resources Conservation Authority (NRCA) Act, 1991 for enactment for the 7 600 ha of FW (minimum) identified as being of high ecosystem value and/or special interest, that (i) specify activities that are allowed or prohibited in accordance with recommended zonation (ii) stipulate offences and performance bonds (iii) outline incentive mechanisms for private landowners to protect forested wetlands on their property (iv) strengthen the framework to protect and regulate forested wetlands.

Output 1.2.2 – Gender and youth mainstreaming strategy and plan for ecosystem-based management of priority forested wetland areas developed and implemented

Activities:

- 140. Develop project brief & terms of reference for consultancy to develop a gender and youth mainstreaming strategy
- 141. Implement gender and youth mainstreaming strategy(ies)

Output 1.2.3: Feasibility of a payment for ecosystem services (PES) program in selected forest wetland areas and adjacent communities examined (pilot)

Activities:

142. Conduct a feasibility study to identify potential FW areas/ communities to pilot a payment for ecosystem services (PES) program

OUTCOME 1.3: NEW MANGROVE PROTECTED AREAS ESTABLISHED.

143. the NFMCP (2016-2026) indicates that the "high vulnerability of mangrove and swamp forests may allow the Forestry Department to pursue the transfer of Government-owned mangrove and swamp forest parcels outside of the Forestry Department's management responsibility from the National Land Agency (NLA)".

Output 1.3.1 – GOJ forest wetlands in need of urgent conservation and to be transferred to FD prioritised (from identified sites on FD working list)

Activities:

- 144. Prioritise forested wetland areas located on GOJ and/or crown lands for transfer to FD for improved protection, management, and sustainable use (from identified sites on FD working list) see below
- 145. In close consultation with experts of UWI-CMS and NEPA, the Forestry Department identified a working list of potential sites identified. The site selection is based on the following:
 - i. The interventions sites must be government (and its subsidiaries) owned. There is the option of working with privately owned mangroves areas
 - ii. The activities implemented on the recommended site should be achievable within 3.5 years at the most. There should also be the possibility for continuity beyond the life project
 - iii. Sites should have some interventions initiated/already in place that are worth scaling up, expanding and hence funding
 - iv. Size of the sites should be significant as a total area of 2000 ha is being aimed for. The intervention may be limited to a smaller acreage, but the impact should be scalable over a wide/larger area.
 - v. There must be some social intervention for communities women and youth (even if it is just knowledge and capacity building).

Parish	Site	Size (ha)	Owner
Trelawny	Burwood	1.6	Private – Royalton Resort
St. Andrew	Soapberry - Riverton South	36.82	Ministry with responsibility for Housing
St. Andrew	Six-Miles- Hunts Bay's - Ferry River Marsh lands	281.27	Kingston & St. Andrew Municipal Corporation / Ministry with responsibility Housing / UDC
St. Catherine	Old Harbour - Manatee Bay	1248.44	NLA / Ministry with responsibility for Housing / UDC
St. Catherine	Goat Islands	126.55	UDC
St. Thomas	Dalvey	320.12	SCJ Holdings Limited (GOJ)
Westmoreland	Negril	2251.26	NLA / UDC / Ministry with for responsibility for Housing
Hanover	Rhodes Hall	31.22	Private Hotel Development
TOTAL		4297.27	

146. Workshops/sessions required to engage local stakeholders in the process of protecting forested wetland areas.

• Participatory planning workshops engaging affected stakeholders in the process of identification of areas to be protected and presentation of the rationale why full protection is needed

• Participatory planning workshops involving local people towards legal recognition of possible alternative livelihoods for local people living near the areas to be protected

Indicators:

- Number of affected stakeholders attending the workshops (per Parish)

Output 1.3.2 – GOJ lands, including crown lands transferred to the Forestry Department by the Commissioner of Lands, as well as Ministries, Departments and Agencies (MDAs), for the management of forested wetlands

Activities:

- 147. Develop a mechanism permitting Forestry Department's management of mangrove forest and swamp on crown lands and have the mechanism signed
- 148. Transfer of lands by the Commissioner of Lands, as well as Ministries, Departments and Agencies (MDAs), forested wetlands that are GOJ lands, including crown lands

Component 2: Mangrove ecosystem restoration for improved ecosystem services and protection of key biodiversity

- 149. With an improved policy enabling environment under project component one, the second project component is focused on site-based mangrove ecosystem restoration to improve ecosystem services and protection of key biodiversity in priority mangrove habitats.
- 150. Habitat restoration is not necessarily simple, but of all marine ecosystems, mangroves are the most restorable. Mangroves are opportunistic and given the right settings, they can thrive. What is critical is to ensure that the location is restored in terms of elevation and water flows and that the social and political framework is secure against those impacts that caused their original loss, with clear ownership and regulations for the restoration locations.
- 151. Mangrove restoration costs less than USD 50 000 per hectare [JMD 6.7 Million] across the Caribbean region though data on costs are limited. In Jamaica two such projects report costs of USD 32 000 per hectare [JMD 4.3 Million], and over 70 percent of these costs are attributable to fencing needed to protect the restoration site. Restoration costs across the wider Caribbean are generally comparable and vary from around USD 23 000 per hectare [JMD 3.1 Million] in countries like Guyana to around USD 14 000 [JMD 1.88 Million] in Grenada.
- 152. In general, the factors influencing the costs of mangrove restoration projects are four-fold: (i) the costs of land and permitting; (ii) the costs of obtaining and transporting the material; (ii) the costs of designing and constructing the project, and; (iv) the costs of monitoring and maintaining the project post-construction. Another factor that influences costs is the restoration technique. Restoration by planting mangrove saplings manually can be cheap if these projects make use of local, voluntary labor. Projects involving hydrological restoration can be more expensive due to the need for specialized equipment, labor and the purchase and transportation of sediment. Maintenance and monitoring are also an important cost component, though often not reported in restoration projects.

OUTCOME 2.1: RESTORED HEALTH OF PRIORITY MANGROVE HABITATS TO IMPROVE ASSOCIATED BIODIVERSITY AND MANGROVE ECOSYSTEM SERVICES, INCLUDING SUPPORT TO MARINE ECOSYSTEMS AND FISHERIES.

153. The site-specific restoration activities shall follow an ecosystem-based approach, especially considering both threats and drivers to the entire land and marine components of mangrove ecosystems as well as information on the importance of site-specific mangrove ecosystems for provisioning of ecosystem services and supporting local livelihoods, such as fishing communities. Costs associated with an ecosystem-based restoration approach may vary considerably and an estimated USD 450-500 per hectare will be available given the funding amount for the component.

- 154. Consultation with experts of UWI-CMS and NEPA and review of existing mangrove restoration plans suggests the following potential restoration activities
 - Water quality analysis of source and impact site
 - Assessment of hydrology (water level loggers, flow measurement)
 - Topographic survey to determine drainage plan
 - Hydrological restoration
 - Digging of drainage canals to drain the mangrove area
 - Install physical barriers to prevent squatting
 - Removal of debris, fill materials
 - Solid waste management (removal of solid waste and establishing solid waste barriers)
 - Collect and distribute wild mangrove seedlings from local parent trees
 - Planting of mangrove seedlings / wildlings

Output 2.1.1 – Forest wetlands in need of urgent conservation/restoration prioritised (from identified sites on FD working list)

Activities:

- 155. Prioritise forested wetland areas in need of urgent conservation/restoration (from identified sites on FD working list) see below:
- 156. In close consultation with experts of UWI-CMS and NEPA, the Forestry Department identified a working list of eleven potential sites. The site selection is based on the following:
 - i. The interventions sites must be government (and its subsidiaries) owned. There is the option of working with privately owned mangroves areas
 - ii. The activities implemented on the recommended site should be achievable within 3.5 years at the most. There should also be the possibility for continuity beyond the life project
 - iii. Sites should have some interventions initiated/already in place that are worth scaling up, expanding and hence funding
 - iv. Size of the sites should be significant as a total area of 2000 ha is being aimed for. The intervention may be limited to a smaller acreage, but the impact should be scalable over a wide/larger area.
 - v. There must be some social intervention for communities women and youth (even if it is just knowledge and capacity building).

TABLE 6 MANGROVE SITES IDENTIFIED FOR RESTORATION

Trelawny	Falmouth	147.49	NLA / Ministry with responsibility for
			Housing
Trelawny	Rock (Falmouth)	177.39	NLA / Ministry with responsibility for
			Housing
Trelawny	Little River-Lilliput (Greenwood)	16.68	Ministry with responsibility for Housing
Trelawny	Scarlett Hall/ Salt Marsh	21.48	Private
St. Andrew	Port Royal	56.38	NLA
St. Andrew	Soapberry Expansion Site	108.68	Ministry with responsibility for Housing /
			Sewage treatment plant
St. Catherine	Hellshire (Including Halfmoon Bay)	324.49	UDC
St. Mary	Dover	50.55	NLA
Portland	Hart Hill	31.86	NLA
Clarendon	Portland Cottage	560.56	NLA
Clarandan	Jacksons Pay	50.94	Sugar Co. Jamaica Holdings (UWI SODECO
Clarendon	Jacksons Bay	50.84	SFS mangrove restoration programme)
Clarandan	Bocky Point	26.42	Sugar Co. Jamaica Holdings (UWI SODECO
Clarendon		20.43	SFS mangrove restoration programme)
Clarandan	Milk Pivor	207 57	Sugar Co. Jamaica Holdings (UWI SODECO
Clarendon		387.57	SFS mangrove restoration programme)
St. Elizabeth	Parrotee Pond - Treasure Beach stretch	252.07	NLA
TOTAL		2212.47	

Output 2.1.2 – Restoration plans developed for prioritised ''restorable'' mangrove areas in Jamaica with the costs for effecting conservation and/or hydrological restoration

Activities:

- 157. Develop and approve project brief and terms of reference for consultancy to develop restoration plans and budgets
- 158. Consultancy to develop restoration plans and budgets

Output 2.1.3 – Hydrological/ hydrodynamic and vegetation features and a natural resource valuation investigated of FD working list of forest wetland sites to be conserved/ protected

Activities:

159. Conduct detailed investigations into the hydrological/ hydrodynamic, vegetation features and a natural resource valuation of FD working list with forest wetland sites to be conserved/ protected

Output 2.1.4 – Restoration/ rehabilitation of prioritised degraded mangrove areas in Jamaica accomplished

Activities:

160. Effect restoration plans in selected priority sites

- 161. Courses/training needed for restoration/ rehabilitation of over 2 000 ha of degraded forested wetlands
 - Mangrove restoration and conservation training courses for relevant GOJ staff/agencies using international and local experts. Programs and certification should be mandatory to any agency implementing a restoration plan

Subjects:

- Restoration activities
- Development of Restoration plans

Indicators:

- Number of staff and agencies trained in mangrove conservation and restoration techniques and best practices
- Number of staff certified in conservation and restoration techniques and best practices
- Participatory planning workshops to consult affected stakeholders in the development of conservation plans for restored areas towards the integration of alternative livelihood opportunities

Indicators:

- Number of affected stakeholders attending the workshops (per Parish)

Output 2.1.5 – Mangrove ecosystem education "Mangrove Matters" billboards designed and erected alongside restored mangrove areas

Activities:

162. Install "Mangrove matters" billboards alongside restored mangrove areas

- 163. Sessions to improve public awareness on the environmental and economic value of unmodified mangroves. (*can also be included in Component 3 Knowledge management, but unsure under which Output to include this activity*)
 - Public awareness events for people living near protected and/or restored FW

Indicators:

- Number of relevant stakeholders attending the workshops (per Parish

Component 3: Knowledge management and project monitoring and evaluation

164. The two technical project components are supported by a third project component aimed at knowledge management and project monitoring and evaluation. The first outcome (Outcome 3.1) of this component aims to improve management and dissemination and awareness of Jamaica mangrove ecosystems and biodiversity knowledge. This will be achieved

OUTCOME 3.1: Improved management and dissemination and awareness of Jamaica mangrove habitat knowledge

Output 3.1.1 - A standard and GOJ entity used/agreed repository or webpage with forested wetlands use, status and management data in Jamaica created

Activities:

- 165. Develop a project brief & terms of reference for consultancy to develop a database with forested wetlands use, status and management data in Jamaica
- 166. Consultancy to create a database of FW areas in Jamaica that has data on protection/conservation status or zoning, planned/current rehabilitation exercises, current management arrangement, location of permanent sampling/monitoring plots, ownership status and other relevant data

Output 3.1.2 – Relevant agencies trained on the purpose and use of the Jamaica forest wetlands database and granted appropriate access

Activities:

- 167. Select staff members of relevant agencies for training in and valid access to Jamaica forest wetlands database
- 168. Train selected staff members of relevant agencies on the purpose and use of the forested wetlands database and grant appropriate access
- 169. Training delivered to ensure relevant agencies are trained on the purpose and use of the Jamaica FW database and granted appropriate access
 - Training sessions completed with relevant agencies on the purpose and use of Jamaica FW database

Subjects:

- Use of FW data to enhance collaborative monitoring management
- Use of FW data to support the permitting process
- Use of FW data to improve restoration and conservation activities
- Use of FW data to enhance sustainable use by GOJ agencies and relevant stakeholders

Indicators:

- Number of staff and agencies trained in the use of Jamaica FW database
- Number of staff and agencies with valid access to Jamaica FW database

Output 3.1.3 – Existing GIS portal on Forestry Dept website modified to include revised forested wetland locations as a layer/feature.

Activities:

170. Develop a project brief & terms of reference for consultancy to modify existing GIS portal on Forestry Dept website to include revised forested wetland locations as a layer/feature

- 171. Modify existing GIS portal on Forestry Dept website to include revised forested wetland locations as a layer/feature
- 172. Ensure outputs from interactive map are used by NEPA, FD, Min of Local Government, JNHT for any development approval.

Output 3.1.4 – Land use and/or zoning maps created with an overlay to illustrate forested wetland locations and physical boundaries using data collected and verified by FD

Activities:

- 173. Develop a project brief & terms of reference for consultancy to update current and projected land use and/or zoning maps with an overlay to illustrate forested wetland locations and physical boundaries using data collected and verified by FD
- 174. Update current and projected land use and/or zoning maps with an overlay to illustrate forested wetland locations and physical boundaries using data collected and verified by FD
- 175. Ensure land use and/or zoning map showing FW locations and boundaries, are freely accessible to FW stakeholders and the public
- 176. A second project outcome (Outcome 3.2) will support the overall project with effective project management and evaluation to inform adaptive management.

OUTCOME 3.2: Effective project management and evaluation to inform adaptive management

Output 3.2.1 Monitoring and Evaluation Strategy developed with relevant stakeholders, clearly defining expected results, the expected time periods for their completion, and their confirmation through objectively verifiable indicators and means of verification.

Activities:

- 177. Assessment of area restored and protected area creation reported to national UNCCD and CBD focal points
- 178. Sharing of lessons learned through production of project knowledge material on best practices, policy briefs, etc. for dissemination through digital platforms, public campaigns, etc.

Output 3.2.2 – Mid-term review and final evaluation conducted in order to constructively inform and guide project implementation, sustainability considerations, and the application of adaptive measures when necessary

Activities:

- 179. Project mid-term evaluation with a section reporting on the implementation of the Gender Action Plan (GAP) of the project.
- 180. Assessment of GEBs and co-benefits disaggregated by gender for reporting to the GEF and for the mid-term and final evaluations
- 181. Project final evaluation with a section reporting on contribution to national LDN and biodiversity commitments.
- 182. Final project report with recommendations developed to ensure sustainability and replication of best practices.



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

- 183. GEF funding for this project is coming from Jamaica's Biodiversity STAR. The project is directly aligned to support the Government of Jamaica with meeting key priorities aligned with the Convention on Biological Diversity (CBD) through the GEF-7 Biodiversity Focal Area.
- 184. More specifically, the project is aligned with three GEF-7 BD focal area objectives. Project Component 1 supporting the policy enabling environment for implementation of the NMMP is linked with BD 1-1: Mainstream biodiversity across sectors as well as landscapes and seascapes through biodiversity mainstreaming in priority sectors and BD 1-3: Mainstream biodiversity across sectors as well as landscapes and seascapes through Natural Capital Assessment and Accounting. Project Component 2, with a focus on restoration of targeted mangrove areas is aligned with BD 2.7: Address direct drivers to protect habitats and species and Improve financial sustainability, effective management, and ecosystem coverage of the global protected area estate.
- 185. Collectively the project will yield results that support at least four GEF Core Indicators, including approximately 4 297 ha of newly created terrestrial projected areas that included mangroves (GEF Core Indicator 1), 2 212 ha of mangroves restored in identified project sites (GEF Core Indicator 3), and 7 600 ha of mangrove landscape under improved management that benefits biodiversity (GEF Core Indicator 4), for an estimated total of 1 635 732 tCO2-eq of avoid emissions (GEF Core Indicator 6). The project will also support gender equality through activities that will yield co-benefits to approximately 200 men and 200 women (GEF Core Indicator 1).

6) Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, and co-financing

- 186. Mangrove habitats are among the most important ecosystems in Jamaica but currently receive the least amount of protection as the coastal ecosystem often falls under multiple and varying local and national management regimes. With an economy heavily reliant on healthy coastal ecosystems to support a booming tourism industry, the decline in mangrove habits is not just a threat to important terrestrial and marine biodiversity, but also a major threat to Jamaica's national economy. Mangrove ecosystems are also an important source of economic livelihoods for local communities, especially fishing communities.
- 187. The current baseline scenario for mangrove ecosystem management in Jamaica is one of siloed and uncoordinated efforts by multiple government and non-government actors. These efforts are significantly undermined by outdated national policies that contain gaps and legal loopholes. The implementation of the NMMP by the Forestry Department presents an important window of opportunity for leverage with GEF-7 Biodiversity Focal Area funding. Under a business as usual scenario, the NMMP will lack sufficient support for the implementation of a cohesive plan on the ground. The NMMP will be further hampered by continued poor awareness of mangrove knowledge and the important roles of mangrove ecosystems for local Jamaican communities. Mangrove ecosystems will continue to be managed by their siloed components, with many biodiversity and local community issues falling through the policy gaps altogether. And perhaps most concerning, windows of opportunity to advance ecosystems and impacted by climate change, will only become increasing complex. This GEF project takes advantage of this unique window to leverage the completion of the NMMP to promote a biodiversity-positive approach towards sustainable and integrated ecosystem-based management of mangrove ecosystems, and the local communities that directly and indirectly rely on them.
- 188. The proposed alternative scenario with GEF support follows a logical theory of change that directly addresses the main identified barriers and threats to mangrove habitats and associated biodiversity, including gaps in policy, site-specific drivers of mangrove ecosystem degradation, and low levels of mangrove ecosystem

knowledge and awareness. More specifically, the incomplete mangrove policy environment is addressed through targeted interventions under project Component 1 that include strengthening the enabling environment for successful implementation of the NMMP. This includes updating and revising current development plans, policies and regulations (Outcome 1.1), improving the management of mangrove ecosystems (Outcome 1.2) and establishing new protected areas (Outcome 1.3).

- 189. Immediate drives of mangrove ecosystem degradation and associated threats to biodiversity and decline in ecosystem services are addressed through site-specific mangrove restoration efforts in project Component 2 that demonstrate ecosystem-based approaches that replace current and largely unsuccessful replanting efforts. Finally, the inconsistent and outdated mangrove knowledge to inform local and national decision making will be strengthened with targeted knowledge management efforts under Component 3 that aim to both improve current mangrove awareness and capture important knowledge generated by the project.
- 190. These three project components have been carefully designed to ensure an ecosystem-based approach is taken toward mangrove ecosystem management through implementation of the NMMP. In doing so, local community perspectives will be prioritized, amplified, and captured with data to inform local land use planning and national management, thereby advancing vertical and horizonal integrated management approaches of mangrove ecosystems with unique management challenges that place value on terrestrial and marine ecosystem
- 191. The three project components will further serve as examples of integrated ecosystem-based management approaches by bringing together key government agencies for a coordinated and integrated implementation of the NMMP. In doing so, the project will have added benefits from the improvement of local community livelihoods and promotion of marginalized groups including woman and children, as well as key stakeholders such as fisherfolk and other mangrove ecosystem resource users.

7) Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF)

- 192. Mangrove forests in Jamaica are known to be important habit for nationally and globally important terrestrial and marine biodiversity, including commercially important species that support Jamaica's food and economic security. The project has been designed to meet not only national priorities of Jamaica, but also to yield global environmental benefits aligned with the GEF Secretariat and the Convention on Biological Diversity. The project is specifically aligned with GEF-7 Biodiversity Focal Area objectives that promote specific global environmental benefits. The project will more specifically support (a) conservation of globally significant biodiversity, and; (b) sustainable use of the components of globally significant biodiversity.
- 193. This includes protection of mangrove habitats and associated ecosystems that host important species, including the Jamaican Iguana, Whistling Duck, American Crocodile, and several species of sea turtles. As documented in Table F, the project anticipates supporting the restoration of 2 212 ha of mangrove habitat (GEF core indicator 3), the establishment of at least 4 297 ha of newly created terrestrial protected area (GEF core indicator 1), and an additional 7 600 ha under improved management (GEF core indicator 4). As a direct benefit of this support, the project estimates to avoid emission of 1 635 732 tCO2-eq (GEF core indicator 6). The project also anticipates that at least 400 direct beneficiaries will be receiving co-benefits of the GEF investment, including at least 200 woman and 200 men (GEF Core Indicator 11). Women are mostly involved in the processing and commercialization of crabs, fishes and other small crustaceous collected by men in the mangroves. The conservation and restoration of mangrove ecosystems will also anticipates yielding multiple additional benefits in other GEF focal areas, including carbon sequestration, and strengthened management of marine ecosystems following an integrated ecosystem-based approach.

8) Innovativeness, sustainability, potential for scaling up and capacity development³

- 194. The project has been designed to ensure a sustained and long-term impact can be achieved, including the potential for an impact to be scaled after the project is completed. Further, the project has embraced innovative approaches that take advantage of the best available science, technology, and knowledge on mangrove habitat management.
- 195. Innovation: The project is taking advantage of several innovative approaches that build on the latest knowledge for mangrove habitat management. This specifically includes drawing from over a decade of lessons learned with mangrove restoration efforts in Jamaica. The project is embracing an ecosystem-based restoration approach, with a focus on restoring the baseline hydrological conditions necessary for mangrove ecosystem recovery. Restoration efforts will also make use of local communities, especially incorporating and prioritizing knowledge generated from the socio-economic and ecosystem services assessments and knowledge captured under Component 3. The inclusion of these socio-economic and environmental factors leads towards and innovative approach that differs from traditional mangrove seedling replanting efforts that persist in Jamaica and are notorious for low survival rates and poor restoration results. The project also aims to find innovative policy solutions to mangrove management, including the particularly difficult task of identifying incentives for strengthened management of mangrove habitats on private land. Opportunities to expand on additional innovative approaches will be taken advantage where possible. This is made possible by the close working relationship the Government of Jamaica, including Forestry Department and NEPA have with world class research faculty, resources, and data at UWI Mona as well as technological support from FAO, such as inclusion of the Collect Earth tool to improve geospatial analysis.
- 196. **Sustainability:** The project has been designed to ensure its results can persist, and potentially grow, after the project concludes. Most critical to this approach is Jamaica's strong commitment to scientific research, both within government agencies like the Forestry Department as well as academic partners like the University of West Indies Mona and local NGOs. In addition to the project's specific knowledge deliverables, and other project knowledge that will be housed in the newly established mangrove knowledge repository (Component 3), the country continues to be a leader in mangrove scientific research. After the project ends, science-based mangrove knowledge in Jamaica will continue to grow to inform mangrove ecosystem management not just in Jamaica. This science-based knowledge has also informed the project's design to ensure longer-term survival rates of mangroves species (as compared to traditional replanting efforts) by taking a more holistic ecosystembased approach towards restoration of mangrove habitats. For example, the project's focus on the hydrology of mangrove habitats will promote improved ecosystem health, not just improving the likelihood of mangrove forests to thrive and repopulate degraded areas, but also promote important biodiversity. This holistic approach, when done correctly and well-managed, will lead to a much more resilient ecosystem.
- 197. Further, the restored areas will also build on existing joint-management approaches with local NGOs that already work closely within their communities to educate and protect mangrove areas, thus serving as an important node for additional knowledge dissemination at the most local of levels. Moreover, the lessons and

³ System-wide capacity development (CD) is essential to achieve more sustainable, country-driven and transformational results at scale as deepening country ownership, commitment and mutually accountability. Incorporating system-wide CD means empowering people, strengthening organizations and institutions as well as enhancing the enabling policy environment interdependently and based on inclusive assessment of country needs and priorities.

⁻ Country ownership, commitment and mutual accountability: Explain how the policy environment and the capacities of organizations, institutions and individuals involved will contribute to an enabling environment to achieve sustainable change

Based on a participatory capacity assessment across people, organizations, institutions and the enabling policy environment, describe what system-wide capacities are likely to exist (within project, project partners and project context) to implement the project and contribute to effective management for results and mitigation of risks.

⁻ Describe the project's exit / sustainability strategy and related handover mechanism as appropriate.

experiences from the project restoration efforts will inform future mangrove restoration efforts led by the Forestry Department under the new NMMP.

- 198. The project will lastly ensure sustainability of project results through the important focus on filling national mangrove policy gaps that have emerged over time from indirect support to mangroves. Through Component 1 filling critical policy gaps, the policy enabling environment for the NMMP will improve its implementation success, leading to first ever dedicated management of Jamaica's mangroves ecosystems. And because the NMMP is an extension of the NFMCP and the many years of past experience with it's ongoing implementation, the NMMP is poised to have immediate and long-term impacts for the sustainable management of Jamaica's mangroves.
- 199. **Potential for Scaling Up:** The project is focusing on leveraging immediate opportunities for Forestry Department to implement the NMMP, which provides an initial focus on improved mangrove habitat management on Crown lands identified under the Forest Act.
- 200. With successful project results in strengthen mangrove policies and promoting science-based integrated land management practices, there will be many additional opportunities for the project to scale up these results to non-Crown lands after the project is over. This is especially true of improved management of mangrove habitats on private lands as a result of specific incentives identified under the activities of Output 1.1.2.
- 201. Further, the improved knowledge base and associated awareness raising of mangrove habitat uses and mangrove habitat biodiversity will result in increased government and general public understanding of the importance of mangroves or not just environmental goals, but also social and economic development goals. Ideally this can include more educated decision making of private coastal developer meeting the strong demand for Jamaica's beach and ocean-based tourism.

2. b Project Map and Geo-Coordinates.

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

Site Name	X Coordinates	Y Coordinates
Parrottee Pond - Treasure Beach	-77.83025254	17.96785483
Six Miles - Hunts Bay - Ferry	-76.86127521	18.01556446
Hellshire - Half Moon Bay	-76.90012971	17.91688717
Portland Cottage	-77.19122673	17.77584246
Six Miles-Hunts Bay-Ferry River	-76.85944664	18.0034187
Old Harbour-Manatee Bay	-77.03142821	17.87122543
Negril	-78.32404645	18.32428437
Little River - Lilliput (Greenwood)	-77.74561172	18.51022338
Rock	-77.64557014	18.48055538
Falmoth	-77.6636873	18.48209837
Hart Hill	-76.68401342	18.26172507
Dover	-76.70932731	18.26718898
Dalvey	-76.2526694	17.89192188
Port Royal - includes the Cays and CMU	-76.81618999	17.94256171
Milk River	-77.31581847	17.8127543
Rocky Point	-77.27599472	17.77811641

Jacksons Bay	-77.2455032	17.74845326
Scarlett Hall - Salt Marsh 1	-77.69281141	18.49123011
Burwood_Royalton	-77.60512473	18.48276285
Manchioneal	-76.28017348	18.02990441
Goat Island	-77.06093701	17.87771562
Industry Cove (Rhodes Hall)	-78.2648487	18.40671999

Jamaica Mangrove and Swamp Forest Areas 124 Hanover St James Trelawny St Ann St Mary Portland St Elizabeth St Andrew St Catherine Manchester Kingston Clarendon St Thomas Legend Ramsar Sites Mangrove Forest Areas : ~14,000 ha Forest Estates Islandwide Parish Boundary

The information individed on this map has been compiled by Forestry Department staff from a variety of sources and is subject to change without notice. The Foreshy Department makes no regressentations warrantises, copressor implicit, as a locarray, completeness, lineliness, or forits to the use of such information. This document is not intended for use as a survey product. The Foreshy Department shall not be liable for any general, special, indirect, indirettal, consequential Gamages including, but not linted to be to be to any general special, indirect, indirettal, consequential Gamages including, but not linted to, lost revenues or isot profils resulting from the use or misuse of the information contained on this map. Any ask of this map or information on this map is Prohibited except by written permission of The Foreshy Department.

N W E 5 0 10 20 40 Projected Coordinate System: JAD 2001 Geographic Coordinate System: JAD 2001 Datum: D Jamaica 2001 Prime Manidan: Greenwich Angular Unit: Degree 1 centimeter = 2,800 meters



Jamaica Mangrove Forest Areas- Proposed Conservation Areas





Parrottee Pond - Treasure Beach ers an approxime more

W 5 0 075 15 1 Kilcmeter





Proposed Restoration Sites Parish Boundary

2. Stakeholders.



1) Stakeholder Consultation in project formulation

Stakeholder	Stakeholder	Stakeholder	Consultation	Consultation	Date	Comments
Name	Туре	profile	Methodology	Findings		
Forestry Department	Direct beneficiary	National Government Institution body	Meetings Interviews	Settled on mangrove sites for conversation and restoration. From the PIF the following outputs were completed: 1.1.2 – Assessment oj land ownership for mangrove management. Note that the incentives and policy recommendations is yet to be done. 1.2.2: Mangrove socio-economic livelihood assessment conducted to inform local land use decision making.	20 June 2022 24 June 2022 11 August 2022	FD is the direct beneficiaries. Several bilateral with specific officers where held but three major team meetings were convened.
Dr. Camilo Trench	Other	Other	Interview (face to face)	Leading Consultant in Mangrove restoration. Had a deep insight and analysis of the mangroves in Jamaica, both	22 June 2022	Consultant on the National Mangrove Management Plan (NMMP) development.

Stakeholder	Stakeholder	Stakeholder	Consultation	Consultation	Date	Comments
Name	Туре	profile	Methodology	Findings		
				private and publicly owned. UWI Centre for Marine Sciences		
The Nature Conservancy (TNC)	Indirect Beneficiary	Non- Gonvernmental Organization	Consultation Meeting with multiple stakeholders.		22 June 2022	This was the National Management Validation Workshop where most environment stakeholders were already present.
Jamaica Environment Trust	Other	Non- Gonvernmental Organization	Consultation Meeting with multiple stakeholders		22 June 2022	This was the National Mangrove Management Validation Workshop where most environment stakeholders were already present.
Sandals Hotel	Other	Non- Gonvernmental Organization	Consultation Meeting with multiple stakeholders		22 June 2022	This was the National Mangrove Management Validation Workshop where most environment stakeholders were already present.
Jamaica		Non-	Consultation		22 June 2022	This was the
Institute of	Other	Gonvernmental	Meeting with			National
Environmental		Organization				Mangrove

Stakeholder	Stakeholder	Stakeholder	Consultation	Consultation	Date	Comments
Name	Туре	profile	Methodology	Findings		
Professionals (JIEP)			multiple stakeholders			Management Validation Workshop where most environment stakeholders were already present.
University of the West Indies (UWI)	Indirect Beneficiary	Non- Gonvernmental Organization	Consultation Meeting with multiple stakeholders		22 June 2022	This was the National Management Validation Workshop where most environment stakeholders were already present.
University of Technology (UTECH)	Indirect Beneficiary	Non- Gonvernmental Organization	Consultation Meeting with multiple stakeholders		22 June 2022	This was the National Mangrove Management Validation Workshop where most environment stakeholders were already present.
National Water Commission (NWC)	Indirect Beneficiary	National Government Institution body	Consultation Meeting with multiple stakeholders		22 June 2022	This was the National Mangrove Management Validation Workshop where most environment stakeholders were already present.

Stakeholder	Stakeholder	Stakeholder	Consultation	Consultation	Date	Comments
Name	Туре	profile	Methodology	Findings		
Water Resources Authority (WRA)	Indirect Beneficiary	National Government Institution body	Consultation Meeting with multiple stakeholders		22 June 2022	This was the National Mangrove Management Validation Workshop where most environment stakeholders were already present.
National Land Agency (NLA)	Indirect Beneficiary	National Government Institution body	Consultation Meeting with multiple stakeholders		22 June 2022	This was the National Mangrove Management Validation Workshop where most environment stakeholders were already present.
Planning Institute of Jamaica (PIOJ)	Indirect Beneficiary	National Government Institution body	Consultation Meeting with multiple stakeholders		22 June 2022	This was the National Mangrove Management Validation Workshop where most environment stakeholders were already present.
Ministry of Tourism (MOT)	Indirect Beneficiary	National Government Institution body	Consultation Meeting with multiple stakeholders		22 June 2022	This was the National Mangrove Management Validation Workshop where most environment

Stakeholder	Stakeholder	Stakeholder	Consultation	Consultation	Date	Comments
Name	Туре	profile	Methodology	Findings		
						stakeholders were already present.
UWI (Port Royal Marine Lab)	Indirect Beneficiary	Non- Gonvernmental Organization	Consultation Meeting with multiple stakeholders		22 June 2022	This was the National Mangrove Management Validation Workshop where most environment stakeholders were already present.
Centre for Marine Science (CMS), University of the West Indies (UWI)	Indirect Beneficiary	Non- Gonvernmental Organization	Interview (face to face)	Experience is research and working mangrove restoration for decades. CMS was able to recommend sites for restoration. Also they gave an insight into the types of studies that existed and what should be included in specific sites.	23 June 2022	
National Environment and Planning Agency (NEPA)	Indirect Beneficiary	National Government Institution body	Teams Meeting	Supportive, NEPA already have a project restoring mangrove in Trelawny and Westmoreland.	28 June 2022	

Stakeholder	Stakeholder	Stakeholder	Consultation	Consultation	Date	Comments
Name	Туре	profile	Methodology	Findings		
		-		NEPA was able	2	
				to share several		
				reports to support		
				this project and		
				have general	1	
				oversight of all		
				the works being	,	
				undertaken in	,	
				Mangrove sites	,	
				across the island		
				either by	,	
				government,		
				private sector or		
				civil society.		
				Some mangrove		
				sites are		
				RAMSAR sites	,	
				and are protected		
				under the		
				Development		
				Orders prepared		
				by NEPA.		
			Teams	Owner of	12 July 2022	
			Meeting	majority of	-	
Urban			č	mangroves to be		
Development	Indirect	National		included in the		
Cooperation	Beneficiary	Government		project from		
(UDC)		Institution body		Portmore,		
				particularly		
				Hellshire.		
			Interview	C-CAM manages	27 July 2022	They have an
				the as oppose to	-	MOU with
~				implementing		NEPA and the
Caribbean				projects in the		Fisheries
Coastal Area	Indirect	Civil Society		Portland Bight		Department in
Management	Beneficiary	Organization		Protected Area,		the Ministry of
Foundation		0		this area has the		Agriculture
(C-CAM)				largest protected		and Fisheries
				area in Jamaica,		to manage the
				(51 975 ha).		~

Stakeholder	Stakeholder	Stakeholder	Consultation	Consultation	Date	Comments
Name	Туре	profile	Methodology	Findings		
						Fish
						Sanctuary.
				SODECO		SODECO's
				operates the		focus is on
		T () 1		longest project		project
CODECO	Indirect	International		being		implementation
SODECO	Beneficiary	Government		implemented in		and research.
		Institution/Doay		the Portland	,	
				Bight Protected		
				Area.		
			Interview	Crab hunting,	2 August 2022	Major fishing
				fire coal burning		village with
				and docking of		members of
				small vessels		local
				during hurricane		community.
				season in the		Investors on
				mangroves in		the beach are
				Half Moon Bay.		also impacted
				Cooperative has		but not
				over E		members of the
				members,		cooperative.
				approximately 80		
				females and 70		
Half Moor	1	Non-		males. Females		
Bay	Indirect	Gonvernmental		are fish vender,		
Fishermen	Beneficiary	Organization		except for 6		
Cooperative				fisherwomen and		
				all the males are		
				fisnermen Mananana haina		
				Mangroves being		
				killea Dy dradaina in tha		
				Kingston		
				Harbours: influx		
				of Sargassum		
				seaweed and	,	
				contaminants		
				from the sewage		
				pond in Greater		
				Portmore		

Stakeholder Name	Stakeholder Type	Stakeholder profile	Consultation Methodology	Expected timing	Comments
	Direct beneficiary	Select a stakeholder profile			
NEPA	Indirect Beneficiary	National Government Institution body	Meetings	Ongoing	All environmental permits and timing of various application will be needed.
Jamaica Environment Trust	Other	Civil Society Organization	Meeting and Interview	Prior to launch of project and prior to major restoration activities	Environment watchdog
Ministry with responsibility for Housing	Indirect Beneficiary	National Government Institution body	Meeting	ongoing	Owns six (6) sites being proposed.
Alligator Head Foundation	Other	Non- Gonvernmental Organization	Interview	Project planning	Works closest to the St. Mary and Portland site and may have an interest.
Kingston & St. Andrew Municipal Corporation	Other	Local Government Institution/body	Meetings	Planning through execution	Owns a site in Kingston and St. Andrew. Also any planned development for the area they will be able to give some insight as to what may or may not impact the project.
Urban Development Cooperation (UDC)	Indirect Beneficiary	National Government Institution body	Meetings/MOUs etc.	Ongoing	UDC Owns much of the land in St. Catherine/Hellshire and consideration should be had around transfer of ownership to Forestry Department.
Various Fishermen Cooperatives	Indirect Beneficiary	Non- Gonvernmental Organization	Meetings	Through the project	Livelihood may be impacted by Project activities
Male and female	Indirect Beneficiary	Local community	Formal and informal meetings and	Throughout the project	To maintain buy-in and interest.

Stakeholder Consultation foreseen in project Implementation

Stakeholder Name	Stakeholder Type	Stakeholder profile	Consultation Methodology	Expected timing	Comments
community members			information brochures		
National Land Agency (NLA)	Other	National Government Institution body	Meetings/MOUs etc.	Ongoing	Consultation should be ongoing since NLA owns some eight (8) of the mangrove sites.
Sugar Company of Jamaica Holdings (SCJ)	Other	National Government Institution body	Meetings/MOUs etc.	Project planning	Owner of a site in St. Thomas
Central Wastewater Treatment Company Limited	Other	Civil Society Organization	Meetings/MOUs etc.	Project planning	Part owner of Sewage Treatment plant - SoapBerry

3. Gender Equality and Women's Empowerment.



Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women's empowerment? (yes \square /no \square) If yes, please explain and upload/annex **Gender Action Plan** or equivalent⁴.

If possible, indicate in which results area(s) the project is expected to contribute to gender equality:

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

improving women's participation and decision making; and or

generating socio-economic benefits or services for women.

Does the project's results framework or logical framework include gender-sensitive indicators? (yes \square /no \square)

Gender Analysis

1. Jamaica is susceptible to several natural hazards, particularly hurricanes, floods, droughts, and earthquakes. Between 2001 and 2012, for example, the country experienced 11 storms (including five major hurricanes) that resulted in loss and damage of approximately USD 1.2 billion, including damage and loss of biodiversity

⁴ Please refer to <u>GEF Gender Equality Guidelines</u>, <u>Guide to mainstreaming gender in FAO's project cycle</u>, <u>GEF Gender Guidelines</u>.

resources. Households, particularly those that are female-headed, are generally larger; consist of more adult females and children; and are poorer as compared to male-headed homes. As a result, in post-disaster situations, they are unduly burdened because of their responsibilities to provide basic amenities, including potable water and food for their loved ones, and their lack of skills related to disaster recovery activities.

- 2. In occupations that depend on natural resources, such as environmental management and leadership, women are in the majority as opposed to other countries in the region. However, for an occupation that depends on natural resources in the coastal areas of Jamaica, men far outnumber women in access to and ownership of economic resources. For example, women are less than 6 percent of registered fisher folks in the country. Further, while there are no legal barriers to more women accessing a fishing license, there are pervasive socio- cultural and inheritance rights that give preference to men, because they are generally considered as primary breadwinners.
- 3. The Forestry Department has been a leader among Jamaican government institutions in empowering women in the workplace. Since 2001, Forestry Department has made specific efforts to establish a more gender-sensitive organization that is fully equipped to incorporate gender issues into its operations, including promoting the recruitment of women into professional and technical levels. As of 2017, the Forestry Department employed 45 percent of women, including 40 percent of the technical and professional positions held by women. Women are increasingly playing key decision-making roles within the Forestry Department, including a majority of women at the most senior management levels. These gender mainstreaming efforts with the Forestry Department have largely been guided mostly by the National Forest Management and Conservation Plan (NFMCP).
- 4. Irrespective of this data being a bit aged, the reality is similar with significantly more men involved in fishing than women. However, there are more women involved in fish vending than men. Economic hardships continue to plague many Jamaicans and affect women adversely. According to STATIN (2021), the unemployment rate in Jamaica was at approximately 9.18 percent, a slight decrease from previous years. However, the female unemployed labour force was 62 700 or 10.4 percent compared to the male unemployed labour force at 53 800 or 7.6 percent.5 Notably, more than half of the island's population lives in urban areas and cities already, and the numbers are rising with rural-urban migration. Most of the mangrove sites around the island are based in urban and suburban areas and are closest to fishing villages where males and female fisher folks ply their trade.
- "Despite the downward trend in unemployment and the increased employment of female workers, there are still
 778 000 people listed outside the labour force, with females accounting for the vast majority of 462 500."6
- 6. Women have continued to be significantly underrepresented in the highest circles of leadership and governance constituting 17.5 percent of the elected House of Representatives and 24 percent of Senators.7 This is despite being more educated (67.1 percent have achieved at least a secondary level of education)8 and being in one of 70 countries that have ever a female head of government/state9. Ironically, women constitute the majority of party membership and perform many tasks "on the ground" as field and election workers and campaigners. However, these responsibilities hardly materialize into more access to leadership within their parties and consequently, the nation. When it comes to local-level leadership and community-based leadership, more men are at the helm and more women are in supportive roles.
- 7. These situations have deep implications for what the project is seeking to do regarding addressing gender in biodiversity restoration and conservation. This is so because of the pervasive nature of the barriers that drive and sustain gender inequality and the privileging of men over women in so many aspects of life. Addressing these barriers will rest among other things, on examining how men and women access and control resources,

⁵ Unemployment falls below 10 percent in 2021. <u>https://statinja.gov.jm/LabourForce/NewLFS.aspx</u>

⁶ Unemployment falls below 10 percent percent in 2021-STATIN: <u>https://statinja.gov.jm/LabourForce/NewLFS.aspx</u>

⁷ Gender Strategy and Action Plan, p.9

⁸ Human Development Indices and Indicators: 2018 Statistical Update: <u>http://hdr.undp.org/sites/all/themes/hdr_theme/country-notes/JAM.pdf</u>

⁹ The number of women leaders around the world has grown, but they're still a small group: <u>http://www.pewresearch.org/fact-tank/2017/03/08/women-leaders-around-the-world/</u>

including biodiversity resources, power in the home and society, and how partnerships can be nurtured among women and men in pursuit of sustainable development.

4. Private Sector Engagement.

- 1. Private sector actors are recognized to play an important role in long-term sustainable mangrove ecosystem management in Jamaica. The private sector can have a direct impact on mangrove degradation, such as coastal development. Well-informed private sector actors can be the largest advocates for mangrove protection. To this end, the project has been designed with a combination of direct and indirect stakeholder engagement pathways.
- 2. The project will directly engage with key private sector actors through multiple outputs. First, the project will develop recommendations to address policy gaps with respect to incentives and disincentives of mangrove management on private lands (Output 1.1.4), including, as relevant, informing engagement with private landowners adjacent to project restoration activities under Component 2. The Output 1.1.5 includes assessing essential baseline land ownership (including both individuals and business) to inform the best pathways to incentivize improved private sector management. The project will also directly target five key private sectors (Port and Coastal Infrastructure, Tourism, Climate Change and Environment, Waste Management, Agriculture and Fisheries) through policy briefs and direct dissemination of this information (Output 3.1.2).
- 3. Indirectly, the project is also committed to disseminating mangrove knowledge to private sector project partners through the knowledge repository and with partner government agencies more directly responsible for engaging with private sector partners. This includes the Urban Development Corporation (UDC) and the Tourism Product Development Company (TPDCo). The UDC's remit is to hold, manage and develop real estate on behalf of the Government of Jamaica, with the overarching objective of spurring growth and improving the quality of life of Jamaicans. UDC's mandate includes transforming Jamaica's most viable urban centres and strategic rural towns, whilst preserving the natural environment, traditions and customs and spurring economic development. The UDC, through its development programmes, has significantly improved the coverage and quality of public infrastructure, in addition to introducing alternative patterns of urban settlement, including creative shelter solutions and the development of new townships. The Tourism Product Development Company Ltd. (TPDCo) is the central agency mandated by the Government of Jamaica to facilitate the maintenance, development and enhancement of the tourism product. TPDCo has been in operation since 1996 and is registered as a private company under the jurisdiction of the Ministry of Tourism. Members of TPDCo's Board are drawn from both the public and private sectors and include representatives of the Jamaica Hotel & Tourist Association (JHTA), the Jamaica Association of Villas and Apartments (JAVA) and each resort area.
- 4. Additionally, during project implementation, the project will work with the following private sector stakeholders as part of the projects stakeholder engagement plan:

Private Stakeholder Analysis and Engagement						
Stakeholder	Influence Rating (L,M,H)	Interest Rating (L,M,H)	Levels of engagement/Role in Project	Participation/ Needs		
Local communities in and around project sites	Medium	Medium	Consult, Involve, Collaborate	Awareness – messages to inform stakeholders on activities. Collaborative guide to mitigate responses to		

	Private Stakeholder Analysis and Engagement							
	Stakeholder	Influence Rating (L,M,H)	Interest Rating (L,M,H)	Levels of engagement/Role in Project	Participation/ Needs			
Ac	ademic/Research Institutions	Influence Rating (L,M,H)	Interest Rating (L,M,H)	Levels of engagement/Role in Project	negative impacts or on beneficial activities. Consultation and involvement guide to community development activities. Participation/Needs			
	The University of the West Indies, including: The Centre for Marine Sciences Port Royal Marine Laboratory Discovery Bay Marine Laboratory SODECO	Low	Medium	Consult, involve, inform, collaborate	Project should consider using evidence based research from these institutions for decision making.			
Non- Orga	Government	Influence Rating (L,M,H)	Interest Rating (L,M,H)	Levels of engagement/Role in Project	Participation/Needs			
	The Nature Conservancy	Low	Medium	Consult, involve, collaborate	Awareness - messages to inform stakeholder on activities Monitor stakeholders'			
	Jamaica Environment Trust	Medium	High	Consult, involve, collaborate, inform	Standing stakeholder advisory forums. On-			
	Jamaica Institute of Environmental Professionals	Low	Low	Consult, involve, collaborate Technical Working Group	nine reedback and discussion and newsletter and milestone reports where possible.			
	Negril Environment Protected Areas Trust (NEPT)	Medium	Medium	Consult, involve, collaborate				

	Private Stakeholder Analysis and Engagement						
	Stakeholder	Influence Rating (L,M,H)	Interest Rating (L,M,H)	Levels of engagement/Role in Project	Participation/ Needs		
	Caribbean Coastal Area Management Foundation	Medium	High	Consult, involve, collaborate, empower			
	Half Moon Bay fisherman's cooperatives	Low	Medium	Inform, consult			
Othe	er Private actors	Influence Rating (L,M,H)	Interest Rating (L,M,H)	Levels of engagement/Role in Project	Participation/Needs		
	Sandals	Low	Medium	Consult, involve, collaborate	Work directly with stakeholders to ensure		
	Royalton	Low	Medium	Consult, involve, collaborate	that their concerns are fully understood and considered in decision		
	Jamaica Swamp Safari	Low	Medium	Consult, involve, collaborate	making.		

5. Risks.

Section A: Risks to the project

Description of risk	Impact	Mitigation actions	Responsible party
Low engagement in project	L	The Project has been designed in close	FD, and PMU
activities from government		alignment with the ongoing national	
agencies		priorities and the NMMP to minimise this	
		risk taking into account extensive	
		consultations with all the relevant	
		stakeholder	
		The careful consideration of the	
		stakeholder engagement plan (See section	
		2, above) will act to mitigate this risk, as	
		it provides a detailed methodology to	
		engage the relevant agencies on the	
		project activities.	
		× •	
		The project will leverage existing	
		government coordination mechanisms	
		where possible, such as the Protected	
		Areas Committee.	
Impacts of climate change	М	Mangroves play an important part in	FD, PMU
significantly impact project		protecting the coastline from erosion and	
restoration efforts		protecting the hinterland from the	
		devastating effects of hurricanes. Their	
		protective value is often not understood or	
		not regarded as important. Informing	
		stakeholder and planning agencies about	
		the importance of mangrove will increase	
		the capacity of the landscape to adopt to	
		climate change.	
		This risk is categorized as Moderate given	
		the vulnerability of mangrove ecosystems	
		to climate change hazards including sea	
		level rise, hurricanes and extensive	
		flooding. Also, non-climate drivers such	
		as unreported or non-authorized	
		settlements or exploitations in mangrove	
		areas exacerbates the risks and confirm	
		need for mitigation actions.	
		The project will mitigate climate impacts	
		though the implementation of existing	
		sector climate resilience plans and taking	
		advantage of latest scientific information	

		on mangrove restoration. Resilience will	
		be promoted by adopting holistic	
		restoration approaches that prioritize	
		overall mangrove ecosystem health, such	
		as addressing underlying hydrologic	
		conditions that encourage natural	
		mangrove regeneration.	
Lack of interest from private	М	This risk will be mitigated by Increasing	FD, PMU
landowners and other		awareness of the importance of	
private sector actors in		mangroves while engaging with private	
mangrove management and		actors. The dissemination of the policy	
restoration		briefs proposed under Output 1.1.4 will be	
		essential for this aim.	
		For private sector actors, the project	
		provides a science-based approach to	
		local land-use planning (Output 1.1.1),	
		including making socio-economic	
		positions (output 1.2.2).	
COVID-19	L	Travel restrictions and prohibitions on	FD, PMU
		face-to-face meetings and consultations	
		are no longer in place, but it is not	
		inconceivable that new variants may	
		appear which may lead to a rebound of	
		infections and concomitant restrictions	
	1		

Section B: Environmental and Social risks from the project.

Environmental and Social Risk Classification: moderate risk

Safeguard	Risk	Answer	Risk	Potential (negative)	Mitigation measures
Triggered	Identified		Classification	impacts	
2	2.1 Would this	Yes	Moderate	Not foreseen. The project	The project supports
(Biodiversity,	project be			will enforce protection	strengthening
ecosystems	implemented			and sustainable	management of Crown
and natural	within a			management of	Lands already overseen
habitats)	legally			mangrove ecosystems	by the Forestry
	designated				Department, including
	protected area				Forest Reserves and
	or its buffer				Forest Management
	zone?				Areas plus moving 7 600
					additional hectares under
					these two management
					regimes. This focus on
					strengthening existing
					management mechanisms
					of protected areas and

					government-owned land by government agencies with existing mandates ensures cooperation from local stakeholders, compliance with national policies, and mitigation of any potential negative impacts. Further, the project will maintain frequent monitoring and evaluation mechanism of results and impacts to ensures continuous feedback during the project and adaptive management responses as
					The Jamaica Forestry Department, as lead project executing partner, will work closely with FAO during project execution for compliance with FAO ESS Guidelines.
7. Decent work	7.2 Would this project operate in sectors or value chains that are dominated by subsistence producers and other vulnerable informal agricultural workers, and more generally characterized by high levels "working poverty"?	Yes	Moderate	Not foreseen.	The project and its partners should share opportunities for youths in coastal communities and assist in preparing both males and females to access these opportunities. Some of these opportunities include youth representation at various regional and international conferences; South- South Cooperation with youths within Latin America and the Caribbean; and also

		conducting a needs assessment for skills and partnering with HEART Trust/NSTA to enroll them.
		The project makes it a priority to support the governance structures of these communities, e.g. Benevolent Societies and Cooperative. Without representation in Jamaica, it is almost impossible to receive financial and social support for micro- enterprises.
		After the governance framework is established, a partnership should be forged with the Small Business Association to provide capacity building or a roadmap on how stakeholders whose livelihood depends solely on the ecosystem can prepare themselves to pivot in times of adverse weather conditions and other environmental threats.

6. Institutional Arrangements and Coordination.

6.a Institutional arrangements for project implementation.

1. The Forestry Department of Jamaica will have the overall responsibility for the project, with FAO providing oversight as GEF Agency as described below.

2. Letters of Agreement (LoAs) will be signed between FAO and the Forestry Department, to serve as the Project's Executing Partner for the implementation of the Project's activities and ensure timely and effective implementation of all Project Components, and their component Outcomes, Outputs and Activities. Details of the LoA and the Executing Partner commitments will be included in the Terms of References for the LoA prepared by FAO, in consultation with the Project's Executing Agency, This LoA will be supervised by FAO's Lead Technical Officer (LTO). The funds received by the service provider will be used to carry out proposed project activities ensuring alignment and conforming to the rules and procedures of FAO.



3. The project organization structure is as follows:

4. The Government of Jamaica will designate a National Project Director (NPD). The NPD will liaise directly with FAO as needed on Project related matters. The NPD will chair the Project Steering Committee (PSC) which will be the main governing body of the project. The PSC will meet bi-annually, approve annual work plans and annual budgets on a yearly basis, and will provide strategic guidance to the Project Management Unit (PMU) and to all executing partners.
5. The PSC will be comprised of representatives from Jamaica's Forestry Department, the Center for Marine Science (UWI), NEPA, the Ministry of Local Government and Rural Development, the National Land Agency, the Urban Development Cooperation and FAO.

6. The members of the PSC will each assure the role of a Focal Point for the project in their respective agencies. Hence, the project will have a Focal Point in each concerned institution. As Focal Points in their agency, the concerned PSC members will: (i) technically oversee activities in their sector; (ii) ensure a fluid two-way exchange of information and knowledge between their agency and the project; (iii) facilitate coordination and links between the project activities and the work plan of their agency; and (iv) facilitate the provision of co-financing to the project. Members of steering committee has right to invite other entity to speak and contribute information to the PSC.

7. The Project Coordinator (within the Forestry Department) will be the Secretary to the PSC. The PSC will meet at least twice per year to ensure: (i) Oversight and assurance of technical quality of outputs; (ii) Close linkages between the project and other ongoing projects and programmes relevant to the project; (iii) Timely availability and effectiveness of co-financing support; (iv) Sustainability of key project outcomes, including up-scaling and replication; (v) Effective coordination of governmental partners work under this project; (vi) Approval of the sixmonthly Project Progress and Financial Reports, the Annual Work Plan and Budget; (vii) Making by consensus, management decisions when guidance is required by the National Project Coordinator of the PMU.

8. A Project Management Unit (PMU) will be co-funded by the GEF grant and established within Jamaicas Forestry Department. The main functions of the PMU, following the guidance of the Project Steering Committee, are to ensure overall efficient management, coordination, implementation, and monitoring of the project through the effective implementation of the annual work plans and budgets (AWP/Bs). The PMU will be composed of a Project Coordinator who will work full-time for the project lifetime. In addition, the PMU will include an Administrative Assistant, and will be supported by a Monitoring & Evaluation Specialist, a Knowledge Management Specialist and a Communication Specialist.

9. The Project Coordinator (PC) will oversee daily implementation, management, administration, and technical supervision of the project, on behalf of the Operational partner and within the framework delineated by the PSC. S/he will be responsible, among others, for:

- i) Coordination with relevant initiatives:
- ii) Ensuring a high level of collaboration among participating institutions and organizations at the national and local levels.
- iii) Coordination and close monitoring of the implementation of project activities.
- iv) Tracking the project's progress and ensuring timely delivery of inputs and outputs.
- v) Providing technical support and assessing the outputs of the project national consultants hired with GEF funds, as well as the products generated in the implementation of the project,
- vi) Monitoring financial resources and accounting to ensure accuracy and reliability of financial reports.
- vii) Ensuring timely preparation and submission of requests for funds, financial and progress reports to FAO.
- viii) Maintaining documentation and evidence that describes the proper and prudent use of project resources, including making available this supporting documentation to FAO and designated auditors when requested.
- ix) Implementing and managing the project's monitoring and communications plans.
- x) Organizing project workshops and meetings to monitor progress and preparing the Annual Budget and Work Plan.
- xi) Submitting the six-monthly Project Progress Reports (PPRs) with the AWP/B to the PSC and FAO.
- xii) Preparing the first draft of the Project Implementation Review (PIR).

- xiii) Supporting the organization of the mid-term and final evaluations in close coordination with the FAO Budget Holder and the FAO Independent Office of Evaluation (OED).
- xiv) Informing the PSC and FAO of any delays and difficulties as they arise during the implementation to ensure timely corrective measure and support.

10. The Food and Agriculture Organization (FAO) will be the GEF Implementing Agency (IA) for the Project, providing project cycle management and support services as established in the GEF Policy. As the GEF IA, FAO holds overall accountability and responsibility to the GEF for delivery of the results. In the IA role, FAO will utilize the GEF fees to deploy three different actors within the organization to support the project:

- The Budget Holder (BH), which is usually the most decentralized FAO office, will provide oversight of dayto-day project execution.
- The Lead Technical Officer(s), drawn from across FAO will provide oversight/support to the projects technical work in coordination with government representatives participating in the Project Steering Committee.
- The Funding Liaison Officer(s) within FAO will monitor and support the project cycle to ensure that the project is being carried out and reporting done in accordance with agreed standards and requirements.
- 11. FAO responsibilities, as GEF agency, will include:
 - Administrate funds from GEF in accordance with the rules and procedures of FAO.
 - Oversee project implementation in accordance with the project document, work plans, budgets, agreements with co-financiers, Operational Partners Agreement(s) and other rules and procedures of FAO.
 - Provide technical guidance to ensure that appropriate technical quality is applied to all activities concerned.
 - Conduct at least one supervision mission per year; and
 - Reporting to the GEF Secretariat and Evaluation Office, through the annual Project Implementation Review, the Mid Term Review, the Terminal Evaluation, and the Project Closure Report on project progress.
 - Financial reporting to the GEF Trustee.

6.b Coordination with other relevant GEF-financed projects and other initiatives.

- 5. There are currently two important land management GEF projects in Jamaica.
 - i) GEF-IADB (GEF ID 4454) Integrated Management of the Yallahs River and Hope River Watersheds. The project is complete a terminal evaluation in 2020. Main project objective was to improve the ecosystem service of two important watershed management units through improved sustainable land management, improved land husbandry practices and improved biodiversity. The project has made strides in the sensitization of persons on the objectives of the project through the implementation of its communication strategy and has trained over 500 farmers in good agricultural practices. The project experienced significant delays in completing other activities related to identification of sites for watershed interventions and in the reforestation of the upper watershed catchment areas. The lead executing entity for the project is NEPA.
 - ii) GEF UNDP (GEF ID 9862) Conserving Biodiversity and Reducing Land Degradation Using an Integrated Landscape Approach. The project under development and will anticipated to begin implementation in 2020. The main project objective is to enhance conservation of biodiversity and ecosystem services through mainstreaming of biodiversity into planning policies and practices into Jamaica's productive landscapes and key sectors. The lead executing entity for the project is also NEPA.
- 6. As the NEPA is the lead government partner for the two ongoing GEF projects in Jamaica, coordination efforts between this mangrove project and other existing GEF projects will be channelled through existing relationships between Forestry Department and NEPA. Both government organizations coordinate already through important

formal mechanisms, such as the Protected Areas Committee for the National Protected Area Systems, as well as the Technical Advisory Committee for the NFMCP.

7. GEF CAF FAO (GEF ID 10211) BE-CLME+: Promoting National Blue Economy Priorities Through Marine Spatial Planning in the Caribbean Large Marine Ecosystem Plus. This project is co-implemented by FAO, which together with CAF, is focused on adoption of national blue economy priorities, including promoting marine spatial planning (MSP) to inform ecosystem-based fisheries including informing establishing and expanding marine protected areas (MPAs) and promotion of sustainable seafood value chains. The project will strongly complement Jamaica's commitments for mangrove ecosystem conservation and restoration by addressing the important linkages with commercial and artisanal fisheries. Coordination among the two projects will be ensured by both FAO and national-level government agency collaboration, including NEPA.

7. Consistency with National Priorities.

Describe the consistency of the project with national strategies and plans or reports and assessments under relevant conventions from below:

1. The project is consistent with the following national priorities that include broader sustainable development objectives and specific alignment with national commitments for the Convention on Biological Diversity, most notably Jamaica's National Biodiversity Strategy and Action Plan (NBSAP) and Protected Areas System Master Plan (PASMP).

Vision 2030 Jamaica – National Development Plan.

2. Jamaica's Vision 2030 - National Development Plan is the country's roadmap to sustainable development. The Plan is aimed at positioning Jamaica to achieve developed country status by 2030. It acknowledges that protecting and managing Jamaica's natural resources will contribute to enhancing the quality of life for all Jamaicans. Vision 2030 specifically mandates best management practices for all forests, as well as recognizing the role it plays in ensuring adaptation to climate change, while leading reforestation efforts. This includes specific references to a healthy natural environment (Goal 4), and the sustainable management and conservation plan 2016 – 2026 for use of environmental and natural resources (Outcome 13), and hazard risk reduction and adaptation to climate change (Outcome 14).

2016-2021 National Biodiversity Strategy and Action Plan

- 3. The updated 2016-2021 National Biodiversity Strategy and Action Plan (NBSAP) presents several activities to achieve the Achi Targets which have been prioritized based on consultations with the main national stakeholders. The understanding of biodiversity as a critical asset for the Jamaican people and ensuring long term and sustainable economic activities are key to promoting the importance of biodiversity conservation across all economic sectors through public, private and civil sectors. The updated NBSAP seeks to provide activities which not only target the awareness and sensitization among groups but also foster engagement and buy-in to the strategic goals. It also has recognized the increasing challenge posed by climate change to biodiversity conservation and the need for the recovery of degraded ecosystems for environmental health and to building climate change resilience. The current NBSAP has multiple strategic goals that project is actively supporting. These include the following Strategic Goals:
 - a. Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society
 - b. Reduce direct pressures on biodiversity loss and promote sustainable use
 - c. Improve the status of ecosystems by safeguarding ecosystems, species and genetic diversity
 - d. Enhance the benefits to all from biodiversity and ecosystem services
 - e. Enhance the implementation through participatory planning, knowledge management and capacity building

More Specifically, the project supports the following point of the NBSAP on mainstreaming biodiversity into the Forestry, Fisheries and Tourism sectors: Industry Standards, Codes of Conduct, Guidelines and Good Practices guidance. By strengthening the enabling environment and implementing the National Mangrove Management Plan, the project will mainstream mangrove-related biodiversity into National Development Plans (Outcomes 1.1 and 1.2)., improve management and raise the awareness of mangrove habitats (Outcome 3.1), and effectively restore degraded mangrove habitats (Outcome 2.1)

8. Knowledge Management.

- 1. Knowledge management is specifically supported in Component 3 of the project by Outcome 3.1: Improved management and dissemination and awareness of Jamaica mangrove habitat knowledge. The project will establish a central mangrove repository with forested wetlands use, status and management data in Jamaica. The project also aims to capture and disseminate mangrove knowledge across Jamaica through a series of targeted publications and trainings (Outputs 3.1.2 and 3.1.3).
- 2. In addition, the project will generate at least five policy briefs to raise awareness about mangroves to key sectors including tourism, environment and climate change, waste management, and agriculture and fisheries (Output 1.1.4).
- 3. The project will also be generating knowledge in other project components that will be captured and disseminated through the mangrove repository. These additional knowledge products include the Gender and youth mainstreaming strategy and plan for ecosystem-based management of priority forested wetland areas (Output 1.2.2), Feasibility of a payment for ecosystem services (PES) program in selected forest wetland (Output 1.2.3), and national mangrove policy improvements under Outcome 1.1.
- 4. Collectively, these knowledge management actions will complement the targeted project interventions to create an overall increased understanding of the roles mangrove habitats and key biodiversity, including commercially important species, have in Jamaica communities and local and national development plans.

9. Monitoring and Evaluation.

1. The project results, as outlined in the project results framework (Annex A1), will be monitored regularly, reported annually and assessed during project implementation to ensure the project effectively achieves these results. Monitoring and evaluation activities will follow FAO's and GEF's policies and guidelines for monitoring and evaluation. The M&E system will also facilitate learning, replication of the project's results and lessons which will feed the project's knowledge management strategy.

Monitoring Arrangements

- 2. Project oversight and supervision will be carried out by the Budget Holder with the support of the PTF, LTO and FLO and relevant technical units in FAO headquarters. Oversight will ensure that: (i) project outputs are produced in accordance with the project results framework and leading to the achievement of project outcomes; (ii) project outcomes are leading to the achievement of the project objective; (iii) risks are continuously identified and monitored and appropriate mitigation strategies are applied; and (iv) agreed project global environmental benefits)are being delivered.
- 3. The FAO-GEF Coordination Unit and HQ Technical units will provide oversight of GEF financed activities, outputs and outcomes largely through the annual Project Implementation Reports (PIRs), periodic backstopping and supervision missions.
- 4. Day-to-day project monitoring will be carried out by the Project Management Unit. Project performance will be monitored using the project results matrix, including indicators (baseline and targets) and annual work plans and budgets. At inception phase, the results matrix will be reviewed to finalize the identification of (i) outputs (ii) indicators (iii) targets and (iv) any missing baseline information

5. A detailed M&E System, which builds on the results matrix and defines specific requirements for each indicator (data collection methods, frequency, responsibilities for data collection and analysis, etc) will also be developed during project inception by the PMU M&E Specialist.

M&E Activity	Responsible Parties	Timeframe	GEF Budget (USD)
Inception Workshop	Project Management Unit (PMU)	Within two months of project document signature	USD 9 150
Mid Term Workshop	PMU	In the 1^{st} quarter of the 3^{rd} year of the project	USD 5 000
Final Workshop	PMU	At the end of project implementation	USD 8 330
Project Inception Report	PMU	Within two weeks of inception workshop	No extra costs
Annual PSC meetings and bi-annual TF meetings	PMU	Annually	Covered by co-financing
Project Progress Reports (PPRs)	PMU	Annually	USD 62 400 (M&E Specialist)
Project Implementation Review report (PIR)	PMU	Annually in July	Covered by above
Co-financing Reports	PMU	Annually	No extra costs
Mid-term review (MTR) (Decentralized evaluation under BH responsibility)	BH, External Consultant, in consultation with the PMU, including the GEF Coordination Unit and other stakeholders, and with possible support from FAO Independent Evaluation Unit OED	In the 3 rd quarter of the 2 nd year of the project	USD 30 000
Terminal Evaluation (Decentralized evaluation, under Regional Office responsibility)	The BH will be responsible to contact the Regional Evaluation Specialist (RES) within six months prior to the actual completion date (NTE date). The RES will manage the decentralized independent terminal evaluation of this project under the guidance and support of OED.	To be launched 6 months prior to terminal review meeting	USD 40 000
Terminal Report	ВН	At the end of project implementation	USD 10 000
Total Budget			USD 164 880

Monitoring and Reporting

6. In compliance with FAO and GEF M&E policies and requirements, the PMU, in consultation with the PSC and PTF will prepare the following (i) Project inception report; (ii) Annual Work Plan and Budget (AWP/B); (iii) Project Progress Reports (PPRs); (iv) annual Project Implementation Review (PIR); (v) Technical Reports; (vi) co-financing reports; and (vii) Terminal Report. In addition, the Core Indicators will be used to monitor Global Environmental benefits / adaptation benefits (specify as appropriate) and updated regularly by the PMU.

- 7. Project Inception Report. A project inception workshop will be held within two months of project start date and signature of relevant agreements with partners. During this workshop the following will be reviewed and agreed:
- the proposed implementation arrangement, the roles and responsibilities of each stakeholder and project partners;
- an update of any changed external conditions that may affect project implementation;
- the results framework, the SMART indicators and targets, the means of verification, and monitoring plan;
- the responsibilities for monitoring the various project plans and strategies, including the risk matrix, the Environmental and Social Risk Management Plan, the gender strategy, the knowledge management strategy, and other relevant strategies;
- finalize the preparation of the first year AWP/B, the financial reporting and audit procedures;
- schedule the PSC meetings;
- prepare a detailed first year AWP/B,
 - 8. The PMU will draft the inception report based on the agreement reached during the workshop and circulate among PSC members, BH, LTO and FLO for review within one month. The final report will be cleared by the FAO BH, LTO and the FAO GEF Coordination Unit and uploaded in FAO's Field Program Management Information System (FPMIS) by the BH.
 - 9. Results-based Annual Work Plan and Budget (AWP/B). The draft of the first AWP/B will be prepared by the PMU in consultation with the FAO Project Task Force and reviewed at the project Inception Workshop. The Inception Workshop inputs will be incorporated and subsequently, the PMU will submit a final draft AWP/B to the BH within two weeks after the workshop. For subsequent AWP/B, the PMU will organize a project progress review and planning meeting for its progress review and adaptive management. Once PSC comments have been incorporated, the PMU will submit the AWP/B to the BH for non-objection, LTO and the FAO GEF Coordination Unit for comments and for clearance by BH and LTO prior to uploading in FPMIS by the BH. The AWP/B must be linked to the project's Results Framework indicators to ensure that the project's work and activities are contributing to the achievement of the indicators. The AWP/B should include detailed activities to be implemented to achieve the project outputs and output targets and divided into monthly timeframes and targets and milestone dates for output indicators to be achieved during the year. A detailed project budget for the activities required during the year. The AWP/B should be approved by the Project Steering Committee, LTO, BH and the FAO GEF Coordination Unit, and uploaded on the FPMIS by the BH.
 - 10. Project Progress Reports (PPR): The PPRs are used to identify constraints, problems or bottlenecks that impede timely implementation and to take appropriate remedial action. PPRs will be prepared based on the systematic monitoring of output and outcome indicators identified in the Project Results Framework indicate annex number, AWP/B and M&E Plan. Each semester the Project Manager will prepare a draft PPR, will collect and consolidate any comments from the FAO PTF. The PC / PM will submit the final PPRs to the FAO Representation in indicate country every six months, prior to 31 July (covering the period between January and June) and before 31 December (covering the period between July and December). The July-December report should be accompanied by the updated AWP/B for the following Project Year (PY) for review and no-objection by the FAO PTF. The Budget Holder has the responsibility to coordinate the preparation and finalization of the PPR, in consultation with the PMU, LTO and the FLO. After LTO, BH and FLO clearance, the FLO will ensure that project progress reports are uploaded in FPMIS in a timely manner.
 - 11. Annual Project Implementation Report (PIR): The PIR is a key self-assessment tool used by GEF Agencies for reporting every year on project implementation status. It helps to assess progress toward achieving the project objective and implementation progress and challenges, risks and actions that need to be taken. Under the lead of the BH, the Project Manager will prepare a consolidated annual PIR report covering the period July (the previous year) through June (current year) for each year of implementation,

in collaboration with national project partners (including the GEF OFP), the Lead Technical Officer, and the FLO. The PC/PM will ensure that the indicators included in the project results framework are monitored annually in advance of the PIR submission and report these results in the draft PIR.

- 12. BH will be responsible for consolidating and submitting the PIR report to the FAO-GEF Coordination Unit for review by the date specified each year after each co-implementing agency's review for each respective output under their responsibilities (to be included for joint implementation only). FAO GEF Funding Liaison Officer review PIRs and discuss the progress reported with BHs and LTOs as required. The BH will submit the final version of the PIR to the FAO-GEF Coordination Unit for final approval. The FAO-GEF Coordination Unit will then submit the PIR(s) to the GEF Secretariat as part of the Annual Monitoring Review of the FAO-GEF portfolio
- 13. Technical Reports: Technical reports will be prepared as part of project outputs and to document and share project outcomes and lessons learned. The LTO will be responsible for ensuring appropriate technical review and quality assurance of technical reports. Copies of the technical reports will be distributed to project partners and the Project Steering Committee as appropriate.
- 14. Co-financing Reports: The PMU will be responsible for tracking co-financing materialized against the confirmed amounts at project approval and reporting. The co-financing report, which covers the GEF fiscal year 1 July through 30 June, is to be submitted on or before 31 July and will be incorporated into the annual PIR. The co-financing report needs to include the activities that were financed by the contribution of the partners.
- 15. Tracking and reporting on results across the GEF 7 core indicators and sub-indicators: As of 1 July 2018, the GEF Secretariat requires FAO as a GEF Agency, in collaboration with recipient country governments, executing partners and other stakeholders to provide indicative, expected results across applicable core indicators and sub-indicators for all new GEF projects submitted for Approval. During the approval process of the (insert short project title) expected results against the relevant indicators and sub-indicators have been provided to the GEF Secretariat. Throughout the implementation period of the project, the PMU, is required to track the project's progress in achieving these results across applicable core indicators and sub-indicators. At project mid-term and project completion stage, the project team in consultation with the PTF and the FAO-GEF CU are required to report achieved results against the core indicators and sub-indicators used at CEO Endorsement/ Approval. Methodologies, responsibilities and timelines for measuring core-indicators will be outlined in the M&E Plan prepared at inception.
- 16. Terminal Report: Within two months before the end date of the project, and one month before the Final Evaluation, the PMU will submit to FAO (to specify the unit in charge in HQ) a draft Terminal Report. The main purpose of the Terminal Report is to give guidance at ministerial or senior government level on the policy decisions required for the follow-up of the project, and to provide the donor with information on how the funds were utilized. The Terminal Report is accordingly a concise account of the main products, results, conclusions, and recommendations of the project. The target readership consists of persons who are not necessarily technical specialists but who need to understand the policy implications of technical findings and needs for insuring sustainability of project results.

MTR and Evaluation provisions

Mid-Term Review

17. An independent mid-term review (MTR) will be carried out at project mid-life in terms of expenditure and/or overall project duration, tentatively in the third quarter of project year two. The BH will arrange an independent MTR in consultation with the Project Steering Committee (PSC), the Project Management Unit (PMU), the lead technical office (LTO) and the FAO-GEF Coordination Unit in FAO headquarters.

The MTR will be conducted to review progress and effectiveness of implementation in terms of achieving project objective, outcomes, and outputs. The MTR will allow mid-course corrective actions, if needed. The MTR will provide a systematic analysis of the information on project progress in the achievement of expected results against budget expenditures. It will refer to the project budget (see Annex A2) and the approved AWP/Bs. It will highlight replicable good practices and key issues faced during project implementation and will suggest mitigation actions to be discussed by the PSC, the LTO and FAO-GEF Coordination Unit.

Terminal Evaluation

- 18. The GEF evaluation policy foresees that all Medium and Full-sized projects require a separate terminal evaluation. Such evaluation provides: (i) accountability on results, processes, and performance (ii) recommendations to improve the sustainability of the results achieved and (iii) lessons learned as an evidence-base for decision-making to be shared with all stakeholders (government, execution agency, other national partners, the GEF and FAO) to improve the performance of future projects.
- 19. The Budget Holder will be responsible to contact the Regional Evaluation Specialist (RES) within six months prior to the actual completion date (NTE date). The RES will manage the decentralized independent terminal evaluation of this project under the guidance and support of OED and will be responsible for quality assurance. Independent external evaluators will conduct the terminal evaluation of the project taking into account the "GEF Guidelines for GEF Agencies in Conducting Terminal Evaluation for Full-sized Projects". FAO Office of Evaluation (OED) will provide technical assistance throughout the evaluation process, via the OED Decentralized Evaluation Support team in particular, it will also give quality assurance feedback on: selection of the external evaluators, Terms of Reference of the evaluation, draft and final report. OED will be responsible for the quality assessment of the terminal evaluation report, including the GEF ratings.
- 20. After the completion of the terminal evaluation, the BH will be responsible to prepare the management response to the evaluation within 4 weeks and share it with national partners, GEF OFP, OED and the FAO-GEF CU. The BH will also send the updated core indicators used during the TE to the FAO-GEF CU for their submission to the GEF Secretariat.

Disclosure

21. The project will ensure transparency in the preparation, conduct, reporting and evaluation of its activities. This includes full disclosure of all non-confidential information, and consultation with major groups and representatives of local communities. The disclosure of information shall be ensured through posting on websites and dissemination of findings through knowledge products and events. Project reports will be broadly and freely shared, and findings and lessons learned made available.

10. Benefits

- 1. The contributions of mangrove ecosystems to human well-being are interrelated to their direct ecological benefits. Mangroves are of great importance for their role as a wildlife habitat and nursery area for birds, shrimp, crabs, and fish as well as the support they provide to coastal communities' for the supply of seafood for local consumption or as part of a business10. Additionally, mangroves provide shoreline protection, habitat for crocodiles, recreation, charcoal production, timber, and fence posts. Mangroves also provide a haven for boat and equipment shelter for fishers during hurricanes and other weather events.
- 2. Mangroves form a part of the physical shoreline protection and ecological defense of many countries and are particularly essential for island nations. The Caribbean as a whole, and certainly Jamaica, has special relationships with mangroves. Many coastal communities owe their survival to the resilience of mangroves. It has been reported that mangroves provide perhaps hundreds of uses but as a defense against

¹⁰ <u>https://documents1.worldbank.org/curated/en/357921613108097096/pdf/Forces-of-Nature-Assessment-and-Economic-Valuation-of-Coastal-Protection-Services-Provided-by-Mangroves-in-Jamaica.pdf</u>

the vagaries of tropical hurricanes for that reason alone mangroves are to be celebrated. The buffer location, at the edge of the land and the sea, makes for a dynamic mix of benefits that society requires for biodiversity and sustenance.

3. Under this context, the present project aims to increase and maintain the provision of these ecosystem services by providing direct support to the conservation of 7 600 ha of mangroves (GEF Core Indicator 4.1), the restoration of 2 212 ha (GEF Core Indicator 3.4) and the designation of 4 297 ha as protected areas (GEF Core Indicator 1.1). These actions will provide direct benefits to 400 people (50 percent women) and indirect benefits to a total of a least 18 194 registered fisher folks in Jamaica.

PART III: ANNEXES

Annex A1: Project Results Framework



Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection			
Objective: To support the implementation of the National Mangrove Management Plan for promoting a biodiversity-positive approach towards sustainable management of mangrove ecosystems										
Component 1: Na	ational mangrove policy streng	gthening to suppo	rt implementatio	n of National Ma	ngrove Manageme	nt Plan				
Outcome 1.1: Strengthened policy enabling environment for successful implementation of the National Mangrove Management Plan										
Output.1.1.1RelevantprovisionalParishDevelopmentOrders (DO) andLocalSustainableDevelopmentPlans (LSDP)revised and/orupdated withappropriate	Project Indicator #1: - Number of relevant provisional DOs revised and/or updated - Number of relevant LSDPs revised and/or updated	No provisional Parish Development Orders or Local Sustainable Development Plans revised and/or updated	50 percent of relevant provisional Parish Development Orders and Local Sustainable Development Plans revised and/or updated	100 percent of relevant provisional Parish Development Orders and Local Sustainable Development Plans revised and/or updated	 NEPA reports on implementation of activities Revised and/or updated Parish Development Orders Revised and/or updated Local Sustainable 	 Legal protection of forested wetlands through Parish Development Orders and Local Sustainable Development Plans achieved before ongoing or planned development threatens ecological integrity Timeframe for decision-making sufficient to prevent 	MLGRD, NEPA/TCPA, FD, MEGJC, and PDCs			

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
zoning of forested wetlands, recommended uses and conservation status					Development Plans	continued development or modification of identified areas - Adequate cross-agency collaboration	
Output.1.1.2 Permitting requirements and processes related to wetland replanting, rehabilitation and/or restoration projects revised to minimise illegal entry into mangroves	Project Indicator #2: - Project brief & terms of reference for consultancy to revise permitting requirements and processes Project Indicator #3: - Completion and dissemination of guidance document on protocols & conditions for replanting, rehabilitation, or restoration projects Project Indicator #4: - Updating, approval and promulgation of permitting requirements and schedule	Wetland modification permitting requirements inadequate	 Project brief & terms of reference for consultancy to revise permitting requirements and processes completed 1 Consultancy to revise permitting requirements and processes completed 	 1 Guidance document on protocols & conditions for replanting, rehabilitation, or restoration projects disseminated Permitting requirements and schedule updated, approved and promulgated 	 Guidance document on protocols & conditions for replanting, rehabilitation, or restoration projects. Orders drafted and promulgated Processes/ guidelines adopted Updated permitting requirements and schedule 	 Clear and unrestricted political will to revise permitting requirements Timeframe for decision-making sufficient for continued development of modification of identified areas 	NEPA/TCPA, FD, MEGJC
Output.1.1.3MangroveandCoastalWetlandsProtection DraftPolicyandRegulation,1997, reviewed,updatedandfinalisedtocompeland	Project Indicator #5: - The amended Mangrove and Coastal Wetlands Protection Draft Policy and Regulation, 1997, is revised to include present situational context, approved and promulgated	The Mangrove and Coastal Wetlands Protection Draft Policy and Regulation of 1997 contains Key Principles and Policy strategies.		- Mangrove and Coastal Wetlands Protection Draft Policy revised and Regulations approved and promulgated	- Amended Mangrove and Coastal Wetlands Protection Draft Policy and Regulations promulgated	 Updating the draft policy and regulations is a priority policy direction for MEGJC Timeframe for decision-making sufficient for continued development of modification of identified areas 	MEGJC, NEPA, FD, PIOJ

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
coordinate action to protect and sustainably use forested wetlands		However, regulations still remain to be formulated and policy strategies need to be revised to include present situational context			- NEPA progress report on activities		
Output.1.1.4Fivepolicybriefs tailored tospecific sectors(Port and CoastalInfrastructure,Tourism,Climate ChangeandEnvironment,WasteManagement,Agriculture andFisheries)thatraise awarenesson the value ofmangroveecosystems andbiodiversity.	 <u>Project Indicator #6:</u> Number of policy briefs finalized. <u>Project Indicator #7:</u> Number of sectors addressed. 	- Limited awareness on the benefits and value of mangrove ecosystems and cost to the economy of losing mangroves due to the respective economic activities among key economic sectors	- 5 Policy briefs drafted that raise awareness on the value of mangrove ecosystems and biodiversity among key economic sectors	- 5 Policy briefs disseminated to raise awareness on the value of mangrove ecosystems and biodiversity among key economic sectors	- Five policy briefs	 Clear and unrestricted political will to develop policy briefs to raise awareness Key economic sectors receptive to policy briefs and willingness to adapt policies to recognize benefits and value of mangrove ecosystems 	MEGJC, NEPA, FD, TPDCo., Ministry of Tourism, NSWMA, MHURECC, National Fisheries Authority, JNHT, Ministry of Industry, Commerce, Agriculture and Fisheries
Output.1.1.5 Potential for acquisition of privately owned forested wetlands by GOJ institutions investigated, with indicative	 <u>Project Indicator #8:</u> Identification of area of privately owned lands that can be acquired by FD for ownership and management, Identification of Indicative costs for the acquisition of 	- Limited knowledge on potential for acquisition of privately owned forested wetlands by GOJ institutions	- area (amount of hectares) of privately owned lands that can be acquired by FD is determined.	 costs for the acquisition of privately owned forested wetlands are determined. Proposals submitted to 	- FD/NEPA progress reports detailing privately owned lands that could be acquired by FD for ownership and management,	The Research division of the FD has the capacity (financial and/or staffing) to conduct these studies	FD, NLA, MDAs

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
costs for the acquisitions	privately owned forested wetlands			MEGJC for the acquisition of privately owned forested wetlands	and indicative costs for the acquisitions		
Outcome 1.2: Ecosystem- based mangrove management, with emphasis in resource users and livelihoods, mainstreamed into land use planning processes.	 GEF Core Indicator 4.1: Area of landscapes under improved management to benefit biodiversity. 7 600 ha of mangrove landscapes under improved management to benefit biodiversity 	<u>0 ha</u>	20 percent of 7 600	7 600 ha	 FD and NEPA reports and communications on implementation of activities Protected area orders drafted to be gazetted in the Jamaica Gazette 	 FD and NEPA have a working list of potential FW areas identified Legal protection of forested wetlands can be achieved before ongoing or planned development threatens ecological integrity 	FD, NEPA
Output 1.2.1 A minimum of 7 600 ha of forested wetlands of high ecosystem value and/or special interest designated as protected areas/forest reserves, with boundaries for gazetting and corresponding regulations drafted	 <u>Project Indicator #9:</u> percent of minimum total 7 600 ha of FW identified for protection; <u>Project Indicator #10:</u> percent boundary description ready to be gazetted with amended regulations of minimum total 7 600 ha of FW for protection 	FD/NEPA Working list of forested wetlands to be conserved/ restored available	 50 percent of 7 600 ha of FW identified for protection 50 percent boundary description ready to be gazetted 	 100 percent of 7 600 ha of FW identified for protection 100 percent of boundary descriptions ready to be gazetted 	 FD and NEPA reports and communications on implementation of activities Protected area orders drafted to be gazetted in the Jamaica Gazette 	 FD and NEPA have a working list of potential FW areas identified Stakeholder engagement will be employed to review and finalise list of FW areas Legal protection of forested wetlands can be achieved before ongoing or planned development threatens ecological integrity 	FD, NEPA
Output1.2.2Genderandyouth	Project Indicator #11: - Gender and youth strategy and action plan implemented	- There is a need to better integrate	- Approved project brief & terms of	- Gender and youth mainstreaming	- Gender and youth strategy and action plan	Funding and resources are not restricted	FD, NEPA, MLGRD, PIOJ, Bureau

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
mainstreaming strategy and plan for ecosystem- based management of priority forested wetland areas developed and implemented		gender and youth considerations into forested wetland management and conservation actions, to improve education, alleviate poverty, empower women and girls and achieve sustainable ecosystem use.	reference for consultancy to develop a gender and youth mainstreaming strategy completed - 50 percent of consultancy to develop a gender and youth mainstreaming strategy completed	strategy implemented	 Stakeholder consultation report(s) Interview with community members 		of Gender Affairs
Output1.2.3Feasibility of apaymentforecosystemservicesprograminselectedforestwetlandareasandadjacentcommunitiesexamined(pilot)	 <u>Project Indicator #12:</u> Feasibility study completed on potential FW sites for PES pilot program <u>Project Indicator #13:</u> Number of FW areas identified for PES pilot program 	- There is a need to incorporate into legislation alternative regulatory instruments, such as economic incentives to promote sustainable use of forested wetlands. Payment for ecosystem services (PES) can be used to create	 Approved project brief & terms of reference for consultancy to carry out a feasibility study on PES pilot program FW areas identified for PES pilot program 	- Feasibility study on selected FW areas and communities for a payment for ecosystem services (PES) pilot program completed	- Feasibility study on selected FW areas and communities for a payment for ecosystem services (PES) pilot program	- Successful engagement with the PES concept across the stakeholders	<u>FD, NEPA</u>

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
		economic incentives for mangrove conservation					
Outcome 1.3: New mangrove protected areas established	GEF Core Indicator 1.1: Terrestrial protected areas newly created 4 297 ha of mangroves	<u>0 ha</u>	20 percent of 4 297	<u>4 297 ha of</u> mangroves	- FD and NEPA reports and communications on implementation of activities	 FD/NEPA have a working list of potential sites identified Stakeholder engagement will be employed to review and finalise list of FW areas Timeframe for decision-making sufficient for continued development of modification of identified areas Adequate cross-agency collaboration 	FD, NLA Collaborators: Ministries, Departments and Agencies (MDAs)
Output 1.3.1: GOJ forested wetlands in need of urgent conservation and to be transferred to FD prioritised (from identified sites on FD working list)	Project Indicator #14: - Total ha of FW prioritised for transfer by Commissioner of Lands/MDAs	- FD/NEPA have a working list of potential sites	- 100 percent of GOJ forested wetlands in need of urgent conservation and to be transferred to FD prioritised	- 100 percent of GOJ forested wetlands in need of urgent conservation and to be transferred to FD prioritised	 FD and NEPA reports and communications on implementation of activities Total ha of FW identified for transfer by Commissioner of Lands/MDAs 	 FD/NEPA have a working list of potential sites identified Stakeholder engagement will be employed to review and finalise list of FW areas Timeframe for decision-making sufficient for continued development of modification of identified areas 	FD, NLA Collaborators: Ministries, Departments and Agencies (MDAs)

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
						- Adequate cross-agency collaboration	
Output 1.3.2: GOJ lands, including crown lands transferred to the Forestry Department by the Commissioner of Lands, as well as Ministries, Departments and Agencies (MDAs), for the management of forested wetlands	 <u>Project Indicator #15:</u> Existence of mechanism officiating FD mandate over identified and prioritised forested wetlands on GOJ lands including crown lands; <u>Project Indicator #16:</u> 	- No existing mechanism officiating FD mandate over forested wetlands on GOJ lands including crown lands	 Mechanism officiating FD mandate over forested wetlands on GOJ lands including crown lands in place 20 percent of identified and prioritised forested wetlands on GOJ lands including crown lands transferred to the FD by Commissioner of Lands/ MDAs 	- 100 percent of identified and prioritised forested wetlands on GOJ lands including crown lands transferred to the FD by Commissioner of Lands/ MDAs	 Signed documentation/ mechanism between FD and relevant parties Progress report 	 Timeframe for decision-making sufficient for continued development of modification of identified areas Most MDAs agree with transfer of FW despite having development plans for these lands 	NLA, FD Collaborators: MDAs
Component 2: M	angrove ecosystem restoration	n for improved ec	osystem services	and protection of	key biodiversity		
Outcome 2.1:Restored healthof prioritymangrovehabitats toimproveassociatedbiodiversity andmangroveecosystemservices,	GEF Core Indicator 3.4:Area of wetlands (including estuaries, mangroves) restoredGEF Core Indicator 6.1: Carbon sequestered or emissions avoided in the AFOLU sector	<u>0 ha</u> 1 635 732 mt CO2eq	20 percent of 2 212 ha of mangroves	2 212 ha of mangroves 1 635 732 mt CO2eq	 Discrete restoration plans on "restorable" FW in Jamaica with the costs for effecting (hydrological) restoration - Restoration activities 	- Sites are "restorable" based on physical or political factors	FD, NEPA, MDAs, NGO's, Academia, Consultants

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
including support to marine ecosystems and fisheries.					- Progress reports on restoration activities -FAO Ex-Act Tool		
Output2.1.1Forestedwetlands in needofurgentconservation/restorationprioritised (fromidentifiedsitesonFDworkinglist)	Project Indicator #17: - Total ha of FW identified for restoration	- FD/NEPA have a working list of potential sites for restoration	- 100 percent forested wetlands on working list of potential sites for restoration prioritised	- 100 percent forested wetlands on working list of potential sites for restoration prioritised	- FD report on "restorable" FW in Jamaica (from identified sites on FD working list)	 The NMSFMP Situational Analysis and Forestry Departments EU BSP surveys can provide data prioritised sites (from identified sites on FD working list) Sites are "restorable" based on physical or political factors 	FD, NEPA, MDAs, NGO's, Academia, Consultants
Output2.1.2:Restorationplansdevelopedforprioritised"restorable"mangroveareasinJamaicawiththecostsforeffectingconservationand/orhydrologicalrestoration	Project Indicator #18: - Number of restoration plans produced	- No restoration plans for potential sites for restoration on FD/NEPA working list	- Restoration plans produced for 100 percent of prioritised "restorable" mangrove areas	- Restoration plans produced for 100 percent of prioritised "restorable" mangrove areas	- Discrete restoration plans on "restorable" FW in Jamaica with the costs for effecting (hydrological) restoration	 The NMSFMP Situational Analysis and Forestry Departments EU BSP surveys can provide data prioritised sites (from identified sites on FD working list) Sites are "restorable" based on physical or political factors 	FD, NEPA, MDAs, NGO's, Academia, Consultants
Output2.1.3:Hydrological/hydrodynamicandvegetationfeaturesand	Project Indicator #19: - Report on the hydrological/hydrodynamic, vegetation features and a natural resource valuation of	- Insufficient knowledge of hydrological changes and reduced water	- Ecohydrology reports for prioritised forest wetland	- Ecohydrology reports for all forest wetland sites on FD	- Ecohydrology reports for "restorable" mangrove areas	- Discrete restoration plans on "restorable" FW in Jamaica with the costs for effecting	FD , NEPA, Consultants

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
natural resource values of FD working list of forest wetland sites, to be conserved/ protected, analysed	all current GOJ-owned forested wetlands	flows on forest wetland sites on FD working list	sites on FD working list of produced	working list of produced		(hydrological) restoration	
<u>Output</u> 2.1.4: Restoration/ rehabilitation of prioritised degraded mangrove areas completed	 <u>Project Indicator #20:</u> Total hectares of FW rehabilitated or restored Number of agencies partnering to effect restoration of degraded FW in Jamaica 	- No prioritised degraded mangrove areas restored or rehabilitated yet	 50 percent effected of restoration of prioritised "restorable" mangrove areas with restoration plans 50 percent of earmarked agencies partnering to effect restoration of degraded FW in Jamaica 	 100 percent effected of restoration of prioritised "restorable" mangrove areas with restoration plans 100 percent of earmarked agencies partnering to effect restoration of degraded FW in Jamaica 	 Restoration activities Progress reports on restoration activities 	 Jamaican consultants, academia and Govt. agencies have the technical expertise to plan and implement successful mangrove restorations Several other funding options are potentially available to restore and conserve some "Red List" sites other Blue Carbon funding options, Mitigation monies from permitted Wetland modifications e.g. hotels Restoration budgets are precise and there are no costs over-runs Securing partnership with private entities possible despite permitting requirements and fees for restoration/rehabilitation works 	FD, NEPA, MDAs, NGO's, Academia, Consultants

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Output 2.1.5: Mangrove ecosystem education "Mangrove Matters" billboards designed and erected alongside restored mangrove areas	Project Indicator #21: - The installation of "Mangrove Matters" highway billboards alongside restored mangrove areas	- No mangrove ecosystem education "Mangrove Matters" billboards erected alongside mangrove areas	- 50 percent of "Mangrove Matters" highway billboards alongside restored mangrove areas installed	- 100 percent of "Mangrove Matters" highway billboards alongside restored mangrove areas installed	Mangrove ecosystem education "Mangrove Matters" billboards alongside restored mangrove areas	 Ample information exists to create content for billboards The Parish municipal corporations agree to waiving fees for GOJ funded educational billboards 	FD, NEPA, MOE, Ministry w/ responsibility for Environment, MOT, Municipal corporations
Component 3: Ki	nowledge management and pr	oject monitoring	and evaluation				
Outcome 3.1: Improved management and dissemination and awareness of Jamaica mangrove habitat knowledge	GEF Core Indicator 11 Number of direct beneficiaries disaggregated by gender as co- benefit of GEF investment			400 direct beneficiaries (50 percent women)	 Training registration sheets HR records Interviews with staff members 	- Adequate uptake and participation in the use of the database	NSDMD, FD, NEPA, Collaborators: NGO's, Academia, Consultants
Output 3.1.1:A standard andGOJ entityused/agreedrepository orwebpage withforestedwetlands use,status andmanagementdata in Jamaicacreated	Project Indicator #22: - Database of FW areas exists (yes/no)	- No repository or webpage with forested wetlands use, status and management data in Jamaica exists	 Approved project brief & terms of reference for consultancy to develop a database of Jamaica's FW areas Database with forested wetlands use, status and management 	- Database with forested wetlands use, status and management data in Jamaica operational	 Database of Jamaica's FW areas FD report and communication on repository or webpage with forested wetlands use, status and management data in Jamaica 	 Various GOJ agencies currently possess the data, which needs to be collated and presented in a standard and a user- friendly format GOJ agencies agree on the presentation format or platform to share this information to stakeholders 	NSDMD, FD, NEPA, Collaborators: NGO's, Academia, Consultants

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
			data in Jamaica created				
Output 3.1.2: Relevant agencies trained on the purpose and use of the Jamaica forested wetlands database and granted appropriate access	 <u>Project Indicator #23:</u> Number of staff members of relevant agencies trained <u>Project Indicator #24:</u> Number of staff members of relevant agencies with valid access to Jamaica forested wetlands database 	- No staff members trained on the purpose and use of the Jamaica forested wetlands database		- 50 Selected staff members of relevant agencies trained on the purpose and use of the forested wetlands database and granted appropriate access	 Training registration sheets HR records Interviews with staff members 	- Adequate uptake and participation in the use of the database	NSDMD, FD, NEPA, Collaborators: NGO's, Academia, Consultants
Output 3.1.3: Existing GIS portal on Forestry Dept website modified to include revised forested wetland locations as a layer/feature.	Project Indicator #25: - Interactive map updated <u>Project Indicator #26:</u> - Number of applications submitted using outputs from interactive map	- Existing GIS portal on Forestry Dept website does not include revised forested wetland locations as a layer/feature	- Existing GIS portal on Forestry Dept website modified to include revised forested wetland locations as a layer/feature	- Outputs from interactive map used by NEPA, FD, Min of Local Government, JNHT to show the precise location of planned developments using this map. for any development approval.	 GIS portal accessible FD/NEPA records 	 Various GOJ agencies currently possess the data, which needs to be collated and presented in a standard and a user- friendly format GOJ agencies agree on the presentation format or platform to share this information to stakeholders, and the need for applicants to submit the development location via this map 	FD, other GOJ agencies, Consultant
Output3.1.4:Land use and/orzoningmapscreated with anoverlaytoillustrateforested wetland	Project Indicator #27: - Number of land use/zoning maps updated	Land use and/or zoning maps with an overlay to illustrate forested wetland	Land use and/or zoning maps created with an overlay to illustrate forested wetland	Land use and/or zoning map showing FW locations and boundaries, are freely	- Zoning/land use planning maps	- Various GOJ agencies currently possess the data, which needs to be collated and presented in a standard and a user- friendly format	FD, NSDMD, NEPA, Consultant

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
locations and physical boundaries using data collected and verified by FD		locations and physical boundaries not available	locations and physical boundaries using data collected and verified by FD	accessible to FW stakeholders and the public		- GOJ agencies agree on the presentation format or platform to share this information to stakeholders	
Outcome 3.2: Effective project management and evaluation to inform adaptive management	Project Indicator #28: Results Based Monitoring (RBM) system		RBM system in place that monitors project results 1 Mid-term Review Report	1 Final Evaluation Report	MTR and FE reports	The results of the Mid- Term Review and the Final Evaluation are used to review the progress of the project and define corrective actions to achieve the results and objective.	
Output 3.2.1: Monitoring and Evaluation Strategy developed with relevant stakeholders, clearly defining expected results, the expected time periods for their completion, and their confirmation through objectively verifiable indicators and means of verification.	 <u>Project Indicator #29:</u> Project results framework with results and output indicators, baseline and targets <u>Project Indicator #30:</u> Gender perspective incorporated in project management and actions 		9 progress reports (6 PPR and 3 PIR), including analysis of the situation of women and of peoples and nationalities in relation to the project	15 progress reports (10 PPR and 5 PIR), including analysis of the situation of women and of peoples and nationalities in relation to the project	PPR / PIR	M&E system designed for the project, including the monitoring of activities, the mechanisms for verifying compliance with the indicators of results and products, and responsibilities for M&E, deadlines and budgets.	

Results chain	Indicators	Baseline	Mid-term target	Final target	Means of verification	Assumptions	Responsible for data collection
Output 3.2.2:Mid-term reviewandfinalevaluationconductedtoconstructivelyinform and guideprojectimplementation,sustainabilityconsiderations,andtheapplicationadaptivemeasuresnecessary	Project Indicator #31: 1 Mid-term review and 1 Final evaluation		1 Mid-term Review Report	1 Final Evaluation Report	MTR and FE reports	The results of the Mid- Term Review and the Final Evaluation are used to review the progress of the project and define corrective actions to achieve the results and objective.	

Annex A2: Project Budget



Annex B: Response to Project Reviews

(from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion, and responses to comments from the Convention Secretariat and STAP at PIF).

Annex C: Status of Utilization of Project Preparation Grant (PPG)

(Provide detailed funding amount of the PPG activities financing status in the table below:

PPG Grant Approved at PIF: USD 50 000					
During Duran mustices Activities Invelopmented	GETF/LDCF/SCCF Amount (USD)				
Project Preparation Activities Implementea	Budgeted Amount	Amount Spent to date	Amount Committed		
International Consultant: Project Design Expert. National Consultations and leading the work for writing and consolidating the template for Agency Project Document and GEF CEO Endorsement Request.	39 078	28 440	10 638		
Contracts for National Consultant: Socioeconomic and gender Baseline collection. Writing Reports including Gender Action Plan and stakeholder engagement matrix.	7 677	7 677	0		
<u>Travel</u> for baseline data collection and national consultations	3 245	3 245	0		
Total	50 000	39 362	10 638		

If at CEO Endorsement, the PPG activities have not been completed and there is a balance of unspent fund, Agencies can continue to undertake exclusively preparation activities (including workshops and finalization of baseline, when needed) up to one year of CEO Endorsement/approval date. No later than one year from CEO endorsement/approval date. Agencies should report closing of PPG to Trustee in its Quarterly Report.

Annex D: Calendar of Expected Reflows (if non-grant instrument is used)

Provide a calendar of expected reflows to the GEF/LDCF/SCCF Trust Funds or to your Agency (and/or revolving fund that will be set up)

Annex E: Project Map(s) and Coordinates

Please attach any additional maps, if needed, to complement those already provided in Part II, Section 1b of this project document.

Annex F: GEF TF / LDCF/ SCCF Core Indicator Worksheet

Use this Worksheet to compute those indicator values as required in Part I, Table F to the extent applicable to your proposed project. Progress in programming against these targets for the program will be aggregated and reported at anytime during the replenishment period. LDCF and SCCF should complete, instead, the below CCA core indicator and built them into the results framework.



Annex G: GEF Project Taxonomy Worksheet

Use this Worksheet to list down the taxonomic information required under Part I, item G by ticking the most relevant keywords/ topics/themes that best describe this project.



Annex H: Work Plan (indicative)



Annex I1: Environmental and Social Risk Annexes

For moderate and high risk projects please attach here Environmental and Social Risk Analysis, Assessments/ and/or Environmental and Social Management Plans.

Annex I2: Stakeholder Engagement Matrix, Grievance Redress Mechanism and Disclosure

Grievance Redress Mechanism

Grievance Mechanism

Focal Point Information	FAO Jamaica/Belize
Contact Details	FAO-BZ@fao.org
Explain how the grievance mechanism will	
be/ has been communicated to stakeholders	

FAO is committed to ensuring that its programs are implemented in accordance with the Organization's environmental and social obligations. In order to better achieve these goals, and to ensure that beneficiaries of FAO programs have access

to an effective and timely mechanism to address their concerns about non-compliance with these obligations, the Organization, in order to supplement measures for receiving, reviewing and acting as appropriate on these concerns at the program management level, has entrusted the Office of the Inspector-General with the mandate to independently review the complaints that cannot be resolved at that level.

FAO will facilitate the resolution of concerns of beneficiaries of FAO programs regarding alleged or potential violations of FAO's social and environmental commitments. For this purpose, concerns may be communicated in accordance with the eligibility criteria of the Guidelines for Compliance Reviews Following Complaints Related to the Organization's Environmental and Social Standards¹¹, which applies to all FAO programs and projects.

Concerns must be addressed at the closest appropriate level, i.e. at the project management/technical level, and if necessary at the Regional Office level. If a concern or grievance cannot be resolved through consultations and measures at the project management level, a complaint requesting a Compliance Review may be filed with the Office of the Inspector-General (OIG) in accordance with the Guidelines. Program and project managers will have the responsibility to address concerns brought to the attention of the focal point.

The principles to be followed during the complaint resolution process include: impartiality, respect for human rights, including those pertaining to indigenous peoples, compliance of national norms, coherence with the norms, equality, transparency, honesty, and mutual respect.

Project-level grievance mechanism

The project will establish a grievance mechanism at field level to file complaints during project inception phase. Contact information and information on the process to file a complaint will be disclosed in all meetings, workshops and other related events throughout the life of the project. In addition, it is expected that all awareness raising material to be distributed will include the necessary information regarding the contacts and the process for filing grievances.

The project will also be responsible for documenting and reporting as part of the safeguards performance monitoring on any grievances received and how they were addressed.

The mechanism includes the following stages:

- In the instance in which the claimant has the means to directly file the claim, he/she has the right to do so, presenting it directly to the Project Coordination Unit (PCU). The process of filing a complaint will duly consider anonymity as well as any existing traditional or indigenous dispute resolution mechanisms and it will not interfere with the community's self-governance system.
- The complainant files a complaint through one of the channels of the grievance mechanism. This will be sent to the Project Coordinator (PC) to assess whether the complaint is eligible. The confidentiality of the complaint must be preserved during the process.
- The PGC will be responsible for recording the grievance and how it has been addressed if a resolution was agreed.
- If the situation is too complex, or the complainer does not accept the resolution, the complaint must be sent to a higher level, until a solution or acceptance is reached.

¹¹ Compliance Reviews following complaints related to the Organization's environmental and social standards: <u>http://www.fao.org/aud/42564-03173af392b352dc16b6cec72fa7ab27f.pdf</u>

- For every complaint received, a written proof will be sent within ten (10) working days; afterwards, a resolution proposal will be made within thirty (30) working days.
- In compliance with the resolution, the person in charge of dealing with the complaint, may interact with the complainant, or may call for interviews and meetings, to better understand the reasons.
- All complaint received, its response and resolutions, must be duly registered.

Internal process

- **Level 1:** Project Coordination Unit (PCU). The complaint could come in writing or orally to the PCU directly. At this level, received complaints will be registered, investigated and solved by the PCU.
- Level 2: If the complaint has not been solved and could not be solve in level 1, then the Project Coordinator (PC) elevates it to the FAO Representative of Jamaica/Belize
- **Level 3:** Project Steering Committee (PSC). The assistance of the PSC is requested if a resolution was not agreed in levels 1 and 2.
- **Level 4:** FAO Regional Office for Latin America and the Caribbean (RLC). FAO Representative will request if necessary the advice of the Regional Office to resolve a grievance, or will transfer the resolution of the grievance entirely to the regional office, if the problem is highly complex.
- Level 5: Only on very specific situations or complex problems, the FAO Regional Representative will request the assistance of the FAO Inspector General, who pursuits its own procedures to solve the problem.

Resolution

Upon acceptance a solution by the complainer, a document with the agreement should be signed with the agreement.

FAO Representative in	Should respond within five (5) working days.
Jamaica, The Bahamas	FAO Representative. Crispim Moreira. FAO Representative in Jamaica, The
and Belize.	Bahamas and Belize
	Telephone: (501) 842-8535/(501) 804-2191
Project Steering	Where FAO sub-regional coordinator is unable to resolve the issue, he/she should
Committee (PSC)	submit the information to all PSC members and call a meeting to find a solution.
	A response should be sent within 5 working days following the PSC meeting.
FAO Regional Office for	He should respond within five (5) working days in consultation with FAO
Latin America and the	Representation.
Caribbean	
	FAO Representative: Julio Berdegué
	RLC-ADG@fao.org; Julio.Berdegue@fao.org
	Tel: (56 2) 2923 2100
Inspector-General	For confidentially reporting possible frauds and improper behaviour by fax:
Office (IGO)	
	(+39) 06 570 55550
	By e-mail: Investigations-hotline@fao.org
	By confidential hotline: (+ 39) 06 570 52333

Annex J: Indigenous Peoples

N/A

Annex K: FAO'S Roles in Internal Organization

The Food and Agriculture Organization (FAO) will be the GEF Implementing Agency for the proposed project, and as such, will utilize the GEF fees to provide project cycle management services. FAO will be responsible for providing oversight, technical backstopping and supervision of project implementation to ensure that the project is being carried out in accordance with agreed standards and requirements. As the GEF Agency, FAO will:

- Administrate funds from GEF in accordance with the rules and procedures of FAO;
- Oversee project implementation in accordance with the project document, work plans, budgets, and the rules and procedures of FAO;
- Provide technical guidance to ensure that appropriate technical quality is applied to all activities;
- Conduct at least one supervision mission per year; and
- Report to the GEF Secretariat and the GEF Evaluation Office, through the annual Project Implementation Review, on project progress and provide financial reports to the GEF Trustee.

Budget Holder and Lead Technical Officer

The **Budget Holder** (BH) is a key role in FAO's project cycle. Every project in FAO has a designated BH, who is responsible and accountable for the financial oversight and management of project resources. For FAO-GEF projects, this FAO role meets important fiduciary responsibilities FAO bears as a GEF Agency. For this role in FAO, the BH receives a portion of the GEF fee. In this project, the FAO Representative in Belize will be the BH and will be responsible for timely operational, administrative and financial management of GEF resources. The budget holder will be also responsible for the following; (i) review and clear financial and progress reports received from executing partners and certify request for funds (ii) review and clear budget revisions and annual work plans and budgets; (iii) ensure that the Project implements all actions and recommendations agreed upon.

The BH will establish an interdisciplinary Project Task Force (PTF) within FAO. The PTF is a consultative body that integrates the necessary technical qualifications from relevant FAO units to support the project. The PTF comprises the Budget Holder, the Lead Technical Officer (LTO), the Funding Liaison Officer (FLO) and one or more technical officers based in FAO Headquarters and the Regional or Sub-regional offices.

The BH will assign a **Lead Technical Officer** (**LTO**) for the project. The LTO will be responsible for the technical supervision of the project. For this role in FAO, the LTO receives a portion of the GEF fee. Specifically, the LTO will:

- a) Provide technical guidance on technical aspects and implementation.
- b) Review and give no-objection to TORs for consultancies and contracts to be performed under the project, and to CVs and technical proposals short-listed for key project positions and services to be financed by GEF resources;
- c) Review and clear final technical products delivered by the project.
- d) Ensure the technical quality of the six-monthly Project Progress Reports (PPRs).
- e) Supervise the preparation and ensure the technical quality of the annual PIR.
- f) Conduct annual supervision missions.
- g) Provide comments on final evaluation TORs; provide information and share all relevant background documentation with the evaluation team; participate in the final workshop with all key project stakeholders, as required.
- h) Monitor implementation of the Risk Mitigation Plan, in accordance with the FAO Environmental and Social Safeguards.

The <u>FAO-GEF Coordination Unit</u> will act as **Funding Liaison Officer** (**FLO**). The FLO will undertake supervision missions as necessary and review and clear PPRs and the annual PIRs for submission to the GEF Secretariat. The PIRs will be included in the FAO GEF Annual Monitoring Review submitted to GEF by the FAO GEF Coordination Unit. The

FLO may recommend the development of corrective actions in the project implementation strategy if needed to mitigate eventual risks affecting the timely and effective implementation of the project. The FAO GEF Coordination Unit may also participate in the final evaluation, The FAO GEF Coordination Unit will in collaboration with the FAO Finance Division request transfer of project funds from the GEF Trustee based on six-monthly projections of funds needed. <u>The FAO Financial Division</u> will provide annual Financial Reports to the GEF Trustee and, in collaboration with the FAO-GEF Coordination Unit, request project funds on a six-monthly basis to the GEF Trustee.

Financial management

Financial management of GEF resources will be carried out according to FAO rules and procedures.

Financial Records. FAO shall maintain a separate account in United States dollars for the project's GEF resources showing all income and expenditures. Expenditures incurred in a currency other than United States dollars shall be converted into United States dollars at the United Nations operational rate of exchange on the date of the transaction. FAO shall administer the project in accordance with its regulations, rules and directives.

Financial Reports. The BH shall prepare six-monthly project expenditure accounts and final accounts for the project, showing amount budgeted for the year, amount expended since the beginning of the year, and separately, the un-liquidated obligations as follows:

Details of project expenditures on a component-by-component and output-by-output basis, reported in line with project budget codes as set out in the project document, as at 30 June and 31 December each year.

Final accounts on completion of the project on a component-by-component and output-by-output basis, reported in line with project budget codes as set out in the project document.

A final statement of account in line with FAO project budget codes, reflecting actual final expenditures under the project, when all obligations have been liquidated.

Financial reports for submission to the donor (GEF) will be prepared in accordance with the provisions in the GEF Financial Procedures Agreement and submitted by the FAO Finance Division.

Budget Revisions. Semi-annual budget revisions will be prepared in accordance with FAO standard guidelines and procedures.

Responsibility for Cost Overruns. The BH is authorized to enter into commitments or incur expenditures up to a maximum of 20 percent over and above the annual amount foreseen in the project budget under any budget line provided the total cost of the annual budget is not exceeded.

Any cost overrun (expenditure in excess of the budgeted amount) on a specific budget line over and above the 20 percent flexibility should be discussed with the GEF Coordination Unit with a view to ascertaining whether it will involve a major change in project scope or design. If it is deemed to be a minor change, the BH shall prepare a budget revision in accordance with FAO standard procedures. If it involves a major change in the project's objectives or scope, a budget revision and justification should be prepared by the BH for discussion with the GEF Secretariat.

Savings in one budget line may not be applied to overruns of more than 20 percent in other lines even if the total cost remains unchanged, unless this is specifically authorized by the GEF Coordination Unit upon presentation of the request. In such a case, a revision to the project document amending the budget will be prepared by the BH.

Under no circumstances can expenditures exceed the approved total project budget or be approved beyond the NTE date of the project. Any over-expenditure is the responsibility of the BH.

Audit. The project shall be subject to the internal and external auditing procedures provided for in FAO financial regulations, rules and directives and in keeping with the Financial Procedures Agreement between the GEF Trustee and FAO.

The audit regime at FAO consists of an external audit provided by the Auditor-General (or persons exercising an equivalent function) of a member nation appointed by the Governing Bodies of the Organization and reporting directly to them, and an internal audit function headed by the FAO Inspector-General who reports directly to the Director-General. This function operates as an integral part of the Organization under policies established by senior management, and furthermore has a reporting line to the governing bodies. Both functions are required under the Basic Texts of FAO which establish a framework for the terms of reference of each. Internal audits of imprest accounts, records, bank reconciliation and asset verification take place at FAO field and liaison offices on a cyclical basis.

Annex L: FAO and Government Obligations

(a) This Annex sets out the basic conditions under which FAO will assist the Government in the implementation of the Project described in the attached Project Document.

(b) The achievement of the objectives set by the Project shall be the joint responsibility of the Government and FAO.

FAO OBLIGATIONS

- 1. FAO will be responsible for the provision, with due diligence and efficiency, of assistance as provided in the Project Document. FAO and the Government will consult closely with respect to all aspects of the Project.
- 2. Assistance under the Project will be made available to the Government, or to such entity as provided in the Project, and will be furnished and received (i) in accordance with relevant decisions of the Governing Bodies of FAO, and with its constitutional and budgetary provisions, and (ii) subject to the receipt by FAO of the necessary contribution from the Resource Partner. FAO will disburse the funds received from the Resource Partner in accordance with its regulations, rules and policies. All financial accounts and statements will be expressed in United States Dollars and will be subject exclusively to the internal and external auditing procedures laid down in the financial regulations, rules and directives of FAO.
- 3. FAO's responsibilities regarding financial management and execution of the Project will be as stipulated in the Project Document. FAO may, in consultation with the Government, implement Project components through partners identified in accordance with FAO procedures. Such partners will have primary responsibility for delivering specific project outputs and activities to the Project in accordance with the partner's rules and regulations, and subject to monitoring and oversight, including audit, by FAO.
- 4. Assistance under the Project provided directly by FAO, including technical assistance services and/or oversight and monitoring services, will be carried out in accordance with FAO regulations, rules and policies, including on recruitment, travel, salaries, and emoluments of national and international personnel recruited by FAO, procurement of services, supplies and equipment, and subcontracting. The candidacies of senior international technical staff for recruitment by FAO will be submitted to the Government for clearance following FAO procedures.
- 5. Equipment procured by FAO will remain the property of FAO for the duration of the Project. The Government will provide safe custody of such equipment, which is entrusted to it prior to the end of the Project. The ultimate destination of equipment procured under this Project will be decided by FAO in consultation with the Government and the Resource Partner.

GOVERNMENT OBLIGATIONS

- 6. With a view to the rapid and efficient execution of the Project, the Government shall grant to FAO, its staff, and all other persons performing services on behalf of FAO, the necessary facilities including:
- i) the prompt issuance, free of charge, of any visas or permits required;
- ii) any permits necessary for the importation and, where appropriate, the subsequent exportation, of equipment, materials and supplies required for use in connection with the Project and exemption from the payment of all customs duties or other levies or charges relating to such importation or exportation;
- iii) exemption from the payment of any sales or other tax on local purchases of equipment, materials and supplies for use in connection with the project;
- iv) any permits necessary for the importation of property belonging to and intended for the personal use of FAO staff or of other persons performing services on behalf of FAO, and for the subsequent exportation of such property;

- v) prompt customs clearance of the equipment, materials, supplies and property referred to in subparagraphs (ii) and (iv) above.
- 7. The Government will apply to FAO, its property, funds and assets, its officials and all the persons performing services on its behalf in connection with the Project: (i) the provisions of the Convention on Privileges and Immunities of the Specialized Agencies; and (ii) the United Nations currency exchange rate. The persons performing services on behalf of FAO will include any organization, firm or other entity, which FAO may designate to take part in the execution of the Project.
- 8. The Government will be responsible for dealing with any claims which may be brought by third parties against FAO, its personnel or other persons performing services on its behalf, in connection with the Project, and will hold them harmless in respect to any claim or liability arising in connection with the Project, except when it is agreed by FAO and the Government that such claims arise from gross negligence or wilful misconduct of such persons.
- 9. The Government will be responsible for the recruitment, salaries, emoluments and social security measures of its own national staff assigned to the project. The Government will also provide, as and when required for the Project, the facilities and supplies indicated in the Project Document. The Government will grant FAO staff, the Resource Partner and persons acting on their behalf, access to the Project offices and sites and to any material or documentation relating to the Project, and will provide any relevant information to such staff or persons.

REPORTING AND EVALUATION

- 10. FAO will report to the Government (and to the Resource Partner) as scheduled in the Project Document.
- 11. The Government will agree to the dissemination by FAO of information such as Project descriptions and objectives and results, for the purpose of informing or educating the public. Patent rights, copyright, and any other intellectual property rights over any material or discoveries resulting from FAO assistance under this Project will belong to FAO. FAO hereby grants to the Government a non-exclusive royalty-free license to use, publish, translate and distribute, privately or publicly, any such material or discoveries within the country for non-commercial purposes. In accordance with requirements of some Resource Partners, FAO reserves the right to place information and reports in the public domain.
- 12. The Project will be subject to independent evaluation according to the arrangements agreed between the Government, the Resource Partner and FAO. The evaluation report will be publicly accessible, in accordance with the applicable policies, along with the Management Response. FAO is authorized to prepare a brief summary of the report for the purpose of broad dissemination of its main findings, issues, lessons and recommendations as well as to make judicious use of the report as an input to evaluation synthesis studies.

FINAL PROVISIONS

- 13. Any dispute or controversy arising out of or in connection with the Project or this Agreement will be amicably settled through consultations, or through such other means as agreed between the Government and FAO.
- 14. Nothing in or related to any provision in this Agreement or document or activity of the Project shall be deemed (i) a waiver of the privileges and immunities of FAO; (ii) the acceptance by FAO of the applicability of the laws of any country to FAO, and: (iii) the acceptance by FAO of the jurisdiction of the courts of any country over disputes arising from assistance activities under the Project.
- 15. This Agreement may be amended or terminated by mutual written consent. Termination will take effect sixty days after receipt by either party of written notice from the other party. In the event of termination, the obligations assumed by the parties under this Agreement will survive its termination to the extent necessary to permit the orderly conclusion of activities, and the withdrawal of personnel, funds and property of FAO.
- 16. This Agreement will enter into force upon signature by the duly authorized representatives of both parties.