Natural Capital Values of Coastal and Marine Ecosystems in Sri Lanka Integrated into Sustainable Development Planning

Part I: Project Information

GEF ID
10552

Project Type
FSP

Type of Trust Fund
GET

CBIT/NGI
☐ CBIT
☐ NGI

Project Title
Natural Capital Values of Coastal and Marine Ecosystems in Sri Lanka Integrated into Sustainable Development Planning

Countries
Sri Lanka

Agency(ies)
IUCN

Other Executing Partner(s)
Ministry of Environment and Wildlife Resources

Executing Partner Type
Government

GEF Focal Area
Multi Focal Area

Taxonomy
Protected Areas and Landscapes, Productive Seascapes, Community Based Natural Resource Mngt, Biodiversity, Terrestrial Protected Areas, Focal Areas, Coastal and Marine Protected Areas, Productive Landscapes, Financial and Accounting, Conservation Finance, Natural Capital Assessment and Accounting, Payment for Ecosystem Services, Mainstreaming, Certification -National Standards, Tourism, Agriculture and agrobiodiversity, Fisheries, Ceritification - International Standards, Sea Grasses, Wetlands, Biomes, Coral Reefs, Sustainable Land Management, Land Degradation, Sustainable Livelihoods, Integrated and Cross-sectoral approach, Restoration and Rehabilitation of Degraded Lands, Community-Based Natural Resource Management, Ecosystem Approach, Sustainable Forest, Income Generating Activities, Sustainable Agriculture, Improved Soil and Water Management Techniques, Land Degradation Neutrality, Land Cover and Land cover change, Land Productivity, Carbon stocks above or below ground, Demonstrate innovative approache, Influencing models, Stakeholders, Type of Engagement, Participation, Consultation, Information Dissemination, Partnership, Communications, Public Campaigns, Awareness Raising, Education, Behavior change, Beneficiaries, Private Sector, Non-Grant Pilot, Capital providers, Financial intermediaries and market facilitators, Individuals/Entrepreneurs, SMEs, Large corporations, Project Reflow, Local Communities, Civil Society, Academia, Non-Governmental Organization, Community Based Organization, Mangroves, Deploy innovative financial instruments, Convene multi-stakeholder alliances, Strengthen institutional capacity and decision-making, Transform policy and regulatory environments, Gender Equality, Gender results areas, Capacity, Knowledge and Research, Targeted Research, Knowledge Exchange, Capacity Development, Innovation, Gender Mainstreaming, Gender-sensitive indicators, Sex-disaggregated indicators, Women groups, Knowledge Generation, Workshop, Enabling Activities, Learning, Adaptive management, Theory of change, Indicators to measure change

Rio Markers
Climate Change Mitigation
Climate Change Mitigation 1

Climate Change Adaptation
Climate Change Adaptation 1

Duration
48 In Months

Agency Fee($)
238,706.00

Submission Date
9/28/2020

A. Indicative Focal/Non-Focal Area Elements

Programming Directions	Trust Fund	GEF Amount($)	Co-Fin Amount($)
BD-1-1	GET	1,992,040.00	14,000,000.00
BD-1-3	GET	661,920.00	2,300,000.00
LD-1-2	GET	2,234.00	450,000.00
	Total Project Cost ($)	2,656,194.00	16,750,000.00

B. Indicative Project description summary

Project Objective

Strengthened biodiversity mainstreaming in planning with Natural Capital Assessment and Accounting and inclusive land use planning in partnership with Government, Non-Government, Private and Community stakeholders

Project Component	Financing Type	Project Outcomes	Project Outputs	Trust Fund	GEF Amount($)	Co-Fin Amount($)
Component 1: Capacity and enabling environment for evidence-based biodiversity mainstreaming into planning, investments and implementation strengthened	Technical Assistance	1.1. Enabling environment and capacity for evidence-based decision-making and learning in ecosystem economics led biodiversity mainstreaming in planning in place Target – Two district planning systems adopt biodiversity mainstreamed planning with demonstrated extensions to national level Baseline – none 1.2. Enhanced capacity for implementing national biodiversity conservation through decentralized area-based planning, and innovative financing	1.1.1. Technical capacity of multi-stakeholder agencies (Government and Non-Government) developed for adoption of Natural Capital Accounting and Assessments (NCAA) and ground level pilot project designing with monitoring 1.1.2. Approaches/Methods to estimate external additions and impacts to globally important ecosystems including pollution loads established with digital partcipatory monitoring 1.1.3. Integrated Information and Decision Support System (IIDSS), expert forum on ecosystem accounting and working groups to support NCAA adoption established 1.2.1. Area based spatial plans developed towards	GET	664,079.00	2,200,000.00

		Target: a) Three priority areas - Puttalam, Southeast Palk Bay and Trincomalee coastal and marine systems - have decentralized area-based plans, implementation arrangements and financing mechanisms in place; b) NCAA, METT and SUT capacity in two districts Baseline – none	demonstrating and capturing information for NCAA, METT and Post-Accounting Analysis in priority areas 1.2.2. Public-Private Partnerships and incentive based businesses established to estimate NC outcomes (in tourism and fishing) with the ability to replicate to other sectors or upscale to national level 1.2.3. Experimental ecosystems accounts established at provincial and district levels based on Supply and Use Tables (SUT's) for key priority sectors (e.g. tourism, fisheries, etc.)			
Component 2: Multi-stakeholder implementation of biodiversity mainstreamed, investments and promotion of lessons to national scale	Investment	2.1. Ecological integrity of priority landscapes and seascapes enhanced through co-management approaches Target – a) Three co-management approaches available with mechanisms in place for METT; b) Case studies on adopting NCAA and SUTs in tourism and fishery sectors; and c) Two	2.1.1. Landscape level spatial plans developed in 1.2.1. implemented and monitored for ecosystem enhancements including globally important conservation targets 2.1.2. Partnerships, capacity development and empowerment of communities (including 150 Fisher Societies) for the implementation of spatial	GET	1,865,630.00	13,550,000.00

model sustainable financing approaches for transfer payments

plans in conservation, monitoring, livelihoods, and value chains

Baseline – none

2.2. Knowledge and best practices for effective biodiversity mainstreaming based on NCAA approaches documented, shared and upscaled

Target – (a) Three site specific case studies.
(b) Three biodiversity Impact Investment designs;
(c) Two model case studies on BD mainstreaming in national accounting; and d) BD mainstreaming tool developed and introduced for Central Hills ecosystem sustainability

Baseline – none

2.1.3 Improved product value chains and markets for biodiversity friendly products and services combined with Sustainable Financing and transfer payments

2.2.1. Advocacy and communications based on the experience in socio-economic assessments, monitoring, NCAA, METT, value chains related technology and practices to promote BD mainstreaming in planning and policies

2.2.2. National level biodiversity mainstreaming adopted in national accounting in ecotourism, fisheries and sustainable participatory protected area management

2.2.3. A portfolio Biodiversity Impact Investments developed at national level covering coastal-marine and central hill ecosystems (two coastal models for tourism and fisheries and a tourism and agriculture based model for BD mainstreaming in the Central Hill ecosystems)

Sub Total ($)	**2,529,709.00**	**15,750,000.00**

Project Management Cost (PMC)

GET	126,485.00	1,000,000.00
Sub Total($)	**126,485.00**	**1,000,000.00**
Total Project Cost($)	**2,656,194.00**	**16,750,000.00**

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

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount($)
Recipient Country Government	Forest Department	In-kind	Investment mobilized	1,500,000.00
Recipient Country Government	Forest Department	In-kind	Recurrent expenditures	600,000.00
Recipient Country Government	Department of Wildlife Conservation	Grant	Recurrent expenditures	300,000.00
Recipient Country Government	Department of Wildlife Conservation	In-kind	Recurrent expenditures	200,000.00
Recipient Country Government	Coastal Conservation and Coastal Resources Management Department	Grant	Investment mobilized	2,200,000.00
Recipient Country Government	Coastal Conservation and Coastal Resources Management Department	In-kind	Recurrent expenditures	200,000.00
Recipient Country Government	Sri Lanka Coast Guard	Public Investment	Recurrent expenditures	400,000.00
Recipient Country Government	Ministry of Tourism and Sri Lanka Tourism	In-kind	Investment mobilized	800,000.00
Others	Univ. of Kelaniya, Wayamba, Ruhuna and others	In-kind	Recurrent expenditures	250,000.00
Donor Agency	World Bank	In-kind	Recurrent expenditures	800,000.00
Donor Agency	World Bank	In-kind	Recurrent expenditures	200,000.00

Recipient Country Government	Marine Environment Protection Agency	Grant	Investment mobilized	2,000,000.00
Recipient Country Government	Ministry of Provincial Councils and Local Government	Grant	Investment mobilized	1,050,000.00
Recipient Country Government	Land Use Policy Planning Department	In-kind	Recurrent expenditures	400,000.00
Civil Society Organization	Small Fishers Federation	Grant	Investment mobilized	200,000.00
Private Sector	TBD	Other	Investment mobilized	4,000,000.00
Private Sector	TBD	In-kind	Investment mobilized	150,000.00
Private Sector	TBD	Grant	Investment mobilized	1,000,000.00
GEF Agency	IUCN - Inputs from coastal and marine programmes	In-kind	Recurrent expenditures	200,000.00
Recipient Country Government	National Physical Planning Department	In-kind	Recurrent expenditures	300,000.00

Total Project Cost($)   16,750,000.00

Describe how any "Investment Mobilized" was identified

These investments (grants and in-kind) mobilized were based on the potential synergy that can be achieved by the enhanced adoption of NCAA approaches in BD mainstreaming resource conservation. The identified investments are projects, private sector businesses or Government agency functions (in-kind) that would benefit from the project intended results in the long-term. In addition, there are opportunities for IUCN to test pilot the same NCAA concept in several projects that IUCN currently implements under the GEF6 (Managing together – UNDP) and Green Climate Fund. In-kind investments are mostly staff time and equipment of the agencies engaged in delivering project objectives. Private sector investments are expected during the partnerships and IUCN has long-standing experience with the private sector including the formation of "Biodiversity Sri Lanka "—Sri Lanka Business and Biodiversity platform. IUCN under Bonn Challenge is currently helping the Forest Department to identify private parties to reforest/restore about 40,000 ha of degraded lands while IUCN's current portfolio includes a restoration project funded by more than 12 private sector entities. The project experience will also be shared with these parties and those uses will also be captured as leveraged funds. This project would adopt a strategy primarily to use the GEF Biodiversity STAR funds to develop sustainable mechanisms and

Natural Capital Assessment and Accounting (NCAA) and PES for Biodiversity Conservation in Priority Areas (BCPA) while leveraging private sector and other funding for restoration of ecosystems, which is a key requirement for biodiversity quality enhancement. More details on each investment will be generated during the PPG. Project will bring in new tools such as estimation of pollution loads to sensitive ecosystems through US Army Corps of Engineers Flux model and Management Effectiveness Tracking Tool (METT) for protected areas within the identified three priority landscapes with multi-stakeholder participation including communities. This project would adopt a strategy to use the GEF Biodiversity STAR funds to develop sustainable mechanisms and Natural Capital Accounting and PES for Biodiversity Conservation in Priority Areas (BCPA) while leveraging private sector and other funding for restoration of ecosystems, which is a key requirement for biodiversity quality enhancement. More details on each investment will be generated during the PPG.

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

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
IUCN	GET	Sri Lanka	Land Degradation	LD STAR Allocation	2,234		2,234.00
IUCN	GET	Sri Lanka	Biodiversity	BD STAR Allocation	2,653,960	238,706	2,892,666.00
				Total GEF Resources($)	2,656,194.00	238,706.00	2,894,900.00

E. Project Preparation Grant (PPG)
PPG Required ☑

PPG Amount ($)

100,000

PPG Agency Fee ($)

9,000

Agency	Trust Fund	Country	Focal Area	Programming of Funds	Amount($)	Fee($)	Total($)
IUCN	GET	Sri Lanka	Biodiversity	BD STAR Allocation	100,000	9,000	109,000.00
				Total Project Costs($)	100,000.00	9,000.00	109,000.00

Core Indicators

Indicator 1 Terrestrial protected areas created or under improved management for conservation and sustainable use

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
168,891.00	0.00	0.00	0.00

Indicator 1.1 Terrestrial Protected Areas Newly created

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

Name of the Protected Area	WDPA ID	IUCN Category	Total Ha (Expected at PIF)	Total Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)

Indicator 1.2 Terrestrial Protected Areas Under improved Management effectiveness

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
168,891.00	0.00	0.00	0.00

Name of the Protected Area	WDPA ID	IUCN Category	Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)	METT score (Baseline at CEO Endorsement)	METT score (Achieved at MTR)	METT score (Achieved at TE)	
Great Sober Islands Sanctuary	3296	Habitat/Species Management Area	65.00							🗑
Little Sober Islands Sanctuary	555592521	Habitat/Species Management Area	7.00							🗑
Nagamadu/Ambalam Forest - CF	NA	Wilderness Area	245.00							🗑
Viddattaltivu Nature reserve	NA	Wilderness Area	6,444.00							🗑

Weerakulicholai-Elavankulam Forest Reserve	27474	Wilderness Area	30,783.00	🗑
Wilpattu National Park	902	National Park	131,347.00	🗑

Indicator 2 Marine protected areas created or under improved management for conservation and sustainable use

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
53,337.00	0.00	0.00	0.00

Indicator 2.1 Marine Protected Areas Newly created

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

Name of the Protected Area	WDPA ID	IUCN Category	Total Ha (Expected at PIF)	Total Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)

Indicator 2.2 Marine Protected Areas Under improved management effectiveness

Total Ha (Expected at PIF)	Total Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
53,337.00	0.00	0.00	0.00

Name of the Protected Area	WDPA ID	IUCN Category	Total Ha (Expected at PIF)	Total Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)	METT score (Baseline at CEO Endorsement)	METT score (Achieved at MTR)	METT score (Achieved at TE)	
Bar Reef Marine Sanctuary	52936	Habitat/Species Management Area	30,670.00							🗑
Viddattaltivu Nature reserve	NA	Wilderness Area	22,667.00							🗑

Indicator 3 Area of land restored

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
325.00	0.00	0.00	0.00

Indicator 3.1 Area of degraded agricultural land restored

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

Indicator 3.2 Area of Forest and Forest Land restored

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

Indicator 3.3 Area of natural grass and shrublands restored

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

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

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
325.00			

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

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
103224.00	0.00	0.00	0.00

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

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

103,224.00

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

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

Type/Name of Third Party Certification

Green List of Protected Areas

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

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

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

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

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

Title	Submitted

Indicator 5 Area of marine habitat under improved practices to benefit biodiversity (excluding protected areas)

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

Indicator 5.1 Number of fisheries that meet national or international third party certification that incorporates biodiversity considerations

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

Type/name of the third-party certification

Indicator 5.2 Number of Large Marine Ecosystems (LMEs) with reduced pollutions and hypoxia

Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (achieved at MTR)	Number (achieved at TE)
0	0	0	0
LME at PIF	LME at CEO Endorsement	LME at MTR	LME at TE

Indicator 5.3 Amount of Marine Litter Avoided

Metric Tons (expected at PIF)	Metric Tons (expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)

Indicator 6 Greenhouse Gas Emissions Mitigated

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO_2e (direct)	1652000	0	0	0
Expected metric tons of CO_2e (indirect)	0	0	0	0

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

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO_2e (direct)	1,652,000			
Expected metric tons of CO_2e (indirect)				
Anticipated start year of accounting				
Duration of accounting				

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

Total Target Benefit	(At PIF)	(At CEO Endorsement)	(Achieved at MTR)	(Achieved at TE)
Expected metric tons of CO_2e (direct)				
Expected metric tons of CO_2e (indirect)				

Anticipated start year of accounting	
Duration of accounting	

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

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

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

Technology	Capacity (MW) (Expected at PIF)	Capacity (MW) (Expected at CEO Endorsement)	Capacity (MW) (Achieved at MTR)	Capacity (MW) (Achieved at TE)

Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Female	52,400			
Male	56,300			

| Total | 108700 | 0 | 0 | 0 |

Part II. Project Justification

1a. Project Description

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

GEO-6[1] shows that a healthy environment is both a prerequisite and a foundation for economic prosperity, human health, and well-being. At the same time, human interactions and pressure induced on natural capital is impacting the health of the ecosystem. In the coastal and marine environment, lagoons and estuary ecosystems including mangroves are one of the most affected biodiversity areas. While these coastal ecosystems support biodiversity, buffer land-based pollutants to oceans and corals, protect lands from sea erosion, they also support climate mitigation by having carbon stock averages of 956 t C ha−1 (Alongi, 2014). These mangrove rich coastal lagoon and estuary related ecosystems are being destroyed at rates that are 3-5 times greater than average when compared with forest loss and over a quarter of the original mangrove cover has already disappeared; driven by land conversion for aquaculture and agriculture, coastal development, pollution and overexploitation of mangrove resources (UNEP, 2014[2]).

Coastal and marine ecosystem related biodiversity is continuously impacted by inappropriate use of pesticides, heavy metals, plastics, and other substances that are of significant concern towards the sustainability of mangroves and the quality of the coastal based food supplies. The impact of neurotoxins and endocrine-disrupting chemicals is potentially multigenerational. In the same context, coastal and marine ecosystems are being challenged with new issues such as marine plastics (including microplastics) and agricultural residues including hormones[3].

Lack of quantified information on the benefits and co-benefits of ecosystems and ecosystem services towards socio-economic development has undermined the value of properly conserved and managed coastal and marine systems, estuaries and lagoons, including mangrove ecosystems and neighborhoods. For example, the coastal and marine ecosystems support, fisheries, tourism, food security, enhanced air and water quality, recreation opportunities, pollination, timber etc. The land use decisions are primarily based on market value of lands prevailing, without taking into consideration the ecosystem services provided by the particular land parcel.

Recent developments in the Economics of Ecosystem and Biodiversity (TEEB) and Sustainable Financing approaches combined with System of Environmental-Economic Accounting (SEEA) and Experimental Ecosystem Accounting (EEA) could be used to demonstrate to the Governments, Stakeholder Entities, Local Government Authorities and Communities the possibility and value of adopting biodiversity friendly conservation and management approaches. However, this convincing requires demonstrated pilots and practices at the ground level where different benefit streams can be observed, measured, and

quantified. Once the total benefits are demonstrated successfully, the way the nature and lands are being valued would be different and long-term conservation and integrated thinking on Nature Based Solutions (NBS), Ecosystem based Disaster Risk Reduction (Eco-DRR), Ecosystem based Climate Change Adaptation (EbA) etc. would be viable investments by the national and sub-national governance mechanisms.

Biodiversity Context

The National Biodiversity Strategy and Action Plan[4] highlighted the globally significant biodiversity in the country comprising of lowland rainforests, montane rainforests, dryland forests and coastal vegetations including mangroves, seagrass meadows and other coastal specific vegetation. High levels of endemicity is reported in most taxonomic groups. For instance, 28% of the 3,771 species of flowering plants, 22% of the 96 species of mammals, 15% of the 227 bird species, 88% of the 255 species of land snails, 55% of the 102 species of freshwater fishes, 86% of the 119 species of amphibians, 65% of the 216 species of reptiles and 98% of the 51 species of fresh water crabs found in the country are endemic. Endemism among vertebrates is about 43%, with the highest endemism quotient being recorded among the herpetofauna and freshwater fishes. Sri Lanka has 677 species of native vertebrates (excluding marine forms), and 262 species of migrant birds.

The marine fauna recorded in Sri Lanka include around 1,400 species of marine fish, 213 species of echinoderms, 228 species of marine mollusks, 61 species of sharks, 31 species of rays, 18 species of marine reptiles (including 5 turtles, 12 sea snakes and 1 salt water crocodile), 28 species of marine mammals (including 27 whales/dolphins and 1 dugong), more than 183 species of corals and 49 species of sea birds. This rich biodiversity and ecosystems provide an array of critical ecosystem services ranging from water provision, plant species of medicinal value, agricultural/ fisheries production to protection from natural disasters such as storm surges. In addition, wildlife and wilderness scenery continues to be a huge tourist draw. Red List Data (Ministry of Environment, 2012[5]) indicates that out of the globally reported 65 species, mangroves in Sri Lanka include 21 species[6], accounting for approximately one third of the world's mangrove species.

Importance of Mainstreaming Biodiversity in Planning and Implementation

The services or contributions provided to the benefit of the economic sectors such as eco-tourism, fisheries and other livelihoods and the human-induced damages or impacts on the very same biodiversity are not considered in one analysis as a planning tool to drive the development for the long-term sustainability of biodiversity.

For example, the tourism is connected with biodiversity. Biodiversity based tourism is a key element in the Tourism Master Plan (2017-2020)[7] where potential to capitalize on the eco-tourism and nature based activities is highligthed, and the projected revenues are over 5 billion USD per annum. This sector also presents potential threats to biodiversity. In particular, key species of high tourism values are the Asian elephant, leopard, sloth bear, blue whale, estuarine

crocodile, purple faced leaf langur, rusty spotted cat, fishing cat, sambar, and dugong along with turtles which occupy ecologically sensitive and unique habitats such as coastal wetlands, forests, seagrass beds, coral reefs, sand dunes and scrub jungles. Biodiversity centred tourism actions combined with lagoons and estuaries along with mangroves is a potential strategy to add more destinations and reduce the pressure on traditional tourism hotspots.

The fisheries sector provides direct and indirect employment opportunities for about 560,000 people and livelihoods while providing more than 60% of the animal protein requirement of the country. The share of fisheries in the Gross Domestic Product (GDP) of the country was 1.3% in 2016 with 530,920 metric tons of fish where marine fish production contributed to 456,990 tons. Fisheries lagoons and estuaries with mangroves play a critical role by providing grounds for spawning and nutrition to near shore and lagoon fish—a main income and nutrition source for coastal populations. Sri Lanka is rapidly losing mangroves, salt marshes, seagrass, and sand dune ecosystems due to multiple, interconnected threats. Additionally, the continued encroachment, land grabbing and alteration of mangrove and salt marsh habitats for settlements is a concern. It is indicated that major threats pressuring mangroves and their habitats are very much like those observed in other parts of South Asia and related to (i) conversion to other land use (e.g. conversion to agriculture, shrimp farms, development, and human settlement), (ii) over-harvesting (e.g. grazing, browsing and lopping, and fishing), (iii) pollution, (iv) decline in freshwater availability, (v) flooding, (vi) reduction of silt deposition, (vii) coastal erosion, and (viii) disturbances from tropical cyclones and tsunami.

Negative impacts on biodiversity also stems from poor waste management. World Bank (WB) indicates a per capita solid waste generation of 0.34 kg per day totaling 2,631,6500 tons per year in Sri Lanka, which amounts to around 7,210 MT of solid waste per day. It is estimated that only around 50% of solid waste generated is collected in Sri Lanka by local municipality systems. The Central Environment Authority has computed that Sri Lanka's waste composition is dominated by biodegradable waste at a figure of 62%. Paper accounts for 7% of the total waste generated while wood, plastic and polythene share an equal share of 6%. Plastic waste generation per day is 400 MT with an officially reported percentage of recycling around 5%. However, the industry estimate of recycling figure is around 15-20%, which is consistent with the global average of 14 - 18%. In the Kelani River Basin[8], a sediment discharge of 2,800 tons/annum and a nitrate flux of over 60 tons/annum was noted, based on a five-year water quality and flow monitoring study indicating high loadings of chemicals to coastal and lagoon systems.

The allocation of resources and attention provided to conserve the biodiversity in the national agenda are inadequate. This is partly due to the lack of quantified and articulated information on costs and benefits associated with biodiversity conservation. The Government collects revenue from biodiversity related ecosystem services but do not have a scientifically justified / quantified economic model to reinvest. Natural Capital Accounting (NCA) is an entry point not only to highlight the value of biodiversity towards development but the need for mechanisms and funding for conservation. The NCA approach would justify the need for co-management of biodiversity resources and invest back on the same resources to ensure the contributions to socio-economic sectors they contribute, thereby, providing a science based approach to conserve the biodiversity in short-, medium- and long-term as an investment.

Barriers for Mainstreaming Biodiversity in Planning and Implementation

Based on the above context, there are several barriers identified to improve through Natural Capital Accounting—a scientific well-articulated approach to justify the need to maintain the biodiversity integrity and invest on the same. The entry area would be the coastal and marine environments and the planning and decision-making processes. However, through the knowledge management and leveraging with other initiatives, the findings and results can be used to mainstream the biodiversity related investments in regional and national planning systems.

Barrier 1: Lack of national capacity to account for benefits of ecosystem services

Lack of biodiversity related information quantified cumulative benefits of ecosystem services on development sectors results in underestimations of the value of biodiversity and ecosystem services in the planning and decisions. Development projects typically focus on settlements, infrastructure, livelihoods, and poverty alleviation. Land and land uses are significant parts of the decision-making and directly influence the sustainability of the associated biodiversity. The cost benefit analysis or land use related decisions by the agencies do not use the relationship of ecosystem services provided by the natural capital towards the very sustainability of the intended developments irrespective to the sector (agriculture, fisheries, tourism etc.). As a result, the development and long-term maintenance arrangements or investments lack ecosystem services and sustenance in the planning equation. This is partly due to the lack of understanding of the ecosystem processes and contributions and lack of quantified information and scientific mechanisms to access the cost-benefits in a holistic manner that also incorporate the value of conserving the same ecosystem. These computations may even prove that certain developments are not favorable due to the loss of ecosystem services when the proposed development areas are of high biodiversity.

In addition to the lack of process knowledge, Sri Lanka Government agencies and Private Sector in the past did not have an effective way to access and work with the concepts and use of Natural Capital Accounting (NCA) principles such as System of Environmental-Economic Accounting (SEEA)[9] along with Experimental Ecosystem Accounting (EEA). As a result, the multiple benefits of ecosystems towards socio-economic development has not been incorporated in planning or to justify the investments towards conservation including in the project feasibilities. In the corporate sector, the "Corporate Natural Resource Accounting (CNRA)" is also new and has not been used from a development planning perspective, although the Environment Safeguards or Environment and Social Management Systems are evolving in financial and construction sectors. This approach will help to avoid underestimation of ecosystem services towards medium to long-term contributions to socio-economic gains from fisheries, tourism, agriculture, and others serves as a barrier for biodiversity friendly land use decisions.

Barrier 2: Inadequate multi-sector approaches to adopt ecosystem accounting and joint planning

GoSL conservation and development policies are mostly sector based with the assumption other sectors will collaborate. There are 427 government agencies working within the highly fragmented system where digital dashboards or information exchange is minimal. As such, the opportunities for agencies to engage in multi-stakeholder participatory planning and implementation based on scientific information are rare. Also, there are limited tools accepted by the Govt. as policy to use in joint planning and decisions.

A coordinated mechanism and an enabling environment for multi-sector monitoring, evaluations, quantifications, and decision making not only could help in biodiversity friendly approaches in development but also in the overall benefit to the development process. One such approach was recommended in the Policy and Strategies for the Marine Pollution Control (MEPA, 2018)[10] and are being discussed at the new National Mangroves Task Force (NMT). In this context, the proposed SEEA/EEA approach and the digital approaches and dashboards have the potential to bring multiple agencies together for joint information led planning and decision-making.

The process of computing multi-sector benefits and uses requires demonstrated experience using area/site specific assessments highlighting the Global Environment Benefits (GEBs), contributions by GEBs towards local livelihood gains to attract the Government, Private Sector and Community attention. For example, in the coastal and marine environments, the key sectors where benefits accrue may include but not limited to agriculture, fisheries, tourism, and urban services. Indirect benefits cover air quality improvements, water access/quality, ecosystem services such as pollination, provision of water to agriculture, irrigation, etc. that also needed to be accounted to obtain the cumulative benefit of ecosystem services. Currently only a sector benefit is considered (for example, fishery or tourism) in planning or decision-making, undermining the cumulative value of biodiversity related ecosystem services helpful in the long-term development, causing an underestimation of the biodiversity contributions.

Barrier 3: Inability to account for the human induced pollution and degradation in planning

Lack of quantitative and economic valuation information on the impacts on ecosystems due to Contaminants of Emerging Concerns (CECs) such as microplastic, heavy metals, hormones, agrochemicals etc. also impact the overall ecosystem evaluations. For example, quantification of the threats to biodiversity is required to justify the conservation needs associated with pollution control and to highlight the negative contributions of no-action. This can be considered as the other side of the equation where positive contributions of ecosystem services to the socio-economic development is valued. As an indication of degradation taking place in coastal and marine systems, fishermen perceive that the abundance of several fish species has declined over time (Joseph, 2014). Urban and agricultural pollution is known to impact the biodiversity integrity in lagoons and estuaries and information on water quality and sources of pollution (point and non-point) are not well known nor studied adequately.

These negative impacts were not well understood nor taken into account in developing biodiversity related conservation investments or benefit sharing decisions. Factoring the negative aspects that impact environmental services and costs to mitigate in planning would provide a better or a holistic picture towards the conservation investments where NCA process would provide a sound base for a scientific approach towards incorporating ecosystem negative processes.

2.   The baseline scenario and any associated baseline projects

Baseline Scenario

The baseline scenario for the project is founded on the fact that opportunity exists to mainstream biodiversity in value-added option in development-oriented planning to enhance the Global Environment Benefits (GEBs) and Natural Capital Assessments and Accounting along with Management Effectiveness Tracking of landscapes with high biodiversity potential could help the mainstreaming efforts through planning and decision-making. The project focus is on conflict affected Northern and Eastern landscapes and seascapes of Sri Lanka where published biodiversity information is somewhat lacking, but the biodiversity potential and development pressure is significant. Sri Lanka tried Natural Capital Accounting approaches to establish a "Green Accounting System" for the "System of National Accounts (SNA)" but it was not mainstreamed into decision-making nor national budgets.

The baseline condition for the project approach is supported by the Government National Policy Framework (NPF) in 2019, "Vistas for Prosperity and Splendor[11]" towards making the country "an example of Sustainable Development." The Government's commitment and vision indicate that "we shall bring about amendments to existing laws, and if necessary new legislation will be introduced to strengthen and protect our forest cover, rivers, streams and wildlife." The government has promised that "appropriate and definitive measures will be taken to identify areas for reforestation purposes while using the National Physical Plan", now updated for 2050. The NPF also highlighted the need to "engage youth, involve better monitoring, use of Internet of Things (IOT), promote renewable energy and improve the productivity in sensitive ecosystems without disturbing the ecosystem services." These directives allow room and provide applications for Natural Capital Assessments and Accounting to succeed.

The natural capital management in Sri Lanka presently uses IUCN Red Listing as the main tool. Approaches related to Environment and Social Management Systems (ESMS) and IFC safeguards are gaining momentum in lending and in development projects. However, a holistic approach to evaluate carbon benefits, water benefits, tourism benefits, forestry, climate adaptation, pollination benefits, poverty reduction contributions etc. is not in the mainstream. Such an approach could justify the biodiversity / ecosystem conservation investments by other sectors and in development. Tools such as Management Effectiveness Tracking Tool (METT) would help to monitor the impact of best practices on ecosystem processes and indicators and will be valuable as a mainstreaming monitoring tool as well.

Sri Lanka is yet to practice NCAA and METT type processes on the ground and convincing the approaches may require several pilots, education, and advocacy efforts. The pilots would justify the advantages of ecosystem friendly practices and promote investments on conservation to maintain the ecosystems that support Global Environment Benefits (GEBs) while ensuring long-term local economic contributions. Based on the NCAA results, it will be easy to introduce PES and Benefit Sharing systems towards long-term sustainability of ecosystems and high biodiversity areas. _The legislative coverage (Table 1) for implementing and mainstreaming biodiversity concerns in development is perceived as adequate.

Table 1: Legal Provisions

Key Laws related to coastal and marine protection	Applications

National Environmental Act	Section 24C related to the declaration of protection areas and Section 24D stated that "Any project or planning scheme under any other act that are in any conflict with the NEA shall cease to be in operation in that area". Central Environmental Authority (CEA) is the responsible institute for the physical planning.
Fauna and Flora Protection Ordinance	Section 2 (1) stated National Reserves – Strict Nature Reserves, National Parks, Nature Reserves, Jungle Corridors, Refuges, Marine national parks, Buffer Zones. These reserves are declared for state lands. Sanctuaries are being declared for both state and private lands. Considerable extent of mangroves is located in declared sanctuaries. Not all human actions, but certain harmful actions restricted in sanctuaries. Mainly the Department of Wildlife Conservation (DWC) is the implementer of the ordinance. Section 30 of the act is related to the mammals, further it has mentioned two categories such as protected mammals and strictly protected mammals. In the same section, reptiles also included as protected reptiles and strictly protected reptiles. This section further continues as protected birds, strictly protected birds as well. Amphibians and fish are included in the section 31A and invertebrates in section 31B. Section 42 mentioned the plants including provisions for protected species.
Forest Conservation Ordinance	Section 3 is related to the reserved forests or forest reserves, also section 3 (A) related to the Conservation Forests. Section 18 listed reserved trees as schedule ii of the section 18. The section 19 stated that any person can cut down or take parts of reserved trees only in accordance with the regulations declared. Section 20 is related to the collection of forest produce or keeping in procession or custody. Section 24 is related to the gazette regulations.
Fisheries and Aquatic Resources Act	Section 31 stated Fisheries Management Area. Under section 34, minister has the authority to close and open fishing seasons including areas and times for fishing, for species of fishes etc. Section 36 is related to the Fisheries Reserve and section 36 (a) has provided the provision to set special protection to aquatic resources in danger of extinction, to protect the natural breeding grounds of fish particularly considering coral growth and the aquatic eco-systems. Section 36 (b) is related to the aquatic life, (c) aquatic medium, (d) scientific study or research, € preserve and enhance natural beauty. The executing agency of the act is the Department of Fisheries and Aquatic Resources. Section 27 is related to prohibiti

	ng the use of explosives and poisonous substances to kill aquatic life and offence to let harmful substances to get in to water. Section 29 is regarding the protection of species by orders.
National Heritage Wilderness Areas Act	Section 2 related to the National Heritage and Wilderness Area declaration.
Coast Conservation and Coastal Resources Management Act	Section 22C of the act is related to the declaration of beach parks and for the preservation of scenic beauty and biodiversity as well. Section 22D applies when there is a need to take special measures to conserve the coastal and aquatic and aquatic eco -systems. Section 22E related to the declaration of special management areas like land areas within and adjacent to the coastal zone for the collaborative approach to planning resource management. The act regulates the access to, and prescribed activities can be declared.
National Policy on Conservation and Sustainable Utilization of Mangrove Ecosystems in Sri Lanka	Completed in January 2020, this policy articulates how a healthy mangrove ecosystem with rich biodiversity could support the nation with direct and indirect services. It advocates conservation, research and sustainable extraction and restoration of mangroves. The six strategies cover quantification measures, multi-stakeholder engagement, databases, scientific approaches and monitoring mechanisms

Associated Baseline Projects

Legend

- Concentrated Urban Development Area
- Rural Settlement
- Coastal Environmental Sensitive Area
- Area Above 1500m
- Conservation Areas
- Central Environmental Sensitive Area
- Waterbodies
- Provincial Boundary
- Proposed Electrified Railway
- Proposed Railway
- Existing Railway
- Expressway (Up to 2030)
- Expressway (To be considerd after 2030)
- Highways
- Priority Highway

- Main Service Centers by Threshold
- International Airport
- International Sea Port
- Domestic Airport
- Sea Port

0   20   40   80 Kilometers
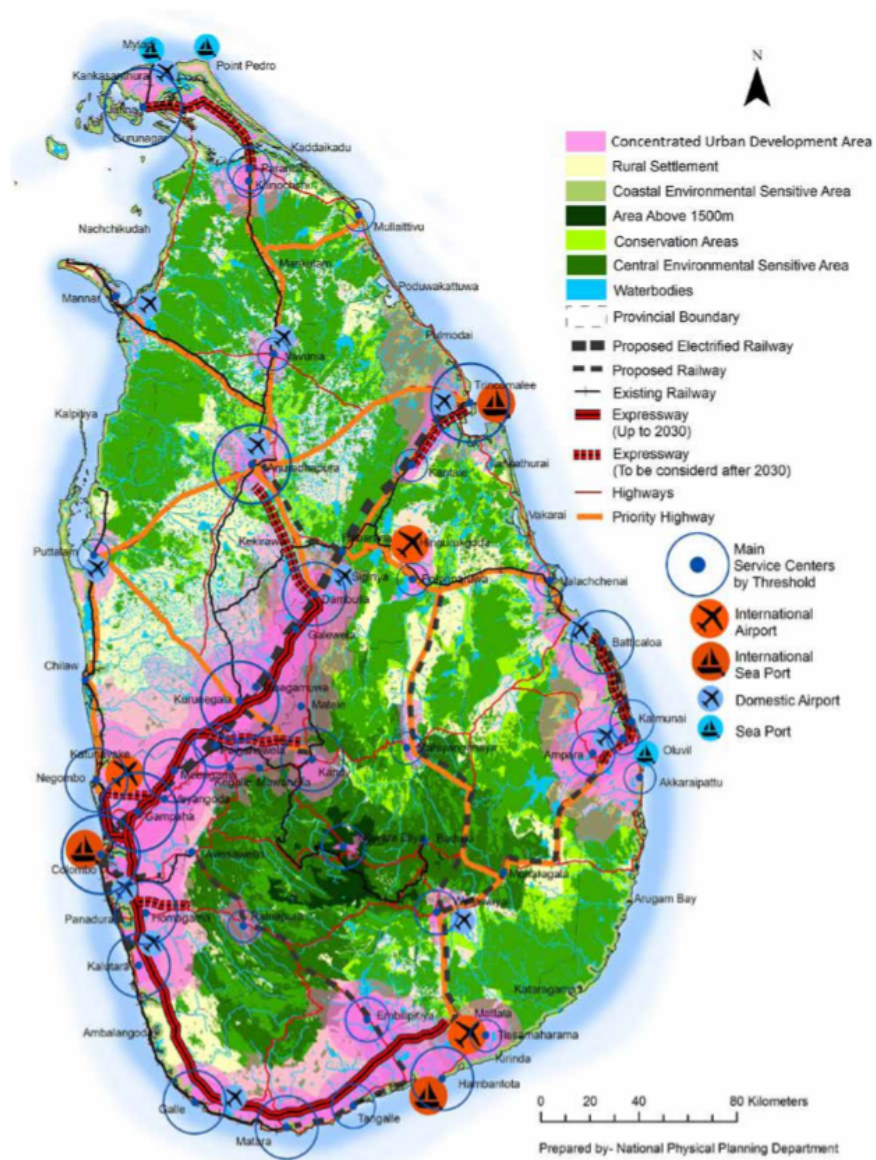
Prepared by- National Physical Planning Department

Figure 1: National Physical Plan - 2050

The main baseline project is the National Physical Plan – 2050 (Figure 1). It prescribes in broader terms the need to enhance conservation using the network of Protected Areas (PAs). Currently the PAs span over 20,852 square kilometers, which is about 31% of the total area of the country. The Forest Department (FD) manages about 56.5% of the PA network while the Department of Wildlife Conservation (DWC) manages the rest (43.5%). The Protected Area network of DWC comprises of 96 designated sites at present that include three Strict Nature Reserves; 22 National Parks; five Nature Reserves; one Jungle Corridor; and 65 Sanctuaries. The PAs designated by FD include 395 sites that are classified as 177 Forest Reserves, 217 Proposed Reserves and one National Heritage Wilderness Area. More than 200 sq. km. located in steep hill slopes (over 500-meter elevation) are under extensive production landscapes. Around 70 sq. km. are in coastal areas (within 300 meters from shore) with multiple coastal environmental issues. Four forest areas have been recognized as Natural World Heritage Sites and six wetlands as RAMSAR sites. There are 14 identified marine protected areas. Adequate investments are to be justified to ensure the GEBs are preserved in those protected areas and surroundings while ensuring that the protected ecosystem services benefit the socio-economic development in the country and its communities. There are several closely related baseline projects operating or nearing commencement.

Baseline projects and policy developments:

a.   CSIRO Australia conducted initial consultations on possible strengthening of scientific research related to mangrove ecosystems and conducted a workshop, which was held in Colombo in October 2019. CSIRO plans to aid the Government in quantification of mangrove areas and to develop research programmes. The project will provide map information on the coastal and marine region towards NCAA and BD mainstreaming.

b.   IUCN obtained GCF Board approval to restore the Central Hills (Knuckles Range). This USD 47 million six-year project will develop several advocacy platforms, ecosystem and societal information and media relations that can be leveraged with this GEF7 proposed coastal and marine project. While the GEF7 investment will generate information and advocacy material for coastal region fisheries and tourism areas to support BD mainstreaming, the GCF project would help to bring the accounting and assessment aspects covering tourism, agriculture etc. covering the hill country ecosystem setting to adopt BD mainstreaming. Together, the information and advocacy tools from both projects and others such as ESA (below) would help BD mainstreaming in planning in both central hills and coastal marine ecosystems, covering most of the island and key economic sectors and help to achieve geographic scale effect.

c.   This project will build on the Environment Sensitive Areas (ESA) concept in the GEF5 UNDP project "*Enhancing Biodiversity Conservation and Sustenance of Ecosystem services in Environmentally Sensitive Areas*" that is ongoing and the upcoming GEF6 project on "Managing Together: Integrating Community-Centred, Ecosystem-Based Approaches into Forestry, Agriculture and Tourism Sectors" where IUCN will be the Responsible Agency for delivering the project. Both projects will have strong communication and engagement strategies useful in the proposed project. During the implementation stage to start towards end 2020, it is possible to promote the SEEA/EEA approach in the Managing Together project.

d.   The project will work with Marine Environment Pollution Authority (MEPA) on the GEF funded N-Hub project by the UK Centre for Ecology & Hydrology to quantify Nitrogen Loads to the Ocean where IUCN will help in the field work and Load Estimations using US Army Corps FLUX model. The load estimates will be connected to the SEEA/EEA too.

e.   The project will leverage knowledge and resources with two WB funded projects, namely a) the Climate Resilient Improvement Project (CRIP), which will be implemented till 2028 and will provide climate predictions to finetune the biodiversity mainstreamed plans and water balances in lagoons and estuaries and b) the Climate Smart Irrigation Project where water discharges out of agricultural lands will be studied. The information will be useful to understand the implications on the water levels in lagoons and estuaries because of irrigation management. The additional climate information will refine the NCAA approach and provide information on load estimation and impacts of land-based sources on coastal systems.

f.   The UNDP BIOFIN project helped the Central Bank of Sri Lanka to develop a "Sustainable Financing Strategy for the Banking Sector" where it highlighted "Green Bonds" and other financial tools. The project EEA approach will help to add value to the Sustainable Financing Strategy with field level information and SNA.

g.   IUCN is working with Anantara Hotels and Resorts and has recently developed a "Turtle Conservation Programme" that combined participation of hotel guests under their "Dollar a Deed" programme where educational and conservation activities are being supported. This experience will be helpful to develop Public-Private-People Partnerships and to promote Corporate Natural Capital Accounting (CNCA) approaches in the tourism sector.

h.   Ministry of Environment (MoE) have several expert committees that are relevant to the project, such as the National Mangroves Task Force that work on coastal ecosystems, National Climate Mitigation and Adaptation Expert Committee working on policy and practices on both mitigation and adaptation and a set of working groups on different subjects such as wetlands, buffer zones delineation of protected areas etc. Based on the experiences of the functioning of these committees, the project proposes to support an expert group on ecosystem assessments and valuations towards promotion of NCAA and BD mainstreaming in planning.

i.   Initially with UNICEF and presently with private sector support, IUCN provided technical assistance to operationalize a multi-stakeholder approach to conserve and manage the most populated, industrialized and urbanized Kelani River Basin and engaged multiple agencies towards developing a partnership approach[12] that also uses pollution load estimations and stakeholder approaches towards pollution reduction. However, the proposed investments did not materialize due to lack of SEEA estimates. This project will help IUCN to refine the Kelani River Basin conservation approach during the project period.

j.   Small Fishers Federation of Sri Lanka – SUDEESA is an IUCN member organization. They started mangrove restoration in 1994 by mobilizing local fisher folk. Key areas of focus are in the North-Western Province (Chilaw, Mundel and Puttalam lagoons). A total of 516,104 plants were replanted with the cooperation of the Sri Lankan army, navy, and other civil organizations (SUDEESA 2017). The main plant species planted by this programme consisted of Rhizophora and Avicennia.

Internationally there are a set of project experiences this project is aiming to capitalize on by way of information sharing and learning, namely:

a.   India (Sundarbans): 16 million mangrove trees to be protected by local communities where a community mobilization and benefit sharing approach had been introduced, successfully.

(https/youtu.be/uA6j_-aEz7Q)

b.   Indonesia: mangroves revitalizing coastal villages with fishery and new businesses being involved in planting 5,000 ha along with the involvement of 20,000 coastal community members (https://youtu.be/YzzwGS0BijY) where mangroves had been used as the central theme to integrate coastal development. The project is led by local NGO Yagasu and the coastal villages in Sumatra, Indonesia are working to restore the mangroves that protect the coast and bring them food and income. The project is taking a very active approach to helping local communities use the mangroves as a springboard for new activities such as aquaculture, batik dyeing, etc.

c.   Indonesia – Bali: The Mangrove Information Center (MIC) where several mangrove products (food, SPA and other) are demonstrated along with eco-tourism services supported by JICA. The project site is located on an abandoned Shrimp Farm.

In addition, during the PPG, this project will closely study the projects using Natural Capital Accounting and Payment for Ecosystems Services combined with Benefit Sharing such as the newly approved project in Philippines "Natural Capital Accounting and Assessment: Informing Development Planning, Sustainable Tourism Development and Other Incentives for Improved Conservation and Sustainable Landscapes" among others.

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

The proposed project aims to introduce participatory planning and Natural Capital Assessments and Accounting (NCAA) principles to bring Government Agencies, Private Sector and Communities to learn and work together, with the objective of improving biodiversity mainstreaming in development. The project would first build their capacity to understand the relevance and value of ecosystem services including biodiversity and provide tools and engagement opportunities to demonstrate applications of NCAA using biodiversity friendly land use planning, best practices and quantification of benefits through the adoption of SEEA/EEA process and METT.

As opposed to business-as-usual top-down approaches using policy and regulations, this alternative approach uses a community involved multi-sector multi-stakeholder approach in biodiversity mainstreamed planning and implementation. The experience and the quantified data will be used in a System of National Accounting (SNA) approach. The project would build the capacity not only to quantify the positive biodiversity benefits through conservation but also the negative pressure to ecosystems and ecosystem services from development and human actions.

The project will use training, capacity building, partnership development and innovative financing in a spatial planning environment to create a paradigm shift in a way that the biodiversity rich natural resources are being managed and conserved. The NCAA and METT tools, among others would help stakeholders such as communities, private sector, and government agencies to first-hand feel and experiment with primary information mostly collected through their efforts on a plan the stakeholders collectively develop for each pilot site.

The project will generate knowledge, set up coordination systems, provide required dashboards to monitor and implement integrated biodiversity friendly environment management with benefit sharing, using adaptive approaches as needed and decided through participatory management and coordination systems. In the process, the focus would be on stakeholder engagement, empowerment, good governance and provision of significant incentives to communities and natural capital users so that they themselves become advocates of conservation, having understood the possibility of benefit sharing as opposed to adding pressure on natural resources for their day-to-day needs.

In order to facilitate planning, the project will use globally accepted tools such as ROAM, InVEST, pollution load estimations etc. Several biodiversity centered models and entry points for Payment for Ecosystem Services (PES) are expected to emerge out of the project process and METT results. Further the project provides:

a.   Justifications for biodiversity mainstreaming to obtain better long-term local socio-economic benefits and GEBs

b.   Demonstrate integrated multi-sectoral approaches for co-management of coastal and marine ecosystems

c.   Methods to understand and manage hydrological patterns in coastal and marine systems including mangroves

d.   Approaches for external load estimation and control in lagoons and estuaries from land-based sources

e.   Assessments and tracking models to promote biodiversity mainstreaming in planning and decisions

f.   Public-Private-People partnership models to manage biodiversity rich coastal and marine environments

g.   Sustainable financing approaches for effective partnerships and benefit sharing modalities

The project will focus on the natural capital support to fishery, tourism and agricultural sectors and empower Private Sector to work with Government and Communities to develop and implement innovative conservation models that will ultimately improve the GEBs and local economies.

Communities in the coastal areas are being mobilized by IUCN member, Small Fishers Federation, and fisheries societies are engaged in restoration and conservation activities. While the communities will benefit from project initiatives, their understanding of the nature will significantly improve, and they will be empowered to collect information that will help to articulate ecosystem contributions to livelihoods, socio-economic development, and others. The data collected will be used by the divisional, district and provincial authorities to compute the overall contributions of biodiversity and to plan for appropriate conservation measures to ensure the continuity of the observed benefits leading to System of National Accounts (SNAs) through the SEEA/EEA process. The project will use three priority areas in Puttalam, Southeast Palk Bay and Trincomalee to demonstrate the NCAA process.

Project components:

<u>Component 1</u>: Capacity and enabling environment for evidence-based biodiversity mainstreaming into planning, investments and implementation strengthened

This project component aims to create a transformational shift in business-as-usual development practices in globally important biodiversity rich ecosystems by Govt., Non-Govt., and Communities. Normally ecosystem services and biodiversity aspects are not considered in spatial planning beyond IUCN Red Listing. This component will highlight the value and promote biodiversity friendly participatory multi-sector approaches based on scientific ecosystem assessments and accounting such as NCAA in land use planning. The design of Component 1 is in line with NBSAP, BIOFIN, Post 2020 Aichi, CBD and related policies designed to harness global and local knowledge with multiple ecosystem benefits such as carbon sequestration, Eco-DRR, EbA etc. while using spatial planning, multi-stakeholder engagement and capacity building to create the enabling environment to adopt NCAA based approaches.

This component will develop systems, baselines, and techniques to facilitate mainstreaming of biodiversity into planning, investments/financing, and implementation in the three coastal and marine sites, namely, Puttalam, Southeast Palk Bay and Trincomalee coastal and marine systems (Figure 2) to start and share the experience nationally through Government and Non-Government systems, including the areas in central hills ecosystems.

A significant amount of GEF BD resources will be allocated to formulate the partnerships and decision support systems leading to better planning based in the country, supported by a group of experts while the investments for restoration would be primarily through the partnerships and businesses including tourism operators. Information led platforms will facilitate multi-sector and multi-stakeholder participation. The capacity building on NCAA, METT, SEEA/EEA and land use planning tools such as ROAM would lead to collecting information to use Systems of National Accounting, which will help mainstream biodiversity concerns and GEBs in national planning and development at national and sub-national levels. Characterization and analysis of the external pollutions in the pilot areas is an added feature aiming to minimize the negative impacts of human activities on the sensitive ecosystems. The process will be in line with BIOFIN invested "Sustainable Financing Strategy" developed by the Central Bank of Sri Lanka[13] and will provide tools and experience to operationalize it via PES mechanisms.
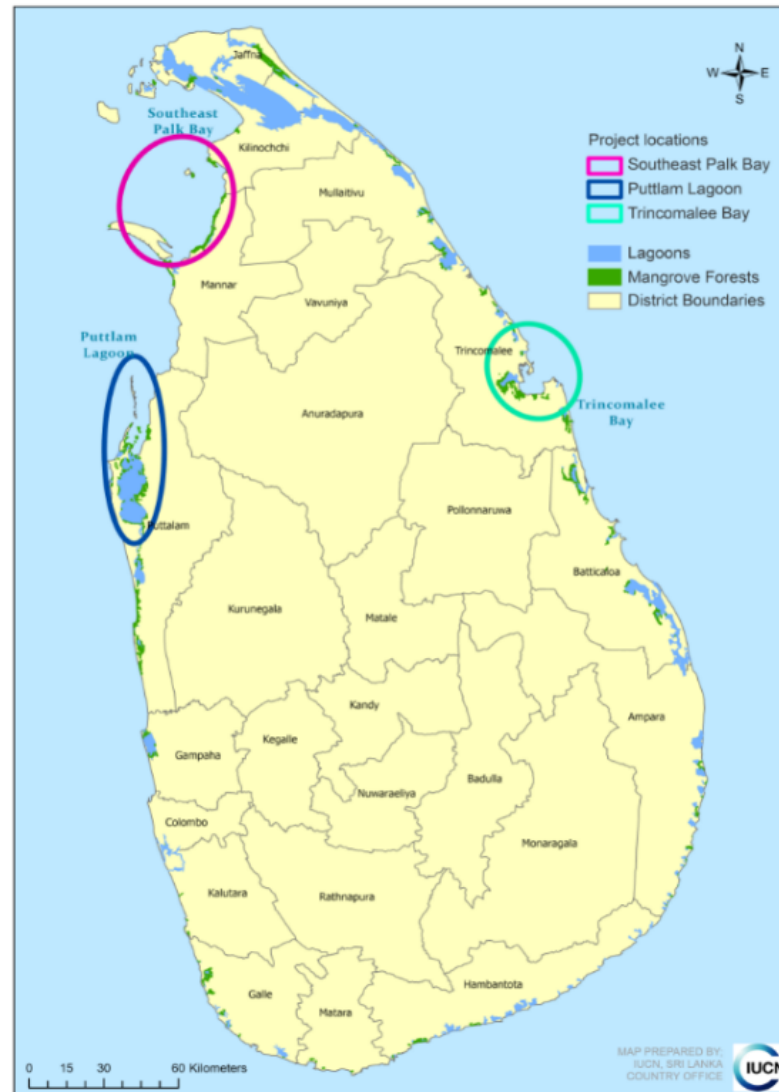
Figure 2: Three Priority Areas in the Project

Outcome 1.1. Enabling environment and capacity for evidence-based decision-making and learning in ecosystem economics led biodiversity mainstreaming in planning in place

This outcome will start with Sri Lanka's experience in Special Area Management and expand the planning capacity to stakeholder staff (output 1.1.1) including National Mangrove Task Force (NMT) led by the Ministry of Environment.   The proposed expert forum comprising of ecosystem process experts, economic sector experts mainly on tourism and fisheries, spatial planners as well as ecosystem economists will serve as an advisory body to build the stakeholder capacity and promote the tools/approaches such as NCAA, METT, SUTs, land use planning approaches, FLUX load estimations and impact assessments to facilitate information generation for biodiversity mainstreaming. The project will develop multiple visualization tools, communication materials and engage media and update national and sub-national level planners on the project work. Initially the capacity building would cover the selected areas and the districts they are in and engage district level planners intensively in the process including district environment committees.

Stakeholder entities will be sensitized on the different environment processes in coastal and marine areas and the impacts of pollution additions and ways of measuring (Output 1.1.2). The information and decision support system will support the collection of biodiversity, socio-economic and other information to support NCAA and METT and to engage planners (Output 1.1.3). Training will cover voluntary reporting and monitoring required for METT operation and other tracking tools to be operationalized through the proposed Integrated Information and Decision Support System (IIDSS).

Outcome 1.2. Enhanced capacity for implementing national coastal biodiversity conservation through area-based planning and innovative financing

This outcome will focus on the establishment of Natural Capital Assessment and Accounting (NCAA) in the Government planning and private sector (Output 1.2.1) based on pilot project generated and historical information. Examples from global practices would be used liberally as the Sri Lanka experience is limited. The three areas identified in Puttalam, Southeast Palk Bay and Trincomalee will be used to train stakeholders and practice the tools on the ground, based on spatial planes developed with the support of the expert group formed in 1.1.3. The planning and trainings that include all stakeholders (Government, Non-Government, Private and Community) are expected to lead to viable partnerships (Output 1.2.2) that will cover investments, monitoring and information collection towards SUTs to use in Component 2. Trainings will be conducted in the three languages, Sinhala, Tamil and English as needed. There are emerging techniques to use area-based strengths such as IUCN Green Listing towards identifying niche products. Therefore, the project will focus on utilizing niche features in nature, culture and heritage and use of internet, social media, and new digital approaches.

The training will also cover the use of Supply and Use Tables (SUT's) for district and provincial level planning (Output 1.2.3) along with Post-accounting analysis for priority socio-economic sectors (fisheries, agriculture, tourism etc.). PCA will provide the base for alternative (development) scenarios and convening sectoral actors in a specific sectoral roundtable format targeted at tourism, fisheries, industries, and other sectors to enable incorporation of NCAA results and METT outputs into the sectoral policy priorities. At this point the stakeholders who are working on Central Hills ecosystems through the IUCN implemented GCF project would be interfaced with the work in order to adopt BD mainstreaming in Central Hills of the country.

NCA process with examples will be tested with different scenarios with stakeholders to establish the systems where any missing data will be substituted with estimates until the area-based data is available through Component 2 activities. In the process, the agencies and stakeholders will be familiar with different models, data processing and interpretation aspects and equipped with the ability to test what if scenarios on different land use practices towards biodiversity

benefits from conservation measures and ecosystem benefits to fisheries, tourism, agriculture, urban etc. (Output 1.2.3).

Component 2: Multi-stakeholder implementation of biodiversity mainstreamed investments and promotion of lessons to national scale

Component 2 is aimed to practice, demonstrate and engage government and non-government entities, private sector and communities in a combination of conservation and economic development efforts. The capacity provided in Component 1 would help to adopt a scientific evidence-based system to generate information towards mainstreaming biodiversity benefits in land use and development decisions. As such this component capitalizes on the knowledge provided, databases, spatial plans, financial systems and partnerships developed during the component 1 also based on global tools and experiences.

The three sites selected for the pilots by IUCN, namely, Puttalam Lagoon, Southwest Palk Bay and Trincomalee ecosystems are based on global biodiversity, migratory species, regional importance, and importance for Sri Lanka in terms of socio-economic development. These areas are also under extensive development pressure, therefore, providing an opportunity to highlight the value of ecosystem valuations in land use planning and decisions. The implementation of Component 2 field work primarily by communities would be supported by the Government agencies with the participation of the private sector. This project investment is significantly co-financed through partners both in-kind and in cash grants. Results of the project sites monitored would indicate and highlight the problems and challenges in land use management in sensitive ecosystems in both qualitative and quantitative manner. Pollution Modeling and other techniques will indicate the external impacts on the three sites under conservation.

During the operation of Component 2, the district and provincial planning authorities will start populating the information in the SUTs and other formats to progress in the NCAA and working towards the System of National Accounts (SNAs) for different sectors. Multiple communication products and advocacy material will be used towards BD mainstreaming at national and sub-national levels. They will be used for advocacy, training of planners and students and for sharing locally and globally focusing on biodiversity net gains and support to conservation and development, in return. The project aims to get the attention of national and provincial budgetary processes to use BD mainstreamed tools in planning and resource targeting where the monitoring tools established will also be part of the national effort along with the expert groups. General awareness and education by the project would attract students to engage in studies in the subjects of NCAA and media to highlight the value of integrated BD mainstreaming.

Outcome 2.1. Ecological integrity of priority landscapes and seascapes enhanced through co-management approaches

This outcome will be achieved through the joint design and implementation of spatial plans (2.1.1), partnership based enterprises and decisions by stakeholder entities for the selected sites. These activities will highlight potential socio-economic benefits through fisheries, eco-tourism, agriculturer etc. plus potential impacts by climate and pollution hazards. The project will engage Fisher organizations in the sites through the Small Fishers Federation (SFF) while also tapping into communities engaged in other livelihoods (2.1.2). During the planning process the stakeholders will also engage in designing market linkages and value additions based on area based products and financing associated with the activities including potential Payment for Ecosystem (PES)

mechansims (2.1.3). Each selected priority area will have a governing system comprised of public, private and community representation. These groups would not only implment and monitor the planned activities, but also work on collecting and processing information generated through the pilot sites and developing Supply and Use Tables (SUTs) covering different economic sectors connected with conservation benefits developed in 1.2.3.

Outcome 2.2. Knowledge and best practices for effective biodiversity mainstreaming in planning based on NCAA approaches demonstrated, documented and shared

This outcome is focused on the mainstreaming and upscaling the findings of Outcome 2.1., while entering into national and sub-natioal level Government budgets and private sector operations. Through the operation of the project it is expected that several varifiable models will emerge in terms of biodivesity mainstreaming (Output 2.2.1). Output 2.2.2. will consolidate the NCAA process with high level engagements at provincial and national level, including the sub-national level planning, agriculture, environment etc. work groups, provincial planning entities and national planning and budget processes. These entities who worked in the project from Component 1 onward will act as catalysts and influencing agents to promote the project results.

The project will need to consider the post-COVID-19 recovery environment where there is a high premium placed on decarbonization and tourism and production experiences that are least damaging to ecosystems. In the case of Sri Lanka, the strategy is to aim for niche tourism and agriculture productivity approaches and greening and biodiversity principles would be attractive in terms of promoting the tourism, fishery and agriculture products in local and global market place, and therefore, will play a key role in BD mainstream advocacy. These new developments may require more exchanges or experience sharing and partnership opportunities for investments (Output 2.2.3). Based on the project experience, the project and partners/stakeholders will work towards generating/designing innovative applications of NCAA, METT, EEA tools in biodiversity mainstreaming, which will combine public, private and community strengths and will be reflected in the proposed port-folio of impact investments.

Knowledge related product development and use of multiple modalities to mainstreame biodiversity friendly approaches will be undertaken through out the project, including web, facebook, twitter, face to face briefings and high level advocacy etc. The end aim is to mainstream and upscale the use of NCAA across the sectors in the country through Government investments, donor projects as well as community action. Therefore, the project will work with other projects that are in operation to leverage their experience towards biodiversity mainstreamed long-term benefits.

4) Alignment with GEF focal area Program strategies

This project is primarily related to the Biodiversity Programme strategy areas. Moreover, the project directly addresses the Biodiversity Focal Area Strategy BD 1-1: 'mainstream biodiversity across sectors as well as landscapes and seascapes through biodiversity mainstreaming in priority sectors.' Particularly the project uses three coastal and marine areas to establish the Natural Capital Assessments and Accounting to value the ecosystem services due to conservation of biodiversity and highlight the socio-economic relations of biodiversity friendly land use management to fisheries, tourism, agriculture and

other sectors. The biodiversity friendly initiatives implemented will be tracked using METT approach and the quantified benefits or changes on ecosystem services due to conservation efforts will be highlighted for planning and decision making helping to achieve BD 1-1 aims. In doing so the project seeks to achieve biodiversity mainstreaming by attracting the interest of government, private and community-based stakeholders to use biodiversity conservation as a key component in land use planning and investment decisions. The stakeholder entities capacity would be developed during the process and they will be able to integrate the benefits across sectors and device payments for ecosystem services type models to ensure the sustainability of the ecosystems and biodiversity.

This project also addresses the objectives of the Biodiversity Focal Area Strategy BD 1-3: 'mainstream biodiversity across sectors as well as landscapes and seascapes through natural capital assessments and accounting'. Component 1 of the project is designed to build the capacity of the stakeholders to integrate NCAA and monitoring mechanisms on a planned landscape while Component 2 interventions will apply the Natural Capital Assessments and Accounting in the field, demonstrate the application on the ground and collect data with METT approach. In addition, multiple other pressures on natural capital such as pollution and degradation related aspects will also be incorporated to the same system where biodiversity friendly approaches and benefits will be available for stakeholder entities to study, analyze and carry out what-if-scenarios. Quantified information derived in Component 2 through NCAA will help to develop mainstreaming tools such as Payment for Ecosystem Services (PES) for the sites as well as to replicate in other ecosystems through the Government and other programmes.

The Land Degradation Focal Area LD-2 on "Maintain or improve flow of ecosystem services, including sustaining livelihoods of forest-dependent people through Sustainable Forest Management (SFM)" will be utilized to conserve mangrove areas and highlight the mangrove related ecosystem services to fisheries, tourism and other sectors. Note that the LD contribution of the GEFTF is small but a valuable place holder to attract co-finance for restoration activities.

5) Incremental/additional cost reasoning and expected contributions from the baseline and co-financing

This project proposes to use grant resources from GEF's biodiversity STAR allocation in combination with local and donor resources, to provide technical and financial assistance towards enhancing conservation benefits towards global biodiversity benefits. The incremental benefits will be achieved by better scientific assessments and accounting based on NCAA and SEEA/SEA approaches supported by spatial planning. The project will help to mobilize the NCAA process and METT approach so that government, private sector and community actors will have an opportunity to think differently, value biodiversity and justify investing towards biodiversity conservation. As indicated earlier the baseline is no quantified assessments, therefore, the main incremental addition is the science based information generation in a manner management decisions on development and conservation balance can be made or situations can be turned into a win-win situation by taking preventive actions through multi-sector approaches guided by NCAA.

The project proposes to leverage (co-finance) through Government, private and other grant sources from multilateral agencies such as the World Bank and Asian Development Bank. While most of the non-GEFTF resources will be focusing on restoration and biodiversity conservation, the project will develop the approach and tools to mainstream biodiversity concerns in development related land use decisions. The multi-sector benefit by biodiversity mainstreaming would strengthen the justifications to conserve biodiversity rich areas based on the potential ecosystem and biodiversity contributions, especially at a time the development pressure is high. The project supported biodiversity mainstreamed economic sectors such as fisheries, tourism and agriculture would generate more income as taxes and community level income enhancements, thus promoting benefits to both Government and Communities, plus Private Sector.

6) Global environmental benefits

This project will initially highlight the multiple ecosystem and economic benefits associated with the three selected pilot areas with high biodiversity value through the adoption of biodiversity friendly practices, business and NCAA approach. The multi-sector spatial planning would highlight the value in conserving GEBs while improving local ecosystem services such as pollinations, genetic resources, water resources, carbon benefits etc. The aim is to convince planners and advice the resource allocation processes in a way the local high biodiversity area will be conserved leading to GEBs.

The project selected the coastal and marine environment represented by three different management settings to develop tools towards biodiversity mainstreaming in planning. The Annexure A highlights the GEBs associated with each site. The use of METT would help the project to assess the effectiveness of the multi-sector and multi-stakeholder implementation of the spatial plans developed for three priority areas.

Upscaling the project model through the GCF investment[14] and other Government and private investments, the GEBs in several ecosystems in the country could be conserved on a fast-tracked basis. The same approach will be useful in upcoming projects, including the GEF7 conservation of High Value Forest Patches in Wet zone of Sri Lanka. Post-COVID-19 era is also highlighting the importance of biodiversity conservation and the NCAA approach and biodiversity mainstreaming tools may capitalize on the new trends.

Beyond the biodiversity benefits, the project approach also would address the climate change induced droughts, floods and sea level rise etc. and impacts of temperature changes. The project components related to pollution from agriculture residues, microplastics and heavy metals in waste would help to conserve multiple species that are considered endangered.

Table 2: Scenarios

Summary of baseline scenario	Summary of GEF scenario	Global environmental benefits
Component 1		

Biodiversity conservation investments are not properly justified; therefore, the unsustainable use of natural resources continues, especially in the fast-development post-conflict scenario in the North and East of Sri Lanka where biodiversity rich natural resources are partly unknown and untapped.	Use an NCAA, SEEA/EEA approach combined with METT to quantify the benefits from different ecosystem services towards multiple socio-economic sectors relevant to the project area such as tourism, fisheries, food and recreation which in turn will help in biodiversity conservation and preservation of GEBs.	Over 200,000 ha of terrestrial and marine areas will be planned for better protection. These areas will adopt spatial plans for conservation and economic development based on NCAA and EEA Approaches combined with METT monitoring. The NCAA would help to justify the conservation of high biodiversity spots. The SEEA and NCAA approach combined with landscape tools introduced will build the capacity of agencies and partners to mainstream biodiversity friendly approaches in rapid development.
Government National Policy Framework (NPF) require methods, tools, and training opportunities to engage youth, communities and others in conservation and development. However, the business-as-usual process do not provide adequate options to access knowledge, technical assistance, and financing towards such engagements towards sustainable development. Further, the Government is trying to meet climate change and biodiversity international obligations by participating in Bonn Challenge but not having investments to plant forests and mangroves to meet a target of 210,000 ha by 2025.	The participatory partnerships and capacity building efforts under the GEF project will open more opportunities for both public and private sectors to use landscape tools and NCAA tools. By working together in the project, the sector stakeholders and agencies will be able to work jointly in planning, scenario analysis and use of global and local knowledge better with the project supported socio-economic studies, assessments, accounting and national accounting systems. Also, the project will promote public-private partnerships towards PES.	The tools, approaches, systems and scientific spatial planning base for multi-stakeholder planning and sustainable financing would provide the nation an approach to implement the Government National Policy Framework objectives where biodiversity friendly practices could be mainstreamed across development using the NPF provided platform. These efforts would help upscale NCAA and other conservation efforts fast and enhance the biodiversity integrity in protected areas; marine protected areas; and other ecosystems leading to multiple GEBs.
Sri Lanka do not employ tracking systems such as METT and detailed data tables where different sectors can implement programmes and participate in tracking different aspects of development. Without sound monitoring the Government, priv	Different parts of Natural Capital Accounting and assessments and studies by the project will expose the communities to ecosystem knowledge (hydrology, climate, soils, coastal and marine environments, etc.) and external pollution loadings. This additional knowledge combined with project led tracking and monitoring will help to promote collective planning	With better knowledge and benefits, the stakeholders will be able to adopt scientific and robust approaches to track information on the project interventions. They will be also aware of practices that damage the ecosystems. The dashboards (METT) and other systems (NCAA) established in Component 1 will provide updated inform

Without sound monitoring the Government, private sector and communities working in development efforts cannot effectively evaluate the benefits or impacts of the ongoing practices, including the changes to community wellbeing and changes to income.	...oring will help to promote collective planning and decision making on natural resource management.	Component 1 will provide updated information and engage scientists to help interpret the results of the good work by communities using water quality, salinity, mangrove species, hydrological and climate influences etc.
Component 2		
Private sector involvement in environment conservation is currently limited to Corporate Social Responsibility (CSR). The corporate sector does not have tools readily available to carryout Corporate Natural Resource Accounting (CNRA) or landscape level spatial planning. There are limited mechanisms that the Government will recognize the CNRA related contributions in tax deductions or national policy since the NCAA is not main streamed. As a result, the PES has not been practiced in the country.	The project developed capacity in Government, Private Sector and others to adopt biodiversity centred policies and principles could provide a meaning to CNRA and the tools will be known and appreciated by Government and Private Sector to ensure biodiversity conservation. The public-private and people partnerships promoted will bring the stakeholders together and multi-sector ecosystem benefit sharing, and investment approaches will be possible including the Payment for Ecosystem Services (PES).	The three pilots implemented by the project as partnerships will help to generate GEBs as well as local benefits in terms of employment, better quality water, increased income etc. The tools in the NCAA would help to compute overall GEBs and local benefits by different benefit streams (water, carbon, tourism, fishery etc. etc.). These numbers will help improve planning and better partnerships and decisions towards conservation.
There are no field level trials demonstrating the entire accounting sheet that include different components in NCAA demonstrated *via* a SEEA/EEA type approach. As a result, district and provincial planning do not account for the entire costs and benefits of the ecosystem or ecosystem services.	This project for the first time will collect a comprehensive field dataset that will help to use ROAM, InVEST and other hydrologic or load estimation models towards spatial planning and impact evaluations via SEEA/EEA.	Improved planning, implementation and accounting would develop a national and sub-national system that will focus more on ecosystem valuations and ecosystem based national accounting, which will help to improve the conservation investments from public and private sources. Private sector could claim for most of the 1.9 million CO_2 equivalent sequestrated.
Projects are not leveraged adequately on other project experiences and fragmentation in communication between development projects are common thereby losing potential mainstreaming options.	The project will work closely with projects with biodiversity mainstreaming potential. It will strengthen the EIA and SEA processes by demonstrating ways to include SEEA/EEA aspects in the evaluations, especially when designing alternatives to the proposed actions.	The tools and scenarios combined with joint trainings during the project are expected to create a platform for conversation and engagement by different project managers and policymakers leading to the up scaling and mainstreaming of biodiversit...

		y friendly landscape and accounting tools contributing to GEBs.

7) Innovation, sustainability, and potential for scaling up

<u>Innovation</u>

The information management, community engagement, private sector partnerships and value chain work, new market development including high-end biodiversity value added products and services through the project make this project unique and innovative. The ability to device a mechanism to scientifically measure, account, and track ecosystem benefits at field level to national level and thereby shifting from business-as-usual ad-hoc land use planning without mainstreaming biodiversity in planning will be the primary innovation. Creation of the enabling environment for multiple sector planners to come together to a single platform where relationships between ecosystem input to sector growth and biodiversity conservation is investigated will be the second innovation.

<u>Sustainability</u>

The traditional top-down conservation approaches will be challenged in this project with participatory multi-stakeholder partnership approaches and the assessments and accounting processes promoted through the project. Private sector involvement in nature-inspired or nature-derived products and services development including the opportunities for targeted travel (medicinal, research, adventure etc.) associated with coastal and mangrove environments ensure adequate funds for the area people. Along with enhanced understanding, the communities would work hand in hand with Govt. and Private Sector to safeguard the very same natural capital that brings benefits to their livelihoods and quality of life. Continued private sector investments on food processing, SPA products and medicinal beverages development associated with mangrove ecosystems could spark more opportunities for the communities to ensure the sustainability of the system. The project will mobilize universities and schools in awareness and monitoring, which will promote youth and students to appreciate and adopt biodiversity mainstreaming in their future work.

Overall, having the tools to integrate biodiversity related conservation benefits as inputs to productivity and sustainability would help to mainstream the sustainability argument in land use planning and investments. These tools and results will prominently feature in EIA alternative proposals, SEA related zonings and to minimize natural resource conflicts in development.

Upscaling / replication potential

The information and systems developed by the project using the three pilot sites will be used by sub-national planners initially to articulate biodiversity conservation benefits to economic sectors through the System of National Accounts. Once established, the same can be translated to larger projects or national budgeting. The project led technological, research, monitoring and other advances would be taken up by the donors and other projects including private sector for upscaling/replication. The Natural Capital Assessment and Accounting approaches and PES schemes developed will provide the basis to secure funding for such upscaling efforts. As the project promotes private sector engagement in tourism, pollution prevention, value chain development and marketing, it is expected that the private sector companies will inculcate the lessons learned and replicate in other areas.

The project involves a significant number of Government planning agencies, small industries, coastal management, finances, health, disaster management, pollution control, municipality services etc. There are non-Government agencies involved such as Small Fishers Federation with over 300 community level fisher societies. Each agency would add value into the project objective. Most of the planning at sub-national level is led by district agriculture and environment committees supported by the decentralized budget. Decisions taken in such processes lacks information to support scientific land use planning that involve multi-sector benefits. Once adopted through the district planning system and provincial planning, the biodiversity mainstreaming tools, and biodiversity friendly economic development would help the sustainable development at sub-national to national level.

[1] Global Environment Outlook. https://www.unenvironment.org/resources/global-environment-outlook-6. Last accessed September 21, 2019.

[2] UNEP (2014). The Importance of Mangroves to People: A Call to Action. van Bochove, J., Sullivan, E., Nakamura, T. (Eds). United Nations Environment Programme World Conservation Monitoring Centre, Cambridge. 128 pp

[3] Assessment of Antibiotic Levels, Multi-Drug Resistant Bacteria and Genetic Biomarkers in the Waters of the Rio Grande River Between the United States-Mexico Border - Journal of Health & Pollution Vol. 9, No. 23 — September 2019

[4] National Biodiversity Strategy and Action Plan -2030 (https://goo.gl/R5DfNQ)

[5] Ministry of Environment (2012) the National Red List 2012 of Sri Lanka; Conservation Status of the Fauna and Flora. Ministry of Environment, Colombo, Sri Lanka. viii + 476pp

[6] IUCN (2011). An Appraisal of Mangrove Management   in Micro-tidal Estuaries and Lagoons in Sri Lanka. IUCN Sri Lanka Country Office, Colombo. 116pp. https://www.dropbox.com/s/lwrre0mgqap9bik/An-Appraisal-of-Mangrove-Management.%20in%20Sri%20Lanka%20IUCN%202011.pdf?dl=0

[7] Tourism Master Plan of Sri Lanka 2017-2020 - https://www.dropbox.com/s/7e63oq2lb41kxvi/tourism-strategic-plan-2017-to-2020.pdf?dl=0

[8] Central Environmental Authority and IUCN. 2016. Kelani River Basin Multistakeholder Partnership

[9] System of Environmental-Economic Accounting - https://seea.un.org/content/homepage - last accessed April 20, 2020

[10] Policies, Strategies and Action Plans for Marine Environment Protection - https://www.dropbox.com/s/q04pra02860z82s/MEPA%20Policy%2C%20strategy%20and%20NAP.pdf?dl=0

[11] Government vision Vitas Splendour and Prosperity. 2019. https://www.dropbox.com/s/288ekjw0ive73r4/SL_Vistas_Splendour_prosperity.pdf?dl=0

[12] Kelani River Basin Multi-Stakeholder Partnership Approach - https://goo.gl/s7FCWh

[13] Central Bank of Sri Lanka. 2019. Roadmap to Sustainable Financing in Sri Lanka – last accessed September 25, 2020 - https://www.cbsl.gov.lk/sites/default/files/Sri%20Lanka%20Sustainable%20Finance%20Roadmap%20FINAL%2008.04.19.pdf

[14] https://www.greenclimate.fund/project/fp124

1b. Project Map and Coordinates

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

Figure 3. Map of Sri Lanka with project locations

Project locations (approximate limits)		Northing	Easting
South East Palk Bay including the northern coast of Mannar Island and mangrove and wetland belt on the mainland	Northern limit	9º 23.280´	80º 3.191´
	Southern limit	9º 10.996´	80º 0.262´
Trincomalee Bay including Koddiyar Bay and Tampalagam Bay	Northern limit	8º 31.653´	81º 14.789´
	Southern limit	8º 25.745´	81º 14.152´
Puttalam Lagoon & environs including the northern section of the Dutch canal	Northern limit	8º 33.391´	79º 54.587´
	Southern limit	7º 53.226´	79º 48.858´

PROJECT LOCATIONS

South-Eastern Palk Bay

Iranaitivu
Island

Mulankavil

Palk Bay

Vellankulam

Maldiva Bank
(Coral Reef)

Vidattaltivu
Nature Reserve

Talaimannar — Pesalai

Adam's Bridge
National Park

Vidattaltivu
Lagoon

Gulf of Mannar

Mannar

Vankalai
Sanctuary

Vankalai
Lagoon

Periya
Kalapuwa
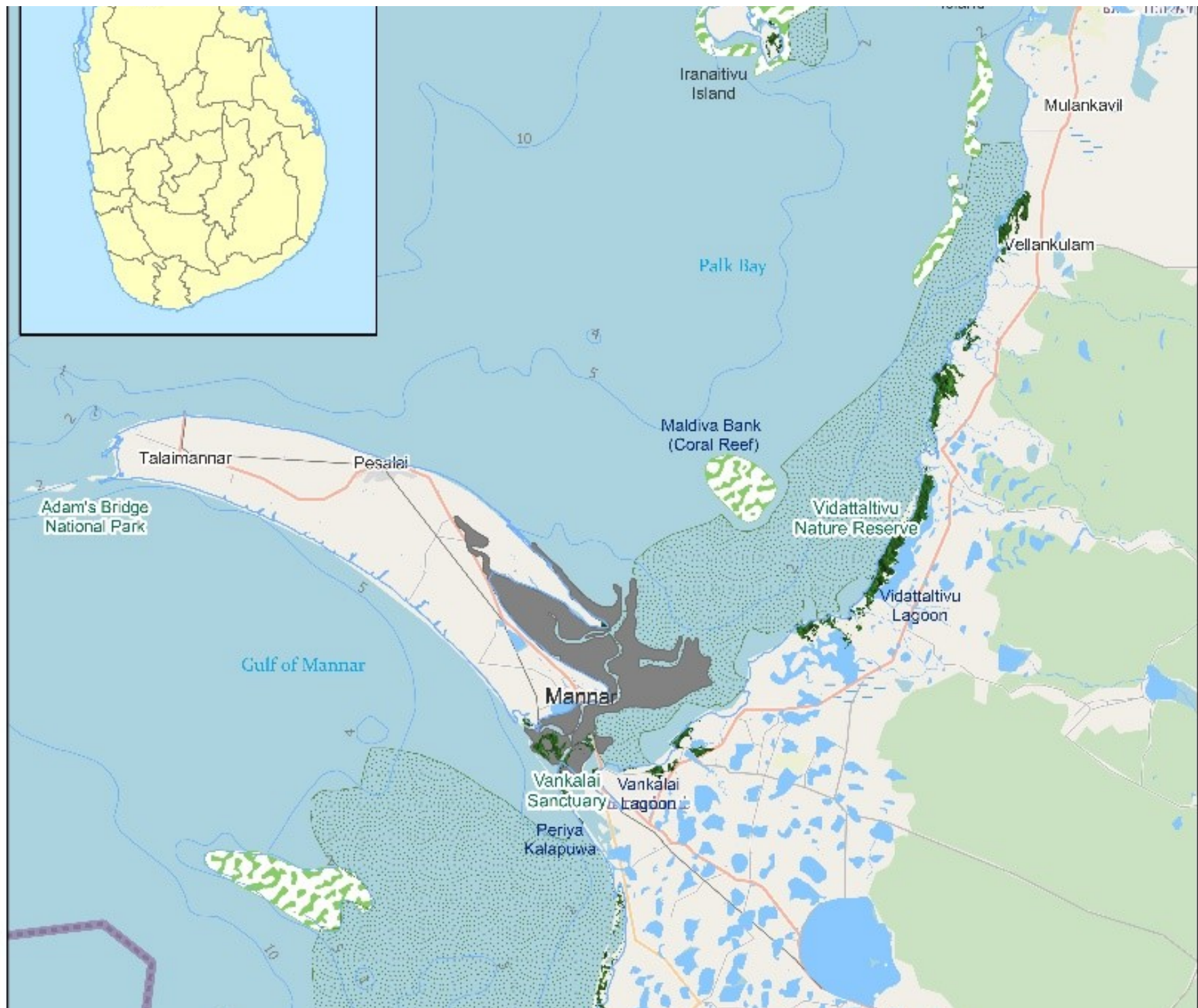
Figure 5: Map of South-eastern Palk Bay project area
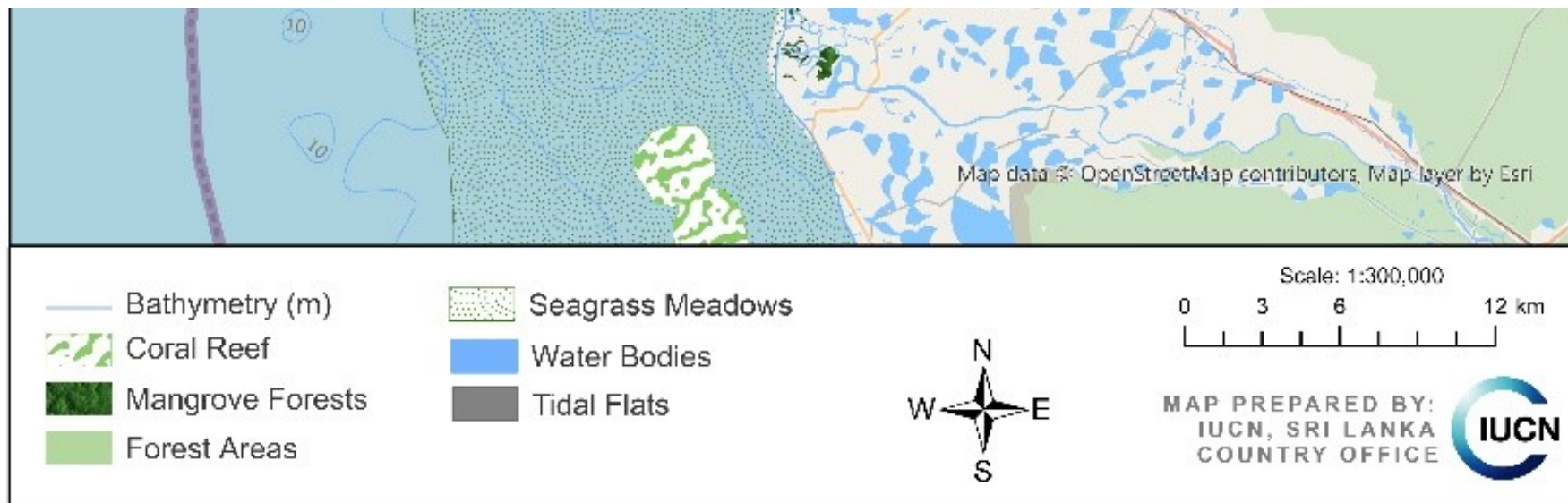
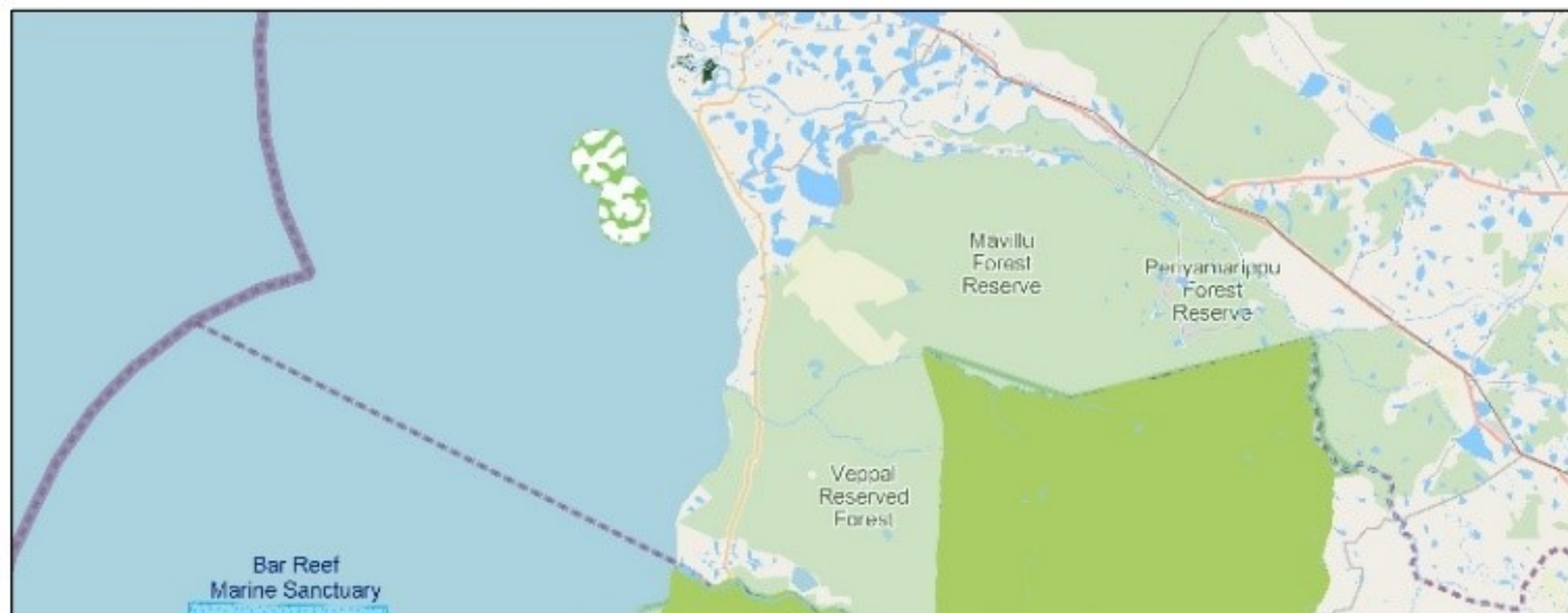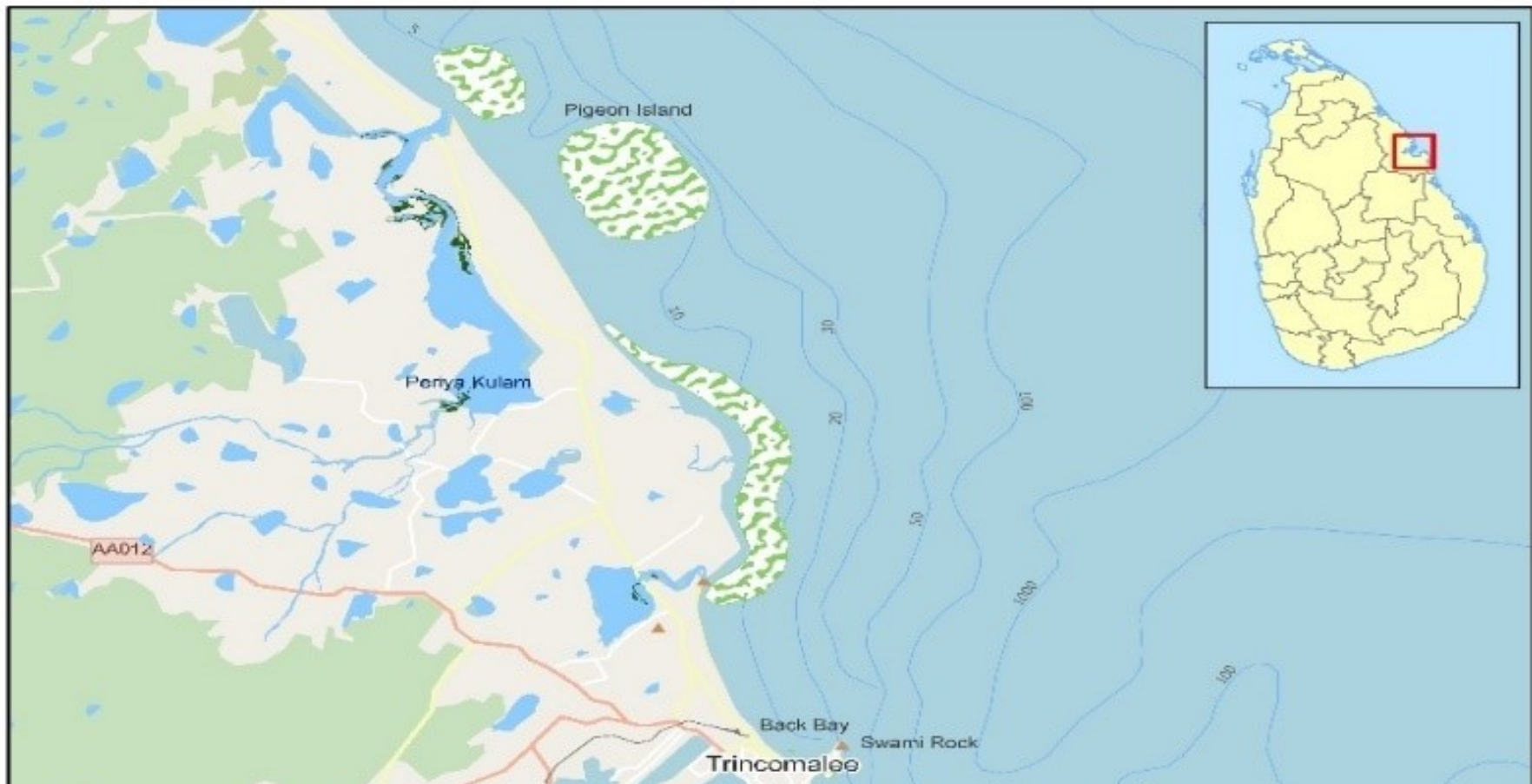## Puttalam Lagoon and Environs

Figure 6: Map of Puttalam lagoon and environments
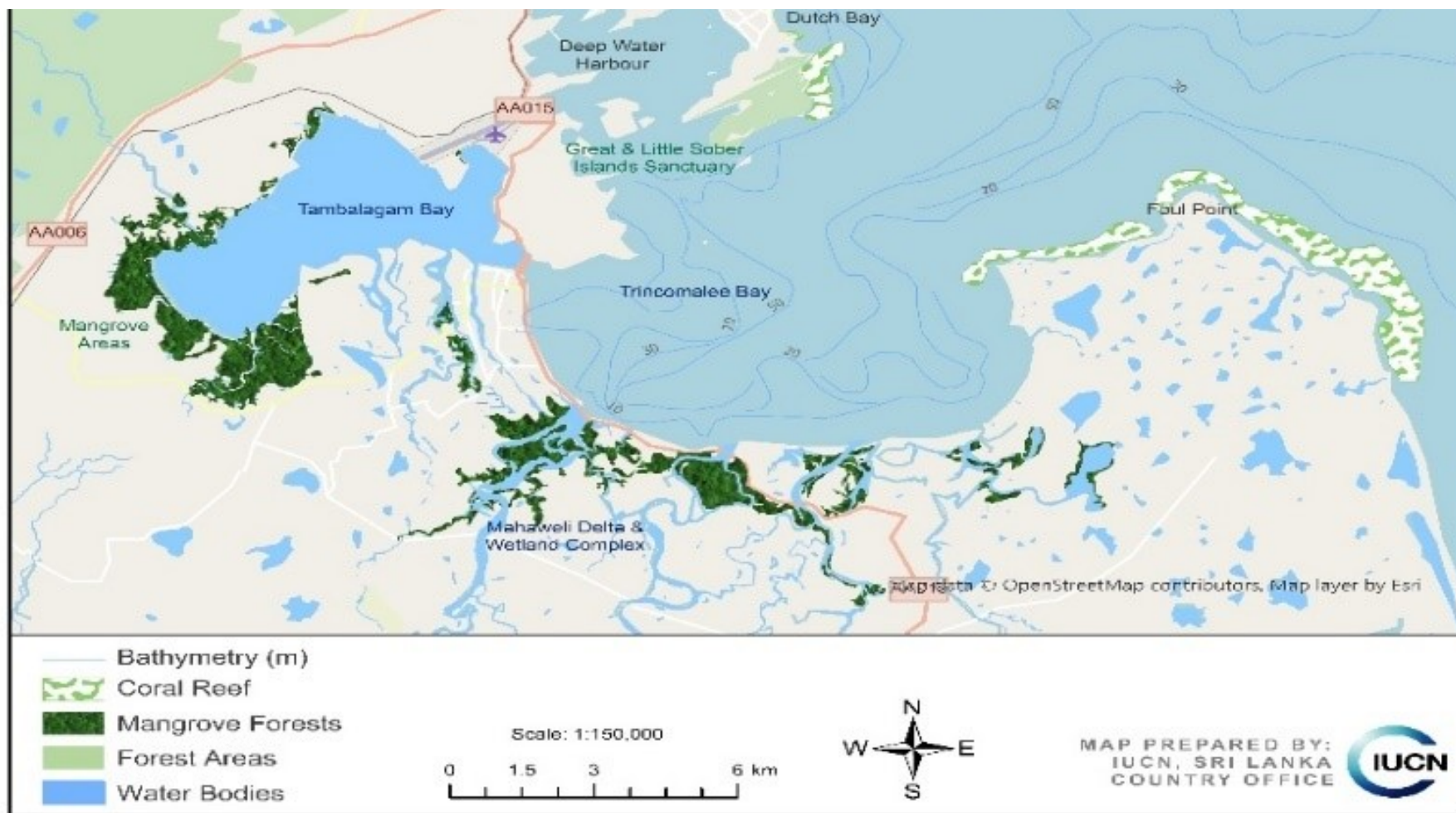
Trincomalee Bay and Environs

Figure 7: Map of Trincomalee Bay project area

2. Stakeholders

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

Indigenous Peoples and Local Communities Yes

Civil Society Organizations Yes

Private Sector Entities Yes

If none of the above,please explain why:

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

This PIF was based on the experience and inputs from a number of project experiences, namely, the Mangroves for the Future (MFF) programme[1] implemented in Sri Lanka by IUCN between 2008 to 2018 that carried out a number of studies, delivered 62 small grants to coastal communities; and the GEF5/Dugong and Sea Grass Conservation Project between 2016 and 2018[2] where fishery communities in Gulf of Mannar area were mobilized towards conservation of best practices to reduce pressure of anthropogenic activities in coastal areas.

The keen interest of the government on coastal and marine conservation is reflected in the form of Sri Lanka leading Commonwealth Blue Charter Action Group for Mangrove Restoration (agreed during the Commonwealth Heads of States meeting of 2018 held in London) and playing a key role in the UN Ocean Conference and follow up. In early 2020, the Government launched the "Mangroves Conservation Policy" to strengthen coastal area ecosystem management.

A number of non-governmental agencies are directly involved in mangrove restoration work. The baseline project by Small Fishers Federation (SFF) – Sudeesha[3] established the first Mangrove Museum in the world and worked with 350 fishery communities to promote mangrove restoration and sustainable use, linking the ecosystem services by mangroves to the fishery industry. Over a period of 15 years, since 2005, SFF has planted over 198,600 seedlings and propagules, in approximately 185 ha in Chilaw, Mundel and Puttalam lagoons and along the banks of the Dutch and Hamilton canals in the North-Western Province. SFF had successfully propagated and planted 18 of the 21 'true' mangrove species in Sri Lanka, including several endemic species. PIF team worked with Sudeesha staff to identify potential synergies and gaps that needs to be addressed through this intervention, including the fishery population related experience of SFF.

a.   Engagement during the PPG

The PPG phase will capitalize on the above groundwork and the baselines already established. Consultative sessions at national level, in the three management zones and at individual government, private sector and NGO/CBO levels will be conducted. The PPG phase will establish a comprehensive literature-based information system and a database to operationalize the project and a dashboard system to monitor the progress of the proposed actions.

PPG will interface with planning, financial and accounting related entities beyond the conservation agencies to find the best positioning for adopting NCAA approaches and entry points for BD mainstreaming. There is a significant new development in biodiversity conservation, in post 2020 era and advances in Nature Based Solutions (NBS), Restorations, Economics of Ecosystems and Ecosystem based Disaster Risk Reduction combined with Ecosystem Based Adaptation, among others. The PPG phase will have the advantage of these global developments and tools to strengthen the process of mainstreaming BD in planning.

A detailed climate risk analysis based on the information presented in Annex – E and others combined with impacts on economic sectors will be developed to identify the climate challenges towards biodiversity mainstreaming. The PPG will identify the mitigation and adaption options for each selected area and for the country in general. FAO EX-ACT tool will be used widely to estimate potential carbon sequestration in improved landscapes while multiple tools in biodiversity including the Red Listing tools will be adopted. The Management Effectiveness Tracking Tool (METT) would help to identify the potential scenarios that would challenge the biodiversity mainstreaming.

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[1] Mangorves for the Future (MFF) in Sri Lanka - https://www.mangrovesforthefuture.org/countries/members/sri-lanka/

[2] Dugong and see grass conservation - https://www.dropbox.com/s/tjnh2ty91ul9bjq/FINAL%20REPORT_LK%204%20-%20AR.pdf?dl=0

[3] Small Fisheres Federation – Sudeesha - https://www.sudeesa.lk/

3. Gender Equality and Women's Empowerment

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

The project recognizes that women and men use natural resources differently and will be impacted differently by the project. It will pay attention to dimensions of gender equality and women's empowerment in the design of its interventions. Local communities in general will be key beneficiaries of the project and will be consulted with and involved in the design and implementation of the project. Local community representatives will be involved in the development of livelihood and eco-tourism plans, forestry models, concession models and in the incentive programmes such as PES.

The project design and implementation will involve about 50 Fisher Communities where most of the members are women. Women are more often the hardest hit by dramatic shifts in climatic conditions partly due to domestic responsibilities (e.g. collection of firewood, water, household management, etc.) when compared to men. In general, women lead the conservation actions and income generation activities at the community level. Generally, CC, LD and BD related impacts are felt by women and men differently. Specifically, the project will include gender dimensions at multiple levels including at the local government level, minor watersheds, district administration and within business opportunities in women led SME/MSME and contract supplier levels extending to production, value addition and implementing Payment for Ecosystem Services models.

Project preparation will ensure that gender consideration becomes an integral part of the proposed project strategy. This will, for example, include a brief analysis of how the project plans to achieve its environmental objective by addressing the differences in the roles and needs of women and men. As highlighted in the CBD gender plan of action, the project recognizes "the vital role that women play in the conservation and sustainable use of biological diversity and affirms the need for their full participation at all levels of policy-making and implementation for biological diversity conservation."

The PPG will develop a "Gender Strategy and an Action Plan" for the project that will: a) ensure that women and men will equally benefit from activities supported by GEF and co-financing; b) address potential project/programme risks to women and men associated with the impacts on mangrove ecosystems as well as through project interventions; c) contribute to reducing the gender gap in social, economic and environmental vulnerabilities; and d) build women and men's resilience and sustainability to support conservation of mangrove and associated ecosystems and their ability to provide ecosystem services. The proposed gender strategy will use fundamental principles such as: a) commitment to gender equality and equity in resource allocations and participation in activities; b) accountability, ownership and benefits measured using disaggregated indicators/measurements; and c) opportunities for women's participation in decision-making.

The project will appreciate the potential roles of beneficiaries due to their differences in gender and ensure the full participation of women in project design and implementation. Women in this region face multiple challenges and issues. The lack of opportunity for income earning forces women to migrate to Middle Eastern countries as domestic workers. All these districts are in the dry zone of the country, which experience water shortages and seasonal droughts leading to hardship for women who are tasked with household chores, looking after the sick and disabled and also looking after livestock. The burden on women is compounded by the fact that due to the 30-year conflict in the Northern and Eastern regions there were many male casualties.

The project will focus on women's assets, access to resources during the project period and beyond. Women will have several opportunities to act as guardians of mangrove ecosystems and participate in monitoring physical, chemical and biological variables related to mangrove ecosystems. The PPG would explore gender aspects further and the biodiversity friendly gender mainstreaming framework could identify gender-sensitive indicators in biodiversity mainstreaming. A gender focal point will be appointed in the PMU staff and focal points at implementing agencies will be identified to implement gender mainstreaming in biodiversity and natural resources management. The gender disaggregated information will be systemically recorded, reported, and used in project reporting as well as in national and sub-national advocacy and discussions. Finally, to ensure equal opportunity for employment, MoE and IUCN will encourage qualified women applicants to apply and engage in positions under the project.

The targeted region and project sites may have traditional fishermen and people (i) whose livelihoods are closely connected to ecosystems and their goods and services, (ii) whose social, cultural, and economic conditions distinguish them from other sections of the national community, and (iii) whose status is regulated wholly or partially by their own customs or traditions or by special laws or regulations. They may be considered as indigenous peoples or self-identify as such. Their traditional knowledge of wildlife or forest products and sustainable practices (including bees honey, medicinal plants and seed varieties) can turn into highly valuable inputs and contributions to the changes on biodiversity intended by the project. At the same time, the project may contribute to livelihood improvements of these groups through responsible tourism initiatives, if they so wish.

The project's distinctive feature is its participatory approach, which envisages ample consultation and involvement of all relevant or concerned stakeholders—including local and indigenous groups—in the development of the mechanisms and tools guiding investments. It is therefore expected that social, economic, and cultural rights of indigenous people as well as their values, aspirations and practices are appropriately taken into consideration through the project design. For precautionary reasons, however, the development of relevant safeguard tools is still recommended; these are expected to complement the project's existing consultative approach by ensuring adequate focus on specific needs, culture and characteristics of indigenous groups.

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

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

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

generating socio-economic benefits or services for women. Yes

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

Yes

4. Private sector engagement

Will there be private sector engagement in the project?

Yes

Please briefly explain the rationale behind your answer.

Project Component 1 provides entry points for private sector to get involved from the inception of the project. Strategies and modalities for private sector engagement (to be detailed out in the PPG phase) include: a) technology, standards and marketing of products and services during the project (food and beverages, SPA services, ecotourism options and new product development); b) participating in sustainability approaches/initiatives with communities and local government (insurance, mobile applications, financing and leasing etc.); c) joint development of Payment for Ecosystem Services (PES) to sustain the project activities and to ensure the education and governance programmes are funded; and d) use the mangrove environment and ecosystems for tourism promotion and to source products by the tourism industry.

Coastal and Marine ecosystems provide a unique nature-based resource to attract high-end tourists (ex: research, health and other). Tourism has the potential to support conservation of mangroves and associated ecosystems by way of economic gains to immediate stakeholders. Hence, the project provides opportunities for private sector to go beyond CSR and invest in the project process (ex: The restoration of shrimp farm area to ecotourism destinations) in Component 2. In addition, the output on pollution control allows private sector to partner with the Government and local government to provide technologies for wastewater and other pollution controls and fund community livelihood activities through CSR.

The joint project implementation with the private sector is expected to influence the Government's policy on tourist arrivals in a significant way by highlighting the need to revisit the government conceptual framework on tourism currently set at 4 million by 2020 by promoting high-end tourism. Also, presently tourism is highly focused on the Southern part of the country and the project will allow to expand tourism to other parts of the country thereby reducing the pressure on natural resources resulting from tourism in the Southern part. The collaborative private sector inputs on standards of products and services and project advocacy support to adopt sustainable financing and best practices are expected to assist both government and private sector planners to have better business models based on strategic use of natural capital and heritage in the country, with potential for replication and up-scaling outside the project areas.

The project will work with financial institutions and government policy makers focusing on natural capital management by facilitating/creating financial mechanisms for private sector investments into upgrading/establishing new facilities through tax incentives or combining with the Tourist Board managed tourism promotion funds. In that context, the project will draw global experience on co-management of nature-based businesses and ecosystem-based approaches in quantifying and sharing benefits and develop several site and country specific innovative approaches. While doing so, the project will focus on safeguards (insurances and consistent policies) to ensure the sustainability of conservation areas, livelihoods and large businesses and service-related enterprises.

The project will focus on enhancing the capacity of small and medium businesses for improved services and products in the project areas by linking with large operators who are linked to global trade and tourism networks. Private sector participation in tourism infrastructure development will bring in the International Financial Corporation (IFC) led financial incentives along with IFC safeguards as sustainability measures combined with potential inputs from the International Labour Organization (ILO) on SME/MSME development. As a long-term measure, the project will seek private sector support to engage youth, especially the youth affected by 30 years of conflict, as the project areas are located within conflict affected North and East.

5. Risks to Achieving Project Objectives

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

The project risks and mitigation measures include administrative, political, climate change and other risks as outlined below. Overall risk is low to moderate with more risks identified as moderate. The historical and future climate synopsis (Annex -E) indicates the potential increase in temperature into future based on RCP 4.5 and RCP 8.5. with shifting climate zones and changes to rainfall intensity and volumes. During the PPG a detailed climate assessment will be performed using the CRM project tool.

Table 3: Risk Assessment

#	Risk	Level	Risk mitigation options
1.	Lack of interest of private sector and stakeholders due to the complexity of the project approach in a post-conflict area after potential economic downturn due to COVID-19.	Moderate	The project related community engagement, PPPs, capacity building, joint planning, communications and networking would be attractive to Private Sector. BD mainstreamed exports in post-COVID environment have a niche in the global market.
2.	Government agencies not willing to consider biodiversity mainstreaming as an innovative approach to ensure the sustainability of development programmes	Moderate	The project from the PPG level will involve the Government agencies at sub-national and national levels with frequent briefings to the National Planning Department, Central Bank and other key players. At the sub-national level, the project will work with district and provincial planning units and key economic sector agencies to introduce the NCAA and project related data collections. The expert team will also motivate the agencies and communities towards biodiversity mainstreaming and on multiple benefits.
2.	Flooding and climate induced seasonal changes (monsoons, uncontrolled release of water/sediments from upstream tanks etc.) adding more water to the ecosystem impacting tourism, fisheries, products and services	Moderate	The project area is known to have floods. However, as per the RCP 4.5 and 8.5, the project area will have less rain and will have less water to manage. The reservoir releases may also be less frequent due to less water. The project area is impacted by the North-East Monsoon (November – February) and field work would be planned, accordingly. Project would incorporate metrology information to avoid inundation.

	roducts and services.		information to avoid inundation.
3	Climate change induced temperature rise and climate change related increased droughts and longer dry periods.	Low	The temperature increase expected is about 2°C in year 2080 based on downscaled modeling in the project areas. This will have some impact on biodiversity, but the increase is expected to be less than 3°C, the point where BD is severely affected. Lack of rainfall predicted in the project area with RCP 4.5 and 8.5 indicate more drought events. Government has taken steps to improve rainwater harvesting and improve water use efficiency in agriculture.
4.	Land tenure issues and difficulties associated with communities using lands owned by State for ecosystem improvements and rights of Indigenous Populations in the project area.	Low	The information bases once established will also capture the information on indigenous groups and their livelihoods. IUCN has been working with IPs in different parts of the country and so far, the experience had been positive, including the work on UNREDD. The key project partners, the Forest Department and Dept. of Wildlife Conservation work with the IPs daily.
5.	Reluctance to accept NCAA, SEEA/EEA by national level authorities including National Budget Process citing that the incentives generated, and Ithe approach is not adequate to make a significant difference to business-as-usual practices.	Moderate	Capacity building and use of landscape and accounting tools will be done with the participation of national and sub-national level authorities. The pilots and demonstrated monitoring / tracking of results along with briefings and advocacy to higher level officers in the Government including the Dept. of National Planning would help. The incentives and benefit sharing by the communities is expected to drive the advocacy efforts to convince district and provincial planning authorities. National Steering Committee for the project also provide a window to improve the confidence on project work.
6.	Risk related to delayed post-COVID-19 recovery on tourism and economic sectors important for the project.	Moderate	Tourism is the most vulnerable sector and Government expect the sector to pick up speed within a year. By the time, the project is ready (PPG) to be implemented, the sectors are expected to be in operation. Nevertheless, this factor is to be taken in the design of the project.

6. Coordination

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

Project Management:

The overall project management responsibility will rest with a National Steering Committee (NSC) chaired by the Secretary of the Ministry in-charge of the subject of Environment, supported by the National Mangrove Task force (sector coordination) and National Mangrove Expert Committee (ecosystem and scientific). Members of the NSC will include representatives of key agencies involved in project implementation, representatives of indigenous populations in the project area, Dept. of National Planning; Dept. of External Resources; GEF agency for the project being IUCN. Implementing Agency (IA) is responsible for reporting to GEF and Quality Assurance.

The Project Director will be a Government staff officer designated by the Chair of the NSC and will provide the oversight function to the Project Management Unit, which will be established within the Ministry of Environment. PMU will have a full-time project manager directly reporting to the Project Director.

A common annual work plan will be jointly developed by EAs and approved by the NSC at inception and then updated annually. Technical committees on different subject/issue areas and task specific consultants will provide inputs to the project and NSC during the implementation. PMU will coordinate closely with complementary projects, stakeholder entities and relevant private sector to enhance synergy and avoid duplication. PMU will maintain a strong communication focus and provide briefs to media and advocacy to policy makers on project outputs will be provided.

7. Consistency with National Priorities

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

Yes

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

National Biodiversity Strategy and Action Plan (NBSAP)

CBD National Report

Cartagena Protocol National Report

Nagoya Protocol National Report

UNFCCC National Communications (NC)

UNFCCC Biennial Update Report (BUR)

UNFCCC National Determined Contribution

UNFCCC Technology Needs Assessment

UNCCD Reporting

ASGM National Action Plan (ASGM NAP)

Minamata Initial Assessment (MIA)

Stockholm National Implementation Plan (NIP)

Stockholm National Implementation Plan Update

National Adaptation Programme Of Action Update

This project is fully consistent with key national development strategies on poverty alleviation including the investments on Blue and Green environments. It will complement the national strategy to shift to green accounting and budgeting and support country commitment to Paris Agreement and Bonn Challenge in adding green cover. The project will support the implementation of key recommendations provided in recent communications, especially those in NBSAP 2016-22 developed by the Biodiversity Secretariat with technical support from IUCN. The project contributes to four of the five Strategic Objectives of the NBSAP through six targets out of twelve identified by directly contributing to meeting 10 identified actions. The Biodiversity Secretariat in collaboration with the IUCN has compiled the 2007 Red List of Threatened Fauna and Flora of Sri Lanka and the process will be strengthened through the project outputs. The project will complement and add value to the National Forest Policy (1995), National Policy on Wildlife Conservation (2000), National Bio Ssafety Action Plan (2004); National Watershed Management Policy (2004), National Wetland Policy (2005), National Policy on Elephant Conservation (2006), National

Environment Policy (2003) and National Policy on Biotechnology and Bio Ssafety (2004). The capacity assessments proposed in the project will update the recommendations of the NCSA Sri Lanka conducted more than ten years ago, prior to the ending of the conflict. The Integrated Strategic Environment Assessment (ISEA) for the Northern Province has already spelt out the needs for land use zoning for development and conservation including those related to forests, wildlife, archeology, minerals, water resources, settlements, urban plans etc.

In addition, the project will contribute to the achievement of Aichi Targets, in particular Target 1 – By 2020, at the latest, people are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably; Target 2 – By 2020, at the latest, biodiversity values have been integrated into national and local development and poverty reduction strategies and planning processes and are being incorporated into national accounting, as appropriate, and reporting systems; Target 3 – By 2020, at the latest, incentives, including subsidies, harmful to biodiversity are eliminated, phased out or reformed in order to minimize or avoid negative impacts, and positive incentives for the conservation and sustainable use of biodiversity are developed and applied, consistent and in harmony with the Convention and other relevant international obligations, taking into account national socioeconomic conditions. The project also contributes towards achieving Aichi Targets 7 – By 2020, areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity; and Target 11 – By 2020, at least 17 percent of terrestrial and inland water, and 10 percent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

8. Knowledge Management

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

The project will invest first on training materials at the inception onward to convince and educate stakeholders on the NCAA, SEEA/EEA and METT approaches. Knowledge products on different ecosystem services, connections of ecosystem services to the sustainability and viability of socio-economic sectors would be developed targeting multiple audiences. During the implementation the project experiences, details of the operations in three pilot sites will be documented, and information will be analyzed and interpreted for easy understanding. Technical terms and approaches will be simplified and communicating material (including multi-media) will be developed.

Based on the project results, multiple knowledge products, including research papers and advocacy material will be developed using print, digital and artificial intelligence. What-if-Scenarios and simulation models on linkages between biodiversity friendly approaches to ecosystem services and sector benefits will be a key area. The options and benefits of biodiversity mainstreamed approaches in national development would be simulated and expert discussions in media will highlight the value of biodiversity mainstreamed decision-making.

Sharing scientific knowledge on ecosystems and ecosystem services, including services such as pollination will be made popular among school children to policymakers. The consequences to the damage to the biodiversity and ecosystems would be highlighted throughout the project to ensure the anticipated transformation in biodiversity mainstreaming and its critical need in national development, ultimately contributing to the Global Benefits.

9. Environmental and Social Safeguard (ESS) Risks

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

Overall Project/Program Risk Classification*

PIF	CEO Endorsement/Approval	MTR	TE
Low			

Measures to address identified risks and impacts

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

The project is expected to lead to environmental and social outcomes that are highly positive. Nevertheless, a few environmental and social (E&S) risks have been identified; overall, these seem to be of low significance, based on the data available at this stage, which obviously are still limited.

The Indigenous Peoples Standard might be triggered as well as the Biodiversity and Cultural Heritage Standard. The first will be confirmed during PPG and, if confirmed, will be responded to with the development of an Indigenous People Planning Framework (IPPF). But the applicability of the latter two standards can only be judged during the project. There is also a degree of uncertainty for other E&S risks, because the productive investments will only be decided during the project. Therefore, the development of an Environmental and Social Management Framework (ESMF) is necessary.

Because of the uncertainty and the fact that potential risks will only be known during project implementation, the project is preliminarily categorized as moderate risk project. The categorization will be reviewed during the full ESMS Screening.

Supporting Documents

Upload available ESS supporting documents.

Title	Submitted
esms preliminary screening_sri lanka_GEF7_draft_23apr2020 Final	

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

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

Name	Position	Ministry	Date
Dr Anil Jaisinghe	Secretary	Ministry of Environment and Wildlife Resources	9/25/2020

ANNEX A: Project Map and Geographic Coordinates
Please provide geo-referenced information and map where the project intervention takes place
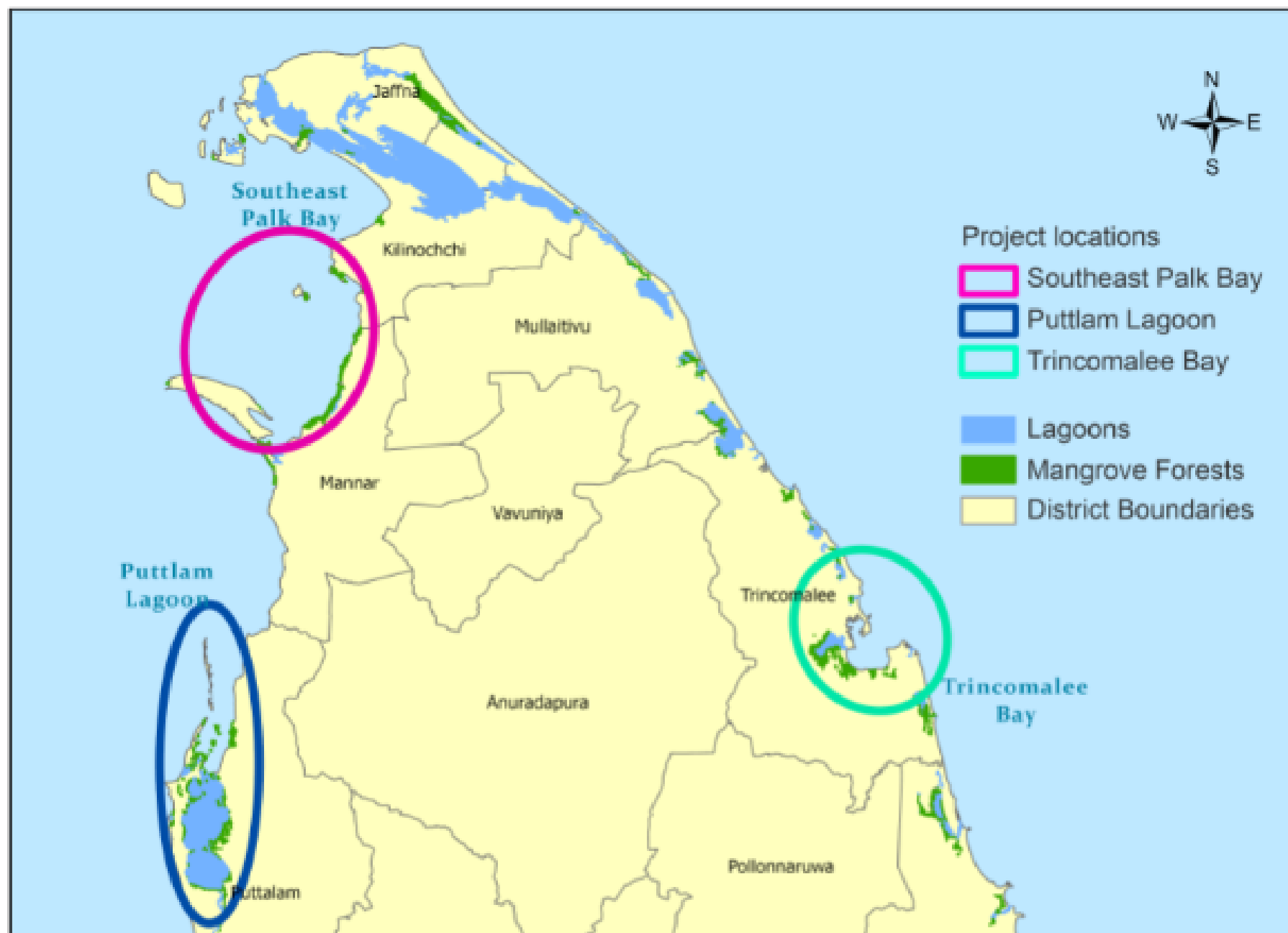
Figure 4: Map of Sri Lanka with project locations

*Table 4: Geographic coordinates of project sites*

Table 5: Areas within the project sites

Project locations (approximate limits)		Northing	Easting
South East Palk Bay including the northern coast of Mannar Island and mangrove and wetland belt on the mainland	Northern limit	9º 23.280´	80º 3.191´
	Southern limit	9º 10.996´	80º 0.262´
Trincomalee Bay including Koddiyar Bay and Tampalagam Bay	Northern limit	8º 31.653´	81º 14.789´
	Southern limit	8º 25.745´	81º 14.152´
Puttalam Lagoon & environs including the northern Dutch canal	Northern limit	8º 33.391´	79º 54.587´
	Southern limit	7º 53.226´	79º 48.858´

Site name		Puttalam	SE Palk Bay	Trincomalee	Total (ha)
		(ha)	(ha)	(ha)	
Terrestrial	PA	162,671	6,444	72	169,187
	Non PA	40,652	-	62,572	103,224
Marine	PA	30,374	22,667	-	53,041
(ha)	Non PA	59,233	-	13,826	73,059
	Total (ha)	292,931	29,110	76,470	398,511

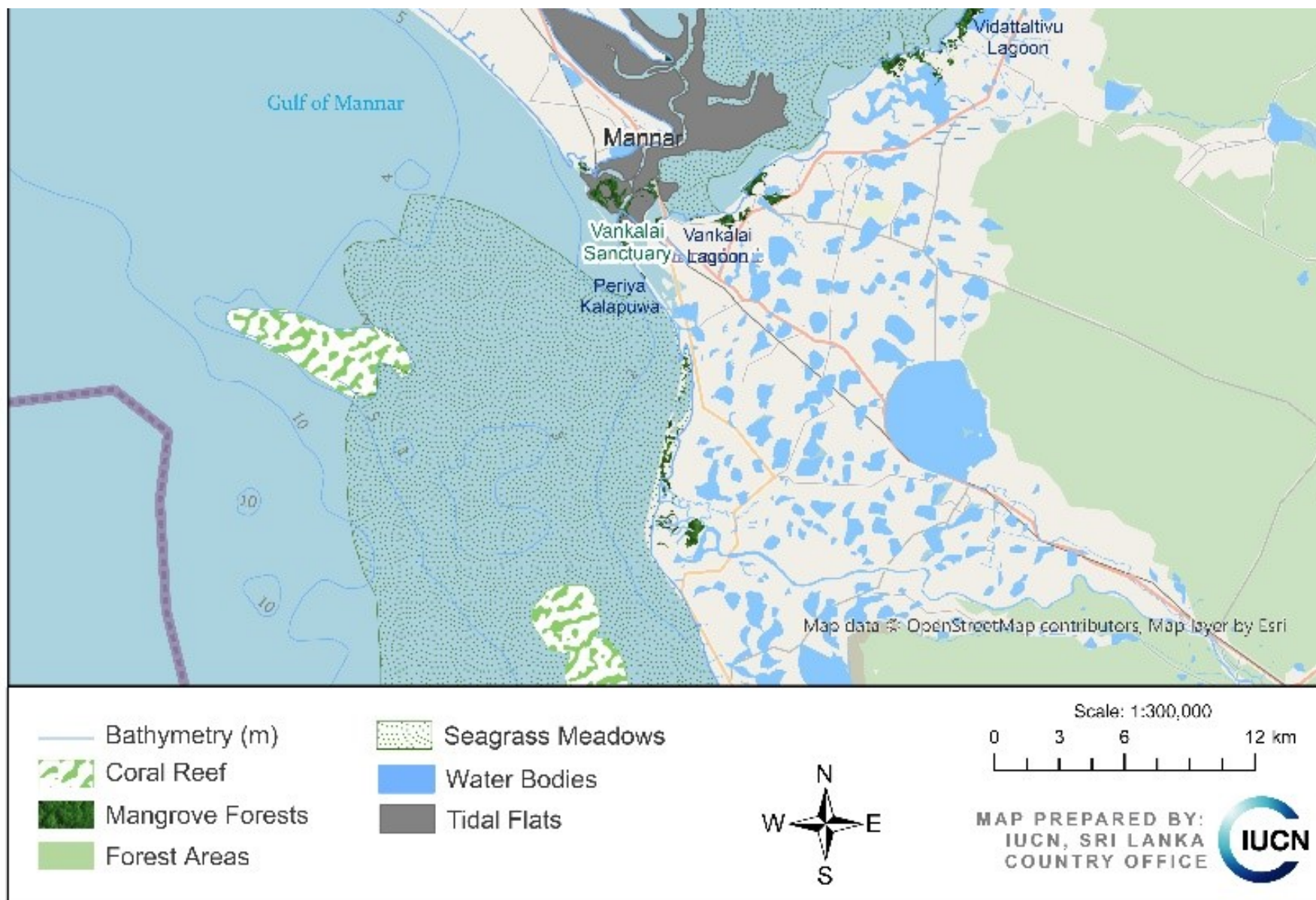PROJECT LOCATIONS

South-Eastern Palk Bay
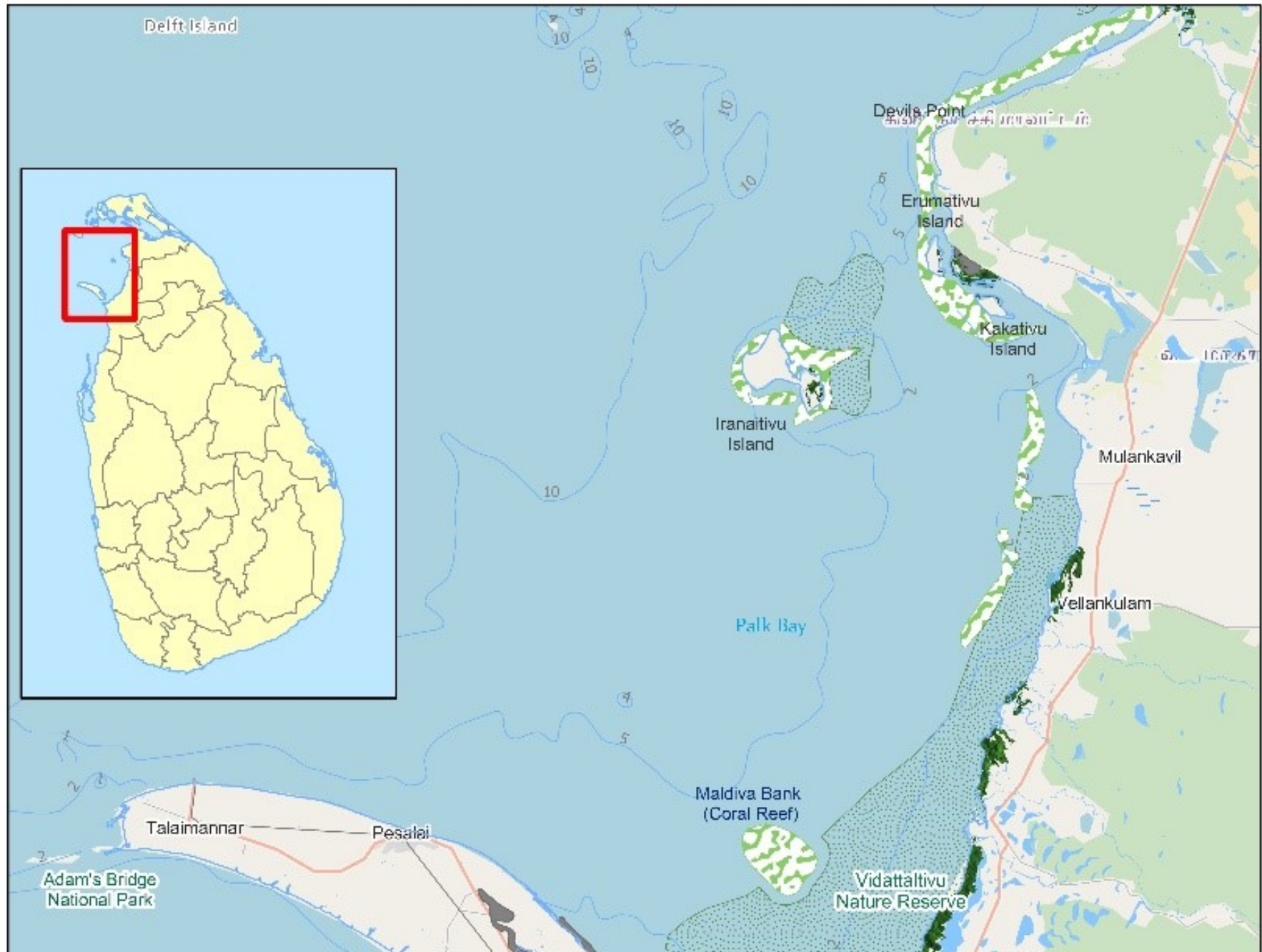
Figure 5: Map of South-eastern Palk Bay project area

Location Details

The project area is within the south-eastern section of Palk Bay (Fig. 5) within districts of Mannar and Kilinochchi. It extends from Devil's Point on the mainland coast to Talaimannar covering the northern coast of Mannar Island. The Wedithalativu Nature Reserve (WNR) within the area encompasses 297 km^2 of which more than three quarters include extensive seagrass meadows and is the third largest marine protected area in Sri Lanka. Two relatively small lagoons are present; Vidattaltivu Lagoon and Periya Lagoon (Periya Kalapu). In addition, there are fringing coral reefs and one offshore patch reef (Maldiva Bank). The project area was affected by the three-decade long conflict. This area contains some of the largest seagrass meadows, extensive salt marshes and undisturbed mangroves in the country. The South Eastern Palk Bay area contains several sensitive ecosystems and three (Iranativu, Eramativu and Kakkativu) islands. The southern section of the WNR borders the Vankalai Sanctuary, which is a Ramsar site. Tourism is still unexplored, in a systematic way. Artisanal and commercial fisheries include finfish, shrimp, crabs, mussels, oysters and cuttlefish. Anchorage for small scale fishing crafts, both motorized and non-motorized. Anchorage of bottom trawlers on the northern coast of Mannar Island.

Ecosystems and Habitats

The marine ecosystems include mangroves, coral reefs, seagrass meadows, sand and mud bottoms, sandy shores, salt marshes and lagoons. The proposed area contains one of the largest contiguous seagrass meadows in Sri Lanka and relatively healthy fringing coral reefs. Small scale seaweed farming, shrimp and sea cucumber aquaculture are other economic activities in the area. The mangroves of the Vidattaltivu area is of special significance as it is the only large mangrove patch in Sri Lanka that borders the ocean. The terrestrial ecosystems include wetlands, grasslands, tropical thorn forest/scrub land, tropical dry mixed evergreen forests, rivers, and streams.

Species Diversity

Marine species diversity

Flora: Eleven species of mangrove plants are present. Common species are *Ceriops tagal*, *Excoecaria agallochia*, *Lumnitzera racemosa*. Rare species include *Pemphis acidula*, *Rhizophora apiculate*, *Avicennia officianalis*, *Bruguiera gymnorrhiza*, *Sonneratia alba*. These species are included under various threatened categories in the Sri Lanka National Red List of Threatened Species. Area has one of the largest seagrass meadows in Sri Lanka. Eight (08) species of seagrasses (*Enhalus acoroides*, *Thalassia hemprichii*, *Cymodocea rotundata*, *Cymodocea serrulata*, *Halophila ovalis*, *Halophila decipiens*, *Halodule pinifolia*, *Syringodium isoetifolium* are present. In addition, there are several species of seaweed including *Caulerpa taxofolia*, *Caulerpa racemosa*, *Turbinaria* sp. *Ulva* sp. and *Sargassum* sp*.

Fauna: Three species of marine mammals are present. Their IUCN Red List status is *Dugong dugon* (VU), *Sousa plumbea* (EN) and *Neophocaena phocaenoides* (VU). Two species of sea turtles, the Olive Ridley (*Lepidochelys olivacea*) (VU) and the Green Turtle (*Chelonia mydas*) (EN) are also present. Twenty-two species of benthic macro-invertebrates (crustaceans, gastropods and bivalves) have been recorded. In addition, large macro-benthos includes 1 species of spiny lobster, 6 species of gastropods, 2 species of bivalves and 2 species of holothurians. Seventy-eight (78) species of reef fish and 57 species of hard corals have also been recorded.

Terrestrial species diversity

Flora: A total of 62 species of terrestrial plants are found in the area out of which 10 species are true mangroves. Five species are in the IUCN Vulnerable category of the IUCN Red List of Threatened Species. Nine (09) species are listed under the National Red List of Threatened Species. Two endemic plant species *Vernonia zeylanica* and *Dendrophthoe ligulata* have been recorded. In addition, twenty-one (21) species of aquatic and semi-aquatic plants have been

reported from water ways, paddy fields and seasonal tanks.

Two hundred twenty-one (221) faunal species have been recorded. They include dragonflies (06), butterflies (12), amphibians (7), reptiles (26), birds (133) and mammals (37). Two (02) of the amphibians, 02 reptiles, 03 birds and 02 mammals are endemic species. One bird *Calidris canutus* (EN) and 8 mammals including the Elephant (EN), Wild Buffalo (EN), Leopard (VU), Sri Lanka Toque Monkey (EN), are among the terrestrial species that are listed in the IUCN Global Red List of Threatened Species. The Palk Bay including the Adam's Bridge, Mannar and Jaffna stretch is one of the main flyways for migratory birds and the vast salt marshes and wetlands are the main habitats for the migratory birds.

Conservation

The Wedithalativu (Vidattaltivu) Nature Reserve is within the project area whilst the Adam's Bridge National Park and the Vankalai Sanctuary are adjacent to the project area. In addition, the three islands (Iranativu, Eramativu and Kakkativu) with the surrounding coral reefs and seagrass meadows have been recommended for the establishment of a marine protected area under the GEF Dugong and Seagrass Conservation Project. Several species, both terrestrial and marine, including the *Dugong dugon* are protected under the Fauna and Flora Protection Ordinance.

Important bird area (IBA): The vast salt marshes and wetlands in the selected project area is the main habitat for migratory birds including the adjacent Vankalai Sanctuary, which is an Important Bird Area. Although the area is one of the most important locations for an IBA it has not yet been declared as the area was under the conflict zone until 2009.

Threats

The main threats are sedimentation, improper solid waste disposal, damage to mangroves and seagrass meadows along with climate change related coral bleaching, destructive and overfishing. Shrimp and finfish aquaculture may become a threat in the future.

Puttalam Lagoon and Environs

Figure 6: Map of Puttalam lagoon and environments

Location Details

The proposed project area includes the Puttalam Lagoon, the Dutch Bay, Portugal Bay adjacent to the Wilpattu National Park and the coastal waters to a depth of 500 m. The population density is high on the Kalpitiya Peninsula. The Puttalam Lagoon is separated from the ocean by the Kalpitiya Peninsula along much of its length. The lagoon opens to the Gulf of Mannar at its northern end through the Dutch and Portugal bays. The southern end of the lagoon is connected to the Mundel Lagoon by the Dutch Canal (Fig 6). The Puttalam Lagoon is mainly saline and the salinity changes seasonally due to freshwater input from Kala Oya and Mi Oya; two rivers that enter the lagoon on its eastern shore. Several islands with fringing mangroves, extensive seagrass meadows and tidal flats characterize the ecosystems and habitats in and around the lagoon. The Gulf of Mannar adjacent to the Kalpitiya Peninsula has a narrow continental shelf with coral reefs.

Ecosystems and Habitats

Based on the ecosystem type classification of the National Biodiversity Strategic Action Plan (NBSAP), a total of 26 ecosystem types, both marine and terrestrial can be found along the stretch of Kalpitiya Peninsula and Puttalam Lagoon. Among them, 21 ecosystems are terrestrial and the remaining five are marine.

Coral Reefs, Sandstone/Limestone reefs, Seagrass Meadows, Mud Bottoms and Sand Bottoms are within the selected project area. The reefs are located on the shallow continental shelf to a depth of approximately 50 m. Seagrass meadows are widespread within the Puttalam Lagoon and in the sea from Kalpitiya Peninsula northwards. There are extensive coral reefs in the Gulf of Mannar on the western side of the Kalpitiya Peninsula. The entire area is rich in biodiversity including marine mammals, sea turtles, avifauna, corals, fish and many species of invertebrates. Major terrestrial ecosystem types are Dry-Mixed Evergreen Forest, Arid-Mixed Evergreen Forest, Fresh and Brackish Water Villus, Lentic Water Bodies, Rivers and Streams. In addition, there are Seashore Scrublands, Vembu Grassland, Mangroves, Salt Marshes, Tidal Flats and Estuaries.

The main economic activities are fishing and related industries, aquaculture, agriculture, and the production of salt. Small-scale tourism developed around whale watching and kite surfing is present on the Kalpitiya Peninsula. The Kalpitiya Peninsula has a coal-fired thermal power plant and several windmills for power generation.

<u>Species Diversity</u>

Marine species diversity

Flora: Eight species (08) of seagrasses are found within the Puttalam Lagoon and in the sea. There are patches of mixed species diversity as well as monospecific patches of seagrasses. Eight sea grass species belonging to six genera and nine species of seaweeds were recorded from lagoon area.

Fauna: A total of 133 species of hard corals have been recorded along with more than 350 species of reef fish. In addition, there are 51 species of brackish water fish species within the lagoon. There are six species of spiny lobsters and 13 species of commercially important sea cucumbers. Four species of sea turtles have been recorded in the northwestern coastal waters. About 25 species of marine mammals are found in the coastal and offshore waters to about 25 km offshore coast. These species include Baleen whales (06), the Sperm whale, Dwarf sperm whale and Pygmy sperm whale, 14 species of dolphins including the Killer whale (*Orcinus orca*), Super pods of Sperm whales have been recorded in the immediate offshore areas. Finless porpoise and the dugong is found in the extensive seagrasses north of the Puttalam Lagoon. The Indian Ocean Humpback Dolphin (*Sousa plumbea*) (Endangered in the IUCN Red List) is present within the Puttalam Lagoon. There are four species of sawfish, one shark ray (*Rhina ancylostoma*) and reef sharks on the coastal and offshore reefs. The Whale shark (*Rhyncodon typus*), Humphead wrasse (*Cheilinus undulatus*) (Endangered in IUCN Red List), Giant sweetlip (*Plectorhinchus albovittatus*) and the Giant grouper (*Epinephelus lanceolatus*) are also present. Sea horses (*Hippocampus spp.*) regarded as globally threatened are present in the lagoon.

Terrestrial species diversity

Flora: A total of 598 terrestrial indigenous floral species have been recorded along the region representing different ecosystems. A total of 14 exclusive or true mangrove plant species and 29 species of mangrove-associates have been reported from Puttalam Lagoon and Dutch Bay.

Fauna: A total of 639 terrestrial and brackish faunal species representing land snails (20), scorpions (04), dragonflies (45), butterflies (123), fresh water fishes (33), amphibians (17), reptiles (75), birds (271), and mammals (51). There are several endemic species recorded in the northwestern region of the country and some species are within the selected project area.

<u>Conservation</u>

The Bar Reef Marine Sanctuary is within the selected area for the project. The project area is also adjacent to the the Wilpattu National Park, which is the largest terrestrial PA in Sri Lanka. In addition, there are Forest Reserves and three marshlands declared as Environmental Protected Areas (EPA) by the Northwestern Provincial Environmental Authority. According to the National Red List, the region supports habitats for 161 nationally threatened species. Among them, 66 are floral species and 95 are faunal species. These threatened species represent 16 Critically Endangered, 45 Endangered, and 100 Vulnerable species. Of the 506 bird species recorded from Sri Lanka, about 170 species are migrants. The region provides habitats for 101 migratory bird species during the Northern hemisphere winter period. Majority of the migratory bird species are waders attached to marshes, mud flats, salt marshes, estuaries, lagoons, and tanks along the coastal region. The area contains several marine species that have been listed in the list of protected species of the Fauna and Flora Protection Ordinance of Sri Lanka. These include all the marine mammals including the Dugong (*Dugong dugon*), all species of hard corals, soft corals and gorgonians found in the area are protected. Several species of mollusks including the *Charonia tritonis* (Tritons trumpet) are protected. Among fishes the Whale shark (*Rhyncodon typus*) is protected under the Fisheries and Aquatic Resources Act.

Threats

There are many anthropogenic threats including overfishing, destructive fishing, pollution, mangrove habitat destruction, damage to seagrass meadows due to movement of boats. Excessive use of agrochemicals is polluting the ground water in the Kalpitiya Peninsula.
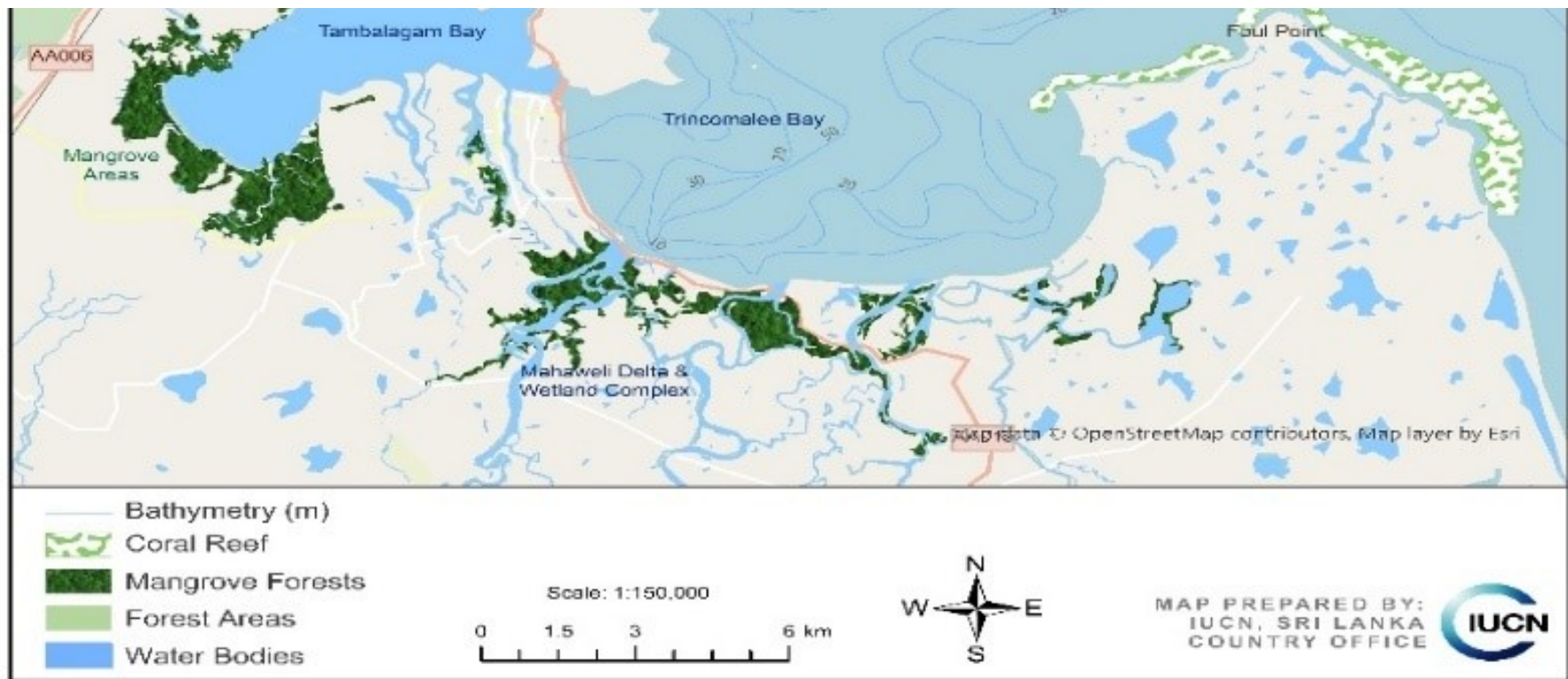
Trincomalee Bay and Environs
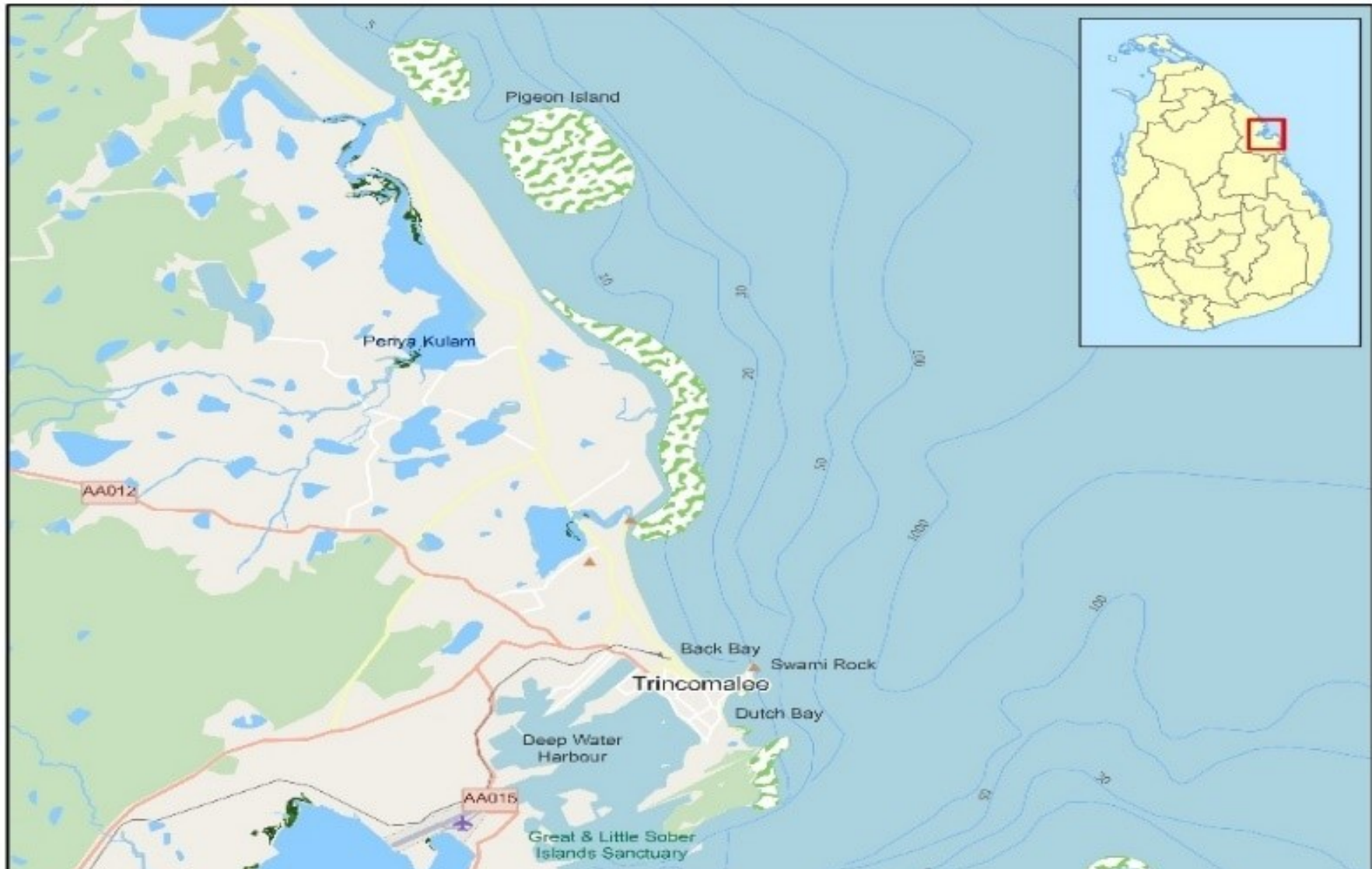
Figure 7: Map of Trincomalee Bay project area

<u>Location Details</u>

Trincomalee Bay and its deep water harbour is a major economic center and Trincomalee is the capital city of the Eastern Province—one of the oldest cities in Asia. This ancient port city developed due to its location with a deep-water port and its resources, consists of Koddiyar Bay and the sea area between Flagstaff Point (Swami Rock) and Foul Point (Fig 7). The Tambalagam Bay and the Inner Harbour are connected to the Koddiyar Bay and they are located to the northwest and west of Koddiyar Bay, respectively. Trincomalee Bay includes a few islands and Great Sober Island and Little Sober Island within the Inner Harbour. The latter two are established sanctuaries under the Fauna and Flora Protection Ordinance. The main economic activities are shipping and various economic activities. The deep underwater canyon has a major influence on the ecological setting creating many habitats for a wide range of species that are economically important in the fisheries industry. It is an important location for the supply of marine aquarium species and other export-oriented species including spiny lobsters, sea cucumber and chanks. In addition, the Mahaweli River delta and its wetland complex provide habitats for many terrestrial and aquatic species.

<u>Ecosystems and Habitats</u>

The main ecosystem types in the Trincomalee Bay are coral reefs, rocky shores, sandy shores, open ocean, and the deep-water canyon. Along the coastal areas there are lagoons, wetlands, mangroves, tidal flats, salt marshes and estuaries. The adjacent land area contains dry-mixed evergreen forests, seashore scrublands, fresh and brackish water villus, rivers, and streams. The Mahaweli River, which is the largest river in Sri Lanka flows into Koddiyar Bay. The river

originated in the central highlands and flows through a wide expanse of flood plain with extensive wetlands and mangroves. These wetlands and the riverine environment have not been studied in detail. The area also has a high eco-tourism potential. The wetlands support high biodiversity including marsh crocodiles, otters, and other semi-aquatic species as well as avifauna. The most unique feature in the project area is the deep canyon in the Trincomalee Bay. It begins within the Koddiyar Bay at a depth of about 500 m and extends in a northeasterly direction to a depth of more than 1,000 m.

Species Diversity

Marine species diversity

Flora: Several species of algae are present. The genera are *Sargassum, Turbinaria, Padina, Caulerpa, Ulva, Halimeda, Enteromorpha,* and *Codium*. *Gracilaria conjorvoides* is collected and exported. Most of the sea grasses are found in the shallow bays within the Trincomalee Harbour and the species recorded are *Halophila decipiens, H. ovalis, Najas gramineae* and *Cymodocea serrulata.* The coastal vegetation includes *Spinifex* and *Ipomoea* along the coast where beaches are present. Shrubs include *Vitex negundo, Scaveola* spp., *Pemphus* spp. and *Clerodendron* spp. Salt marsh flora include *Salicornia, Arthrocnemum, Sueda* spp. and *Portulaca* species. Coastal forest vegetation includes *Azadirachta, Anacadium occidentale, Borassus, Calotropis, Syzygium, Manilkara* etc.

Fauna: Marine species diversity include 4 species of large marine mammals including the Blue whale and Sperm whale, more than 5 species of dolphins, 5 species of sea turtles, 5 species of spiny lobsters, 125 species of hard corals, 3 species of soft corals, several species of sponges and over 250 species of fish.

Terrestrial species diversity

Flora: The coastal vegetation varies and most of the beaches have *Spinifex* and *Ipomoea* as creepers along the coast that stabilizes the beaches. Shrubs include *Vitex negundo, Scaveola* spp., *Pemphus* spp. and *Clerodendron* spp. Coastal forest vegetation includes *Azadirachta, Anacadium occidentale, Borassus, Calotropis, Syzygium, Manilkara.*

Fauna: A total of 283 faunal species representing 20 dragonfly species, 45 butterfly species, 7 crustacean species, 16 freshwater fish species, 10 amphibian species, 30 reptile species, 124 bird species and 31 mammal species have been recorded from the area.

Conservation

There are five protected areas (PAs) in Trincomalee including the Great and Little Sober Islands Sanctuaries, which are marine protected areas. The Pigeon Island Marine National Park located in Nilaveli, 15 km north of the Trincomalee Bay, and is a popular site for recreational activities by both locals and tourists. Terrestrial protected areas are the Trincomalee Naval Base Sanctuary, Chundankadu Forest Reserve and Mahaweli Reserved Forest. There are several species listed under the IUCN Red List of Threatened Species including the Blue Whale and the Sperm Whale, five species of sea turtles, and the endangered Humphead Wrasse (*Cheilinus undulatus*). Among the terrestrial fauna species, there are, three Endangered and seven Vulnerable species under the IUCN Red List. Endangered fauna includes the Pangolin, Sri Lanka toque monkey and the elephant. Twenty endemic species have been recorded from the area of which four species represent flora and 16 are fauna. Threatened flora is represented by a single species—*Sesamum prostratum*.

Threats

Industrial development in the Trincomalee Harbour, pollution of coastal waters, destructive fishing, overfishing and climate change related impacts such as coral bleaching. Poorly managed development of tourism is threatening to increase pollution and environmental damage.