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The Ministry of Finance, Trade and Economic Planning
Republic of Seychelles

THIRD SOUTH WEST INDIAN OCEAN FISHERIES GOVERNANCE AND SHARED GROWTH PROJECT (SWIOFish3)

Environmental and Social Management Framework for SWIOFish3 Project

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ANNEXES

ACRONYMS

BIF	Blue Investment Fund
CBO	Community-Based Organization
DBS	Development Bank of Seychelles
EAPS	Environmental Assessment and Permit Section
EEZ	Exclusive Economic Zone
ESHS	Environmental, Social, Health and Safety
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
FAO	Food and Agriculture Organization
FPIC	Free, Prior and Informed Consultation
GDP	Gross Domestic Product
GEF	Global Environment Facility
GRM	Grievance Redress Mechanism
HSMP	Health and Safety Management Plan
IBRD	International Bank for Reconstruction and Development
IPHS	Ile du Port Handling Services
LRP	Livelihood Restoration Program
MAF	Ministry of Agriculture and Fisheries
MEECC	Ministry of Environment, Energy and Climate Change
MFTEP	Ministry of Finance, Trade and Economic Planning
MPA	Marine Protected Area
NBSAP	National Biodiversity Strategy and Action Plan 2015-2020
NGO	Non-Governmental Organization
OP	Operational Policy
PAN	Protected Area Network
PAP	Project Affected Person
PIU	Project Implementation Unit
PF	Process Framework
SeyCCAT	Seychelles Conservation and Climate Adaptation Trust
SS-ESMP	Site-Specific Environmental and Social Management Plan
SS-HSMP	Site-Specific Health and Safety Management Plan
SWIOFC	South West Indian Ocean Fisheries Commission
SWIOFish3	Third South West Indian Ocean Fisheries Governance and Shared Growth Project
TOR	Terms of Reference
UN	United Nations
UNDP	United Nations Development Program
WB	World Bank

1.0 SWIOFish3 PROJECT

This chapter provides details on the design of the SWIOFish3 Project.[1] Section 2.1 gives the background to the Project. Sections 2.2 to 2.5 describe, respectively, the project development objective, the components and corresponding sub-components of the project, the project cost and financing, and the institutional and implementation arrangements.

1.1 Background

The SWIOFish3 Project in Seychelles is part of the broader SWIOFish program launched by the World Bank in February 2015, which adopts a regional and long term approach to supporting the South West Indian Ocean countries in sustainably developing their fisheries sector. The overarching program goal is to increase the economic, social, and environmental benefits to South West Indian Ocean countries from sustainable marine fisheries. The program goal results indicators are as follows:

a) Status of fish stocks;
b) Fisheries-related Gross Domestic Product (GDP) in participating countries; and
c) Local fisheries-related value-addition benefitting the households.

The 15-year multi-phase program establishes a financing, coordinating and knowledge exchange mechanism and support a suite of regional and country-level activities over the medium and long term. Given the range of issues affecting countries of the South West Indian Ocean region, the program activities target core governance and productivity challenges, remove critical constraints to private investment and sustainable business, bring part of the 'offshore fisheries economy' within country economies, and add value through regional collaboration and integration.

1.2 Project Development Objective

The Project Development Objective of SWIOFish3 is to improve management of marine areas and fisheries in targeted zones and strengthen fisheries value chains in the Seychelles.

The SWIOFish3 Project will support the Government of Seychelles in achieving its dual objectives of marine resources conservation and expansion of the seafood value chains. Seafood value-chains are a cornerstone of the country's blue economy strategy and their expansion is expected to deliver long-term, resilient growth, jobs and food security and will be the focus of component 3. However, this development will not be sustainable if their marine resource base is not properly managed, which will be supported by components 1 and 2. Because marine and coastal resource management will potentially translate into reduced access to the resource, component 3 will provide opportunities for investment in post-harvesting and service components of the fisheries value chain, thus offsetting socioeconomic impacts and fostering adherence to the management measures.

1.3 Components

Component 1: Expanded Sustainable-Use Marine Protected Areas

Budget:	**US$4.15 million**	
Including:	US$2.65 million	(GEF grant)
	US$1.5 million	(Blue Bond proceeds)

The first component of the project will support the Government of Seychelles to implement its pledge to protect an increasing share of its maritime space. It will build on the marine spatial planning exercise that the Government is currently undertaking through a scientific and consultative process.

[1] This chapter reproduces sections of the draft Project Appraisal Document for the SWIOFish3 Project available at the time of preparation of this ESMF and PF.

With the support of The Nature Conservancy and in the framework of a very innovative climate adaptation debt restructuring, Seychelles pledged to protect 30% of its exclusive economic zone (EEZ) by 2020 and initiated a marine spatial planning exercise to serve as the foundation of its sustainable blue economy strategy. This marine spatial planning exercise started in 2015 and will progressively identify and gazette areas amounting to 15% of the EEZ to be protected as high biodiversity zones, and another 15% to be protected as medium biodiversity zones, allowing for some sustainable economic activities - including fishing. The debt restructuring supported by The Nature Conservancy reduces the cost of part of the debt Seychelles owes to its Paris Club creditors. In turn, it allows Seychelles to fund marine conservation and climate adaptation with the cost difference. These funds are channeled through a sinking fund, for immediate measures, and through an endowment fund that will ensure a sustainable financing stream in the future. Both of these funds will be hosted by the Seychelles Conservation and Climate Adaptation Trust (SeyCCAT).

The medium biodiversity areas will allow for some sustainably-managed economic activities, including fisheries and tourism, and they will be the focus of component 1. The high biodiversity areas will be managed under stricter protection and will be supported by a parallel project financed by the GEF and the United Nations Development Programme.

Sub-component 1.1: Expansion of the Medium Biodiversity Areas. The first sub-component will expand the coverage of medium biodiversity areas by supporting their creation, and the preparation of related management plans and specific regulations. This will entail investments in: (i) research to define the management measures and mortality controls and assess the blue carbon potential; (ii) the preparation of management plans for the first medium biodiversity areas, including the definition of their governance mechanisms; (iii) the legal framework to support the creation and operationalization of these marine areas; and (iv) the update of the zoning.

Sub-component 1.2: Management of the Sustainable-Use Areas. The second sub-component will support the operationalization of these medium biodiversity areas by investing in their effective management. It will support: (i) the strengthening of the public sector to allow it to supervise the areas and enforce the management measures adequately and cost-effectively; (ii) the monitoring, control and surveillance of the natural resources and economic activities, including satellite-based imaging, patrols, staff costs, equipment and infrastructure; (iii) intense communication, consultations and capacity-building efforts targeted at the main stakeholders, including fishers, tourism operators and government; (iv) and the promotion of more sustainable practices, mostly in the tourism and fisheries sectors, aiming for instance at reducing energy consumption, waste generation, bycatch and discards of fish, improving fish-handling and selective fishing.

Component 2: Improved Governance of Priority Fisheries

Budget:	**US$4.15 million**	
Including:	US$2.65 million	(GEF grant)
	US$1.5 million	(Blue Bond proceeds)

The second component of the project will have a greater focus on national fisheries management. The key current fisheries management initiative in Seychelles is the Mahé Plateau fisheries management plan, which is being finalized by the Government. Component 2 will have a major focus on the finalization and the implementation of the Mahé Plateau fisheries management plan, as well as on the other management initiatives. It will also reinforce the sector's governance by an array of targeted investments.

Sub-component 2.1: Fisheries Management Plans. The first sub-component will support the preparation and implementation of several fisheries management plan, including the Mahé Plateau fisheries management plan, the sea-cucumber fisheries management plan, and the domestic tuna fisheries management plan. As in the case of the medium biodiversity areas, this will entail intense communication,

consultations and capacity-building efforts targeted at the main stakeholders, including fishers, tourism operators and government; enhanced monitoring, control and surveillance of the natural resources and economic activities, including satellite-based imaging, patrols, staff costs, equipment and infrastructure; environmental research and data collection, including an electronic catch reporting system; promotion of more sustainable practices, mostly in the tourism and fisheries sectors, aiming for instance at reducing energy consumption, waste generation, bycatch and discards of fish, improving fish-handling and selective fishing; supporting economic diversification and transition to alternative livelihoods, consistent with the provisions of the respective management plans; purchasing and retaining of total allowable catch allocation of some over-exploited species by Government to support faster stock restoration. In parallel, the sub-component will support the preparation and implementation of fleet management and development plans.

Sub-component 2.2: Fisheries Sector Institutions. The second sub-component will ensure that the institutions involved in fisheries management are in a position to contribute to it. It will in particular support: (i) the update of the legal and public institutional framework and prepare the related strategies and policies; (ii) capacity-building and ad-hoc technical assistance for the relevant public entities, including the Ministry of Fisheries and Agriculture and the Seychelles Fishing Authority; and (iii) strengthening the fishers contribution to the fisheries management process, including the different fishers associations.

Sub-component 2.3: Fisheries and Marine Statistics. The last sub-component will focus on the provision of relevant and reliable information on the status of the marine environment and fisheries, and their respective contribution to the economy. It will: (i) improve the fisheries statistics system and design the fisheries dashboard; and (ii) develop fisheries economic monitoring through a support to the nascent Fisheries Economic Intelligence Unit and the setting-up of a satellite economic account for fisheries.

Component 3: Sustainable Development of the Blue Economy

Budget:	**US$16.0 million**	
Including:	US$4.0 million	(IBRD loan)
	US$12.0 million	(Blue Bond proceeds)

Component 3 will help finance the sustainable development of the Seychelles blue economy and support increased value-addition in the aquaculture, industrial, semi-industrial and artisanal fishing and processing sectors. Component 3 will help compensate fishers for any reduced access to the resource resulting from marine and coastal resource management measures implemented under the first two components and foster adherence to the management agenda.

Sub-component 3.1: Enabling Environment for the Seafood Industry. The first sub-component will strengthen the enabling environment for the seafood industry. It will in particular: (i) facilitate a sustainable, economically-sound port development process; (ii) increase the sanitary monitoring capacity, especially in the context of exports of seafood products; and (ii) contribute to the enabling environment for the development of aquaculture, a nascent industry in Seychelles.

Sub-component 3.2: Expansion of the Sea-Food Value Chains. The second sub-component will facilitate the expansion of value-chains and promote synergies with other value chains (e.g. tourism). It will: (i) identify value chain development opportunities and provide targeted capacity-building to fishers and operators; (ii) support the Government and the Fishers and Boat Owners Association to complete and start the operation of an innovative artisanal fish auction house; (iii) promote the nascent labeling scheme for sustainable artisanal fisheries, linking the fisheries and tourism value chains.

As part of this second sub-component, (iv) a Blue Investment Fund will be created with part of the proceeds of the Blue Bond to finance private and public investments aimed at facilitating the implementation of the Mahé Plateau fisheries management plan and the transition from open-access to better controlled fisheries. These investments will include alternative business opportunities for fishers in the seafood value chain, the

restructuring of fishing capacity and the rebuilding of stocks. To avoid that these investments create a price signal that would increase the pressure on the resource, a list of acceptable projects has been developed that includes management prerequisites (e.g. management plan operational).

Component 4: Project Management and Coordination
Budget: US$1.0 million (IBRD loan)

The last component will support the coordination and implementation of the project. It will support the operation of the Project Implementation Unit (PIU) and steering committee. Activities supported include monitoring and evaluation, audits, mid-term and final evaluation reports, and other costs associated with core operational functions (training, equipment, staff, manuals, etc.).

1.4 Project Cost and Financing

The project will be financed through a $5 million loan from the International Bank for Reconstruction and Development (IBRD) and a $5.3 million grant from the GEF, as well as the proceeds of the first Blue Bond. The Government of Seychelles will issue a Blue Bond for an estimated total of $15 million to finance part of the SWIOFish3 project, in a landmark new kind of transaction that mobilizes capital markets to finance Seychelles' blue economy objectives. The GEF Non-Grant Instrument Pilot will be used alongside an IBRD guarantee to lower the cost of this Blue Bond, ideally down to the 3% area. The use of the Non-Grant Instrument Pilot will take the form of a loan to the Government of Seychelles with a 40-year maturity, a 10-year grace period and a 0.25% interest rate. The Blue Bond is expected to have strong replicability potential for other borrowers in the future, by attracting investors to a new field and creating an affordable financing package for the country.

The proceeds of the Blue Bond will follow two tracks. The first track will consist of grants made to public and private entities on a project proposal basis. These grants will fund the implementation of the marine spatial planning and the Mahé Plateau fisheries management plan, as described above. They will amount to US$3 million and the grant process will be managed by the Seychelles Conservation and Climate Adaptation Trust (SeyCCAT) on a call for proposal basis. The second track will create a Blue Investment Fund and provide US$12 million or loans to fishers and other private and public entities for activities consistent with the provisions of the Mahé Plateau fisheries management plan, focusing specifically on economic diversification and sustainability. This second track will be managed by the Development Bank of Seychelles on behalf of the Government. All Blue Bond repayments will be the obligation of the Government of Seychelles and will not directly come from the revenues generated by the lending track, which could be re-injected into the Blue Investment Fund for additional lending.

2.0 ENVIRONMENTAL AND SOCIAL CHARACTERISTICS OF SEYCHELLES

This chapter provides an overview of the geographic location of Seychelles, and describes the salient physical, ecological and socioeconomic characteristics of the country.[2] Given the nature of the SWIOFish3 Project, the description of main ecosystems, natural resources and economic activities focuses on those associated with marine and coastal areas.

2.1 Country and Sectoral Context

Seychelles' geography is unique but challenging. The Seychelles archipelago consists of 115 granite and coral islands with an exclusive economic zone (EEZ) of approximately 1.4 million km2, almost three thousand times the size of its land area. The population is about 90,000, around 90 percent of which is located on the main island of Mahé. Small size, insularity, limited land, capital, and human resources restrict its ability to benefit from economies of scale in production and economic diversification. High dependency on external markets creates vulnerability to external factors. The country's comparative advantage lies with its natural capital, vividly preserved by public policies. Seychelles is endowed with an extremely rich biodiversity, both marine and terrestrial, making it part of one of Conservation International's designated biodiversity hotspots. Endemism is exceptionally high at over 60% for animals in general and 50% for plants. Seychelles is one of the world's most environmentally conscious nations, having officially protected more than half of its total land area from development and pledged to protect 30 percent of its EEZ.

The fisheries sector is the second most important sector of the Seychellois economy. Its annual contribution to GDP varies from 8 to 20 percent and it employs 17 percent of the total population. Nonetheless, the contribution of fisheries is underestimated as many services to the sector, notably those in support of the industrial tuna fishery, are not captured in the GDP estimates. In 2012, the value of exports of consumable fish and fish products constituted 93% of the total value of domestic exports. The sector can broadly be divided into three sub-sectors: (i) the artisanal demersal fishery; (ii) the industrial and semi-industrial pelagic fisheries; and (iii) the seafood processing industry. The artisanal demersal fishery is of paramount importance to the Seychellois. The industrial, and to a lesser extent the semi-industrial, pelagic fisheries account for the lion's share of the catch. They are located offshore, in deeper waters, and involve significantly larger vessels: purse seiners and longliners. Seychelles is a major seafood processing hub and intends to increase the contribution of the seafood industry to its blue economy.

The Government of Seychelles has placed the seafood industry at the center of its blue economy strategy and aims at progressively increasing the share of landed catch that is processed locally instead of being transshipped, targeting in particular non-canned tuna products as well as bycatch and byproducts of the tuna industry. There is increasing evidence that the pressures exerted by the fisheries and tourism sectors on the marine natural resources are reaching unsustainable levels. Though skipjack and bigeye tuna stocks are currently healthy, yellowfin tuna is overfished and subject to a rebuilding plan. Several species of demersal fish are subject to overfishing, or at risk from overfishing, with declining catch rates symptomatic of worsening status in key fisheries. The pressures on demersal and reef-associated pelagic resources come from overfishing in the artisanal, recreational and sport fishing sub-sectors and from an increasing environmental footprint of the tourism industry. They are particularly acute on the Mahé Plateau, where the population and economic activity are concentrated. The fisheries are open-access, which impedes any action to limit the fishing effort and ensure their sustainability.

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[2] This chapter is based on the following sources: Republic of Seychelles, undated; SFA, 2016; SMSP, 2015; Vivid Economics, 2015a; and Welch and Kerrigan, 2015a and 2015b, with some paragraphs following very closely the contents of SFA, 2016. In addition, information was collected during two site visits performed by the ESMF Consultant in order to conduct visual surveys of different potential sub-project sites.

The unsustainable use of the marine environment is a major risk to the future of Seychelles' blue economy. The country's comparative advantage lies in its natural capital and the tourism and fisheries sectors are overly dependent on the health of coastal and marine ecosystems. Depleting fisheries would rapidly lead to a loss of income for fishers and tourism operators, and would jeopardize the local seafood industry and any future investment in the blue economy. It would also pose significant risk to nutrition and food security in the country, where almost all the fish that is consumed is fished locally. The management of Seychelles marine ecosystems and fisheries is hampered by insufficient financing, capacity, and legal and institutional frameworks

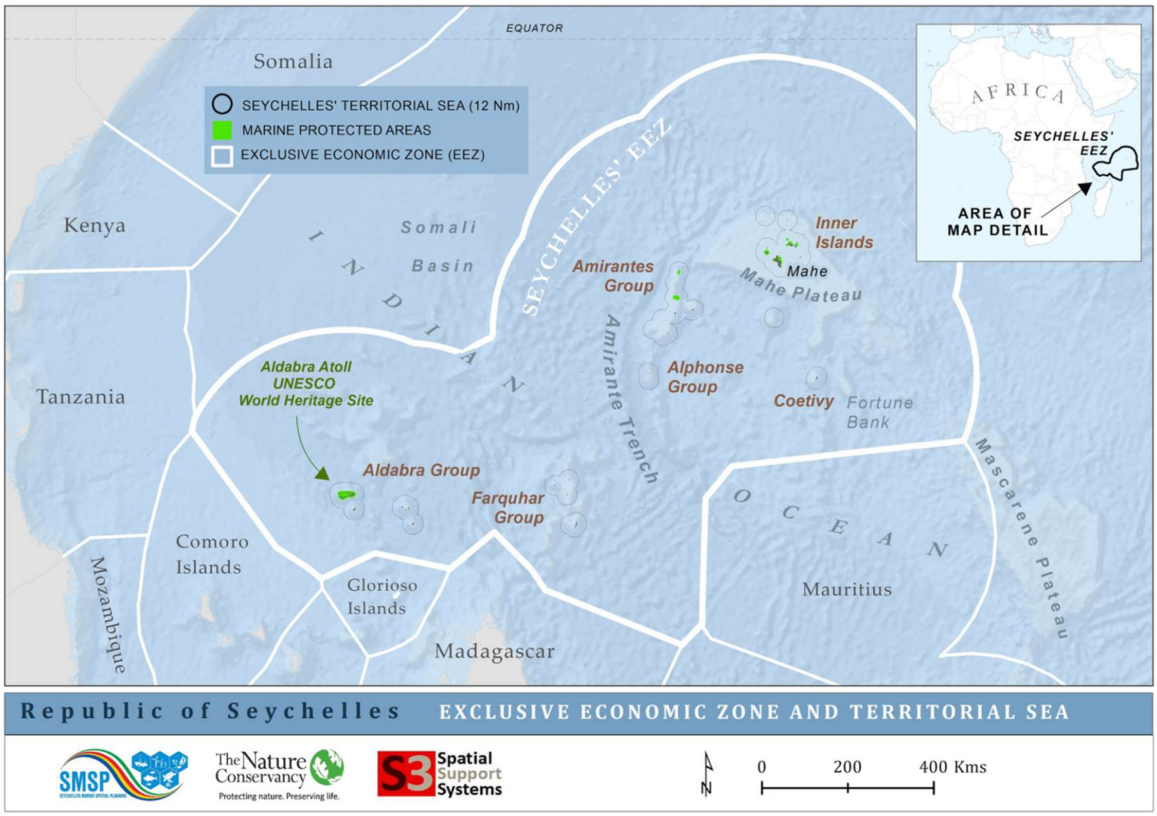
Faced with the need to preserve its comparative advantage in natural capital for the future generations, the Government of Seychelles adopted an ambitious marine conservation strategy. Seychelles pledged to protect 30% of its EEZ by 2020 and initiated a marine spatial planning exercise to serve as the foundation of its sustainable blue economy and conservation strategy. This marine spatial planning exercise started in 2015 and aims at improving the planning and management of the country's vast maritime space. It will progressively identify and gazette areas amounting to 15% of the EEZ to be protected as high biodiversity zones, where fishing will be prohibited, and another 15% to be protected as medium biodiversity zones, allowing for some sustainable economic activities - including controlled fishing. In parallel but in the same framework, Seychelles is preparing to implement new management plans for its major fisheries, including the first fisheries management plan for the Mahé Plateau, with a view to progressively transition from an open-access fishery to a more controlled fishery. The Mahé Plateau fisheries management plan has been drafted and is in the final stages of consultation. It will follow a continuous improvement approach, focusing on easy-gain and priority species during the first years of its implementation, and progressively moving to a more comprehensive coverage of the demersal fisheries.

2.2 Geographic Location

The Republic of Seychelles is located between 4 and 10 degrees south of the Equator, and lies between 480km and 1,600km from the east coast of Africa in the middle of the Western Indian Ocean. It is composed of more than 115 islands distributed over an area of more than 1,3 million km^2. The islands constituting Seychelles may be divided into two groups: (i) the Mahé Group, comprised of 45 islands, is characterized as mountainous with much granite and includes the outlying islands; and (ii) the Coralline Group, which includes 70 islands that are mostly just above sea-level.

Mahé is the main island and hosts the capital city, Victoria. Mahé Island is 27 km long and 11 km wide. It has a maximum height above sea level of 905 meters (Morne Seychellois Mountain). Two other major islands are Praslin and La Digue. Both islands are close to Mahé, 33.6 and 48 km respectively. Map 1 provides the location of Seychelles in the African continent, and delineates its Exclusive Economic Zone and marine protected areas.

Map 1: Geographic Location of Seychelles



Source: SMSP, 2015, p. 2.

2.3 Physical Characteristics

(a) Climate

The climate of Seychelles Islands is warm (monthly mean temperature of 26-28°C) and can be classified as humid tropical. No distinct dry season occurs throughout the year, and even during the driest and coolest month in July the mean rainfall exceeds 70 mm. The average annual rainfall is 2,200 mm. The prevailing winds are the North west (December to March), which are influenced by the Coriolis Effect at the Equator and changes to a North easterly wind and result in the north-west monsoon and the other is the south-east winds associated with the south-east monsoon (May to October). Data for the period 1972-2001 show that the mean evaporation is 5.2 mm.

Alternating monsoons generated by changes in the air pressure over the Indian sub-continent dominate the seasonality. During northern hemisphere's summer, the Asian mainland warms faster than the adjacent water, creating low pressure over the continent and forcing air to move from the Indian Ocean onto the Asian landmass. During winter, the pattern is reversed and air over the Asian mainland rapidly cools, creating high pressure and the movement of atmospheric masses off the continent and out over the ocean.

In contrast to many other inhabited South West Indian Ocean Islands such as Reunion, Madagascar, Comoros, Mauritius and Rodrigues, Seychelles inner islands fall outside of the tropical cyclone belt. During the majority of the El Niño/La Niña years, an extreme weather event typically occurred over Seychelles. Severe drought during the La Niña phenomenon of 1998-1999 caused acute shortage of freshwater resulting in the shutdown of public establishments. In 1997-1998, the strongest El Niño ever recorded caused a 40%

loss of revenue from the tuna fisheries sector and generated massive coral bleaching in the shallow reefs of Seychelles granitic islands.

(b) Geology and Soils

The Seychelles are made up of 115 granite and coral islands. The inner islands comprise some of the oldest mid-oceanic granite islands on earth, while the outer islands consist primarily of low-lying coral atolls and reef islets. The inner islands cluster mainly around the largest islands of Mahé, Silhouette, Praslin and La Digue. The outer islands are those situated beyond the Seychelles Plateau. The outer islands owe their existence to continental drift, upliftment and subsequent volcanic activity which ultimately led to the formation of island land masses.

The soils of the granitic islands are generally very poor and slightly acidic. This is due to the geologically very old granitic base rock, which is inherently poor in nutrients. The shallow, leached soils are typically short of organic matter.

(c) Hydrology

There are 146 water courses on the three main islands of Mahé, Praslin and La Digue, and these are listed for protection under the State Lands and River Reserves Act (1976), in recognition of their importance for socioeconomic development. The lower reaches of watercourses in many regions have been affected by human activity including enrichment and chemical pollution, canalization and reclamation of flood plains.

Lowland wetlands were a characteristic feature of many of the original coastal plains of the granitic inner islands. The coastal dune formations naturally created a simple basin-like structure to the landward that prevented free drainage resulting in the formation of extensive inland wetlands. These habitats were historically used for agricultural purposes such as rice production. However, as agricultural patterns and development pressures changed, these areas were increasingly drained to meet the demand for flat land and this trend has continued into the 21st century, such that lowland wetlands can be considered the most severely threatened habitat type in Seychelles. It is estimated that some 90% of lowland wetlands have been lost to reclamation since the colonization of the islands in 1770.

2.4 Coastal and Marine Ecosystems

The coastal-marine environment of Seychelles is complex and includes a series of habitats and biogeochemical processes that influence the dynamics and functionality of ecosystems. These ecosystems include coastal plains, mangrove forests, coral reefs, reef flats, seagrass beds, rocky shores and intertidal areas.

These ecosystems are interconnected to form a complex coastal-marine ecosystem. They provide important nesting and foraging grounds for numerous micro and macro-organisms, assist in nutrient and hydrological cycles, larval and sediment transport and provide important protein sources for the coastal communities.

(d) Coastal Ecosystems

Coastal Terrestrial Ecosystems

The coastal plateau is made up of calcareous sand derived from adjacent fringing reefs which have accumulated over the last 6,000 years. The coastal plateau has been colonized by coastal plants such as coconut (*Cocos nucifera*), takamaka (*Calophyllum inophyllum*) and badamier (*Terminalia catappa*). The mountainsides of Mahé and Silhouette from approximately 200 meters above sea level harbor the bulk of Seychelles known endemic biodiversity, while Praslin Island supports unique stands of Coco-de-Mer Palm (*Lodoicea maldivica)* dominated forest and associated species.

Coastal brackish water marshes are also present and play an important role in settling out sediments from freshwater systems before entering the sea, especially after rainfall events. The islands have extensive white

sandy beaches which are used primarily by the tourism industry and the locals. Many of these beaches are also used for nesting by marine turtles. The terrestrial coastal habitats of many of the inhabited inner islands have been heavily modified for human settlement, industries, public infrastructure and tourism.

Mangrove Forests and Coastal Wetlands

Mangrove forests and coastal wetlands are found within the inner granitic islands. There are 8 species of mangrove described in Seychelles, occupying a total area of 29 km^2. At Port Launay in Mahé, all eight species of mangroves are found in an area that has been designated as a RAMSAR site.

Mangroves once covered many shores of the granitic inner islands, especially close to river mouths and marshland. Since men first settled in Seychelles in the late 1700s, mangrove forests have been cleared to make way for coastal construction. There is presently a proliferation of mangrove in Seychelles, clearly visible on the east coast of Mahé, from Victoria to Pointe Larue, in the lagoons created by coastal reclamation and in places such as Anse Soulliac in the Port Launay Marine National Park, where the mangrove forest is slowly extending seawards.

The mangrove faunal assemblage in the inner islands is characterized by low species diversity and high abundance, dominated by herbivorous gastropods and suspension feeding bivalves. The fauna of freshwater wetlands includes pan-tropical indigenous species, as well as introduced ones. Endemic insects from the family *Rhagovelia, Nepidae* and *Notonectidae* still occur in healthy marshes. Freshwater wetlands and rivers are also habitat for the 2 endemic sub species of terrapins, *Pelusios castanoides intergularis* and *Pelusios subniger parietalis.* The tilapia, *Orechromis mossambicus,* has been introduced to Seychelles and is now described as an invasive species affecting freshwater wetlands and rivers. An endemic bird, the Black Paradise Flycatcher, *Terpsiphone corvina*, is sometimes associated with La Mare Soupape on la Digue.

The typical flora of freshwater wetlands consists of reeds, sedges, grasses and herbs. The large fern *Acrostichum aureum* (Fouzer Lanmar) is common around the edges of lowland marshes. Common coastal trees such as *Calophyllum inophyllum* (Takamaka), *Terminalia catappa* (Bodanmyen) and *Hibiscus tiliaceus* (Var) often establish themselves near the edges. Introduced weed species, in particular *Eichornia crassipes* (Water Hyacinth) and *Pistia stratiotes* (Water Lettuce), now dominate many wetlands on Mahé, Praslin and La Digue.

(e) **Marine Ecosystems**

Coral Reefs

The coral reefs cover an estimated area of 1,690 km^2, most of which are found in the Southeast of the Seychelles Archipelago, around the outer coralline islands, with fewer reefs found in the inner granitic islands. There are 2 main types of reefs: granite reefs, which are made up of corals growing over large granite boulders, and carbonate reefs which are further divided into fringing reefs, atolls and platform reefs. Fringing reefs are characteristic of the granitic inner islands. The fringing reefs are most extensive on the islands of Mahé and Praslin, where they occupy large areas.

Along the east coast of Mahé, the reef is continuous and unbroken (width: 500 – 750 m), apart from places where they have been dredged or reclaimed. Conversely, on the west coast of Mahé they are mostly small and discontinuous and are mainly found in bays and are generally narrower than those found on the east coast. The situation reverses for Praslin, where the coral reefs are widest on the east coast with width up to 2850 meters. More than 300 species of *Scleractinian* corals are found in Seychelles; however, so far there are no identified Seychelles endemics.

The back reef environment is mostly covered by macro-algae of the genus Sargassum and Turbinaria or seagrass comprising mostly of *Thalassodendron ciliatum* and *Thalassia hemprichii*. Reef associated

animals groups include corals, crustaceans, echinoderms, fish, macroalgae, mollusk and sponges. There are gaps in the diversity of other reef associated phyla.

In 1998, there was a coral bleaching event. Before that event, the coral reefs of the Seychelles were considered as healthy and were characterized in 3 different assemblages distinguished by the main coral species they host. These assemblages were: (i) Pocillopora, associated with rough water, especially in or near the surf zone; (ii) Acropora, found along open water reef fronts; and (iii) Porites, reef flat environments. This event was brought about by high sea temperature, which prompted the corals to bleach and die after a few weeks. This was the first case of wide scale coral bleaching event recorded in Seychelles. Early assessments in 1999 found that the fast growing *Acroporas* and *Pocilloporas* had suffered the most. At the time of these assessments the most dominant genus were the *Porites*, thus suggesting that they were better able to withstand the high sea temperature that caused widespread bleaching in 1998. The 1998 bleaching was followed by 2 smaller scale events in 2002 and 2003. Although mortality among corals was extensive and the diversity at most sites surveyed was low following the 1998 event, no extinctions have been reported but, rather, the abundance and distribution of species have reduced.

Since the bleaching event, management focus had to change from managing healthy and diverse coral reefs to promoting the recovery of coral reefs. Recent reports indicate that today the situation on the reefs of the inner islands is drastically different from that of the pre-bleaching event. Since the bleaching event, the coral reef system of the inner Seychelles has undergone a widespread phase shift from a coral-dominated state to a rubble and algal-dominated state. Before the 1998 bleaching event the reefs were characterized by high cover of live branching and massive coral, soft coral, and high structural complexity, whereas today the reefs are of low complexity, comprising mostly of rubble, standing dead coral and algal fields. Average coral cover is presently low with few of the benthos consisting of fast growing, habitat forming branching and plating functional groups of corals. Recovery of corals reefs from the bleaching events has been relatively slow and it is highly apparent that the carbonate based reefs are not doing as well as the granitic based reefs.

Reef Flats

This mixed habitat complex has been subject to intensive disturbance around populated islands. In the central archipelago, reef flats are utilized extensively for gleaning fisheries (e.g., octopus and shell fish) and shell collecting activities. In the last 25 years significant areas of this habitat have been lost to major land reclamations. Sedimentation and in some areas pollution are also factors of concern.

Most reef flats consist of a complex patchwork of habitats: areas of sand and gravel interspersed between areas of coral rubble, coral outcrops, sea grass and algal growth. In their natural state these habitats are rich in life and commodity species such as octopus, lobster and sea cucumber. Mollusk fauna can be very rich with Cowries (*Cypraea moneta, C. annulus, C. Lynx, C. caurca and C. helvola* being common), Cones (*Conus leopardus, C. litteratus, C. virgo, C. maldivus, C. betulinus* and *C. quercinus*) readily found in the seagrass; while species such as *Bittium zebrum* and *Smaragdia rangiana* can be found in algal mats. Four Shell Reserves were declared in the 1960s and were subsequently incorporated under the 1986 Fisheries Act (1987 Shell Reserve Regulations) but the areas are not managed or enforced.

Seagrass Beds

The extensive shallow submarine banks of Seychelles support significant sea grass areas. A particularly large sea grass bed (estimated at 45km long and 15km at its widest) lies on the Providence-Cerf bank. Many of the outer islands, such as the lagoons of Aldabra, Cosmoledo and Astove, support large sea grass communities. Sea grass habitats are also common around the granitic inner islands, notably in the St Anne Marine National Park and off Grand Anse-Amities coast of Praslin.

To date, 8 species of seagrass have been described from Seychelles: *Cymodocea rotundata, Cymodocea serrulata, Enhalus acocroides, Halodule uninervis, Halophila ovalis, Syringodium isoetifolium Thalassia hemprichii* and *Thalassodendron ciliatum*, with 6 of them present around Mahé. A brief survey of inshore sea grass bed substrate around the island of Mahé, conducted as part of the Environmental and Social Impact Assessment for the Mariculture Master Plan (SFA, 2016), recorded 58 species of infaunae invertebrates. Sea grass beds are also essential for many marine herbivore species including megafauna such as the green turtle and the Dugong.

There is evidence that sea grass beds around the main populated islands are in decline due to a combination of anthropogenic factors – pollution, reclamation, coastal development and climate change. It is also likely that the historical exploitation of the main sea grass grazers, green turtles, and ongoing fishery activities mean that the natural grazer/growth balance in sea grass beds has been lost, potentially leading to changes in community structure and health.

Rocky Shores

Rocky Shores are the most common shore habitats in the granitic islands and are typified by a limited vegetation structure consisting of species such as *Hibiscus tiliaceus,* occasional stands of the endemic Balfour's pandanus (*Pandanus balfouri*), *Scaevola sericea*, creepers (e.g., *Ipomea pescaprae*) and grasses. In their natural state and particularly on promontories and rocky islets, rocky shores historically supported important seabird populations and and/or roosts (e.g. *Sterna anaethetus, Phaethon lepturus, Puffinus pacificus)*, such as those still found on reserve islands like Cousin and Aride.

Intertidal Zone

The intertidal zone is rich in gastropods, some of which are commonly exploited for food (e.g., *Patella exusta* and *Cellana radiata*). The *trochus Monodonta australis* and the majority of Seychelles *Nerites* (*Nerita albicilla, N. plicata, N. polita, N. textilis*) are common in this zone; as are various species of *Littorinid* (*Littorina kraussi. L. scabra, L. undulata* and *Peasiella roepstorffiana*). *Planaxis sulcatus* occurs in large colonies in this zone, the Morulas, *Morula granulata* and *M. uva* are also common and the cowrie *Cypraea caputserpentis* is common in rocks clefts typified by strong wave action.

Rocky shores also harbor large crab populations (*Grapsus* and *Geograpsus* spp) and occasionally the distinctive *chiton*, *Acanthopleura brevispinosa.* Accessible rocky shores are intensively harvested for shell fish for both domestic and commercial use. Increasingly physical development is encroaching in these areas to meet the demand for seaside properties.

2.5 Protected Areas

The terrestrial Protected Area Network (PAN) constitutes 46.6% of Seychelles' total landmass, an enormous commitment to biodiversity conservation. Furthermore, recently the Government stated the political objective of incorporating more than 50% of Seychelles landmass in the PAN and preliminary approval has been given for the declaration of additional areas to take the total over 50%. These percentages are very impressive, but perhaps more important than the quantity is the quality of protected areas in question. The vast majority of Seychelles endemic biodiversity is to be found in the ancient granitic inner islands. Within the granitic islands however, 22.3% of the landmass or significantly less than the national average is currently protected.

Marine Protected Areas (MPAs) in Seychelles present a very different scenario. Seychelles was the first country in east Africa to establish a network of MPAs, but at the time of their selection they were primarily chosen for touristic utility, as opposed to biodiversity criteria, as at that time the marine environment was still of a relatively homogenous high quality. Subsequent human development activities and impacts, and notably the 1998 coral bleaching event, have changed that scenario. Furthermore, unlike the terrestrial

scenario where nearly 50% of the landmass lies within the PAN, the existing MPAs in Seychelles constitute less than 1% of the country's Exclusive Economic Zone (EEZ).

In Seychelles there are at least the following five different types of MPAs: marine national park, shell (mollusk) reserve, special reserve, protected areas, and strict natural reserve. The Seychelles Government has recognized this shortfall in the marine domain and has initiated a marine spatial planning process with the ultimate objective of designating 30% of the EEZ as protected. Half of that area, or 15% of the EEZ, is to be designated as strict no-take zones.

2.6 Marine Fauna

(a) Marine Mammals

According to a UNEP report (2008), two orders of marine mammals (Sirenia and Cetacea) occur in Seychelles waters. In 1963, the humpback whale was officially protected in the southern hemisphere but captures continued up to 1974. In 1979, the Indian Ocean Whale Sanctuary was created prohibiting the further capture of whales.Today, both baleen (Mysticetes) and toothed (Ondoctocetes dolphins, beaked whales and sperm whales) whales are still found in the Seychelles. Over 26 species have been observed, comprising 7 dolphin species of which 4 are common and 19 whale species.Some of these species such as the Bottlenose dolphin (Tursiops truncates) and sperm whale (Physeter microcephalus) are regularly sighted whereas others such as the Blue whale (Balaenoptera musculus) are rare. The most important areas for cetaceans in the Seychelles include the area north and south of the Mahé Plateau, the Amirantes and the area around the Aldabra atoll. There have been no specific studies to investigate whether these areas are important breeding, foraging or resting grounds. The Marine Conservation Society of Seychelles (MCSS), a locally-based NGO, has been active in monitoring and management of marine mammals in the Seychelles. In 2005 an informal Marine Mammal Observatory was set up to provide a central collection point for opportunistic as well as formal marine mammal sighting data. Seychelles is also a party to the Convention on Migratory Species (CMS).

(b) Birds

The Seychelles' high ornithological profile is partly due to the vast amount of breading seabirds that occur within its EEZ. Despite the fact that the archipelago is not situated along any important migratory routes, some colonies of Frigate spp. regularly consist of more than 1 million birds and hence, are amongst the largest colonies in the world. Hence, seabird conservation is of great importance in maintaining both national and international bird biodiversity. To date, 18 species of seabirds are known to breed in the Seychelles.

(c) Sea turtles

Four species of sea turtles are found in Seychelles waters. However, only the Green turtle (Cheloniamydas) and the Hawksbill turtles (Erethmochelys imbticata) nests in the Seychelles. Hawksbill turtles nest mainly in the granitic islands whereas Green turtles nest mainly in the outer islands. The other 2 species found in Seychelles waters are the Leatherback turtle (Dermochelys coriacea) and the Loggerhead turtle (Caretta caretta). The Seychelles hosts 1 of the 5 most significant populations of hawksbill turtle, which is listed as critically endangered. There has been a decline in the number of female nesting hawksbill turtles over the past few decades. Fortunately, some of the most important nesting sites have protected status either as special reserves or as marine national parks. For green turtles, the numbers of nesting females appear to have increased significantly during the past few decades. The Marine National Parks of Ste. Anne and Curieuse and the two Special Reserves of Cousin and Aride and the island of Cousine remain some of the most important hawksbill nesting sites in Seychelles. Aldabra atoll, in the outer islands, is both a Special Reserve and a UNESCO World Heritage site and has one of the largest populations of nesting green turtles in the World. All species of turtle are protected in Seychelles.

(d) Sharks

There are over 100 species of sharks and rays known to ocurr in the Seychelles and it is estimated that there is between 50,000 and 56,000 Mt of shark biomass on the Mahé Plateau with an additional 34,000 Mt on the other banks. The whale shark is also common in Seychelles waters and is protected. Many other species of sharks are targeted or taken as bycatch in artisanal, semi-industrial and industrial fisheries. A number of regulations prescribe measures for shark fisheries, while Seychelles has recently prepared its second National Plan of Action for the Conservation and Management of Sharks (2016-2020). Some oceanic sharks are also subject to monitoring and regulations under the auspices of the Indian Ocean Tuna Commission.

(e) Sea Cucumber

The sea cucumber fishery in the Seychelles has seen a rapid development during the past decade or more. By 1999 there were already signs of population depletion, including lower volumes of high value species and fishers having to travel further and dive deeper to maintain catch rates, and concerns were raised regarding the sustainability of the fishery. The fishery moved to a limited access regime in the early 2000s to prevent a worsening of overexploitaion, with the introduction of a maximum of 25 licenses and limits on the number of divers operating under each license. As a result a survey of sea cucumber density at 246 sites throughout the Amirantes and Mahé Plateau was undertaken by SFA in 2004. Two species were considered as over exploited, 3 as fully exploited, and the remainder as either under exploited or at virgin levels. Efforts to introduce total allowable catches for sea cucumbers based on the outcome of the survey were unsuccessful. Despite the limited access, effort was relatively unconstrained and the fishery progressed to exploit most divable habitat on the banks and plateaux by 2010. Catches of high value species continued to rise until 2011, but have subsequently exhibitied year-on-year declines.

2.7 Fish Resources

The vast majority of fish found in Seychelles are wide ranging species that extend across the Indian Ocean to the western or mid Pacific Ocean. In addition to open ocean pelagic waters, which constitute the bulk of the EEZ, Seychelles is characterized by a series of continental shelves with a total surface area of almost 50,000 km^2. Therefore, there are a wide range of marine habitats for fishes, including shallow water fringing reefs, granitic reefs, banks, plateaus, shelves and drop-offs, atolls, lagoons, seamounts, abyssal and pelagic habitats.

Seychelles waters are relatively rich in fishing resources. A total of 1196 marine species belonging to 140 families have been recorded in Seychelles. However, a relatively low percentage of these species are targeted by the fisheries sectors (industrial, semi-industrial or artisanal).

It has become increasingly apparent since the mid-1980s that the demersal fishery resources of the Mahé Plateau were being overexploited. Initially, it was considered a concern of the inner reefs and policies were introducted to relocate fishing pressure to offshore banks. Analysis of Vessel Monitoring System data indicate that the entire plateau is now heavily exploited, with fishery indicators and stock assessments presenting evidence of overfishing for high value species. . This is particularly apparent in the decline of the occurrence, diversity and abundance of *Serranidae* on the plateau, with several species now very scarce or absent from the Mahé Plateau catch. Declines and overfishing are also apparent in the emperor red snapper (*Lutjanus sebae*) and the brownspotted grouper (*Epinephelus chlorostigma*).

2.8 Socioeconomic Characteristics

(a) Demographics

The Seychelles population stood at 94,677 in mid-2016, comprising 47,343 males and 47,334 females. The population growth rate is 1.3% since 2015. The Seychelles population is projected to grow to some 100,000 in mid-2020 and to reach 108,000 in mid-2045. There are indications that the Seychellois population is slowly growing older. The growth rate is projected to decrease steadily to as low as 0.1% from 2042 to 2045.

The population is mainly located on the three main islands of Mahé, Praslin and La Digue. 78.9% of the population is located on Mahé Island, 8.7 % on Praslin and the rest (3.7%) on La Digue and the Outer Islands. The average household size in 2013 was 3.4 persons, down from 3.7 persons in 2010. In 2013, the number of households were 28 367.

(b) **Ethnicity**

The ethnic groups in Seychelles consist of primarily the Seychellois Creole at 89%, with Indian (5%), Malagasy (3%) and Chinese (1%) making up the rest. Most citizens consider themselves as Seychellois. The constant flux of immigrants to Seychelles, initially from continental Africa, Europe and the Indian sub-continent, and later from China, have created an ethnically diverse population.

(c) **Employment**

In 2015, the national literacy rate was 95.32%. According to 2012 figures, the literacy rate is almost even for both genders, with male at 91.4% and female at 92.3%. These figures are noteworthy, when considering that the 2004 literacy rate was 88%.

Seychelles is classified as a high income country. The national unemployment rate in 2014 was 3%, decreasing from 3.3% in 2013. In comparison, the national unemployment rate reached 4.2% in the second quarter of 2016. In the latter year, the female unemployment rate (4.6%) was higher than that of the males at 3.9%.

The private sector provides the majority of employment within this sector and is steadily growing. Employment in public sector shows a relative stability, while employment within the parastatal sector showed slight but constant growth. The highest concentration of workforce occurs in the accommodation and food service activities (19%), while the second largest industry is that of construction (12%).

(d) **Land Use**

Almost half of the land (about 47%) is protected by a number of conservation areas. Arable land includes approximately 10,000 ha, of which about 60% consists of coconut and other tree-crop plantations. A large amount of arable land has been used for other purposes, especially for housing.

On the major granitic islands, 42% of the land is covered by forests. Forest cover consists of unprotected natural forest (41%), national park forests (48%) and plantations (11%). Forested areas do not lend themselves to other uses due to the topography of the land. However, as land availability decreases, housing developments are rapidly encroaching into the higher forested areas.

Industrial developments include coconut oil and soap manufacturing factories, a tuna-canning operation and various related operations. Land is also needed for public utilities such as sewage works and desalination operations. On Mahé, the airport, the Victoria Sewage Works and the desalination plant are all located on reclaimed land. Other industries and some housing are also located on reclaimed land

2.9 Economic Activities

(a) Fisheries Sector

As mentioned in the first section, Seychelles has a well-developed fishing sector that is a vital part of the social and economic development of the country. Fishing alone accounts for around 8 per cent of the Gross Domestic Product (GDP) and around one sixth of employment. It is the country's largest foreign exchange earning sector.

It is estimated that the fishing sector, including ancillary activities, generates both directly and indirectly around 6,000 jobs, amounting to about 17% of total formal employment. Since 2004, the percentage of fisheries contribution to the total GDP has been increasing from 6.4% to 7.7% in 2008. It is believed that if

all fisheries-related activities were taken into account, the annual true contribution to GDP would be between 15 and 20%. The per capita consumption of fish in Seychelles is one of the highest in the world at around 54-65 kg/person/year.

Small-Scale Fisheries

Subsistence and semi-industrial small-scale fishing contribute between 1% and 2% to GDP annually. Land-based economic opportunities are very limited in the Seychelles. Fishing is, therefore, an integral source of income, employment, food security and foreign exchange in the country. Of the total employment generated by the fisheries sector, some 30% of which is in the small-scale fisheries, and 10% of the population is reliant on income from the small-scale fishing sector.

The estimated number of full-time fishers employed in the artisanal demersal fishing sector in 2007 amounted to approximately 1,050, plus an indeterminate number of part-time and recreational fishermen. It has been estimated that full-time demersal fishers represent 62% of the total number of fishers in the artisanal fisheries sector and account for 73% of total fish landings. The number of persons employed in the land-based artisanal fisheries processing sector is approximately 200 (including around 25 part time workers).

The artisanal fisheries, which are largely open access, provide the bulk of all fish consumed locally. Catches in the commercial sector of the artisanal fishery have declined steadily from 4778 tons in 2008 to 2511 tons in 2012, but have increased to 4135 tons in 2013 (as a consequence of an increase in effort). Landings of the sport and recreational sectors, which are suspected to be significant, are however unknown. The submarine banks of Seychelles form the basis of the artisanal fisheries, providing vital food security, employment and high value trade commodities. The Mahé Plateau is of particular importance. This shallow bank of some 39,000 km^2 supports important demersal fisheries such as: *Lethrinidae, Lutjanidae, Scaridae, Serranidiae, and Siganidae*. Some 100 species of demersal fish are commonly caught. Also important are the sea cucumber, lobster and octopus fisheries.

The artisanal fisheries, practiced solely by Seychellois fishers, comprise a variety of vessel and gear types. Although still used in a few near-shore areas, the traditional wooden canoes have largely been replaced by more powerful craft. The fleet is now dominated by small fiberglass boats powered by outboard motors (over 15 horsepower) and partially decked whaler vessels powered by inboard motors. Until the introduction of the schooner fishery in 1974, the fleet was largely restricted to near-shore fishing grounds on the Mahé Plateau, but now have moved further offshore. The outlying coralline islands and atolls are less exploited. The main gear type is hook and line, with bamboo traps, beach seines, droplines and longlines of lesser importance. Spear guns and shark gill nets are prohibited in Seychelles, as is the use of trawl nets to target demersal resources.

Semi-Industrial and Industrial Fisheries

Within the Seychelles EEZ, semi-industrial and industrial fishing is practiced by a combination of fleets of local- and foreign-owned vessels, primarily capturing Bluefin and Bigeye tuna. Semi-industrial fishing comprises locally-owned longliners plying techniques such as longlining, handlining and droplining to land swordfish and tuna, whereas industrial fishing is comprised of foreign-owned long-liners and purse seiners. Over 110,000 tons of fish were landed by semi-industrial and industrial fishing within the Seychelles EEZ in 2013.

The semi-industrial fisheries have a large-pelagic longline component, a demersal hook and line fishery and a sea cucumber diving component. Most of the fish from these fisheries, except for a small proportion of linefish and tuna, is exported. As a result of the semi-industrial and industrial fisheries within the Seychelles EEZ, the second largest cannery in the world is the leading EMPloyer in the Seychelles, with a workforce of over 2,500.

Tourism and Recreation

A major contributor to the GDP of Seychelles is tourism, amounting to 25.6% in 2010, which is an increase of 2.2% from 2007. The tourism industry directly employed 25% of the labor force and generated in the order of $270 million per year in 2012.

The sport and the recreational sectors target demersal fish species. The sport fisheries are a relatively small sector made up of licensed super ski boats, primarily taking tourists out for big game fishing for species such as wahoo, dolphin fish, sailfish, tuna and marlin. The main gear type used is trolling; however, some handline fishing for demersal species are also conducted. Its contribution to the coastal livelihood is relatively unknown, as there are few data collected for these fisheries. Similarly, the monitoring of recreational fisheries is virtually nonexistent, since anyone can fish for leisure or as a hobby in Seychelles, and no license is required for recreational fishing. Recreational fishers are mostly active during the evenings and weekends, and most of this catch is commercialized.

Agriculture and Forestry

Due to the restrictive nature of land-based opportunities in Seychelles, agriculture and forestry contribute considerably less to the GDP than the more lucrative tourism sector. There has recently been a revival in the traditional exports of cinnamon and copra, as the government provides incentives to the sector to increase productivity. The heavy reliance on the importation of staple foods means that food security remains an issue. This is in spite of the country becoming mostly self-sufficient in eggs, poultry and pork during the late 1990s.

Most agricultural practices are focused in the South of Mahé. They consist mainly of small-scale commercial farming that is conducted in small open fields and greenhouse tunnels. The mountainous terrain and low soil fertility of the Seychelles greatly reduce productivity in the agricultural sector.

3.0 LEGAL, INSTITUTIONAL AND POLICY FRAMEWORK

This chapter discusses the Seychellois legal, institutional and policy framework applicable to the SWIOFish3 Project.[3] Given the nature of the Project, this chapter focuses on the Environmental and Social Impact Assessment (ESIA) process in the country, and the pertinent frameworks for protected areas, the fisheries sector and the blue economy.

3.1 ESIA Process

3.1.1 Institutional Framework

The Ministry of Environment, Energy and Climate Change (MEECC) is responsible for administering the Environmental Protection Act, 2016 (Act 18 of 2016). The functions of the Ministry are established in Section 4 of the Act, as follows:

(i) administer, implement and enforce the provisions of this Act;
(ii) develop and implement policies, programmes and guidelines in pursuance of the national objectives on environment protection;
(iii) co-ordinate the activities of other agencies concerned with the protection of the environment –
  (a) under this Act; or
  (b) under any other written law for the time being in force which relates to the objects of this Act;
(iv) develop, evolve and where necessary adopt standards for the quality of the environment in its various aspects and for emission or discharge of environmental pollutants from any source whatsoever;
(v) commission research and sponsor studies on problems relating to environmental pollution;
(vi) examine such manufacturing processes, materials and substances as are likely to cause environmental pollution;
(vii) identify areas in which any activity shall not be carried out or shall be carried out subject to certain safeguards;
(viii) develop, evolve and where necessary adopt procedures and safeguards for the prevention of accidents which may cause environmental pollution and remedial measures for such accidents;
(ix) collect and disseminate information in respect of matters relating to environmental protection;
(x) co-ordinate actions required in a state of environmental emergency or any other situation which may pose a serious threat to the environment; and
(xi) prepare manuals, codes or guidelines relating to environmental protection and for the prevention, control and abatement of pollution.

The MEECC manages the ESIA process in the country, specifically through the Environmental Assessment and Permit Section (EAPS) within the Department of Environment.

3.1.2 Legal Framework

The Environment Protection Act, 2016 (Act 18 of 2016) provides for the protection, preservation and improvement of the environment and for the control of hazards to human beings, other living creatures, plants and property. The Act also provides for the coordination, implementation and enforcement of policies pursuant to the national objectives on environment protection.

Section 44 (1) of the Act establishes the requirement of an Environmental Authorization for any development defined in the Act (e.g., land subdivisions, reclamation works, construction of new roads or sea walls, etc.), any "prescribed project or activity" or any project or activity proposed in a protected or

[3] This chapter is based on the following sources: Carolus, 2015; SFA, 2016; and Vivid Economics, 2015a, with some paragraphs following very closely the contents of Carolus, 2015.

ecologically sensitive area. The Environmental Authorization is granted or denied based on the review of an Environmental Impact Assessment (EIA) Class I. Sections 45, 46 and 47 of the Act deal with EIAs.

Schedule 1 of the Environment Protection (Impact Assessment) Regulations of 1996, titled "Projects or Activities Requiring Environmental Authorization," lists the "prescribed projects and activities" mentioned in the Act. Schedule 1 includes:

"4 Fish and associated products farming:
4-1 Fish farming works and extension, aquaculture.
4-2 Fish processing plants and equipment."

Based on the above, the Seychellois environmental regulations require the preparation of an Environmental and Social Impact Assessment (ESIA) for some of the types of sub-projects likely to be included in Sub-component 3.2 (Expansion of the Sea-Food Value Chains) of the SWIOFish3 Project (see Section 6.1, Chapter 6.0, for a list of potential sub-projects). The Environmental and Social Management Framework (ESMF) complies with these regulations by specifying the requirement of an ESIA for the medium and low risk types of fisheries sub-projects listed in Schedule 1 (detailed in Chapter 6.). Annex X provides an overview of the ESIA process in Seychelles.

3.2 Protected Areas

The Convention on Biological Diversity is the main international commitment that Seychelles has vis-a-vis Protected Areas. Seychelles committed to protection of 30% of its marine area in Rio+20 (2009). These obligations are furthered in the newly developed Protected Areas Policy 2013 and the National Biodiversity Strategy and Action Plan 2015- 2020. Seychelles is also a party to several other conventions or initiatives that concern protected areas, including UNCLOS, the Ramsar (Wetlands) Convention, the World Heritage Convention, the Migratory Species or Bonn Convention and the International Coral Reef Initiative.

3.2.1 Institutional Framework

The following institutions are involved in the management of marine protected areas: Department of Environment within the Ministry of Environment, Energy and Climate Change (MEECC), the Seychelles National Parks Authority, the Seychelles Fishing Authority, the Seychelles Islands Foundation and several Non Governmental Organizations, including Nature Seychelles and the Islands Conservation Society.

3.2.2 Legal Framework

The following pieces of legislation are relevant:

- National Parks and Nature Conservancy Act (1969): establishes 4 categories of protected areas: Strict Nature Reserves, Special Reserves, National Parks, and Areas of Outstanding Beauty. In addition, it established the National Environment Commission to coordinate all activities in Seychelles, including activities of the Government, concerned with conservation or management of the environment. The Commission can by order published in the Gazette, designate any area as a National Park, a Strict Natural Reserve, a Special Reserve or an Area of Outstanding Natural Beauty.
- Fisheries Regulations (1987): make provision for protected areas where the use of any net, which is operated by being dragged across the seabed is prohibited. In addition, foreign vessels are prohibited from fishing within nine zones of the EEZ – Industrial Fishing Exclusion Areas.
- Protected Areas Act (1967): establishes that protected areas may be declared if it is found to be necessary or expedient in the public interest that special precautions should be taken to prevent the entry of unauthorized persons to such areas, place or premises.
- Beach Control Act (1971): Regulations for controlling use of the seashore and inshore waters, which includes prohibition or regulation of fishing by such means as may be prescribed within designated areas of the inshore waters of the sea.

- Forest Reserves Act (1995), which allows the designation of forest reserves and stipulates permits and penalties related to destruction, removal of any trees, wood or forest produce. Written permits issued by the Chief Agricultural Officer are required for movement within forest reserves, including being accompanied by a forest officer of delegate.
- Wild Birds Protection Act (1966) lists the nature reserves and the birds that are protected from purchase, sell or exhibit for sale, or export and tampering with the eggs or nests.

3.2.3 Policy Framework

Debt-for-Climate-Adaptation Swap and marine spatial planning

Seychelles has embarked on the debt-for-climate-adaptation swap that redirects a portion of Seychelles' debt payments to fund nature-based solutions to climate change. The redirected portion of the debt service goes through an independent public-private trust fund call the Seychelles Conservation and Climate Adaptation Trust (SeyCCAT), which was established by a bill in 2016. The primary mechanism is to improve the ecological resilience through a commitment by Seychelles to protect 30% of its marine area. To identify areas for protection, the MEECC is leading the Seychelles Marine Spatial Planning (MSP) initiative, a multistakeholder planning process supported by The Nature Conservancy. The MSP initiative aims to identify and protect high and medium biodiversity areas (about 15% of coverage of each in the EEZ) and to define compatible uses for each area, including fisheries.

Seychelles Protected Areas Policy (2013)

The vision of the Policy is to have a Protected Areas System on land and in the sea that protects and conserves high quality, comprehensive and ecologically representative examples of Seychelles natural diversity and cultural heritage, and that provides ample opportunities for the fair and equitable sharing of the benefits arising from the sustainable use of these resources.

The principal goal of the policy is to achieve an effective and multi-use protected area system that is representative, comprehensive and balanced, and to maintain the highest quality examples of ecosystems within the country by engaging all stakeholders. The Policy establishes the following five categories of protected areas: (i) Strict Nature Reserve (IUCN Ia); (ii) Ecological Reserve (IUCN IV); (iii) National Park (IUCN II); (iv) Protected Landscape/Seascape (IUCN V); and (v) Sustainable Use Area (IUCN VI). Legislation that gives effect to the policy has been drafted (the Nature Protection and Conservancy Bill) and is expected to be presented for review by the National Assembly in 2017.

Seychelles Sustainable Development Strategy 2012-2020

The Strategy sets out goals and corresponding strategic objectives in the thematic area of Biodiversity and Forestry. The two goals are as follows: (i) Goal 1: conserve and manage terrestrial and aquatic biodiversity to ensure sustainable use and equitable benefits to the people; and (ii) Goal 2: Improve our understanding of biological diversity and ecosystem functioning in a changing environment.

National Biodiversity Strategy and Action Plan (NBSAP) 2015-2020

The NBSAP addresses Seychelles' obligations under Article 6a of the Convention on Biological Diversity. It establishes climate change as a cross-cutting threat and complicating factor in assessing priority threats to terrestrial biodiversity and is also seen as a major threat to the conservation and sustainable use of marine biodiversity, in particular the biodiverse habitat of coral reefs. Furthermore, the document sees overfishing as the primary threat in marine ecosystems. The combined effect of overfishing and raised sea temperatures is discussed with regards to the impact on reef systems. The NBSAP further discusses the legal basis and classification of the Seychelles Protected Area Network, as well as problem areas such as its representative nature, the shortfalls in Marine Protected Areas, management issues and lack of sustainable financing mechanisms.

3.3 Fisheries

3.3.1 Institutional Framework

The Ministry of Agriculture and Fisheries (MAF) is responsible for providing policy directions for the fisheries sector. The Seychelles Fishing Authority (SFA), a line agency of MAF, is the executive arm of government for fisheries. SFA was incorporated by the Seychelles Fishing Authority (Establishment) Act of 1984, which specifies that the role of the parastatal is to: (i) promote, organize and develop fishing, fishing industries and fishing resources in Seychelles; (ii) assist in the formulation and the implementation of the national policy with respect to fishing, fishing industries and fishing resources; (iii) conduct negotiations, or engage in meetings, seminars or discussions, with regard to fishing or fisheries or the establishment or operation of fishing industries, whether at a national or international level, on behalf of the Republic or otherwise; and (iv) identity the manpower training requirements of Seychelles with regard to fishing and fishing industries.

3.3.2 Legal Framework

Fisheries Act (2014)

The Fisheries Act (2014) provides for the management and sustainable development of fisheries, including aquaculture. The Fisheries Act (2014) also makes provision for the licensing of fishing vessels, the regulation and enforcement of fishing activities, and offences. The Act provides SFA with the mandate to manage and sustainable develop fisheries in accordance with: (1) internationally recognized norms, standards and best practices, including the United Nations Convention on the Law of the Sea (1982) and the FAO Code of Conduct for Responsible Fisheries 1995; and (ii) an ecosystem approach to fisheries which ensures that the development and management of fisheries addresses the multiple needs and desires of the society without jeopardizing the options for future generations to benefit from the full range of goods and services provided by marine ecosystems. The Fisheries Act seeks to implement the international and regional fisheries obligations that Seychelles is party to, including Conservation and Management Measures of the Indian Ocean Tuna Commission. Under the Act, the SFA has the mandate to prepare and keep under review a plan for the management of fisheries. To this end, the Praslin Artisanal Trap and Line Fishery Co-Management Plan 2013 (revised in 2015) has been developed and the Mahé Plateau Trap and Line Fishery Co-management Plan is its final stages of preparation. A Mariculture Master Plan (MMP) is currently being developed.

Fisheries Regulations (1987)

The Fisheries Regulations (1987) were prepared under the previous Fisheries Act (1987) and are in the process of being revised to conform to the 2014 Act. Until such time, the provisions of the 1987 Regulations remain in force.

Some relevant provisions are contained in the following 15 regulations: (i) requirements and conditions of license for a fishing vessel (Regs 3 and 6); (ii) designation of No fishing Zones (First Schedule); (iii) licenses for use of nets, including demersal nets (Regs 10 and 14); (iv) designation of protected areas where the use of any net which is operated by being dragged across the sea bed is prohibited (Reg 15); (v) prohibition to place any net in any reef pass or channel in such a way as to obstruct the passage of fish (Reg 16); (vi) prohibition on use, possession, sale of a spear gun for fishing (Reg 18); (vii) licensing of fishing sea cucumbers (Reg 19A); (viii) regulation on female crustaceans (Reg 20); (ix) return to the sea of protected aquatic organism unintentionally caught (Reg 22); (x) protection of fish or other aquatic organism from in any net, trap, line, fish aggregating device or other fishing gear (Reg 23); (xi) aquaculture (Reg 24); (xii) prohibition on landing or transhipping of any fish caught contrary to international management measures (Reg 24A); and (xiii) the regulation of live trade of wild finfish and other marine species (Reg 25A). Foreign vessels are prohibited from fishing within nine zones within the EEZ, termed the Industrial Fishing Exclusion Areas.

Licenses (Fisheries) Regulations (1987)

The regulations, prepared under the Licenses Act 2010, provide for the licensing of foreign and local fishing vessels.

Other Relevant Legislation for the Management of Fisheries and Marine Resources
These pieces of legislation include:

- The Maritime Zones Act (1999), which establishes the boundaries for Seychelles' maritime zones, the territorial sea, archipelagic waters, contiguous zone as well as the exclusive economic zone and the continental shelf;
- The Environment Protection Act (1994), which serves to ensure that all development and activities, including fisheries, are subject to environmental controls; and
- The National Parks and Nature Conservancy Act (1969), which provides the legal instrument to establish and manage marine protected areas for fisheries conservation, as well as other purposes.

Fisheries Policy
The Fisheries Policy 2005 remains the guiding policy for the sector with the main aim of promoting conservation and management of marine resources in order to ensure the sustainability and long-term viability of the industry. The policy emphasizes the importance of a precautionary approach to management. Specific policy objectives include the promotion of sustainable management and responsible fishing practices, and the development of the sector to provide food security, employment, income, and foreign exchange earnings, while ensuring the effective protection of the marine ecosystem. It further seeks to maintain Port Victoria as the major hub for tuna landings and transshipment in the region, and to encourage greater use of the port by longliners, through investments in port infrastructure, services and processing.

The Seychelles National Agricultural Investment Plan (SNAIP) 2015-2020, which aligns with the National Food and Nutrition Security Policy (2013), identifies programmes of support for the fisheries and aquaculture sector. The Seychelles Sustainable Development Strategy (2012-2020) also sets out goals and corresponding strategic objectives in the thematic area of Fisheries and Marine Resources. The two goals are as follows: (i) Goal 1: manage demersal, semi-pelagic and pelagic resources in the Seychelles EEZ sustainably; (ii) Goal 2: develop a sustainable mariculture industry in Seychelles.

As mandated by the Fisheries Act (2014) and to meet policy aims and objectives, SFA is required to maintain active fisheries management plans. While many fisheries are regulated, in terms of licensing and technical measures, operational fisheries management plans, developed and implemented in accordance with international best practice, are currently lacking. To address this, SFA have recently collaborated with stakeholders to draft the Praslin Artisanal Trap and Line Fishery Co-Management Plan 2013 (revised in 2015) and the Mahé Plateau Trap and Line Fishery Co-management Plan. Measures that will be introduced by the plans in early phases include the development of a fishery-specific licensing framework, with the ultimate objective of ending open access, as well as minimum size limits for key species and recreational fishery bag limits. Both plans are pending implementation. A fishery co-management plan for sea cucumber will also be supported under SWIOFish3, as well as a tuna fishery development plan that will address fleet capacity management.

The development of an aquaculture sector has been prioritised by the Seychelles government as a core component of the Blue Economy. A MMP has been drafted by SFA and MAF, which describes the strategic development of an aquaculture industry across four different zones – land-based, inshore, aquaculture development zone and offshore. A detailed Environemntal and Social impact Assessment has been completed for implementation of the MMP.

3.4 Blue Economy

3.4.1 Institutional Framework

Seychelles has adopted a strategic development agenda built conceptually on the blue economy, which recognises the challenges of reconcilling economic growth while maintaining the integrity of socio-ecological systems. The concept was formally launched at the First Blue Economy Summit co-hosted by Seychelles and Abu Dhabi in 2014. A focus on the blue economy aims to support implementation of the Paris Climate Change Agreement and Sustainable Development Goal 14 on the Oceans, and its related targets. The importance of the ocean to sustainable economic development was recognised by the formation of a Department of the Blue Economy, under the the Ministry of Finance, Trade and the Blue Economy, in 2015. In late 2016, the Department migrated to the Office of the Vice-President. Seychelles has prepared a National Blue Economy Roadmap to support its transition to a more integrated and sustainble ocean-based economy.

3.4.2 Legal and Policy Framework

The blue economy concept seeks to work with existing legal and institutional structures for ocean-based sectors rather than créate parallel structures. The blue economy roadmap, currently being developed, aims to increase the data and knowledge on ocean hábitats and ensure knowledge-based intregation of policy and development across the two main sectors of economy, namely fisheries and tourism. The roadmap will focus on improved fisheries management through equitable, non-subsidised and sustainable practices. Protective measures will be enhanced, including improvements to monitoring and survelliance tools. Capacity building, research and innovation are central components. The Department of Blue Economy is also supporting the development of new ocean-based economies, in particular renewable energies, marine biotechnology and aquaculture.

3.5 Institutional and Implementation Arrangements for SWIOFish3

SWIOFish3 will be implemented jointly by the Ministry of Finance, Trade and Economic Planning (MFTEP), the Ministry of Fisheries and Agriculture and the Ministry of Environment, Energy and Climate Change**.** The MFTEP will lead the implementation of the project. It has the mandate, convening power and vision necessary to oversee the preparation and implementation of the project, as well as sufficient management and fiduciary capacity to ensure efficient coordination of project activities. The two other ministries have the technical expertise to implement the project activities but lack the necessary workforce. Each ministry will be responsible for the implementation of its activities, and the Project Implementation Unit (PIU) at the MFTEP will act as the coordinating body. Focal points will be appointed within the Ministry of Fisheries and Agriculture and the Ministry of Environment, Energy and Climate Change. Additional focal points in other implementing entities could be appointed as required. These focal points will be in charge of the planning, implementation and reporting of the project activities pertaining to their agency.

An ***Environmental and Social (E&S) Specialist Officer at the PIU*** will be responsible for the implementation of all steps presented in the environmental management framework of the ESMF. The facilitation of the preparation of environmental and social mitigation instruments, such as EIAs, ESMPs and RAPs, requesting for environmental clearances from relevant authorities where applicable, and monitoring/reporting on compliance of due diligence mechanisms set forth in the ESMF and relevant trainings. He/she will be responsible for the implementation of environmental and social management plans and grievance mechanism; conduct regular monitoring visits, liaison with other agencies, contractors and engineering supervisors at the island level; monitoring and evaluation; and training for all safeguards assessments as required.

4.0 APPLICABLE WORLD BANK SAFEGUARDS POLICIES

The SWIOFish3 Project is classified as Category B in the World Bank Draft Project Appraisal Document, indicating that moderate and minor negative environmental and social impacts and risks are anticipated.

Table I: Applicable World Bank Safeguards Policies

Safeguard Policies	Triggered?	Explanation
Environmental Assessment OP/BP 4.01	**Yes**	The project will fund sub-projects dealing potentially with aquaculture, facilities to process fish and fish byproducts, facilities for cold storage, and service enterprises for cold storage and cold-chain maintenance, vessel services and vessel refitting. All of the above potential sub-projects are small to medium scale, which are likely to generate minor to moderate negative environmental and social impacts and risks that can be prevented and managed with standard mitigation measures.
Natural Habitats OP/BP 4.04	**Yes**	The Project includes some activities which will lead to the improved management and protection of marine and coastal ecosystems that serve as habitats for fauna species of commercial and recreational value, as well as species important to overall ecosystem health and functioning. The likely sites for aquaculture sub-projects are certain pre-established coastal and marine areas, some of which are natural habitats for aquatic fauna. As stipulated in Seychelles environmental regulatory framework, the ESMF requires the preparation of an Environmental and Social Impact Assessment for each of these sub-projects.
Forests OP/BP 4.36	**No**	The Project will not be implemented in forested areas.
Pest Management OP 4.09	**No**	The Project does not require the use of pesticides.
Physical Cultural Resources OP/BP 4.11	**No**	There are no comprehensive surveys of shipwrecks in Seychelles (SFA, 2016, p. 97) and a recent study found no records or publications on maritime or terrestrial archaeological work in Seychelles. The development of the small and medium scale aquaculture sub-projects likely to receive financing under the Project will not disturb the sea floor where shipwrecks might be found. However if any historic or cultural property or site is found, procedures to be followed have been defined in this ESMF
Indigenous Peoples OP/BP 4.10	**No**	There are no indigenous peoples settled in the area of implementation of the SWIOFish3 Project.
Involuntary Resettlement OP/BP 4.12	**Yes**	Sub-component 2.1: Fisheries Management Plans and Sub-component 1.1: Expansion of the Medium Biodiversity Areas involve support in developing and implementing fisheries co-management plans and the marine spatial plan, as well as their associated regulatory frameworks. Although these sub-components will lead to the sustainable management of marine resources, in the short to medium term they will affect the livelihoods of fishing- and tourist-related enterprises, communities and individuals that currently have open access to the areas and resources that will be subjected to much stricter protection, management and regulation. In addition, the fleet licensing scheme included in the fisheries co-management plans will result in the decommissioning from service of some fishing and tourism vessels, and the consequent displacement

Safeguard Policies	Triggered?	Explanation
		from fishing and tourism activities of affected vessel owners, operators and fishers. Following the guidelines established in OP/BP 4.12, a separate report includes a Process Framework to address the impacts of the restriction of access to marine and coastal areas and resources.
Safety of Dams OP/BP 4.37	**No**	The SWIOFish3 Project does not involve the construction, rehabilitation or upgrade of dams.
Projects on International Waterways OP/BP 7.50	**No**	The SWIOFish3 Project will not be implemented on international waterways.
Projects in Disputed Areas OP/BP7.60	**No**	The SWIOFish3 Project will not be implemented in disputed areas.

Sub-Project Activities and Possible Sub-Projects Types that Raise Environmental and Social Concerns

The overall environmental and social impact of the SWIOFish3 Project will be positive, with many of the activities included in its sub-components likely to pose minimal or no negative impacts or risks, such as those involving capacity building and technical assistance, research, monitoring and control of natural resources and economic activities, improvement of the fisheries statistics system, and finalization and approval of marine resources management and co-management plans. However, some sub-component activities as well as some types of sub-projects likely to receive funding under SWIOFish3 have the potential to generate negative environmental and social impacts and risks, mostly of minor to moderate magnitude, because they involve the construction of physical structures, limitation of access to economic activities associated with the use of marine resources, capture and cultivation of fish species not currently exploited commercially, and operation of fish and fish byproducts processing facilities that utilize hazardous and toxic materials and release organic and chemical contaminants. Annexes I and II lists the potential positive impacts as well as the potential negative impacts and risks of the Project.

In order to ensure that the ESMF is tailor-made to the characteristics of the SWIOFish3 Project, Table II below identifies the various activities and sub-project types likely to receive funding and anticipated to produce negative impacts and risks.

Table II: Sub-Project Activities and Possible Sub-Projects Types that Raise Environmental and Social Concerns

Project Sub-Component	Sub-Component Activities/Possible Sub-Projects	Environmental and Social Concerns
Sub-component 2.1: Fisheries Management Plans. Sub-component 1.1: Expansion of the Medium Biodiversity Areas	Implementation of management plans and associated regulatory frameworks	At present, there are virtually no restrictions regarding the species and amount of fish caught, or the seasonality of the capture. Implementation of the ***Fisheries Management Plans and the Marine Spatial Plan*** will limit the open access[4] that fishers and tourist users currently have to practically all marine areas, with the exception of protected areas[5]. The ***Fisheries Co-Management Plans for Sea Cucumber and Tuna*** to be developed with support from Sub-Component 2.1 will contain strategies that will restrict open access to these fish resources. The proposed zoning types for Seychelles' Exclusive Economic Zone, as defined in the preliminary zoning design of the marine spatial planning exercise, comprise areas with highly restrictive human uses in the high biodiversity zones and moderate restrictions in the medium biodiversity zones. The SWIOFish3 Project will support the extension of medium biodiversity areas and the preparation of management plans and corresponding regulations for these areas. Although the above actions will lead to a sustainable management of marine resources,[6] in the short to medium term they will affect the livelihoods of fishing- and tourist-related enterprises, communities and individuals that currently use the areas and resources that will be subjected to much stricter protection, management and regulation. In addition, the fleet licensing scheme to be implemented will result in the decommissioning from service of some fishing and tourism vessels, and the consequent displacement from fishing and tourism activities of affected vessel owners, operators and fishers. The impact of this restriction of access to marine and coastal areas and resources has not been established, requiring therefore the preparation of a Process Framework, which is the subject of a separate report.
Sub-component 3.2:	Potential Investments in different sectors are as follows:	

[4] Fisheries in the country are open access, meaning that they are "… restricted only in the sense that vessels must be registered in the Seychelles**.** Other than nationality, the other principal control is a prohibition on spear fishing. There are no controls over effort or catch" (Vivid Economics, 2015a, p. 2).

[5] For example, some of the management strategies introduced in the Mahé Plateau Demersal Trap and Line Fishery Co-Management Plan include the development and implementation of a fishing license framework for fishing and tourism fleets, minimum size limits for key species, recreational bag limits for some key species, a recreational combined bag limit, a maximum number of active traps for licensed vessels for commercial fishing, among others

[6] Annex I lists the potential positive environmental and social impacts of the SWIOFish3 Project by Component.

Project Sub-Component	Sub-Component Activities/Possible Sub-Projects	Environmental and Social Concerns
Expansion of the Sea-Food Value Chains	**Aquaculture:** • Pump-ashore flow-through systems and recirculating aquaculture systems of sea urchins, pearl oyster spat, ornamental finfish and finfish fingerlings in land based zone. • Small scale cage aquaculture of finfish and longline pearl oysters in inshore zone (i.e., sea-based areas within 2 km of the islands of Mahé, Praslin, La Digue). • Cage aquaculture of finfish in aquaculture development zones (i.e., located between 2 and 5 km from shore). • Large scale, industrial cage aquaculture of finfish in offshore zone (i.e., beyond 5 km from shore).[7]	Annex I indicates the potential impacts and risks of this type of sub-Project, and lists adequate mitigation measures.
	Processing Facilities: Facilities for processing of fish, fish byproducts (e.g., oil, collagen, amino acid, mineral production, etc.) and cold storage, such as those existing and being built at Providence Fish Center, Ile du Port Handling Services (IPHS) in Port Victoria and Bel Ombre. The Providence Fish Center will also host the Seychelles broodstock quarantine and acclimation facility. **Services**:	At all processing facilities, there is no clear information on the level of treatment, if any, that wastes will receive before they are discharged into the public sewerage system. Dealing specifically with the wastes from the facilities located at IPHS, it seems that the public sewage treatment system serving this area is close to saturation and, therefore, it might be able to process only part of those wastes. Any sub-project identified in the calls for investments under the BIF would need to address this waste issue, as required.

[7] These aquaculture production systems and aquaculture zones are defined in the Mariculture Master Plan (SFA, 2016, pp. 3-7)

Project Sub-Component	Sub-Component Activities/Possible Sub-Projects	Environmental and Social Concerns
	Ancillary enterprises for cold storage and cold-chain maintenance, and small- to medium-scale enterprises for agencies providing vessels services (e.g. stevedoring, chandlery). Refitting vessels for tourism, longline tuna fishing, and under- or unexploited fisheries.	Annex I indicates the potential impacts and risks of this type of sub-Project, and lists adequate mitigation measures

5.0 ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK (ESMF)

The Environmental and Social Management Framework is "… an instrument that examines the risks and impacts when a project consists of a program and/or series of sub-projects, and the risks and impacts cannot be determined until the program or sub-project details have been identified. The ESMF sets out the principles, rules, guidelines and procedures to assess the environmental and social risks and impacts. It contains measures and plans to reduce, mitigate and/or offset adverse risks and impacts, provisions for estimating and budgeting the costs of such measures, and information on the agency or agencies responsible for addressing project risks and impacts, including on its capacity to manage environmental and social risks and impacts".

5.1 Steps for preparing Environmental and Social Management Plans (ESMPs)

- ✓ **Environmental and Social Screening**

Environmental and social screening is a useful tool for identifying safeguard issues in large investment programs consisting of many sub-projects. It helps determine (a) anticipated environmental/social impacts, risks and opportunities of the sub-project (ii) if the anticipated impacts and public concern warrant further environmental/social analysis, and if so to recommend the appropriate type and extent of assessments needed. Screening is the process by which proposed sub-projects are reviewed to determine the level of environmental assessment to which they should be subjected, which could range from none at all up to a full Environmental Impact Assessment (EIA). It is the process of reviewing a proposed activity against a checklist of factors to determine whether it is likely to have adverse environmental effects, and if so, what mitigation measures should be applied.

At the project level, proposed sub-component activities need to be subjected to screening to determine whether they should be subject to an Environmental / Social Review. (This is a simple review of the likely implications of the activity, to determine whether it is acceptable, and if so, whether any particular mitigation measures should be applied.).

When a subproject is identified, the subproject proponent should fill out a subproject screening form (see Annex IV for Subproject Screening Checklist) which will serve to identify potential environmental and social impacts. This step will take place during the selection phase of both the SeyCCAT and DBS's BIF project cycles.

- ✓ **Scoping:**

Based on the information captured on the screening form, the PIU will decide whether the subproject needs a more detailed assessment of potential impacts through a field appraisal. The field appraisal should include a visit to the project location and interviews with local stakeholder who can provide useful input on social and environmental impacts. All key stakeholders, including potentially affected people (PAP) should be identified and a list of PAPs should be included in the appraisal report. These outcomes of the scoping step will undergo consultation with the Environmental Assessment and Permit Section (EAPS) of the MEECC. In the particular case of TORs for ESIAs, the MEECC through the EAPS must give its formal approval as national environmental authority. The PIU Project Coordinator must approve all the documentation associated with the application of this step.

- ✓ **Assessment and Classification of Impacts:**

Based on the screening template and field appraisal (if necessary) the impacts are classified based on their level of risk/risk category. If subprojects trigger national EIA requirements, they will be referred to the appropriate government agency. Regarding World Bank Safeguard Policies and Bank classifications, it is anticipated that with the exception of Project-imposed fishing access controls (which are dealt with through the Process Framework), virtually all subprojects funded under the project will, at most, be

classified as Category B projects, with adverse environmental impacts that are few, site specific and in most cases that will have mitigation measures that are easily designed and implemented. Some sub projects are expected to be considered Category C (minimal or no adverse environmental impacts) by World Bank standards, i.e. having minimal or no adverse impact on the environment and will only be subject to an initial environmental screening and any appropriate national impact provisions.

Below are the impact categories.

Impacts Catgeory	Description	(Ir)reversible	Cumulative Impacts
Negligible	The impact has no significant risk to environment either short term or long term	Reversible	No
Minor	The impact is short term and cause very limited risk to the environment	Reversible	No
Moderate	Impacts give rise to some concern, may cause long term environmental problems but are likely short term and acceptable	Reversible	May or May not
Major	Impact is long term, large scale environmental risk	Reversible and Irreversible	Yes

Possible impacts arising from the construction and operation works are described according to their location and intensity of impacts (negligible, minor, moderate and major) and categorization for identifying best possible remedial (mitigation measures) action to be taken.

- ✓ **Environmental and Social Management Plans for Subprojects**

An Environmental and Social Management Plan (ESMP) is required for all projects with identified impacts. The ESMP should identify the environmental and social impacts and proposed mitigation measures, and details of management and monitoring plans, including specifications on responsibilities, cost and schedules, as well as information on how management and monitoring of the mitigation measures will be undertaken. The ESMP should address issues and measures that may be needed during different stages of the project (pre-construction, construction and operation)

The ESMP should (at a minimum) contain the following topics and sections. (See an ESMP Template in Annex VI)

- Short description of subproject
- Analysis of positive and negative environment and social impacts
- Mitigation measures for any negative impacts
- Results of consultations with community, including any subproject affected persons
- ESMP Performance monitoring plan, including description of management roles and responsibilities
- Budget and timing for management and monitoring activities

When a subproject requires an ESMP, it should be prepared by the project proponent, using a consultant or environmental expert with sufficient environmental and social expertise relevant to the type of project being proposed, and who is familiar with relevant national requirements for ESIAs and ESMPs.

In particular reference to sub-projects involving aquaculture, and fish processing plants and equipment they will be required to prepare an Environmental and Social Impact Assessment (ESIA). This is so in order to comply with the requirements established in Seychelles' Environment Protection (Impact Assessment) Regulations of 1996, which stipulate that projects dealing with "fish and associated products farming" (i.e.,

"fish farming works and extension, aquaculture" and "fish processing plants and equipment") must submit an ESIA. In effect, the Regulations list these types of investments in its Schedule 1 of "projects or activities requiring environmental authorization," also termed "prescribed projects and activities."

- ✓ **Appraisal and Approval of ESMPs**

All types of projects listed in Schedule 1 must submit an ESIA/ESMP, a review of which serves as the basis for the MEEC to make a determination as to whether or not an environmental authorization will be granted. The PIU will supporting role in review of ESIAs, providing comments to MEECC on quality and completeness of each ESMP.

The PIU (E&S Specialist) will send all ESMPs to Word Bank for review and clearance prior to implementation.

- ✓ **Public Consultation and Disclosure of Subproject Information**

In compliance with World Bank Guidelines, before a subproject is approved it must be disclosed publicly and made available for public review at a place that is accessible to local people. Public consultations should be held with local communities and other interested or affected parties during the screening and impact assessment processes. The goal of these consultations is to inform stakeholders and to identify key issues and how they may be addressed. In order to facilitate meaningful consultation, the project proponent must provide relevant materials and information about the subprojects to groups being consulted, prior to the consultations and presented in a form that is easily accessible and understandable to those groups. Public hearings may be needed for some subprojects if there is a broad public interest in potential subproject impacts. Documentation of consultations should be included in the ESMPs.

- ✓ **Implementation of ESMPs for Subprojects**

The ESMPs will become part of the contractual obligations of contractors by incorporating this requirement as a clause in works contracts. In relation to the site-specific ESMPs and HSMPs, the Contractor selected in the bidding phase of the SeyCCAT project cycle or DBS's BIF project cycle to implement a particular sub-project will be responsible for preparing the plans for the assigned sub-project. The development and implementation of both plans will be part of the clauses of the works contract for the specific sub-project. Within the bidding and contract negotiation phase of both the SeyCCAT and DBS's BIF project cycles, the ESMF introduces a series of tools aimed at including environmental and social sustainability measures into the sub-project procurement process.

In specific terms, these instruments will ensure that selected contractors have experience and expertise in environmental and social management, and that works contracts contain specific socio-environmental provisions of mandatory implementation.

The successful Bidder will be required to carry out the works in accordance with the health and safety measures included in the Environmental and Social Management Plan (ESMP) that is part of the approved Environmental and Social Impact Assessment (ESIA) for the project. The ESIA for the project is included as an attachment to the bid documents. The successful Bidder will be required to carry out the works in accordance with a Site-Specific Health and Safety Management Plan (HSMP), to be prepared by the Contractor following Contract award, which shall be approved by the Engineer. The Site-Specific HSMP shall be prepared following the Terms of Reference that will be provided to the successful Bidder. The World Bank Groups Occupational Health and Safety Guidelines and Labour Influx Guidance Notes will also be referenced.

- ✓ **Monitoring compliance of ESMF and ESMPs**

Monitoring of compliance with ESMP specifications by the contractor is essential for proper environmental management and will be conducted primarily by the implementing agency. Ensuring compliance with

environmental safeguards is an integral part of the monitoring program. Each respective ESMP will outline monitoring responsibilities and parameters.

The PIU E&S Specialist will ensure that the above tools are effectively applied during the bidding and contract negotiation phase of both SeyCCAT and BIF project cycles. The last step of the ESMP consists of the verification of compliance with the environmental and social requirements established in works and supervision contracts, as well as in ESMPs and HSMPs, for the execution of civil works associated with sub-projects. It will take place during the project implementation phase of both the SeyCCAT and DBS's BIF project cycles. The instrument to apply in this step is the Environmental and Social Compliance Report (see Annex IX).

The E&S Specialist will withhold the overarching responsibility for maintaining all documentation in line with the ESMF and ensure timely reporting to the World Bank. Regular World Bank missions will include specialists to monitor the project's compliance with World Bank safeguard policies. The progress of environmental monitoring will be formally communicated to World Bank through regular progress reports and updates as per the compliance monitoring agreement made during project implementation.

The completion of this instrument requires regular site visits by the PIU E&S Specialist. The recommended periodicity of site visits to each sub-project is quarterly, which may be increased or decreased based on the level of socio-environmental performance of each sub-project.

- ✓ **Capacity Building on Environmental and Social Safeguards**

Effective implementation of the ESMF will require strengthening capacity in PIU, the implementing institutions as well those responsible for implementing sub-projects. The overall objective of the training is to mainstream environmental and social consideration into participatory processes of sub-project identification, planning, implementation and mitigation as well as monitoring of the mitigation activities in the sub-projects and main projects activities.

The specific objectives of the training include:

- To ensure that key stakeholders understand the ESMF, how to apply it to sub-projects and other activities of SFDP;
- To actively involve stakeholders and projects affected communities in the screening of environmental and social aspects of SFDP projects from design, planning, monitoring and implementation;
- Domesticating the ESMF to fast track the implementation of the associated subprojects.

The capacity building exercise will take into consideration the integration and fulfilment of the requirements of World Bank Environmental and Social Safeguards as well as those of the Environmental Act, Fisheries Act and applicable policies and regulations. The programme involves training directly linked to the implementation of the ESMF as well as training on aspects influencing success of ESMF, and will be clustered to cater for various target groups. Topics to be covered included:

- National policies and regulations;
- World Bank Environmental and Social Safeguards;
- Project screening methods;
- Environmental Impact Assessment (EIA) and Environmental Audit (EA) procedures;
- Project activities and their potential environmental and social impacts
- Development of ESMPs and RAPs;
- Implementation of ESMPs and RAPs
- Occupational Health and Safety issues

The E&S Officer will be trained by the Environmental and Social Specialist of the World Bank project team on the ESMF and RPF implementation, safeguards and procedural requirements of World Bank. All contractors are expected to disseminate and create awareness within the workforce.

5.2 Grievance Mechanism

While consultations prior to subproject implementation are intended to reduce the potential for conflicts once subprojects are executed, grievances may arise due to project impacts.

The guiding principle for conflict or grievance resolution is to resolve the issue quickly and at the lowest possible level, ideally within the local community using commonly-accepted practices. Measures to address conflicts that may arise as a result of project activities can include both formal and informal mechanisms. It is preferable to resolve such complaints at a local level, within existing community-level grievance or compliant mechanisms, and involving community leaders or local authorities. Local authorities or leaders should provide an audience for aggrieved parties to express their concerns and offer informal resolution solutions. If these measures to do not resolve the issue then more formal approaches, including lodging a verbal or written complaints to the PIU.

Requirements for the GRM are as follows: (i) the grievance process must not impose any cost to those raising the grievances (i.e., the complainants); (ii) concerns arising from Project implementation must be adequately addressed in a timely manner; and (iii) participation in the grievance process must not preclude pursuit of legal remedies under the laws of Seychelles.

The GRM process will be managed by a Grievance Committee. The recommended make up of the Committee is as follows: a staff member of the PIU, such as the Project Coordinator or the E&S Specialist, and the Focal Points that the other ministries (i.e., MAF and MEECC) must designate. None of the members of the Committee should have a conflict of interest involving any complaint lodged. The Committee should have female representation.

5.3 Exclusion List

Types of projects which would be excluded from consideration are those that involve fisheries-related or other economic activities which are illegal or may cause significant negative environmental or social impacts. Possible criteria for exclusion of certain types of subprojects include the following:

- Sub-projects located within or adjacent to a protected or an ecologically sensitive area, as defined in Schedule 2 of the Environment Protection (Impact Assessment) Regulations
- Sub-projects that involve the significant conversion or degradation of critical natural habitats such as sensitive ecosystems. converting mangrove forests to aquaculture use or other land uses, or other unsustainable cutting of mangrove forests
- The introduction of any new exotic marine species (note: this provision does not apply to any native and/or naturalized species, or any micro-algae that is imported as live feed)
- Activities that could dangerously lead to the exposure of sensitive/critical/vulnerable habitats unsustainable or illegal fishing activities (e.g., illegally-sized nets, spear fishing, use of dynamite, etc)
- Construction of permanent buildings within the wetlands
- Construction of walls in or around wetlands which will interrupt water flow
- The tidying of wetlands or mangroves by the removal of dead wood that serves as habitat for multiple fish species

- Extraction of raw material from protected areas
- Filling of wetlands within protected areas and outside in strategic landscapes.
- Sub-projects which cause significant socioeconomic impacts involving permanent involuntary resettlement resulting in relocation of people or displacement of houses or building structures; or loss, denial or restriction of access to land, crops and other economic assets; or significant loss of sources of income or means of subsistence)
- Sub-project which physically block or restrict fishers' access to the water (e.g., structures with walls or other shoreline obstructions or barriers that physically prevent fishers from accessing or launching their boats using customary or longstanding paths, roads or other rights of way)

Table III: ESMF Process and Institutional responsibilities

Phases of SeyCCAT and BIF Project Cycles	ESMF Steps	Tools to support ESMF Step	Institutional Responsibilities in Implementing ESMF Step
Prequalification	Environmental and Social Screening	Annex III	• SeyCCAT and BIF send sub-project proposals to PIU. • PIU Environmental and Social Specialist completes E&S Screening Tools Form. • PIU Project Coordinator E&S Screening Tools Form. • PIU notifies SeyCCAT and BIF when a particular sub-project proposal is ineligible for funding from the environmental and social point of view after completing Exclusion List included in Screening Tools Form.
Selection	Environmental and Social Scoping	Annex V	• PIU Environmental and Social Specialist completes Environmental and Social Scoping Form. • PIU Project Coordinator approves E&S Scoping Form. • For aquaculture and fish processing sub-projects listed in Schedule 1 of Environment Protection (Impact Assessment) Regulations of 1996, PIU requests MEECC to prepare TOR for ESIA, as required by Regulations. Once available, PIU sends TOR to, as applicable, SeyCCAT or BIF. • For medium risk sub-projects, PIU prepares TORs for Contractor's Site-Specific ESMP and Site-Specific HSMP. For low-risk sub-projects, PIU prepares list of applicable mitigation measures. • PIU notifies SeyCCAT and BIF of environmental and social analysis required for each sub-project proposal, attaching completed E&S Scoping Form and, as applicable, TORs for studies required. In addition, for low risk sub-projects, PIU sends list of pertinent mitigation measures to SeyCCAT and BIF.
Review and Clearance			• MEECC reviews ESIA and makes a determination as to whether or not to issue an Environmental Authorization for implementation of sub-project. • PIU E&S Specialist plays a supporting role in review of ESIAs, providing comments to MEECC on quality and completeness of each ESIA. • PIU sends all ESMPs to Word Bank for review and clearance prior to contracting and implementation
Bidding and Contract Negotiation	Incorporation of E&S Sustainability into	Annexes VI, VIII and VIII	• PIU provides SeyCCAT and BIF with ESHS Criteria for Evaluation of Bid Proposals for inclusion in their bid evaluation documents.

Phases of SeyCCAT and BIF Project Cycles	ESMF Steps	Tools to support ESMF Step	Institutional Responsibilities in Implementing ESMF Step
	sub-projects Procurement Process		• Based on negotiations with SeyCCAT and BIF, PIU E&S Specialist may participate in technical committees for evaluation of bid proposals. • PIU provides SeyCCAT and BIF with ESHS Conditions of Particular Application and ESHS Technical Specifications for Construction for inclusion in works contracts.
Monitoring	Environmental and Social Compliance Oversight	Annex IX	• PIU E&S Specialist conducts site visits to evaluate environmental and social performance of sub-projects using Environmental and Social Compliance Report. These site visits may be coordinated with inspections by MEECC staff. • PIU sends a copy of completed E&S Compliance Report to pertinent Contractor and Supervising Engineer, as well as, as applicable, SeyCCAT or BIF. • In instances of serious and pervasive noncompliances with environmental and social requirements, PIU E&S Specialist coordinates with Supervising Engineer, SeyCCAT, BIF, MEECC and/or any other pertinent authority to bring sites into compliance. • PIU sends monitoring reports to World Bank on a six-monthly basis • PIU will commission two Independent Environmental and Social Audits of Project Implementation

KEY:
BIF: Development Bank of Seychelles' Blue Investment Fund
EHS: Environmental, Health and Safety.
ESIA: Environmental and Social Impact Assessment.
ESMP: Environmental and Social Management Plan.
HSMP: Health and Safety Management Plan.
MEECC: Ministry of Environment, Energy and Climate Change.
PIU: Project Implementation Unit at Ministry of Finance, Trade and Economic Planning.
SeyCCAT: Seychelles Conservation and Climate Adaptation Trust.
TOR: Terms of Reference.

Table IV: Institutional Arrangement in ESMF Process

Phases of SeyCCAT and BIF Project Cycles	ESMF Steps	Institutional Responsibilities						
		PIU	SeyCCAT and BIF	MEECC	Sub-Project Proponents	Environmental Consulting Companies	Contractors	Supervising Engineers
Prequalification	Environmental and Social Screening	• PIU Environmental and Social Specialist completes Environmental and Social Screening Tools Form for sub-project proposals . • PIU Project Coordinator approves Environmental and Social Screening Tools Form. • PIU notifies SeyCCAT and BIF when a particular sub-project proposal is ineligible for funding from the environmental and social point of view after completing Exclusion List included in	• SeyCCAT and BIF send sub-project proposals to PIU. • SeyCCAT and BIF drop from further funding consideration all sub-project proposals classified as ineligible for funding from the environmental and social point of view by PIU.					

Phases of SeyCCAT and BIF Project Cycles	ESMF Steps	Institutional Responsibilities						
		PIU	SeyCCAT and BIF	MEECC	Sub-Project Proponents	Environmental Consulting Companies	Contractors	Supervising Engineers
		Screening Tools Form.						
Selection	Environmental and Social Scoping	• PIU Environmental and Social Specialist completes Environmental and Social Scoping Form. • PIU Project Coordinator approves Environmental and Social Scoping Form. • For aquaculture and fish processing sub-projects listed in Schedule 1 of Environment Protection (Impact Assessment) Regulations of 1996, PIU requests MEECC to prepare TORs for ESIAs, as required by Regulations. Once available,	• SeyCCAT and BIF send TORs for ESIAs for aquaculture and fish processing sub-projects to proponents. Once ESIAs are completed, SeyCCAT and BIF include corresponding ESMPs as contract clauses in model contracts that Contractors must fulfil.	• MEECC prepares TORs for ESIAs for aquaculture and fish processing sub-projects listed in Schedule 1 of Environment Protection (Impact Assessment) Regulations of 1996, and sends TORs to PIU.	• Sub-project proponents receive TORs for ESIAs for aquaculture and fish processing sub-projects, and search for environmental consulting companies to prepare ESIAs.			

Phases of SeyCCAT and BIF Project Cycles	ESMF Steps	Institutional Responsibilities						
		PIU	**SeyCCAT and BIF**	**MEECC**	**Sub-Project Proponents**	**Environmental Consulting Companies**	**Contractors**	**Supervising Engineers**
		PIU sends TORs to, as applicable, SeyCCAT or BIF. • For medium risk sub-projects, PIU prepares TORs for Contractor's Site-Specific ESMP and Site-Specific HSMP. For low-risk sub-projects, PIU prepares list of applicable mitigation measures. • PIU notifies SeyCCAT and BIF of environmental and social analysis required for each sub-project proposal, attaching completed Environmental and Social Scoping Form and, as	• For medium risk sub-projects, SeyCCAT and BIF include TORs for ESMPs Site-Specific ESMPs and Site-Specific HSMPs as contract clauses in model contracts that Contractors must fulfil. • For low risk sub-projects, SeyCCAT and BIF include list of pertinent mitigation measures as contract clauses in model contracts that					

Phases of SeyCCAT and BIF Project Cycles	ESMF Steps	Institutional Responsibilities						
		PIU	**SeyCCAT and BIF**	**MEECC**	**Sub-Project Proponents**	**Environmental Consulting Companies**	**Contractors**	**Supervising Engineers**
		applicable, TORs for studies required. In addition, for low risk sub-projects, PIU sends list of pertinent mitigation measures to SeyCCAT and BIF.	Contractors must fulfil.					
Preparation	Execution of Environmental and Social Studies	• PIU Environmental and Social Specialist plays a supporting role in review of ESIAs, providing comments to MEECC on quality and completeness of each ESIA.		• MEECC reviews ESIA and makes a determination as to whether or not to issue an Environmental Authorization for implementation of sub-projects.	• Sub-project proponents contract environmental consulting companies to prepare ESIAs. • Sub-project proponents send completed ESIAs to MEECC for evaluation.	• Environmental consulting companies conduct ESIAs.		

Phases of SeyCCAT and BIF Project Cycles	ESMF Steps	Institutional Responsibilities						
		PIU	SeyCCAT and BIF	MEECC	Sub-Project Proponents	Environmental Consulting Companies	Contractors	Supervising Engineers
Bidding and Contract Negotiation	Incorporation of Environmental and Social Sustainability into sub-projects Procurement Process	• PIU provides SeyCCAT and BIF with ESHS Criteria for Evaluation of Bid Proposals for inclusion in their bid evaluation documents. • Based on negotiations with SeyCCAT and BIF, PIU Environmental and Social Specialist may participate in technical committees for evaluation of bid proposals. • PIU provides SeyCCAT and BIF with ESHS Conditions of Particular Application and ESHS Technical Specifications for Construction for inclusion in works contracts.	• SeyCCAT and BIF incorporate ESHS Criteria for Evaluation of Bid Proposals into their bid evaluation documents. • SeyCCAT and BIF incorporate ESHS Conditions of Particular Application and ESHS Technical Specifications for Construction into their works contracts.					

Phases of SeyCCAT and BIF Project Cycles	ESMF Steps	Institutional Responsibilities						
		PIU	SeyCCAT and BIF	MEECC	Sub-Project Proponents	Environmental Consulting Companies	Contractors	Supervising Engineers
Sub-Project Implementation	Environmental and Social Compliance Oversight	• PIU Environmental and Social Specialist conducts site visits to evaluate environmental and social performance of sub-projects using Environmental and Social Compliance Report. These site visits may be coordinated with inspections by MEECC staff. • PIU sends a copy of completed Environmental and Social Compliance Report to pertinent Contractor and Supervising Engineer, as well as, as applicable,		• MEECC conducts inspections of aquaculture and fish processing sub-projects. • In instances of serious and pervasive noncompliances with environmental and social requirements, MEECC may participate in enforcement actions.			• Contractors are responsible for implementing works in accordance with, as applicable, ESMPs, Site Specific ESMPs, Site Specific HSMPs, or list of pertinent mitigation measures.	• Supervising Engineers are responsible for ensuring, on behalf of their Clients, that Contractors implement works in accordance with, as applicable, ESMPs, Site Specific ESMPs, Site Specific HSMPs, or list of pertinent mitigation measures.

Phases of SeyCCAT and BIF Project Cycles	ESMF Steps	Institutional Responsibilities						
		PIU	SeyCCAT and BIF	MEECC	Sub-Project Proponents	Environmental Consulting Companies	Contractors	Supervising Engineers
		SeyCCAT or BIF. • In instances of serious and pervasive noncompliances with environmental and social requirements, PIU Environmental and Social Specialist coordinates with Supervising Engineer, SeyCCAT, BIF, MEECC and/or any other pertinent authority to bring sites into compliance.						

5.4 Budget Considerations

The budget for implementing the ESMF will be included in the regular budget of the PIU. Table V provides the budget for training and technical assistance activities related to environmental and social management for the duration of the Project.

Table V: ESMF Capacity Building Budget for Five Year Period (US$)

Activity	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Total
Training						
Training Needs Assessment for PIU, MEECC, MAF and local Environment Officers in management of safeguards and environmental & social issues	10,000					10,000
Development of training plan and materials, training of trainers	15,000					15,000
Training for local Environment Officers in ESIA, screening and environmental & social monitoring capacity	10,000					10,000
Training for co-management units – awareness of environmental and social issues	10,000					10,000
Technical Assistance						
General TA - PRA, Communications, Conflict Resolution, Safeguard awareness	10,000					10,000
Specific TA – ESIA and ESMP prep and review, M&E	10,000					10,000
Annual Reviews of ESMF and ESMP Performance (decision-makers and projects)	2,000	2,000	2,000	2,000	2,000	10,000
Independent Environmental and Social Audit of Project Implementation		10,000			12,000	22,0000
TOTAL						**97,000**

LIST OF ANNEXES

ANNEX I: POTENTIAL POSITIVE ENVIRONMENTAL AND SOCIAL IMPACTS OF SWIOFish3 PROJECT

PROJECT COMPONENT	POSITIVE IMPACTS
Expanded Sustainable-Use Marine Protected Areas	• Enhanced protection and management of medium and high biodiversity areas. • Improvement of overall health of species and ecosystems in protected areas. • Improvement of overall health and safety conditions for fishers, thanks to enhanced monitoring, control and surveillance, safety and emergency response capabilities. • Improved decision making and management of protected areas based on research, stakeholder consultation and participation, and enhanced monitoring, control and surveillance. • Improved planning and management capability to address challenges of implementing access controls to protected biodiversity areas. • Increased stakeholder engagement and awareness in protected area planning and management.
Improved Governance of Priority Fisheries	• Improvement of overall health of fisheries sector, and increased income from sustainable fishing methods, thanks to the reduction of unsustainable and unauthorized fishing practices, and bycatch losses. • Improvement of overall safety conditions for fishers, thanks to enhanced monitoring, control and surveillance, safety and emergency response capabilities. • Improved and expanded knowledge, decision making and capacity across public and private actors for co-managing priority fisheries. • Increased stakeholder engagement and participation in priority fisheries areas planning and co-management, and improved awareness of good fisheries management practices.
Sustainable Development of the Blue Economy	• Identification of potential value-added businesses opportunities to increase economic benefits from fisheries, and fish and fish byproduct processing. • Identification of constraints to successful fisheries business development and growth, and definition of measures to address them. • Provision of access to financial mechanisms to take advantage of identified value-added business opportunities. • Mitigation of impact related to limitation of access to fishing and tourist resources and areas by providing financing opportunities and capacity building to take advantage of identified new value-added businesses.

ANNEX II: GENERIC POTENTIAL ADVERSE IMPACTS AND RISKS

(i) AQUACULTURE SUB-PROJECTS

IMPACTS AND RISKS	MITIGATION MEASURES
Geology/Hydrogeology: • Interruption or disruption of surface and groundwater flows from construction, excavation and ground clearance. • Reduced flows or lowering of water table due to abstraction, possibly resulting in salinization.	• Design to take account of local hydrological conditions (e.g., avoid crossing permanent waterways, do not hamper drainage of surface water, avoid works in areas prone to flooding especially during rainy season). • Limit sealed or compacted areas as much as possible, to maintain natural recharge of the water table. • Water study prior to any abstraction, to inform a Sustainable Water Management Plan.
• Disruption of coastal processes (e.g., wave, tidal and current regime, sediment transport, flood and storm protection) due to inadequate siting of project. • Saline intrusion into groundwater due to excessive abstraction of groundwater during operation.	• Siting and design to take account of shore configuration, currents, groundwater flows, and existing habitats. • Design and construction of compensatory shore protection and other measures to maintain coastal processes. • Monitoring of groundwater salinity; where necessary further mitigation may include control/diversion structures for saltwater, installation of cut off wells, sourcing of alternative water supply.
• Pollution of groundwater from discharges and accidental releases during construction and maintenance, and from wastewater during operation.	See Pollution of Soils and Water below
Soils, Run-off and Flooding: • Loss, damage or disruption of soil/sediments during construction and maintenance.	• Minimization of cleared areas and soil disturbance, with revegetation as soon as feasible (with native species). • Early installation and regular maintenance of drainage and diversion structures, silt traps, etc; drainage outlets to discharge into vegetated areas if possible; vegetation along watercourses and drainage lines to be retained if possible. • Retention of topsoil for restoration (including tilling and revegetation) as soon as practicable. • Careful consideration of timing of works (overall duration and seasonality).
• Introduction of sediments to coastal waters or inland watercourses, or interruption of drainage patterns, as a result of ground clearance, earthworks and operational maintenance of systems.	

IMPACTS AND RISKS	MITIGATION MEASURES
Pollution of Soils and Water: • Pollution of coastal waters or inland watercourses from operational wastewater (e.g., nutrients, pesticides, fertilizers, treatments), as well as from fish processing and workforce sewage.	• Reduce nutrient and chemical inputs to water, e.g., through use of biological pest control methods. • Ensure that waste and drainage water complies with discharge standards and treat accordingly. • Implementation of standard good wastewater management and disposal procedures. • Installation of sewage treatment to meet required standards; hygiene training for workforce.
• Release of hazardous substances during construction or maintenance (e.g., accidental spills and leaks) leading to soil, surface or groundwater contamination.	• Materials handling and control procedures, use of storage and containment equipment meeting international standards. • Control of construction vehicle movements and prohibition of vehicle washing in watercourses, and similar practices. • Emergency response plans during construction (contractors and local authorities) and operation (local authorities).
Air Quality: • Dust and emissions from construction and maintenance activities, could affect human health, vegetation and wildlife.	• Sensitive site selection and siting of construction and processing facilities. • Use of modern equipment meeting appropriate emissions standards, and regular preventive maintenance. • Dust control and suppression measures, such as dampening, use of vegetation hedges. • No use of ozone depleting substances during construction. • Use of appropriate solid waste disposal facilities.
• Odors associated with preparation facilities may have nuisance value for nearby receptors.	
Noise and Vibration: • Noise and vibration from construction and maintenance equipment, traffic and activities may disturb sensitive noise receptors (human, fauna, including underwater noise impacts on fish and marine mammals, e.g., from piling during construction).	• Sensitive local route selection and siting of facilities, accompanied where necessary by noise attenuation measures. • Use of modern, well maintained equipment fitted with abatement devices (e.g., mufflers, noise enclosures). • Use of sensitive construction methods, e.g., “soft start” or “slow start” piling. • Strict controls of timing of activities, e.g., blasting and other high noise emissions; prohibition on night working. • Observance of seasonal sensitivities (e.g., breeding seasons), and alteration of activity to reduce noise levels at that time.
Resources and Waste: • Abstraction of significant volume of water from surface or ground water sources for supply to aquaculture system may affect supply for human communities and ecosystems.	• Abstraction to take place with approval of relevant authorities at all locations. • Water study prior to any abstraction, to inform a Sustainable Water • Management Plan. • Regular preventative maintenance of all system components to ensure that water wastage is as far as possible limited. • Promotion of water efficiency (including leak detection) and water recycling.

IMPACTS AND RISKS	MITIGATION MEASURES
• Inefficient waste management during construction, operation and maintenance leading to excess consumption of materials, generation of wastes/emissions, pollution of soils and water; in particular, impacts of wastewater contaminated with nutrients and chemicals.	• Preparation of Waste Management Plan following the waste hierarchy, supported by staff training • Earthworks to be designed to achieve a balance between cut and fill wherever possible • Use of authorized contractors for hazardous and any other wastes which the project cannot dispose of safely. See Pollution of Soils and Water above
Loss, fragmentation and degradation of habitat, and severance of animal migration routes and pathways: • Site footprint and earthworks during construction or maintenance causing loss, degradation or fragmentation of protected or ecologically sensitive areas (e.g., wetlands, migration routes), and other areas of conservation interest; and degradation following poorly managed rehabilitation.	• Careful siting of all project components, with advice from biodiversity authorities/wildlife specialists, to avoid those which are most sensitive and provide priority ecosystem services (e.g., mangroves for coastal aquaculture). • Wherever feasible, establishment of buffer zones around conservation areas, watercourses, and other locations identified as ecologically sensitive and avoidance or minimization of activity within these zones. • Use of design and operational measures to maintain fish migration routes wherever possible. • Rehabilitation of cleared areas with native species, and ecosystem restoration in habitats of conservation value, using specialist advice and input so as to maintain the integrity of the habitat, backed up by a long-term monitoring program and corrective actions as necessary. Where development in sensitive areas cannot be avoided, mitigation may include: • Minimization of area impacted, clear demarcation of remaining intact areas of habitat, and prohibition of activity into those areas for any purpose; prohibit or minimize activities in vicinity of sensitive areas, e.g., fragile coastal habitats, upstream of these intact areas of habitat. • Habitat rehabilitation and ecosystem restoration of areas no longer required to occur as soon as possible after construction. • If loss of Critical Habitat is inevitable, development/implementation of an Offsets Programme. See relevant sections re: control of impacts from pollution, invasive species, and induced access.
• Impacts on habitats and species from habitat alteration and degradation (e.g., from reduction in downstream water supply, changes in water flow and drainage, soil erosion, pollution of water, soils or air, introduction of invasive species).	
Impacts from Induced Access: • Development of aquaculture projects in previously undeveloped areas can lead to further development, increased disturbance and pressure on natural resources.	• Careful site selection and siting of all project components, with advice from biodiversity authorities/wildlife specialists to avoid previously undeveloped areas where possible. • Restrictions on access to all temporary access roads, and their removal after construction. • Access controls on permanent access roads.

IMPACTS AND RISKS	MITIGATION MEASURES
Direct Impacts on Flora and Fauna: • Earthworks and clearance may lead to loss of plant species and habitats of conservation interest. • Development could displace animals and disturb their habitats, by direct disturbance during construction and operation (e.g., from noise, light disturbance at night, general human presence). • Degradation of native populations due to spread of diseases from cultured species.	• Careful site selection and siting of all project components, with advice from biodiversity authorities/wildlife specialists. • Careful planning of phasing and timing of construction activities. • Demarcation and avoidance of areas of conservation interest (high value species, feeding or breeding sites, migration routes, etc.) where possible, and wildlife rescue and translocation where appropriate, under expert supervision. • Monitoring of diseases in cultured stock and appropriate actions to eliminate these diseases. Also see measures under soils, run-off and flooding, pollution of soils and water, noise/vibration and induced access above, and invasive species below.
Invasive Species • Movement of plant and workforce into areas could introduce invasive species which adversely impact fauna, flora, ecosystems, and crops. • Accidental release of cultured species (especially non-native ones) may result in establishment of populations or genetic mixing with wild populations, leading to negative impacts on local flora and fauna.	• Invasive Species Management Plan, developed and implemented in consultation with authorities, including appropriate eradication measures for different species/groups of species. • Staff training and awareness raising in communities on potential impacts of invasive species. • Encourage use of indigenous species in aquaculture systems. • No introduction of exotic species (e.g., for culture) without comprehensive study and government approval. • Where exotic species are cultured, monitor status of native species in surrounding area. • Where possible, clearance of invasive species during routine maintenance of water storage and distribution systems.
Physical and Economic Displacement of People, Property, Assets and Resources: • Development of aquaculture projects may physically displace people, or lead to loss of assets (e.g.,, fishing grounds, or land) or loss of income from other water based economic activities (e.g., navigation, tourism). • Changes in water flow reduction downstream of the aquaculture development (or down-current for coastal aquaculture), causing adverse effects on water availability or quality for other users.	While this project does not foresee large displacement, there may be cases where there may be temporary disturbances or lack of access due to civil works. • Careful site selection and siting of all project components, avoid occupation of areas which are inhabited or regarded as of high value by communities where possible. • Put in place employment plan, giving preference to employment within local communities. • Early development and sensitive implementation of resettlement planning, in accordance with national regulations and international good practice to compensate for any losses (both physical and economic). • Develop compensation measures for affected parties, e.g., downstream water users, fishermen, coastal tourism.

IMPACTS AND RISKS	MITIGATION MEASURES
Economic Development and Employment: • Direct employment of local population in workforce, and stimulation of local economy through export of and demand for goods and services to enhance livelihoods and economic activity in local communities; potential for adverse effects if expectations not met and community relations are not well managed.	• Development of an Employment Plan, with clear employment requirements and procedures for the construction and operational/ maintenance workforce; fair and transparent hiring and staff management procedures. • Transparent and culturally appropriate communication with communities regarding employment opportunities. • Employment requirements and vocational training plan to be agreed with local institutions, so that local people can be trained to meet the project's needs in a timely fashion. • Development of measures to manage post-construction transition (e.g., SME development, ongoing opportunities for the workforce in aquaculture, reskilling and alternative employment).
• Procurement of local goods and services for development of aquaculture system and workforce could deplete resources available for local communities.	• Procedures for sustainable local procurement, in consultation with local authorities and community leaders. • Local capacity building to foster community resilience. • Monitoring of local prices; exploration of corrective measures (e.g., alternative sourcing) if appropriate.
Cultural Heritage: • Displacement or damage to cultural heritage sites by construction activities, harm to local setting, amenity value, etc. due to construction • Change to intangible cultural heritage due to increased access, and interaction with workforce.	• Careful site selection and siting of all project components, taking account of community consultation/specialist surveys. • Development of a Cultural Heritage Management Plan covering tangible and intangible (e.g., local traditions and practices) cultural heritage. • Implementation of a "Chance Finds" procedure during construction.
Community Health, Safety and Security: • Poor construction management practices may lead to adverse effects on safety, human health and wellbeing.	• Good construction site "housekeeping" and management procedures (including site access) • Risk assessments and emergency response planning to consider impacts on local communities • See also control of pollution under Physical Impacts heading.
• Interaction between workforce and local communities may increase occurrence of communicable diseases, including HIV/AIDS and sexually transmitted diseases (STDs).	• Implementation of a health management system for the construction workforce, to ensure it is fit for work and that it will not introduce disease into local communities. • Training and awareness raising for workforce and their dependents on HIV/AIDS and other STDs, and communicable diseases including malaria; health awareness raising campaigns for communities on similar topics.

IMPACTS AND RISKS	MITIGATION MEASURES
• Changes in exposure to water borne and water related diseases, especially those associated with water dwelling disease vectors (new areas of standing water created) or poor sanitary conditions.	• Provide information, education and communication about safe uses of water and occupational safety. • Facilitate programs/measures to ensure appropriate sanitary and medical facilities are available. • Implement environmental management measures for vector control: e.g., monitoring for key vectors; contact avoidance via site selection; focal insecticide and molluscicide application; other vector control measures (e.g., changes in water levels and flow rates).
Workforce-Community Interactions: • Real or perceived disruption to normal community life, through the physical presence of a workforce.	• Adoption of a Stakeholder Engagement Plan, as a framework for early and ongoing community consultation. • Implementation of a Grievance Procedure (see Grievance Procedure and Redress Mechanisms guidance note). • Works procedures, defining a Code of Appropriate Conduct for all workers, including acceptable behavior with respect to community interactions.
In-migration: • Individuals are likely to migrate into the area which may cause conflict with resident communities, and put pressure on resources and infrastructure.	• Careful site selection and siting of all project components, after consultation with communities and local authorities. • Preparation and implementation of an Influx/In-migration • Management Plan, in consultation with local authorities. See also Economic Development and Employment, and Induced Access above
Labor and Working Conditions: • Poor management of occupational health and safety leading to accidents, injuries and illnesses among workers (e.g., risks of working close to water); mental health issues due to remote or enclosed living. • Differences in nationality, ethnicity, religion, etc. may lead to discrimination and harassment, and differences (perceived or real) in working conditions between workers may lead to resentment.	• Employment practices and working conditions should conform to International Labor Organization (ILO) Standards and national regulations. • Rest and recreational facilities and time should be provided, and rules on alcohol and drugs defined and clearly communicated to workers. • The basis for differences in the standard of accommodation should be non-discriminatory; it should be documented and communicated transparently to the workforce. • Clear and comprehensive health and safety reporting and grievance procedure system should be established, and be freely available to all of the workforce. See also Employment and Economic Development and Human Rights

(ii) FISHERIES AND FISHERIES-ASSOCIATED PROCESSING FACILITIES AND SERVICES SUB-PROJECTS

IMPACTS AND RISKS	MITIGATION MEASURES
Geology/Hydrogeology: • Interruption or disruption of surface and groundwater flows from small-scale ground clearance and construction of landing, storage or processing facilities.	• Design to take account of local hydrological conditions (e.g., taking extra care near permanent watercourses, do not hamper drainage of surface water, avoid works in areas prone to flooding especially during rainy season).
• Disruption of coastal processes (e.g., wave, tidal and current regime, sediment transport, flood and storm protection) from construction of landing and boat mooring facilities.	• Siting and design to take account of shoreline configuration, near- shore currents, groundwater flows, and existing habitats. • Design and construction of compensatory shore protection and other measures to maintain coastal processes. • Monitoring of groundwater salinity; where necessary further mitigation may include control/diversion structures for saltwater, installation of cut off wells, sourcing of alternative water supply.
Soils, Run-off and Flooding: • Loss, damage or disruption of soil/sediments during small-scale construction works.	• Minimization of cleared areas and soil disturbance, with revegetation as soon as feasible (with native species). • Early installation and regular maintenance of drainage and diversion structures, silt traps, etc; drainage outlets to discharge into vegetated areas if possible; vegetation along watercourses and drainage lines to be retained if possible. • Retention of topsoil for restoration (including tilling and revegetation) as soon as practicable. • Careful consideration of timing of works (overall duration and seasonality).
• Introduction of sediments to watercourses or interruption of drainage patterns, as a result of ground clearance and earthworks.	
Pollution of Soils and Water: • Pollution of watercourses caused by wastewater from processing facilities, as well as small increases in sewage inputs due to workforce during construction works.	• Ensure that waste and drainage water complies with discharge standards and treat accordingly. • Implementation of standard good wastewater management and disposal procedures. • Wastewater drainage outlets to discharge into vegetated areas if possible; vegetation along watercourses and drainage lines to be retained if possible. • Installation of sewage treatment to meet required standards; hygiene training for workforce.
• Release of hazardous substances associated with construction/maintenance activities or with transport of goods (e.g., accidental spills and leaks), leading to soil, surface or groundwater contamination.	• Materials handling and control procedures, use of appropriate storage and containment equipment. • Control of vehicle movements and prohibition of vehicle washing in watercourses, and similar practices. • Emergency response plans during construction (contractors and local authorities).
Air Quality: • Dust and emissions from small-scale construction activities, and from vehicles and motorized vessels, could affect human health, vegetation and wildlife.	• Sensitive site selection, and siting of construction works and access roads. • Use of modern equipment, meeting appropriate emissions standards, and regular preventative maintenance.

IMPACTS AND RISKS	MITIGATION MEASURES
• Odors associated with preparation facilities may cause nuisance to nearby receptors.	• Encourage use of non-motorized vessels where appropriate; equip motorized vessels with well maintained, modern motors. • Dust control and suppression measures, such as dampening and use of vegetation hedges. • No use of ozone depleting substances during construction or operation. • Implement appropriate solid waste disposal measures at processing sites.
Noise and Vibration: • Noise and vibration from small-scale construction activities, and from vehicles and motorized vessels, may disturb sensitive noise receptors (human and fauna, including fish and marine mammals).	• Sensitive route selection for access roads, and siting of construction works and facilities, accompanied where necessary by noise attenuation measures. • Use of modern, well maintained equipment fitted with abatement devices (e.g., mufflers, noise enclosures). • Strict control of timing of activities (e.g., prohibition on night working where possible). • Observance of seasonal sensitivities (e.g., breeding seasons), and alteration of activity to reduce noise levels at that time.
Resources and Waste: • Excessive or unregulated capture of a small range of target species and accidental capture of other non-targeted species may deplete stocks and place pressure on local food resources.	• Institute measures to ensure sustainability of fisheries, through use of quotas, seasonal and 'sensitive area' closures, compulsory permitting etc.; encouraging sustainable traditional practices and restricting practices allowing large and non-specific catches (e.g., trawling, use of fish poisons or explosives); education and awareness-raising around overfishing. • Include consideration of local resource needs within planning of quotas.
• Inefficient waste management during construction, operation and maintenance leading to excess consumption of materials, generation of wastes/emissions, pollution of soils and water.	• Preparation of Waste Management Plan following the waste hierarchy, supported by training and awareness-raising around topic of waste for workforce and for local community. • Use of authorized contractors for hazardous and any other wastes which the project cannot dispose of safely.
Loss, fragmentation and degradation of habitat, and severance of animal migration routes and pathways: • Small-scale construction works causing loss, degradation or fragmentation of protected or ecologically sensitive areas (e.g., wetlands, migration routes), and other areas of conservation interest.	• Careful siting of all project components, with advice from biodiversity authorities/wildlife specialists. • Wherever feasible, establishment of buffer zones around conservation areas, watercourses, and other locations identified as ecologically sensitive, and avoidance or minimization of activity within these zones.

IMPACTS AND RISKS	MITIGATION MEASURES
• Impacts on habitats and species from habitat alteration and degradation during construction and operation (e.g., changes in water flow and drainage, soil erosion, pollution of water, soils or air).	• Rehabilitation of cleared areas with native species, and ecosystem restoration in habitats of conservation value, using specialist advice and input so as to maintain the integrity of the habitat, backed up by a long-term monitoring program and corrective actions as necessary. Where development in sensitive areas cannot be avoided, mitigation may include: • Minimization of area impacted, clear demarcation of remaining intact areas of habitat, and prohibition of activity into those areas for any purpose; prohibit or minimize activities in the vicinity of sensitive areas. • Habitat rehabilitation and ecosystem restoration of areas no longer required to occur as soon as possible after construction. • If loss of Critical Habitat is inevitable, development/implementation of an Offsets Programme. • Education of workforce and local communities as to the potential damage fisheries may cause to ecosystems, and on methods for avoiding damage (e.g., using buoys and designated anchoring locations). See relevant sections re: control of impacts from pollution, invasive species, and induced access.
• Impacts on habitats and species from habitat alteration and degradation caused by fishing activities (e.g., anchor or net damage to subsurface habitats).	• Discourage use of destructive fishing practices, such as trawling; provide materials and training in support of sustainable and non- destructive fishing practices. • Education and awareness-raising around potential impacts of different fishing methods on habitats and the importance of habitat conservation.
Impacts from Induced Access: • Development of artisanal fisheries projects in remote or undeveloped areas leading to further development, increased disturbance and pressure on natural resources through bushmeat hunting, logging, fire, etc.	• Careful site selection, with advice from biodiversity authorities/ wildlife specialists to avoid remote and previously inaccessible areas where possible. • Where possible, instate access controls on roads leading to project facilities (e.g., jetties, processing facilities) in otherwise undeveloped or remote areas.
Direct Impacts on Flora and Fauna: • Small-scale ground clearance may lead to loss of plant species and habitats of conservation interest. • Development may displace animals and disturb their habitats (e.g., increased vessel and vehicle presence, construction of landing areas and processing facilities).	• Careful site selection and siting of project facilities, with advice from biodiversity authorities/wildlife specialists. • Careful planning of phasing and timing of construction activities. • Demarcation and avoidance of areas of conservation interest (high value species, feeding or breeding sites, migration routes, etc.) where possible, and wildlife rescue and translocation where appropriate, under expert supervision. • Also see measures under soils, run-off and flooding, pollution of soils and water, noise / vibration and induced access above, and invasive species below.

IMPACTS AND RISKS	MITIGATION MEASURES
• Direct mortality of target and non-target species, leading to depletion of their populations, including involuntary capture in lost nets.	• Institute measures to ensure sustainability of fisheries, through use of quotas, seasonal and 'sensitive area' closures, compulsory permitting etc.; encouraging sustainable traditional practices and restricting harmful practices (e.g., trawling, use of fish poisons or explosives); education and awareness-raising around overfishing, sensitive species and habitats.
Invasive Species: • Movement of a workforce into the project area, or introduction of non-native species during rehabilitation, could introduce invasive species which adversely impact fauna, flora, ecosystems, and crops.	• Invasive Species Management Plan, which should be developed and implemented in consultation with authorities, including appropriate eradication measures for different species/groups of species. • Staff training and awareness-raising in communities. • No introduction of exotic species (e.g., for site rehabilitation) without specialist vetting and government approval.
Physical and Economic Displacement of People, Property, Assets and Resources: • Construction of associated facilities may physically displace people, or lead to loss of assets (e.g., loss of land of agricultural importance). • Potential for economic displacement of specific individuals or groups with existing income from fisheries if they are excluded from sub-projects, or of other water based economic activities (e.g., navigation, tourism).	• Careful site selection and siting of project facilities, avoiding occupation of areas which are inhabited or regarded as having high value by communities where possible. • Early development and sensitive implementation of resettlement planning, in accordance with national regulations and international good practice to compensate for any losses (both physical and economic). • Put in place employment plan, giving preference to employment within local communities. • Develop detailed baseline of existing reliance on fishery resources in the project area, both within the local community and outside of the community of focus; from this, identify specific groups that may not benefit from the project and adopt corrective measures as required. • Develop compensation measures for affected parties (e.g., excluded fishermen).
Economic Development and Employment: • Direct employment of local population in the construction workforce. • Stimulation of local economy through export of produce to market, and increased demand for goods and services to enhance livelihoods and economic activity in local communities; potential for adverse effects if expectations not met and community relations are not well managed.	• For artisanal fisheries projects, a community-based approach is encouraged: the small construction workforce should be sourced in the local or regional area; further skills required for fishing, processing or maintenance activities to be included in local training programs and developed within the community, in order to retain value within that local community. • Development of an Employment Plan, with clear employment requirements and procedures for the construction workforce. • Transparent and culturally appropriate communication with communities regarding employment opportunities.
• Procurement of local goods and services for development of related facilities and equipment, and for the workforce could deplete resources available for local communities.	• Procedures for sustainable local procurement, in consultation with local authorities and community leaders.

IMPACTS AND RISKS	MITIGATION MEASURES
Cultural Heritage: • Displacement or disturbance to cultural heritage sites caused by construction or fishing activities, harm to local setting, amenity value, etc. due to construction. • Change to intangible cultural heritage due to increased access, and interaction with non-local workforce.	• Careful site selection and siting of all project facilities, taking account of community consultation/specialist surveys. • Development of a Cultural Heritage Management Plan covering tangible and intangible (e.g., local traditions and practices) cultural heritage. • Implementation of a "Chance Finds" procedure during construction.
Community Health, Safety and Security: • Poor construction management practices may lead to adverse effects on safety, human health and wellbeing.	• Good construction site "housekeeping" and management procedures (including site access). • Risk assessments and emergency response planning to consider impacts on local communities. • See also control of pollution under Physical Impacts heading.
• Changes to local food availability, due to export of increased proportion of captured fish, may lead to malnutrition.	• Provision of community support and development mechanisms for subsistence fisheries/aquaculture.
• Interaction between any non-local construction workers and local communities may increase occurrence of communicable diseases, including HIV/AIDS and sexually transmitted diseases (STDs).	• Implementation of a health management system for the workforce, to ensure it is fit for work and that it will not introduce disease into local communities. • Training and awareness raising for workforce and their dependents on HIV/AIDS and other STDs, and communicable diseases including malaria; health awareness raising campaigns for communities on similar topics.
Workforce-Community Interactions: • Real or perceived disruption to normal community life, through the physical presence of a non-local workforce.	• Adoption of a Stakeholder Engagement Plan, as a framework for early and ongoing community consultation • Implementation of a Grievance Procedure (see Grievance Procedure and Redress Mechanisms guidance note). • Works procedures, defining a Code of Appropriate Conduct for all workers, including acceptable behavior with respect to community interactions.
Labor and Working Conditions: • Poor management of occupational health and safety leading to accidents, injuries and illnesses among workers. • Differences (perceived or real) in working conditions between workers may lead to resentment.	• Construction employment practices, working conditions and workforce living conditions should conform to International Labor Organization (ILO) Standards and national regulations. • Clear and comprehensive health and safety reporting and a grievance procedure system should be established, and be freely available to all of the workforce. See also Employment and Economic Development.

ANNEX III: Tentative Green List of Investments under the Blue Bond

Investments	Prerequisites	Supporting activities	Eligibility of individual investment
1. Stock rebuilding			
GoS purchase of catch limit portion	• Management plan operational and catch limits adopted		
GoS buyback of catch of individual vessels (linked to decommissioning)	• Management plan operational and catch limits adopted		
GoS purchase of catch shares	• Management plan operational and catch share system adopted		
2. Restructuring of fishing capacity			
Refitting vessels for tourism	• Fleet management plan and fisheries licensing framework operational (phase 2 of management plan)		• Refitting feasible
Refitting vessels for longline tuna fishing	• Demersal fleet management plan and fisheries licensing framework operational (phase 2 of management plan) • Domestic tuna fisheries co-management plan operational • Sustainability of the tuna stocks (regional conservation management effective) • Associated growth of the services and processing sector		• Refitting feasible
Refitting vessels for under- or unexploited fisheries	• Fleet management plan and fisheries licensing framework operational (phase 2 of management plan) • Mechanism in place for R&D of the unexploited fisheries		• Refitting feasible

Investments	Prerequisites	Supporting activities	Eligibility of individual investment
Vessel decommissioning or buyback	• Related fisheries management plan operational and catch limits adopted		
3. Aquaculture			
Land-based production of high value niche products (e.g. crustaceans, sea urchins, ornamental corals and fish)	• Mariculture master plan operational • Support services available		• Compliant with the mariculture master plan • Land allocated
Sea ranching of high value products (e.g. sea cucumbers)	• Mariculture master plan operational • Support services available		• Compliant with the mariculture master plan • Land and seabed allocated
4. Fish processing and value addition projects			
Medium to large-scale processing and product development, with an emphasis on pelagic species (e.g. tuna loins, sashimi-grade tuna, bycatch)	• Positives results from "the value-chain and feasibility study to guide investments in the processing and services sector" • Fishing Port Development Committee strengthened	• SWIOFish3 PPA: "Value-chain and feasibility study to guide investments in the processing and services sector" • SWIOFish3 PPA: "Technical assistance to the Fishing Port Development Committee"	• Approval by the Fishing Port Development Committee, if relevant • Land allocated
Small to medium-scale bio-refineries for fish processing by-products (e.g. oil, collagen, amino acid, mineral production)	• Positives results from "the value-chain and feasibility study to guide investments in the processing and services sector" • Fishing Port Development Committee strengthened	• SWIOFish3 PPA: "value-chain and feasibility study to guide investments in the processing and services sector" • SWIOFish3 PPA: "Technical assistance to the Fishing Port Development Committee"	• Approval by the Fishing Port Development Committee, if relevant • Land allocated
5. Services sector			
5.1. Logistics support services			

Investments	Prerequisites	Supporting activities	Eligibility of individual investment
Ancillary enterprises for cold storage and cold-chain maintenance	• Positives results from "the value-chain and feasibility study to guide investments in the processing and services sector"	• SWIOFish3 PPA: "value-chain and feasibility study to guide investments in the processing and services sector"	• Approval by the Fishing Port Development Committee, if relevant • Land allocated
Small- to medium-scale enterprises for agencies providing vessels services (e.g. stevedoring, chandlery). Focus on integration of logistical services to include ice, bait, and gear for the demersal and semi-industrial fisheries	• Positives results from "the value-chain and feasibility study to guide investments in the processing and services sector"	• SWIOFish3 PPA: "value-chain and feasibility study to guide investments in the processing and services sector"	• Approval by the Fishing Port Development Committee, if relevant • Land allocated
Small- to medium-scale enterprises for logistical services to the aquaculture sector, including security services for onshore and offshore installations	• Mariculture master plan in place		• Land allocated
5.2. Scientific support services			
Fisheries observer companies	N/A		
Environmental monitoring consultancy firms	N/A		
Fisheries science and management consultancy companies	N/A		

Ideas for Potential Grants Made by SeyCCAT from Blue Bond Proceeds (20%)

- Research and development grants for capture fisheries development (e.g. underexploited fisheries) (*could also be funded directly under component 3)
- Capacity building for boat owners, skippers and fishers to transit to fisheries post-harvesting, value-added or service sectors, or other economic activities
- Conduct feasibility study for refitting schooners, whalers and other commercial fishing boats for tuna longlining (align with fleet development plan and replacement of foreign licensed vessels)
- Develop and trial electronic catch reporting system
- Survey to estimate sport and recreational fishery catch and effort .

ANNEX IV: ENVIRONMENTAL AND SOCIAL SCREENING TOOLS FORM

A. Sub-project Summary

Proponent:……

Sub-Project Name:……

Sub-Project Location:…….

Estimated Sub-Project Cost:……...

Sub-Project Objectives:……..

Brief Description of Proposed Sub-Project: ……..

NOTE: Any sub-project meeting any of the below listed criteria will be ineligible for funding under the SWIOFish3 Project.

Sub-projects in Exclusion List	**Yes**	**No**
Sub-projects located within or adjacent to a protected or an ecologically sensitive area, as defined in Schedule 2 of the Environment Protection (Impact Assessment) Regulations		
Sub-projects that involve the significant conversion or degradation of critical natural habitats such as sensitive ecosystems. converting mangrove forests to aquaculture use or other land uses, or other unsustainable cutting of mangrove forests		
The introduction of any new exotic marine species (note: this provision does not apply to any native and/or naturalized species, or any micro-algae that is imported as live feed)		
Activities that could dangerously lead to the exposure of sensitive/critical/vulnerable habitats unsustainable or illegal fishing activities (e.g., illegally-sized nets, spear fishing, use of dynamite, etc)		
Construction of permanent buildings within the wetlands		
Construction of walls in or around wetlands which will interrupt water flow		
The tidying of wetlands or mangroves by the removal of dead wood that serves as habitat for multiple fish species		
Extraction of raw material from protected areas		
Filling of wetlands within protected areas and outside in strategic landscapes.		
Sub-projects which cause significant socioeconomic impacts involving permanent involuntary resettlement resulting in relocation of people or displacement of houses or building structures; or loss, denial or restriction of access to land, crops and other economic assets; or significant loss of sources of income or means of subsistence)		
Sub-project which physically block or restrict fishers' access to the water (e.g., structures with walls or other shoreline obstructions or barriers that physically prevent fishers from accessing or launching their boats using customary or longstanding paths, roads or other rights of way)		

B. **Screening Checklist for potential adverse impacts and risks of aquaculture sub-projects**

Proponent:……

Sub-Project Name:……

Sub-Project Location:…….

Estimated Sub-Project Cost:……...

Sub-Project Objectives:……..

Brief Description of Proposed Sub-Project (1 page): ……..……..

Details of existing environment of the project location and the changes that will be brought to the environment by the project (2 pages):……

Form 1 (and 2 as required) to be attached

Checklist prepared by:

Signature: _____ Date:_____

Name (print): _____ Job Title: _____

FORM 1: Generic Environmental and social impacts		
Is the sub-project likely to generate any of the following environmental or social risks:	**Answer**	
	Yes	**No**
• Interruption or disruption of surface and groundwater flows from construction, excavation and ground clearance?		
• Reduced flows or lowering of water table due to abstraction, possibly resulting in salinization?		
• Disruption of coastal processes (e.g., wave, tidal and current regime, sediment transport, flood and storm protection) due to inadequate siting of sub-project?		
• Saline intrusion into groundwater due to excessive abstraction of groundwater during operation?		
• Pollution of groundwater from discharges and accidental releases during construction and maintenance, and from wastewater during operation?		
• Loss, damage or disruption of soil/sediments during construction and maintenance?		
• Introduction of sediments to coastal waters or inland watercourses, or interruption of drainage patterns, as a result of ground clearance, earthworks and operational maintenance of systems?		
• Pollution of coastal waters or inland watercourses from operational wastewater (e.g., nutrients, pesticides, fertilizers, treatments), as well as from fish processing and workforce sewage?		
• Release of hazardous substances during construction or maintenance (e.g., accidental spills and leaks) leading to soil, surface or groundwater contamination?		
• Dust and emissions from construction and maintenance activities, could affect human health, vegetation and wildlife?		
• Nuisance to nearby receptors due to odors associated with preparation facilities?		
• Noise and vibration from construction and maintenance equipment, traffic and activities, which may disturb sensitive noise receptors (human, fauna, including underwater noise impacts on fish and marine mammals, e.g., from piling during construction)?		
• Reduction of water availability for human communities and ecosystems due to abstraction of significant volume of water from surface or ground water sources for supply to aquaculture system?		
• Excess consumption of materials, generation of wastes/emissions, pollution of soils and water due to inefficient waste management during construction, operation and maintenance; in particular, impacts of wastewater contaminated with nutrients and chemicals?		
• Loss, degradation or fragmentation of protected or ecologically sensitive areas (e.g., wetlands, migration routes), and other areas of conservation interest due to site footprint and earthworks during construction or maintenance?		
• Impacts on habitats and species from habitat alteration and degradation (e.g., from reduction in downstream water supply, changes in water flow and drainage, soil erosion, pollution of water, soils or air, introduction of invasive species)?		
• Further development, increased disturbance and pressure on natural resources due to development of aquaculture projects in previously undeveloped areas?		
• Loss of plant species and habitats of conservation interest due to earthworks and clearance?		

FORM 1: Generic Environmental and social impacts		
Is the sub-project likely to generate any of the following environmental or social risks:	**Answer**	
	Yes	**No**
• Displacement of animals and disturbance of their habitats due to direct disturbance during construction and operation (e.g., from noise, light disturbance at night, general human presence)?		
• Degradation of native populations due to spread of diseases from cultured species?		
• Introduction of invasive species which adversely impact fauna, flora, ecosystems, and crops, due to movement of plant and workforce into areas?		
• Establishment of populations or genetic mixing with wild populations caused by accidental release of cultured species (especially non-native ones), leading to negative impacts on local flora and fauna?		
• Physical displacement of people or loss of assets (e.g., fishing grounds, or land) or loss of income from other water-based economic activities (e.g., navigation, tourism), due to development of aquaculture projects?		
• Adverse effects on water availability or quality for other users, due to water flow reduction downstream of the aquaculture development (or down-current for coastal aquaculture)?		
• Direct employment of local population in workforce?		
• Stimulation of local economy through export of and demand for goods and services to enhance livelihoods and economic activity in local communities?		
• Reduction in resources available for local communities due to procurement of local goods and services for development of aquaculture system and workforce?		
• Displacement or damage to cultural heritage sites by construction activities, harm to local setting, amenity value, etc. due to construction?		
• Change to intangible cultural heritage due to increased access, and interaction with workforce?		
• Adverse effects on safety, human health and wellbeing due to poor construction management practices?		
• Increased occurrence of communicable diseases, including HIV/AIDS and sexually transmitted diseases (STDs) due to interaction between any non-local construction workers and local communities?		
• Changes in exposure to water borne and water related diseases, especially those associated with water dwelling disease vectors (new areas of standing water created) or poor sanitary conditions?		
• Real or perceived disruption to normal community life, through the physical presence of a workforce?		
• Conflict with resident communities, and pressure on local resources and infrastructure due to population migration into project area?		
• Accidents, injuries and illnesses among workers (e.g., risks of working close to water) due to poor management of occupational health and safety; potential mental health issues due to remote or enclosed living?		
• Resentment between workers due to differences (perceived or real) in working conditions?		
• Discrimination and harassment due to differences in nationality, ethnicity, religion, etc?		

FORM 2: This form should be submitted with Form 1 for subprojects associated with fisheries and fisheries-associated processing facilities and services		
Is the sub-project likely to generate any of the following environmental or social risks:	**Answer**	
	Yes	**No**
• Interruption or disruption of surface and groundwater flows from small-scale ground clearance and construction of landing, storage or processing facilities?		
• Disruption of coastal processes (e.g., wave, tidal and current regime, sediment transport, flood and storm protection) from construction of landing and boat mooring facilities?		
• Loss, damage or disruption of soil/sediments during small-scale construction works?		
• Introduction of sediments to watercourses or interruption of drainage patterns, as a result of ground clearance and earthworks?		
• Pollution of watercourses caused by wastewater from processing facilities, as well as small increases in sewage inputs due to workforce during construction works?		
• Release of hazardous substances associated with construction/maintenance activities or with transport of goods (e.g., accidental spills and leaks), leading to soil, surface or groundwater contamination?		
• Dust and emissions from small-scale construction activities, and from vehicles and motorized vessels, could affect human health, vegetation and wildlife?		
• Nuisance to nearby receptors due to odors associated with preparation facilities?		
• Noise and vibration from small-scale construction activities, and from vehicles and motorized vessels, which may disturb sensitive noise receptors (human and fauna, including fish and marine mammals)?		
• Excessive or unregulated capture of a small range of target species and accidental capture of other non-targeted species may deplete stocks and place pressure on local food resources?		
• Excess consumption of materials, generation of wastes/emissions, pollution of soils and water due to inefficient waste management during construction, operation and maintenance?		
• Loss, degradation or fragmentation of protected or ecologically sensitive areas (e.g., wetlands, migration routes), and other areas of conservation interest?		
• Impacts on habitats and species from habitat alteration and degradation during construction and operation (e.g., changes in water flow and drainage, soil erosion, pollution of water, soils or air)?		
• Impacts on habitats and species from habitat alteration and degradation caused by fishing activities (e.g., anchor or net damage to subsurface habitats)?		
• Further development, increased disturbance and pressure on natural resources through bushmeat hunting, logging, fire, etc., caused by development of artisanal fisheries projects in remote or undeveloped areas?		
• Loss of plant species and habitats of conservation interest due to small-scale ground clearance? • Displacement of animals and disturbance of their habitats (e.g., increased vessel and vehicle presence, construction of landing areas and processing facilities) due to construction activities?		
• Direct mortality of target and non-target species, leading to depletion of their populations, including involuntary capture in lost nets?		

FORM 2: This form should be submitted with Form 1 for subprojects associated with fisheries and fisheries-associated processing facilities and services		
Is the sub-project likely to generate any of the following environmental or social risks:	**Answer**	
	Yes	**No**
• Introduction of invasive species which adversely impact fauna, flora, ecosystems, and crops, due to movement of a workforce into the project area, or introduction of non-native species during rehabilitation?		
• Physical displacement of people or loss of assets (e.g., loss of land of agricultural importance) due to construction of associated facilities? • Economic displacement of specific individuals or groups with existing income from fisheries if they are excluded from sub-projects, or of other water based economic activities (e.g., navigation, tourism)?		
• Direct employment of local population in the construction workforce? • Stimulation of local economy through export of produce to market, and increased demand for goods and services to enhance livelihoods and economic activity in local communities?		
• Reduction in resources available for local communities due to procurement of local goods and services for development of related facilities and equipment, and for the workforce?		
• Displacement or disturbance to cultural heritage sites caused by construction or fishing activities, harm to local setting, amenity value, etc. due to construction? • Change to intangible cultural heritage due to increased access, and interaction with non-local workforce?		
• Adverse effects on safety, human health and wellbeing due to poor construction management practices?		
• Changes to local food availability due to export of increased proportion of captured fish?		
• Increased occurrence of communicable diseases, including HIV/AIDS and sexually transmitted diseases (STDs) due to interaction between any non-local construction workers and local communities?		
• Real or perceived disruption to normal community life, through the physical presence of a non-local workforce?		
• Accidents, injuries and illnesses among workers due to poor management of occupational health and safety?		
• Resentment between workers due to differences (perceived or real) in working conditions?		

ANNEX V: ENVIRONMENTAL AND SOCIAL SCOPING FORM

A. Instructions

The Environmental and Social Specialist at the PIU will complete this form. In completing this form, the PIU Environmental and Social Specialist or Consultant may need to consult secondary information sources, other specialists at the MFTEP or at the other co-implementing ministries (i.e., Ministry of Fisheries and Agriculture, and MEECC), and/or the sub-project proponent and undertake conduct site visits if the environmental and social information available is insufficient or if the sub-project is likely to cause significant negative risks.

The PIU Project Coordinator will give final approval to the completed form.

The proposed category for each sub-project, as well as the terms of reference (TOR) for the necessary environmental and social analyses, will be subject to consultation with the Environmental Assessment and Permit Section (EAPS) of the MEECC. In the particular case of TORs for ESIAs, the MEECC through the EAPS must give its formal approval as national environmental authority.

B. Subproject Summary

Sub-Project Name:……

Sub-Project Location:…….

Estimated Sub-Project Cost:……...

Name of Proponent: ……..

Sub-Project Objectives:……..

Brief Description of Proposed Sub-Project (1 page): ……..……..

Findings of Screening: (please also attach completed Screening checklist submitted by proponent):…….

Findings of Field Visits: (please attach written and photographic documentation) ……

C. Determination of significance of environmental and social risks

The text on the next page provides guidance on the definition of impact and risk, and how to estimate a potential impact. Use Tables 1 and 2 as guides, rate the impact and probability of each risk identified on a scale of 1 to 5. Use Table 3 as a guide, rate the significance of each risk				
Potential environmental and social risks	**Impact (1-5)**	**Probability (1-5)**	**Significance (Low, Moderate, High)**	**Brief description of risk**

Definition of Impacts, Risk, and Estimation of Potential Impact
In order to evaluate the significance of identified environmental and social risks, as required in the matrix on the previous page, it is necessary to estimate "… both the potential **impact** (e.g., consequences if the risk were to occur) and **probability** (e.g. the likelihood of the risk occurring) for each identified risk.

The following factors need to be considered when estimating the potential impact:

- Type and location: Is the Project in a high-risk sector or does it include high-risk components? Is it located in sensitive areas (e.g. in densely populated areas, near critical habitat, indigenous territories, protected areas, etc.)
- Magnitude or intensity: could an impact result in destruction or serious impairment of a social or environmental feature or system, or deterioration of the economic, social or cultural well-being of a large number of people?
- Manageability: will relatively uncomplicated, accepted measures suffice to avoid or mitigate the potential impacts, or is detailed study required to understand if the impacts can be managed and which management measures are needed?
- Duration: will the adverse impacts be short-term (e.g. exist only during construction), medium term (e.g. five years) or long-term?
- Reversibility: is an impact reversible or irreversible?
- Community Involvement: Absence of community involvement is an inherent risk for the success and sustainability of any project. Have project-affected communities been consulted in project planning and design? Will they have a substantive role to play in the Project going forward?"

Table 1: Rating "Impact" of a Risk

Impacts Catgeory	Description	(Ir)reversible	Cumulative Impacts
Negligible	The impact has no significant risk to environment either short term or long term	Negligible or no adverse impacts on communities, individuals, and/or environment	No
Minor	The impact is short term and cause very limited risk to the environment	Limited impacts in terms of magnitude (e.g. small affected area, low number of people affected) and duration (short), may be easily avoided, managed, mitigated	No
Moderate	Impacts give rise to some concern, may cause long term environmental problems but are likely short term and acceptable	Adverse impacts on people and/or environment of medium magnitude, spatial extent and duration, (mostly temporary, reversible). Such risk levels which can be avoided or have mitigation measures which can reduce the potential impact	May or may not
Major	Impact is long term, large scale environmental risk	Significant adverse impacts on human populations and/or environment. Adverse impacts high in magnitude and/or spatial extent (e.g. large geographic area, large number of people, transboundary impacts, cumulative impacts) and duration (e.g. long-term, permanent and/or irreversible); areas impacted include areas of high value and sensitivity (e.g. valuable ecosystems, critical habitats); adverse impacts to rights, lands, resources and territories of	Yes

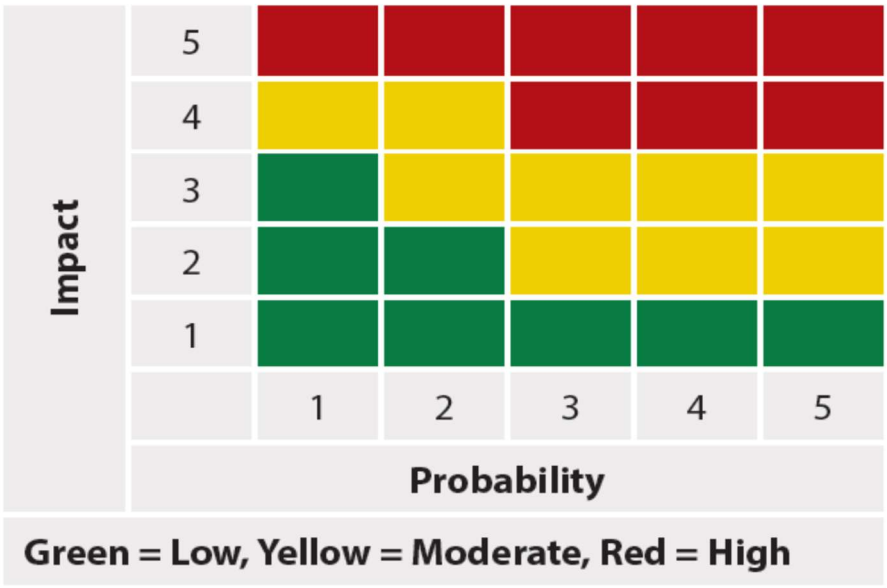
		indigenous peoples; involve significant displacement	

Table 2: Rating "Probability" of a Risk

Score	Rating
5	Expected
4	Highly Likely
3	Moderately likely
2	Not Likely
1	Slight

Source: adapted from UNDP, 2016, p. 17.

Table 3
Determining "Significance" of a Risk



Possible impacts arising from the construction and operation works are described according to their location and intensity of impacts (negligible, minor, moderate and major) and categorization for identifying best possible remedial (mitigation measures) action to be taken.

Valued Aspects	Priority (high, moderate or low)	Category
Coral Reefs	High	A
Seagrass beds	High	A
Offshore habitats and neritic Zone	High	A
Sandy beaches	High	A

Valued Aspects	**Priority (high, moderate or low)**	**Category**
Mangrove Forests	Moderate	B
Important bird areas	Moderate	B
Commercial and Artisanal Fisheries	High	A
Mariculture	High	A
Tourism	High	A
Small-scale microenterprise development	High	A
Coastal Forest Resource Use	Moderate	B

Project Category		**Required Environmental and Social Analysis**
High and Moderate Risk	Aquaculture and fish processing sub-projects listed in Schedule 1 of Environment Protection (Impact Assessment) Regulations of 1996	• Environmental and Social Impact Assessment (see Annex V for TOR). • Site-Specific Environmental and Social Impact assessment and Management Plan (see Annex VI for TOR). • Site-Specific Health and Safety Management Plan (see Annex VI for TOR). • Specific socio-economic studies may be required under the process framework included as a separate report.
	All other moderate risk sub-projects	• Site-Specific Environmental and Social Impact assessment (If Needed) and Management Plan (see Annex VI for TOR). • Site-Specific Health and Safety Management Plan (see Annex VI for TOR). • Specific socio-economic studies may be required under the process framework included as a separate report.
Low Risk		• List of mitigation measures (see Annexes I and X).

In particular reference to sub-projects involving aquaculture, and fish processing plants and equipment, although their likely risk categorization will be moderate risk after the application of the procedure described in this annex, they will be required to prepare an Environmental and Social Impact Assessment (ESIA). This is so in order to comply with the requirements established in Seychelles' Environment Protection (Impact Assessment) Regulations of 1996, which stipulate that projects dealing with "fish and associated products farming" (i.e., "fish farming works and extension, aquaculture" and "fish processing plants and equipment") must submit an ESIA. In effect, the Regulations list these types of investments in its Schedule 1 of "projects or activities requiring environmental authorization," also termed "prescribed projects and activities." All of the types of projects listed in Schedule 1 must submit an ESIA, a review of which serves as the basis for the Ministry of Environment, Energy and Climate Change to make a determination as to whether or not an environmental authorization will be granted.

In case a sub-project falls under the severe/critical risk category and the Exclusion list, it will be dropped from further funding consideration. For sub-projects involving aquaculture, and fish processing plants and equipment, as well as for moderate risk sub-projects, attached terms of reference for the pertinent required environmental and social studies specified in the last column of the table below. For low risk sub-projects, attach a list of appropriate mitigation measures.

ANNEX VI. GENERIC ENVIRONMENT AND SOCIAL MANAGEMENT PLAN (ESMP)

The Contractor shall be responsible for complying with the ESMP that is part of the approved Environmental and Social Impact Assessment (ESIA) for the project. The ESIA for the project is included as an attachment to this Contract.

The Contractor shall develop and implement a Site-Specific Environmental and Social Management Plan (ESMP) based on the Terms of Reference provided. The Contractor shall submit the site specific ESMP to the Engineer within 45 days of the letter of acceptance for the approval of the Engineer after consultation with the Employer.

1. Introduction

2. Brief description of relevant environmental and social characteristics of project site.

3. Project Description
   - Focus on impact-generating activities (e.g., demand of water and materials, earth movement, etc.).
   - Environmental liabilities: identify and include a photographic registry of pre-existing environmental liabilities (e.g., gully erosion areas, abandoned borrow pits, unauthorized dumping sites, etc.) and, hence, not attributable to the implementation of the project.

4. Potential Impacts during Mobilization, Construction and Demobilization
   - Apply simple rating of significance.
   - Quantify/qualify impacts (e.g., surface and type of vegetation to be removed, amount and type of wastes to be generated, noise levels, etc.).
   - Describe impacts by chain age (linear infrastructure projects or linear components of infrastructure projects)[1] and/or identify places where specific impacts will manifest (non-linear infrastructure projects).

5. Mitigation Plan
   - Specify the detailed measures to mitigate the identified impacts (also by chain age and/or location).
   - Include designs for measures requiring structural solutions (e.g., gabions, etc.).
   - Include the schedule of implementation of mitigation measures in relation to the general construction schedule.
   - Health and Safety Management Plan (detailed, see below).
   - Waste Management Plan (detailed).
   - Traffic Management Plan (detailed).
   - Training Program (detailed).
   - HIV/AIDS Awareness and Prevention Program.

[1] Examples of linear infrastructure projects are roads, oil and gas pipelines, and electrical transmission and distribution lines. Examples of linear components of infrastructure projects are the mains and pipes of water and sewage projects, and the access roads for hydroelectric projects.

- Community Relations Program.
- If applicable, location and technical specifications for installation and operation of campsites, including workshops, garages, laboratories, offices, sanitary installations, etc.
- If applicable, location and technical specifications for operation of quarries and borrow pits, and procedures for negotiation with and compensation of land owners where they are located.
- If applicable, location and technical specifications for installation and operation of concrete batching, stone crushing, cement mixing and asphalt plants.
- If applicable, location and technical specifications for installation and operation of temporary and permanent dump sites.

6. Inspection Plan
   - Inspection function: specify frequency, locations and instruments (e.g., checklists, site reports, photo registry, etc.) to conduct site inspections.
   - Permitting: required environmental permits and schedule to obtain them.

7. Monitoring Plan
   - Specify, for each variable: frequency of measurement, locations, methods/equipment, units/measures, quality standards, and reporting requirements and periodicity, including establishment of trends.

8. Organization and Management
   - Specify organizational structure, personnel, resource and equipment requirements, reporting requirements and periodicity, and inter-institutional communication and coordination mechanisms.

9. Annexes
   - If the Contractor wishes to incorporate information beyond the indicated above, such as the policy, institutional and regulatory framework for environmental management in Seychelles, biophysical and socioeconomic characteristics of the area of influence of the Project, World Bank safeguards policies, etc., that information should be included as an annex and not in the body of the site-specific ESMP. Preferably, such information should not be attached.
   - Annexes should be used, if necessary, to include detailed information on the specific topics of the ESMP (e.g., inspection forms or checklists, design of structural mitigation measures, photographic registry of environmental liabilities, etc.).

ANNEX VII: OCCUPATIONAL HEALTH AND SAFETY REQUIREMENTS FOR CIVIL WORKS CONTRACTORS

(Also refer to WBG EHS Guidelines, WB Labor Influx Guidance Notes

I. Sub-Clause on Safety Procedures

The Contractor shall be responsible for complying with the health and safety measures included in the Environmental and Social Management Plan (ESMP) that is part of the approved Environmental and Social Impact Assessment (ESIA) for the project. The ESIA for the project is included as an attachment to this Contract. The Contractor shall be responsible for the development and implementation of, and compliance with, a Site-Specific Health and Safety Management Plan (HSMP) based on the Terms of Reference provided. The Contractor shall submit the Site-Specific HSMP to the Engineer within 45 days of the Letter of Acceptance for the approval of the Engineer after consultation with the Employer.

The Contractor shall notify the PIU within 48 hours or, as soon as reasonably possible, after the occurrence of any accident which has resulted in damage or loss of property, disability or loss of human life, or which has or which could reasonably be foreseen to have a material impact on the environment and shall submit to the Engineer and Employer no later than 28 days after the occurrence of such an event, a summary report thereof.

The Contractor shall also implement directives issued as a result of periodic inspections to be undertaken as part of the supervisory role required of the Engineer.
The Contractor shall ensure that its activities under this Contract are not likely to cause a significant environmental, health, or safety hazard, understanding that the Contractor is not responsible for the environmental and social impacts of the Works, to the extent that such impacts result directly from completion of the Works as designed by the Employer.
The Contractor's program shall demonstrate clearly the procedures and methods of working that the Contractor and its Subcontractors will adopt to comply with the environmental and social management requirements of this Sub-Clause.
The Contractor shall be responsible for ensuring that all Subcontractor's and Contractor's Personnel understand and operate in accordance with the principles and requirements of the environmental and social management provisions of this Sub-Clause and that similar standards apply to the Subcontractor's environmental and social management system, and environmental and social performance
The Contractor shall make its staff available to attend the HIV-AIDS awareness and prevention program for the project, and shall undertake such other measures as are specified in the Contract or instructed by the Engineer to reduce the risk of the transfer of the HIV virus between and among the Contractor's Personnel and the local community, to promote early diagnosis and to assist affected individuals.

DRAFT CONTENTS OF HSMP

1. Introduction (including objectives of the HSMP).

2. Hazard Prevention and Control
   - Risk assessment (including description of risk assessment method used).
   - Prevention, protection and control measures (based on risk assessment performed):
     - ✓ Personal protective equipment and clothing: safety goggles, ear plugs, work boots, dust masks, protective clothing etc.

- ✓ Health and safety, and sanitary facilities, equipment, materials and personnel: first-aid kits and stations, health personnel, safe drinking water, sanitary facilities, accommodations, washing facilities, domestic waste disposal, etc.
- ✓ On-site safety measures and procedures to protect workers against accidents and health risks in the performance of construction-related activities:
  - ➢ Site security: access, safety of visitors, separation of work and rest areas, signage, etc.
  - ➢ Over-exertion, and ergonomic injuries and illnesses (repetitive motion, manual handling, etc.).
  - ➢ Slips and falls (due to poor housekeeping, such as excessive waste debris, loose construction materials, liquid spills, and uncontrolled use of electrical cords and ropes on the ground).
  - ➢ Work in heights (risk of falls from elevation associated with working with ladders, scaffolding, and partially built or demolished structures).
  - ➢ Struck by objects.
  - ➢ Confined spaces, excavations and trenches.
  - ➢ Electric shock and arc flash/arc blast.
  - ➢ Handling of raw materials (earthwork, gravel, crushed rock, sand, etc.), handling of other materials causing dust development (such as cement), handling of hydrated lime and other activators and additives, handling of asphalt.
  - ➢ Handling of flammable materials.
  - ➢ Hazardous materials management.
  - ➢ Maintenance of vehicles and machinery.
  - ➢ Emergency prevention, preparedness and response.

3. Health and Safety Training Program
   - Provide specifics of training and instruction: topics, frequency, modalities, target audiences, instructors, training materials, etc.
   - Potential topics:
     - ✓ Occupational safety risks and prevention.
     - ✓ Health risks and prevention.
     - ✓ Use of personal protective equipment.
     - ✓ Safe work procedures: general and specific.

4. Organization and Management
   - Organizational structure, personnel, equipment, communication and reporting requirements, accident and incident reports, and procedures and tools to verify and ensure compliance with occupational health and safety requirements.

5. Annexes
   - Annexes should be used, if necessary, to include detailed information on the specific topics of the HSMP, such as (illustrative list):
     - ✓ Accident Report forms.
     - ✓ Dangerous Occurrence forms (near misses).
     - ✓ Safety Audit Forms.
     - ✓ Safety Check List.
     - ✓ Safety Rules.
     - ✓ List of hospitals, emergency evacuation strategy and other arrangements to treat seriously injured staff.
     - ✓ List of personnel trained in first aid and their places of deployment.
     - ✓ List of first aid kits and locations where these will be held.

ANNEX VIII. SPECIFICATIONS FOR PROTECTION OF HISTORIC AND CULTURAL RESOURCES

To avoid potential adverse impacts to historic and cultural resources, if any, the Contractor shall:

- Protect sites of known antiquities, historic and cultural resources by the placement of suitable fencing and barriers;
- The Contractor will consult with local authorities and appropriate agencies prior to construction works to identify potential historic and cultural sites that may be affected by Project works.
- Not locate construction camps within 500 meters from cultural resources.
- Adhere to accepted international practice and all applicable historic and cultural preservation requirements of the Government of Seychelles, including all appropriate local government entities
- In the event of discoveries of cultural or historic artifacts (movable or immovable) in the course of the work, the Contractor shall take all necessary measures to protect the findings and shall notify the Engineer and concerned government level representatives. If continuation of the work would endanger the finding, project work shall be suspended until a solution for preservation of the artifacts is agreed upon.

ANNEX IX: Environmental and Social Compliance Report

Sub-Project Name/Code:_____ Location:_____

Date of Site Visit:_____

Participants in Site Visit:_____

Name and job title of persons contacted:_____

Name and contact information of community members contacted (if applicable):_____
_____
_____

NOTE: A "YES" answer to any of the questions in the table below indicates a non-compliance or impact.

QUESTIONS	ANSWER		BRIEF DESCRIPTION OF IMPACT/NONCOMPLIANCE (INCLUDE LOCATION OF IMPACT)	RECOMMENDED ACTIONS	FOLLOW-UP ON IMPLEMENTATION OF ACTIONS (IF APPLICABLE)
	YES	NO			
ORGANIZATION, REPORTING, TRAINING AND PERMITTING REQUIREMENTS					
Is the Contractor non-compliant with, as applicable, any of the requirements for socio-environmental management established in the works contract and the ESMP (e.g., staffing, management structure, equipment and other material					

resources (e.g., office space, vehicles, computers, field monitoring equipment, etc.), field inspection instruments and procedures, etc.)? (please specify)					
Is the Contractor non-compliant with socio-environmental reporting requirements? (please specify)					
Is the Contractor non-compliant with environmental effects monitoring requirements (please specify)					
Is the Contractor non-compliant with workers environmental, health and safety training and awareness requirements (please specify)					
Is the Contractor non-compliant with the required environmental permitting for the project (e.g., water abstraction, vegetation clearance, etc.) (please specify)					
Is the Contractor non-compliant with Seychellois labor laws and international labor standards, in particular in reference to right to receive just compensation and benefits for work, prohibition of forced and child labor, and prevention of sexual harassment and discrimination in the work place on the basis of gender, religion, social origin, etc.? (please specify)					
Is the Contractor failing to employ women or reducing the number of female employees in disproportionate numbers when compared to dismissed men? (please specify)					
Is the Engineer non-compliant with, as applicable, any of the requirements for socio-environmental management established in the supervision/consultant					

contract and the ESMP (e.g., staffing, management structures, field supervision instruments and procedures, and reporting requirements, etc.)? (please specify)					
Is the Engineer non-compliant with socio-environmental reporting requirements? (please specify)					
ENVIRONMENTAL AND SOCIAL IMPACTS					
Is there standing water on the site? If yes, is there reason to believe the water has been standing longer than 4 days? (Standing water breeds insect disease vectors, particularly mosquitoes. It takes 4 days for the malaria-bearing anopheles mosquito to hatch and mature to its flying adult form)					
Is there erosion from the cleared site or from material stockpiles? Gullying on surrounding lands clearly caused by runoff from the site? (In addition to permanently degrading the site itself, erosion/ runoff from the site can degrade nearby surface waters and damage adjoining lands)					
Are fill, sand, and/or gravel being extracted from waterways or ecologically sensitive areas? (Extracting materials from streambeds and wetlands degrades water quality, ruins critical habitat, alters drainage and flow, and can create standing water)					
Is demolition debris or construction waste disposed in the open? (These wastes can pose physical hazards, such as broken glass and rusty torn roofing					

sheets, and toxic hazards, such as leaded paint, and can create breeding habitat for disease vectors)					
Are there fuel, oil, paint or chemical spills to ground or streams? (Such spills can contaminate soils, surface waters and groundwater)					
Is the site very dusty or noisy? (Dust and noise can have negative impacts on the health of workers and residents located closed to construction site)					
Are operation and maintenance of construction plants inadequate and, hence, there is presence of excessive noise, vibrations, fumes and particle emissions?					
Are sprinklers lacking or damaged in crushing conveyors to spray mist/water on belts during crushing operations to help control dust?					
Are there excessive periods of interruption of access to public transport, or residential, commercial, health or institutional areas and services due to inadequate implementation of traffic control and safety measures during construction?					
Are there damages to public utilities and services lines, mains or pipes, and extended periods of interruption of services?					
Are quarries and borrow pits being operated in an unsafe or environmentally unsustainable manner?					
Is vegetation being cleared in areas beyond those indicated in contract drawings?					
Are there conflicts with local populations due to resource use, in particular water?					

Is there inadequate storage and utilization of top soils?					
Are there unresolved resettlement and compensation issues?					
Are there any manifestations of unintended or unanticipated impacts? (please specify type of impact and location)					
HEALTH AND SAFETY IMPACTS					
Is a well-marked site boundary absent and is an actively controlled access not provided?					
Are good housekeeping practices not in place, and is the site not maintained in a generally orderly condition?					
Are safety signs missing—at minimum, to mark site boundary, hardhat areas, explosion and toxic hazards?					
Is smoking allowed or not restricted to a designated smoking area well away from flammable materials?					
Is First Aid kit missing on site, and there is no one on site familiar with its use and trained in basic first aid?					
Drinking water and sanitary facilities are not provided (or are not very close at hand), including hand-wash station?					
Is personal protective equipment (PPE) inadequate or does it appear little-used (PPE must be adequate and used consistently to fulfill its intended function: helping protect workers against injuries and disease)					
Is scaffolding inadequate (i.e., not able to carry at least 4 times its maximum intended load without settling or displacement)?					

Is scaffolding inadequate (i.e., not on solid footing—boxes, loose bricks and stones, etc.)?					
Is scaffolding inadequate (i.e., does not have guardrails, midrails and toeboards)?					
Is scaffolding inadequate (i.e., not at least 3 meters from any electric power line)?					
Are scaffolding inspections insufficient (i.e., not inspected each day by a competent manager)?					
Is fall protection inadequate (i.e., there are no guardrails or at least ropes near the edge of floors and roofs where a drop is greater than 2 meters. Where not possible, workers in these areas do not wear a body harness and rope)?					
Are trenches inadequate (i.e., spoils are not maintained at least 1 meter back from edge of trench)?					
Are trenches inadequate (i.e., trench walls are not shored or sloped back for any trench 1.75 meters or deeper)?					
Are trenches inadequate (i.e., for any trench 1.75 meters or deeper, there is not a means of exit (ladder, stair, ramp) at least every 10 meters?					
Is leaded paint or asbestos in any form used in new construction?					
Are painted surfaces being scraped or sanded? (Paint containing lead is very common in Africa. Scraping or sanding releases lead dust, a toxic health hazard to workers)					
Are asbestos roofing sheets, linoleum, fiberboard ceiling or wall panels or pipe insulation being removed/disturbed?					

(Asbestos should be assumed to be present in all these products. When disturbed, carcinogenic asbestos fibers may be released)					
For rehabilitation or demolition, the contractor failed to check prior to commencing work whether lead-based paint, asbestos (including roofing sheets) and other toxics are present?					

MAJOR NON-COMPLIANCES AND IMPACTS, AND RECOMMENDED ACTIONS FOR FOLLOW-UP

Based on the Environmental and Social Compliance Table, list in the table below the major non-compliances and impacts detected, as well as the main actions recommended to address them. This table will serve to prioritize the follow-up of those actions in future oversight visits.

BRIEF DESCRIPTION OF IMPACT/NONCOMPLIANCE (INCLUDE LOCATION OF IMPACT)	RECOMMENDED ACTIONS	FOLLOW-UP ON IMPLEMENTATION OF ACTIONS (IF APPLICABLE)

Report prepared by:

Signature: _____ Date :_____

Name (print): _____ Job Title: _____

ANNEX X: EIA Process in Seychelles

Class I refers to prescribed projects which requires environmental authorization under the Environment Protection Act. CLASS II EIAs do not require reports. They refer to smaller scale applications such as dwelling house, fences and ancillary works etc. Such planning applications are simply appraised by officers from relevant authorities. No consultants are needed.

The EIA Process as undertaken by the Department of Environment

1. **Advise proponent to appoint an EIA consultant**

2. **EIA Consultant/ proponent request a meeting with DOE to initiate EIA process.**

Organise Scoping visit/ meeting for the proposed. Consult Director EIA, and decide on which of the following sections/ units to be consulted. Members consulted will form part of the appraisal committee for the project.

3. **Site visit/ Meeting with Consultant**
    - Ensure attendance sheet is ready and used
    - Explain the EIA process to consultant, hand over EIA process Sheet
    - Explain the Scoping verification form to the consultant and hand over a copy to consultant
    - Give all DOE officers a copy of the scoping verification form, either by email or hand, and stress on submission of form to the consultant. It is the responsibility of the consultant to collect all scoping verification forms

4. **Scoping list to Consultant**
    - Compile scoping list (see attached template Annex 4) and circulate to D, DG for approval.
    - Submit scoping list and cover letter for consultant to undertake the Scoping Report.

5. **Request for Organization of Public Meeting**
    - As part of the scoping exercise, depending on the sensitivity of the project, a consultant undertaking an EIA report may be requested to organize a public meeting (see standard guidelines for organising public meeting Annex 5).

6. **Submission of Scoping Report by Consultant**
    - Assess thoroughly the Scoping report and draft the Terms of Reference (TOR) based on the report.
    - Forward the draft TOR to Director for corrections.
    - Forward the draft TOR to Environment officers (appraisal committee) who were members of your scoping exercise. Visit /meeting or who submitted comments in the scoping report. Give them 3 days as deadline for comments.
    - Finalise TOR and seek approval from DG.
    - Submit TOR with cover letter to Consultant within 2 weeks of submission of Scoping report.

7. Submission of EIA report by consultant

- Preliminary review of the EIA report by DOE
  - Organise for members of the appraisal committee to receive a copy of the EIA report, giving them 1 week for appraisal and deadline for submission of comments via email.
  - Book meeting room
  - Send email to members (ensure you cc D, DG, and Secretaries) with the following; the proposed, time and location of meeting and deadline for confirming participation.
  - Follow up and compile comments in Memo Format and ensure copies are available for all.
  - Ensure attendance sheet is ready and used.
  - Discuss EIA content and assess degree expected as per TOR. Determine whether EIA report is fit to go on public inspection or further study is needed
    - In the event that the appraisal committee feels that consultant should carry out further study or submit additional information for the purpose of ensuring that the EIA is accurate and exhaustive as possible, letter should be forwarded to consultant outlining all issues to be submitted as addendum to the report. On receipt of all the completed documents organise an internal meeting with key members of the appraisal committee who requested additional information, and determine whether EIA report is fit to go on public inspection.
  - On determination of the report being satisfactory and determined fit to go on public inspection an acknowledgement letter should be submitted to the proponent/ consultant (see template attached annex 6). A response should be submitted to the consultant/proponent within 56 days.

8. Public Inspection Period

- As per the Environment Protection (Impact Assessment) Regulations, 1996, the submitted report has to undergo a public inspection period of two weeks. Organise a notice for public inspection; the notice shall state the summary description of the project or activity; the location where the project or activity is to be carried out; the place where the EIA may be inspected; the period within which the EIA is open for inspection (See attached Template- Annex 7).
- Draft Memo to EIC Section asking for assistance in making the necessary procedures to have the notice published twice in the Seychelles Nation. The notice shall be published in 2 issues of a local newspaper with an interval of not less than seven days between the first and second publication (see template attached Annex 8).
- Draft Memo to EIC section asking for permission and assistance to place one copy of the document for comments at Documentation Centre for viewing to ensure wider participation of the public in the process (see template attached Annex 9).
- Draft and send letter to District Administrator, where the proposal is to be located, asking for permission and assistance to place one copy of the document for comments at their respective District Administration for viewing to ensure wider participation of the public in the process (Annex10)
- Draft and send letter to National Library asking for permission and assistance to place one copy of the document for comments at Victoria National Library for viewing to ensure wider participation of the public in the process (see template attached Annex 11).
- Organise 3 complete sets of the report, booklets for each sets (Booklets should each have Cover page (Annex 12), Instruction page (Annex 13) and comments page (Annex 14),

and place the sets at the National Library, District Administration and Documentation Centre in time for the commencement of public inspection.

9. Public Meeting

- In the event that adverse public comments are received and request for further consultations needed, onus is on the developer/consultant to coordinate and organize for the Public Meeting called for during the public inspection process (see Annex 15).

10. Review comments from Public Inspection

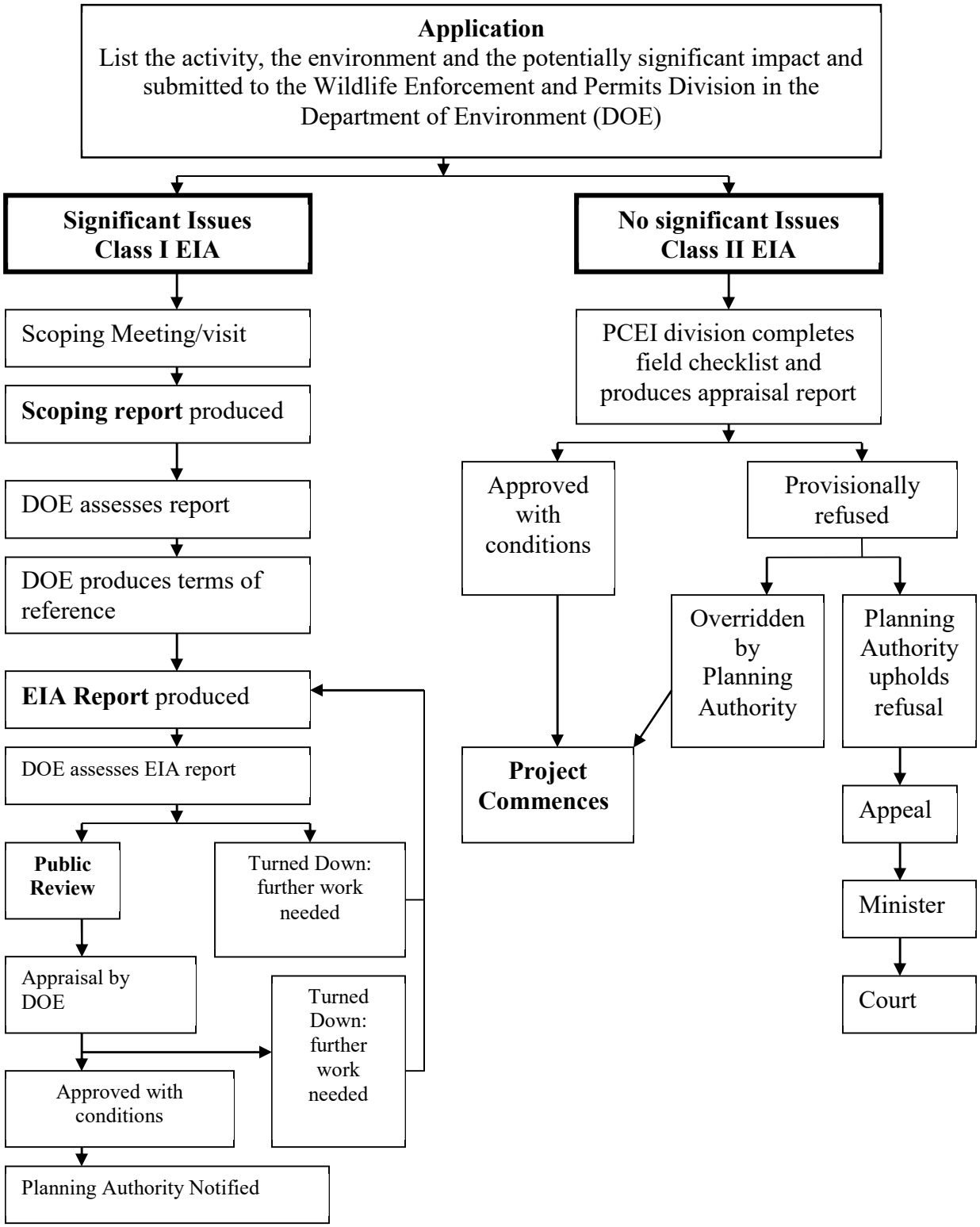
- Where it is considered necessary by the Authority, the Authority may again refer the E.I.A. to an Environmental Appraisal Committee to discuss comments made by the Public.
  - Organise a meeting with members of the appraisal committee
  - Book meeting room
  - Send email members (ensure you cc D, DG, and Secretaries); with the following; the proposed, time and location of meeting and deadline for confirming participation.
  - Ensure attendance sheet is ready and used.
  - The appraisal committee shall examine the EIA along with the comments and observations made by it, and any public comments that may have been received and make its recommendations to the Authority.
  - The Authority may require the proponent of the project or activity to furnish any additional information as may be required any time before granting the environmental authorization for the project or activity.

11. Final Decision

- An environmental authorization granted for a project or activity may be subject to such terms and conditions as may specify by the Authority.
  - Approves the EIA in respect of a project or activity it shall grant an environmental authorization to the proponent of the project or activity; Draft a Notice of Acceptance (NOA) for the proposed; additional information still lacking in EIA report can be requested with strict deadlines, conditions most applicable and for sensitive issues should also be outlined in Notice of Acceptance.
    - Once NOA has been submitted a full copy of the approved EIA report should be given to Documentation Centre, Botanical Gardens for record keeping.
  - Does not approve the EIA in respect of a project or activity, it shall refuse to grant an environmental authorization to the proponent of the project or activity; Draft and send a Notice of Refusal for the proposed outlining all issues for the refusal.

12. Appeal

- Any person aggrieved by a decision given by the Authority under regulation 10(4) may appeal to the Minister within 30 days from the date receipt of the decision or order.


Application
List the activity, the environment and the potentially significant impact and submitted to the Wildlife Enforcement and Permits Division in the Department of Environment (DOE)
Significant Issues Class I EIA
No significant Issues Class II EIA
Scoping Meeting/visit
Scoping report produced
DOE assesses report
DOE produces terms of reference
EIA Report produced
DOE assesses EIA report
Public Review
Turned Down: further work needed
Appraisal by DOE
Turned Down: further work needed
Approved with conditions
Planning Authority Notified
PCEI division completes field checklist and produces appraisal report
Approved with conditions
Provisionally refused
Overridden by Planning Authority
Planning Authority upholds refusal
Project Commences
Appeal
Minister
Court

ANNEX XIII

Report of a Consultation Meeting held at Seychelles Fishing Authority on March 7th 2017

Environmental and Social Management Framework and Process Framework for the SWIOFish3 Project

MINISTRY OF FINANCE, TRADE & ECONOMIC PLANNING

The Government of Seychelles is preparing the Third South West Indian Ocean Fisheries Governance and Shared Growth Project (SWIOFish3). SWIOFish3 aims to improve management of fisheries and marine ecosystems while strengthening fisheries value chains. SWIOFish3 will support country-level blue economy investments in Seychelles over 6 years and is expected to become effective around June 2017.

The services of a consultant, Mr. Jose M. Cabral, were procured in December 2016 to prepare the Environmental and Social Management Framework (EMSF) and Process Framework (PF) for the SWIOFish3 project. The consultant carried out a mission to Seychelles between the 10th and 24th December 2016 for the purpose of gathering relevant local information and meeting key government agencies and stakeholders. Drafts of the frameworks were then produced by the consultant and reviewed internally by project team members, before being advertised for public consultation.

A consultation meeting to receive feedback on the draft EMSF and draft PF was arranged for the 7th March 2017. The draft ESMF and PF documents were posted for download on the website of the Ministry of Finance, Trade and Economic Planning (www.finance.gov.sc) from the 28th February 2017 until the meeting, alongside a notice advertising the meeting. In addition, a notice inviting the public to download the draft frameworks and attend the consultation meeting was posted in the national press ('The Nation' and 'Today' newspapers) between the 1st and 6th March 2017. Email invitations to the consultation were also sent to members of the SWIOFish3 National Steering Committee and to members of a steering committee involved in the GEF project formulation.

Comments received that were specific to ESMF and PF

- Participants generally reflected on the relatively short period that had been provided to access and review the draft documents prior to the meeting. Participants also requested clarification on the consultations carried out by the consultant who drafted the ESMF and PF.

- *In response it was noted that frameworks are active documents that can improved as project preparation and implementation proceed. Any comments provided following the meeting will therefore be taken into account. The consultant met with representatives of key stakeholder groups during his 2-week mission in Seychelles. It was further noted that frameworks serve to define the consultation process. Stakeholder feedback of the frameworks is important, but detailed, project-specific consultations, as outlined in those frameworks, are the central element of the participatory process during implementation.*

- A participant pointed out that parts of the introduction and context of the ESMF and PF appear to have been taken directly from their own work, without citation or acknowledgement.
    - *It was noted that the consultant who prepared the documents would be asked to rectify this issue.*
- Clarification was provided on difference between the classification of SWIOFish3 as a Category B project and the risk rating applied in the environmental and social scoping process
- Clarification was sought regarding the size of projects that ESMF would apply to, given that the process would be onerous for proponents
    - *It was noted that the type of project dictated the ESMF and PF process, rather than size, with those involving aquaculture, processing and service industries being the most onerous for ESMF, while those that affect livelihoods being most onerous for PF*
- A participant from the Department of Social Affairs (DSA) requested information on who would be responsible for implementing the ESMF and undertaking consultations with communities, noting that it should be through the relevant bodies. The DSA requested clarification as to how their department would be involved. The DSA also sought confirmation on the timeline for project preparation in relation to the timeline for the social impact assessment frameworks that they are preparing in 2017
- A participants asked whether EMSF would apply to fish processing projects if the physical facility already existed
    - *It was noted that the MEECC was an implementing entity of the SWIOFish3 project and that its relevant departments and sections would be full involved. The ESMF has focused on ensuring that the ESMF is integrated with local regulatory frameworks*
- The appointment of an Environmental and Social Specialist within the Project Implementation Unit to conduct screening was welcomed. However, another participant noted that the ESMF should not create a parallel process to national regulatory processes. Clarification was sought as to the role of the relevant Environmental Permits and EIA section within the Ministry of Environment, Energy and Climate Change.
    - *It was confirmed that the EMSF works with existing institutional structures*
- A participant recommended that two experts would be needed, rather than a single Environmental and Social Specialist as it is unlikely that a person would hold both skills
    - *It was noted that training in one or the other disciplines could be provided under the project if required*
- A participants requested information on how the project could financially support loan applications for conducting ESIA or other ESMF processes. Further, a participant noted that human capacity is already limited for impact assessment, quality control etc.
    - *In response, it was explained that Blue Grants Fund could be utilised to assist loan applicants and that the PIU can also assist in some aspects of the process.*

- A participant noted the opportunity for links between ESMF and a mitigation hierarchy that could include biodiversity offsets
    - *This was considered a good idea that should be further explored*
- On the PF, a participant questioned whether mitigation and livelihood restoration was required given that business as usual (BAU) would see them lose their livelihoods anyway. Therefore, the impacts to livelihoods from the project should be weighed against the costs of the BAU model.
    - *In response, it was noted that the PF was World Bank policy.*
- A participant noted that fisher livelihoods are also indirectly impacted by illegal fishing, foreign-licensed vessels and the use of fish aggregating devices.
- A participant noted the importance of collecting baseline socio-economic information as soon as possible if impacts to livelihoods are to be monitored.
    - *In response it was noted that socioeconomic surveys on the impacts of management plans were planned already, and that project grants could also support such activities for other fisheries.*
- A number of participants highlighted the problems of obtaining accurate household survey data in Seychelles, which leads to poor information on livelihoods
    - *These concerns were acknowledged, noting that robust survey designs would need to be employed*
- Concerns were raised that expanded and diversifying value chains developed by one component of SWIOFsh3 would result in problems for the other components by placing greater pressure on resources and worsen environmental impacts
    - *It was noted that this was being addressed through programming of eligible projects for loans according to management milestones. For example, loans in support of processing of demersal fish would not be allocated without robust controls on fishing pressure for these resources*
- A participant recommended that the PF would need to ensure that engagement with PAPs was fully consultative and participatory, rather than just being informative.
    - *It was noted that this is a key requirement and principle of the PF*
- A participant noted that Seychelles Fishing Authority have so far failed to respond to proposals on improving the fisheries management plans, which is clearly an example of not being consultative
    - *It was noted that efforts to restore engagement on the management plans are underway*
- A participant asked whether arrangements between government departments and agencies in implementing ESMF, PF and other aspects of the project would be formalized using memorandum of understanding
    - *It was noted that the Project Implementation Manual would also address this, but that institutional arrangements were already identified for ESMF and PF in the respective documents*.

Other comments received

- A participant requested information as to whether or not the project could support fisheries to implement the FAO voluntary guidelines for small-scale fisheries
    - *It was noted that the Blue Grant Fund provides an opportunity for such work*

- A participant welcomed the support for local investment in mariculture projects that the project offered. However, it was further noted that his NGO, which already operates a large coral nursery and restoration project, are not consulted on mariculture planning by government
    - *A participant from Seychelles Fishing Authority that the mariculture master plan and ESMF and PF of SWIOFish3 are about providing the frameworks for such activities, which follow international standards and norms. More detailed consultations and opportunities for sharing lessons learnt would follow the adoption of these frameworks*
- A participant requested clarification on energy projects that could be supported by the project, highlighting issues with the national grid currently unable to absorb surplus energy generated, and that current loans concessions for renewable energy projects incur higher interest rates than those proposed for the Blue Investment Funds loans
    - *It was agreed that the lower interest rates of loans under the Blue Bonds may have an impact on the success of these other initiatives*
- A participant requested information on the role of Seychelles Investment Bureau in processing loan applications through the Blue Investment Funds.
    - *It was explained that this was not the plan, since a newly established loan committee and the Development Bank of Seychelles (DBS) would process loan applications and undertake technical and financial appraisals.*
- Concerns were raised as to whether or not foreign interests could access Blue Investment Funds.
    - *In response, it was noted that the issue was still under discussion but that restricting funds to local investors may compromise project quality, innovation and success. Joint ventures may be beneficial.*
- Clarity was sought on loan repayments and the role of SeyCCAT.
    - *It was noted that loans through the Blue Investment Funds would be repaid into a revolving fund operated by DBS, rather than channeling back to SeyCCAT*
- A participant raised concerns over plans to avoid introducing sustainable-use marine protected areas (Component 1 of SWIOFish3) on the Mahé Plateau, where they were most required for solving user conflicts and fishing pressure.
    - *In response it was noted that a decision regarding this issue is pending.*
- Many questions revolved around project governance and investment opportunities. The rationale for using a revolving fund instead of using loan repayments to provide a source of financing for SeyCCAT was also questioned.
    - *In response it was noted that these issues highlighting the need to greater communication and engagement by the project, particularly so that stakeholders understand that is primarily a fisheries project.*
- It was recommended that SWIOFish3 loan and grant opportunities could be aligned with other related projects, e.g. the PA Finance project.

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REFERENCES

Asian Development Bank (ADB). 2003. *Environmental Assessment Guidelines*. Manila: ADB.

African Development Bank Group (AfDB). 2015. *Integrated Safeguards System*. Guidance Materials. Volume 3: Sector Keysheets. Abidjan, Ivory Cost: AfDB.

Bamba, A. and A.S. Oroda. 2016. *The Environmental and Social Impact Assessment and The Environmental and Social Management Plan (ESMP).* Report. The Zambia Aquaculture *Enterprise Development Project*. Zambia: ADBG.

Cabral, J.M. 2013. *Environmental and Social Management Framework (ESMF) for Water, Sanitation and Hygiene (WASH) Infrastructure Grant Facility (Cape Verde)*. Washington, DC and Praia, Cape Verde: Millennium Challenge Corporation.

CAF. Development Bank of Latin America. 2015. *Environmental and Social Safeguards for CAF/GEF Projects Manual.* Caracas: CAF.

Carolus, I. 2015. *Seychelles Marine Spatial Planning Legislative and Policy Review*.

Catanzano, J. and J. Nageon de Lestang. 2013. *Statement of Intent to Support National Fisheries Priorities for the Seychelles Fishing Policy*.

Coastal Resources for Sustainable Development Project. 2011. *Resettlement Policy Framework.*

Defaux, V. and A. Hjort. 2012. *Implementation of a Regional Fisheries Strategy for The Eastern-Southern Africa and India Ocean Region. Regional Market Assessment ("Supply and Demand")*.

European Investment Bank (EIB). 2013. *Environmental and Social Handbook*. Luxembourg: EIB.

Food and Agriculture Organization of the United Nations (FAO). 1995. *Code of Conduct for Responsible Fisheries*. Rome: FAO.

____. 1996. *Integration of Fisheries into Coastal Area Management*. Rome: FAO.

____. 1997. *Fisheries Management.* Rome: FAO.

____. 2003. *Fisheries Management. The Ecosystem Approach to Fisheries.* Rome: FAO.

____. 2010. *Aquaculture Development. Ecosystem Approach to Aquaculture*. Rome: FAO.

____. 2011. *Fisheries Management. Marine Protected Areas and Fisheries.* Rome: FAO.

____. 2015. *Environmental and Social Management. Guidelines*. Rome: FAO.

GEF-6. 2016. *Project Identification Form (PIF). Third South West Indian Ocean Fisheries Governance and Shared Growth Project (SWIOFish3).*

Government of Tamil Nadu (GoTN). India. 2013. *Coastal Disaster Risk Reduction Project. Environmental and Social Management Framework* (ESMF). Tamil Nadu, India: GoTN.

Heztech Engineering Services. 2015. *Kenya Coastal Development Project. Environmental and Social Management Framework (ESMF)*. Mombasa, Kenya.

Hill, S.J. et al. 2011. *Blue Frontiers: Managing the Environmental Costs of Aquaculture*. The WorldFish Center, Penang, Malaysia.

International Finance Corporation (IFC). 1998. *Procedure for Environmental and Social Review of Projects*.

International Fund for Agricultural Development (IFAD). 2014. *Managing Risks to Create Opportunities. IFAD's Social, Environmental and Climate Assessment Procedures*. Rome: IFAD.

International Union for Conservation of Nature and Natural Resources (IUCN). 2004. *Managing Marine Protected Areas: A Toolkit for the Western Indian Ocean.* IUCN Eastern African Regional Programme, Nairobi: IUCN.

Kerrigan, B and D. Welch. 2015. *Monitoring Control and Surveillance Protocol for the Fisheries Co-Management Plan for the Praslin Artisanal Trap and Line Fishery.*

Meaden, G.J et al. 2016. *Marine Spatial Planning for Enhanced Fisheries and Aquaculture Sustainability. Its Application in the Near East*. Rome: FAO.

Mekong Integrated Water Resource Management Project (MIWRMP) Phase 3. 2015. *Cambodia: Environment and Social Management Framework (ESMF)*. Phnom Penh: MIWRMP.

Ministry of Agriculture and Rural Development. 2011. *Environmental and Social Management Framework (ESMF) for Coastal Resources for Sustainable Development Project (CRSD).*

Ocean Partnerships for Sustainable Fisheries and Biodiversity Conservation. Models for Innovation and Reform. 2014. *Environmental and Social Management Framework.*

Pacific Islands Regional Oceanscape Program (PROP). 2015. *Environmental and Social Management Framework*.

Peru LNG. *Environment, Social, Health and Safety Management System (ESHS MS). Fishermen Compensation Management Framework Plan*.

Regional Organization for the Conservation of Environment of the Red Sea and Gulf of Aden (PERSGA). 2013a. *Environmental and Social Management Framework (ESMF) for Red Sea and Gulf of Aden Strategic Ecosystem Management Project Concerning the Dungonab Bay–Mukawwar Island Marine Protected Area, Sudan*. Jeddah Kingdom of Saudi Arabia: PERSGA.

____. 2013b. *Process Framework for Red Sea and Gulf of Aden Strategic Ecosystem Management Project Concerning the Dungonab Bay–Mukawwar Island Marine Protected Area, Sudan*. Jeddah Kingdom of Saudi Arabia: PERSGA.

Republic of Ghana. Ministry of Food and Agriculture. 2011. *Environmental and Social Safeguard Assessment Environmental and Social Management Framework*. Accra, Ghana: Ministry of Food and Agriculture.

Republic of Seychelles. 1991. *Laws of Seychelles. Fisheries Act. Chapter 82*.

____. *SI. 39 of 1996. Sections 15 and 40. 1996. Environment Protection (Impact Assessment) Regulations (3rd June, 1996)*. Victoria: Government of Seychelles.

____. 2005. *The Fisheries Policy of Seychelles*.

____. 2012. *Management Plan for the Artisanal and Recreational Demersal Fisheries in the Seychelles.*

____. *Seychelles Sustainable Development Strategy 2012 – 2020*.

____. 2013. *Fisheries Bill*.

____. Ministry of Environment and Energy. 2013. *Seychelles' Protected Areas Policy.*

____. 2014. *Zoning Proposal for the Seychelles Exclusive Economic Zone.*

____. 2016. *Environment Protection Act (Act 18 of 2016)*.

____. Undated. *Draft Seychelles National Aquaculture Policy*.

Rwanda Environment Management Authority (REMA). 2011. Lake Victoria Environmental Management Project Phase II. *Environmental and Social Management Framework (ESMF) for Rwanda under LVESMP II*. Rwanda: REMA.

Seychelles Fishing Authority (SFA). 2012. *Management Plan for the Artisanal and Recreational Demersal Fisheries in the Seychelles*.

____. 2016. *Draft ESIA and ESMP for the Proposed Implementation of the Seychelles Mariculture Masterplan (MMP).*

Seychelles Fishing Authority and UNDP-GEF Mainstreaming Biodiversity Project. 2015. *Fisheries Co-Management Plan for the Praslin/La Digue Artisanal Trap and line Fishery*.

____. Seychelles Marine Spatial Planning (MSP) Initiative. 2015. *Preliminary Zoning Design – Seychelles EEZ Map Version 2.0.*

Seychelles Marine Spatial Planning (SMSP). December 2015. *On the Leading Edge of Marine Conservation and Climate Adaptation*.

Shal, V. 2014. *Process Framework. Marine Conservation and Climate Adaptation Project (MCCAP).*

United Nations Development Program (UNDP). 2016. *Social and Environmental Screening Procedure*. New York, NY: UNDP.

United Nations Environment Program (UNEP). 2002. *Environmental Impact Assessment Training Resource Manual*. Geneva: UNEP.

United Republic of Tanzania. Ministry of Livestock and Fisheries Development (MLFD). 2014a. *First South West Indian Ocean Fisheries Governance and Shared Growth Project – SWIOFish.*

Environmental and Social Assessment (ESA) and Environmental and Social Management Framework (ESMF). Dar es Salaam: MLFD.

____. 2014b. *First South West Indian Ocean Fisheries Governance and Shared Growth Project – SWIOFish. Process Framework*. Dar es Salaam: MLFD.

United States Agency for International Development (USAID). *2009. Environmental Guidelines for Small-Scale Activities in Africa (EGSSAA). Chapter 6: Fisheries*. Washington, DC: USAID.

Vivid Economics. 2015a. *Fisheries Recovery on the Mahé Plateau, Seychelles*. *Prince of Wales's International Sustainability Unit and the Seychelles Fisheries Authority*.

____. 2015b. *PowerPoint Presentation on Seychelles Fisheries Transition Plan*. *Report Prepared for Workshop with ISU*.

Welch, D.J. and B. Kerrigan. 2015a. *To support the Formulation of an Operational Fishery Management Plan for the Plateau Fishery for Demersal Fish Resources.* GOS-UNDP-GEF. Programme Coordination Unit Biodiversity Mainstreaming Project.

____. 2015b. *Mahé Plateau Demersal Trap and Line Fishery Co-Management Plan.* GOS-UNDP-GEF. Programme Coordination Unit Biodiversity Mainstreaming Project

World Bank (WB). 1999. *OP 4.01, Annex B - Content of an Environmental Assessment Report for a Category A Project*. Washington, DC: WB.

____. 2006. *Scaling Up Marine Management. The Role of Marine Protected Area*. Washington, DC: WB.

———. Africa Region. 2008a. *Environmental and Social Management Framework for World Bank Projects with Multiple Small-Scale Subprojects. A Toolkit*. Washington, D.C.: WB.

———. Europe and Central Asia Region. March and April 2008b. *PowerPoint Presentation in Bishkek and Tbilisi on Safeguard Requirements and the Framework Process*.

____. 2011. *OP 4.12, Annex A - Involuntary Resettlement Instruments*. Washington, DC: WB.

____. 2013. *OP 4.12 - Involuntary Resettlement*. Washington, DC: WB.

____. 2016a. *Draft Project Appraisal Document. Third South West Indian Ocean Fisheries Governance and Shared Growth Project (SWIOFish3)*.

____. 2016b. *Environmental and Social Framework. Setting Environmental and Social Standards for Investment Project Financing*. Washington, DC: WB.