

# GEF-8 PROJECT IDENTIFICATION FORM (PIF)

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## General Project Information

### Project Title

Program for improving sustainable marine fisheries opportunities in SADC – The Case of the Mozambique Channel.

### Region

Regional

### GEF Project ID

11452

### Country(ies)

Regional

Africa

Comoros

Madagascar

Mozambique

### Type of Project

FSP

### GEF Agency(ies):

AfDB

### GEF Agency ID

### Executing Partner

SADC Secretariat, Directorate of Food, Agriculture and Natural Resources (FANR).

### Executing Partner Type

Others

### GEF Focal Area (s)

International Waters

### Submission Date

10/18/2023

### Project Sector (CCM Only)

Mixed & Others

### Taxonomy

Communications, Civil Society, Stakeholders, Gender Mainstreaming, Gender Equality, Gender results areas, Learning, Capacity, Knowledge and Research, Focal Areas, International Waters, Fisheries, Marine Protected Area, Coastal, Biomes, Mangrove, Sustainable Development Goals, Influencing models, Transform policy and regulatory environments, Strengthen institutional capacity and decision-making, Convene multi-stakeholder alliances, Local Communities, Awareness Raising, Education, Type of Engagement, Information Dissemination, Participation, Community Based Organization, Indigenous Peoples, Private Sector, Financial intermediaries and market facilitators, SMEs, Access to benefits and services, Knowledge Generation and Exchange, Beneficiaries, Knowledge Exchange, Peer-to-Peer, Field Visit, Conference, Knowledge Generation, Workshop, Training, Theory of change

### Type of Trust Fund

GET

### Project Duration (Months)

36

### GEF Project Grant: (a)

5,250,000.00

### GEF Project Non-Grant: (b)

0.00

### Agency Fee(s) Grant: (c)

498,750.00

### Agency Fee(s) Non-Grant (d)

0.00

Total GEF Financing: (a+b+c+d)	Total Co-financing
5,748,750.00	14,200,000.00
PPG Amount: (e)	PPG Agency Fee(s): (f)
150,000.00	14,250.00
PPG total amount: (e+f)	Total GEF Resources: (a+b+c+d+e+f)
164,250.00	5,913,000.00
Project Tags	
CBIT: No NGI: No SGP: No Innovation: No	

### Project Summary

Provide a brief summary description of the project, including: (i) what is the problem and issues to be addressed? (ii) what are the project objectives, and if the project is intended to be transformative, how will this be achieved? (iii), how will this be achieved (approach to deliver on objectives), and (iv) what are the GEBs and/or adaptation benefits, and other key expected results. The purpose of the summary is to provide a short, coherent summary for readers. The explanation and justification of the project should be in section B “project description”. (max. 250 words, approximately 1/2 page)

The SADC region has a large Blue Economy still to realize its full potential. The BE is underpinned by the fisheries sector which is dominated by marine fisheries. The region boasts of thriving fishing enterprises with interconnected trade corridors that have spanned the Atlantic and Indian Oceans for centuries. Currently, the SADC region boast of two large marine ecosystems (LMEs) that are abound with rich transboundary fisheries resources comprising of multiple marine species of tuna, hake, squids, octopus, horse mackerel, abalone, shrimps, prawns, lobsters. These fish stocks are complemented by freshwater fishes in in-land lakes and rivers where tilapia dominate. These fisheries resources and their ecosystems are critical to the provision of nutrition sensitive fish diets, supporting SMEs along the fish value chain, eco-tourism/recreational fishing, export earnings and revenues, and non-consumptive ecosystem services and climate buffers.

However, as with fisheries in much of the developing world, the regional fisheries sector faces sustainability challenges which critical threats related to climate change, degradation of aquatic environments, and illegal, unreported & unregulated (IUU) fishing as well as inadequate capacity to effectively monitor and manage fish stocks. This is particularly so for marine fisheries.

Despite these challenges fisheries remain a cornerstone of the regional BE and are critical to livelihoods and the wider SADC economy. Currently, fish contributes to the food and nutritional security of more than 100 million people, mostly the poor and vulnerable households, in the SADC region. Fresh, but more often, processed fish is a critical source of dietary protein and micronutrients for many communities in rural areas. Fish is also the most accessible and/or affordable source of animal protein for poor households in urban or peri-urban areas. Fish also contributes indirectly to national food self-sufficiency through trade and exports and the trade in fish products is rising in the region. The sector currently employs about 2.3 million people, equivalent of about 1 % of the SADC population, and accounts for an estimated 3.5% of the region’s Gross Domestic Product (GDP) and 11% of the region’s agriculture GDP. The region currently consumes about 12.5kg per capita of fish. More than 95% of fish production comes from a diversified capture fisheries sub-sector, which had been stagnating in the last 10 years at around 2.3 million tons annually but has recently increased to 2.4 million annually. As such the importance of fisheries cannot be understated.

Consequently, the AfDB has proposed a project which seeks to address the various drivers of fragility by adopting a more holistic approach toward improving inclusive governance frameworks, capacity building

platforms, decision-support tools, and enhancing stakeholder participation in the regional fish trade. Through blue economy intervention activities, the Bank project aims to increase fisheries production and productivity through ecosystem-based management, value chain and infrastructure support and knowledge transfer to SMEs and large-scale exporters.

To complement the Bank initiative, a GEF project is being proposed to focus on fisheries protection to maximize sustainable yield by promoting an integrated fisheries governance and management approach in the coastal zones of the Mozambique Channel targeting four countries of The Comoros, Madagascar, and Mozambique.

The proposed GEF project will improve aquatic health and marine systems in The Mozambique Channel by making critical and harmonized interventions in selected fisheries hotspots. The planned interventions will focus on strengthening collaborative governance frameworks national and local levels, supporting joint and systematic climate and fisheries monitoring, promoting harmonized regulatory policies, and planning with some direct investments specifically targeting fisheries hotspots in marine ecosystems in the coastal zones. Collaborative platforms for information and knowledge sharing by stakeholders and institutions from the community level through national to the regional level will be specially promoted to help create awareness on the marine fish systems as well as encourage peer learning.

## Indicative Project Overview

### Project Objective

To improve sustainable marine fisheries in the Mozambique Channel by strengthening collaborative governance, resource management, and resilience to climate shocks.

### Project Components

#### Component 1: Scale-up of climate services and early warning systems for effective fisheries sector management.

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
1,250,000.00	3,550,000.00

Outcome:

**1.1 Increased resilience to climate induced shocks in marine fisheries.**

Output:

**1.1.1 CC related marine fisheries monitoring system established.**

**1.1.2 Fisheries CC adaptation systems established.**

**1.1.3 Fisheries practitioners capacity building on CC threats.**

## Component 2: Improved fish protection in selected critically degraded fisheries hotspots in marine protected areas.

Component Type	Trust Fund
Investment	GET
GEF Project Financing (\$)	Co-financing (\$)
1,875,000.00	5,325,000.00

Outcome:

2.1 Fish protection in selected fish hotspots is improved.

Output:

2.1.1 NBS methods of fisheries management piloted in selected hotspots.

2.1.2 PES piloted in fisheries management.

2.1.3 Destructive fishing activities policed at community level.

## Component 3: Policy harmonization and socioeconomics in the sub-regional fisheries sector..

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
1,250,000.00	3,550,000.00

Outcome:

3.1 Sub-regional fisheries sector policy is harmonized, and fish value chains are improved.

Output:

3.1.1 Fisheries dialogue for legislators organized.

3.1.2 On-going regional fisheries initiatives localized.

3.1.3 Shared marine fisheries database established.

3.1.4 Integrated fisheries livelihoods systems demonstrated.

## Component 4: Regional fisheries sector KM & Information Sharing.

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)

375,000.00	565,000.00
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Outcome:

**4.1 Shared knowledge and information influence behaviour change in marine fisheries policy frameworks.**

Output:

- 4.1.1 Knowledge exchange workshops/seminars conducted.
- 4.1.2 Regional fisheries sector dialogues organized.
- 4.1.3 Exchange visits for key marine fisheries actors are organized.
- 4.1.4 Knowledge Management and Information dissemination.

**M&E**

Component Type	Trust Fund
Technical Assistance	GET
GEF Project Financing (\$)	Co-financing (\$)
250,000.00	500,000.00

Outcome:

Project results monitored and project contributions to climate resilient and sustainable fisheries & watershed management effective.

Output:

- Lessons learned and best practices, capacity development initiatives and policy changes documented, shared and disseminated amongst countries
- Knowledge generation, management and information dissemination

**Component Balances**

Project Components	GEF Project Financing (\$)	Co-financing (\$)
Component 1: Scale-up of climate services and early warning systems for effective fisheries sector management.	1,250,000.00	3,550,000.00
Component 2: Improved fish protection in selected critically degraded fisheries hotspots in marine protected areas.	1,875,000.00	5,325,000.00

Component 3: Policy harmonization and socioeconomics in the sub-regional fisheries sector..	1,250,000.00	3,550,000.00
Component 4: Regional fisheries sector KM & Information Sharing.	375,000.00	565,000.00
M&E	250,000.00	500,000.00
<b>Subtotal</b>	<b>5,000,000.00</b>	<b>13,490,000.00</b>
Project Management Cost	250,000.00	710,000.00
<b>Total Project Cost (\$)</b>	<b>5,250,000.00</b>	<b>14,200,000.00</b>

Please provide justification

PMC is calculated at 5% of project costs



## PROJECT OUTLINE

### A. PROJECT RATIONALE

Briefly describe the current situation: the global environmental problems and/or climate vulnerabilities that the project will address, the key elements of the system, and underlying drivers of environmental change in the project context, such as population growth, economic development, climate change, sociocultural and political factors, including conflicts, or technological changes. Describe the objective of the project, and the justification for it. (Approximately 3-5 pages) see guidance here

#### **Scope and background**

The Blue Economy in Africa covers aquatic and marine spaces, including oceans, seas, coasts, lakes, rivers, and underground water, and it comprises a range of productive sectors, such as **fisheries**, aquaculture, tourism, transport, shipbuilding, energy, bioprospecting, and underwater mining and related activities. Thirty-eight of the fifty-four African States are coastal States. Maritime zones under Africa's jurisdiction total about 13 million square kilometres including territorial seas and approximately 6.5 million square kilometres of the continental shelf. These BE resources have remained largely underexploited but are now being recognized for their potential contribution to inclusive and sustainable development. If fully exploited and well managed, Africa's BE can constitute a major source of wealth and underpin the continent's growth trajectory. Fisheries are considered a cornerstone of that growth.

To support the BE growth on the continent, the AfDB, through its Feed Africa Strategy has a Blue Economy flagship, that facilitates the utilization and viability of more than 50 commercial fish species in six large marine ecosystems on the continent. In tune with the AfDB, the Southern African Development Community (SADC) is implementing Regional Indicative Strategic Development Plan (2020-2030) and specifically the SADC Protocol on Fisheries and the SADC Industrialization Strategy, in which the member countries have committed to address issues relating to fisheries through a regional approach with targeted interventions nationally as well as coordination and harmonization of regional policies, processes, and rules along the fish value chain.

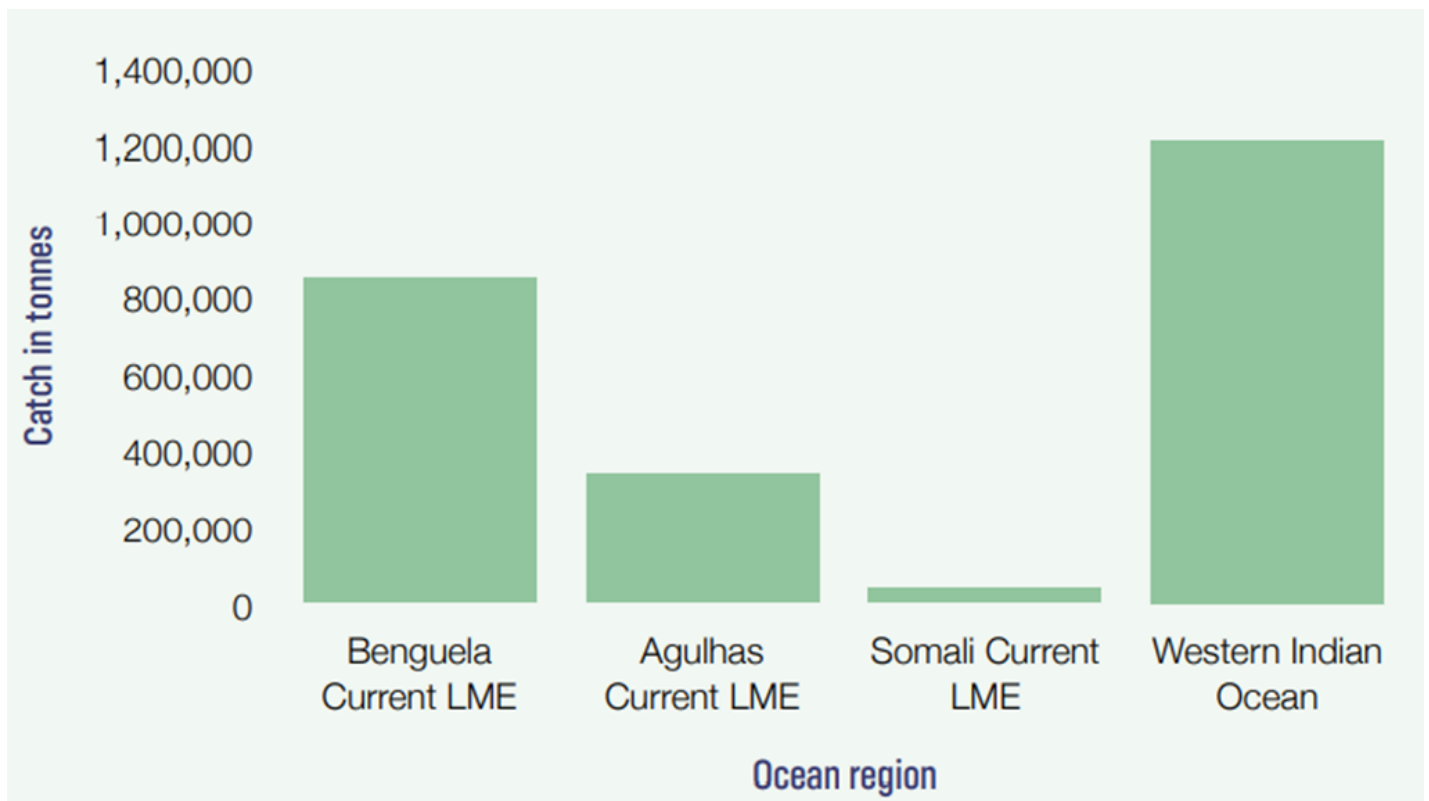
#### **The importance of fisheries in Africa**

Fisheries contribute to Africa's economy so much that the African Union's Agenda 2063 declares the Blue Economy to be "Africa's Future," and recognizes the key role the ocean plays as a catalyst for socioeconomic transformation. Currently, fisheries and aquaculture directly contribute \$24 billion to the African economy, representing 1.3% of the total African GDP in 2011. The sector provides employment to over 12 million people (58% in the fishing and 42% in the processing sector). While fishing jobs are almost entirely taken by men, 59% of the processing work is done by women.

Fisheries play significant social and nutritional roles on the continent. The sector contributes to food and nutrition security, and provides jobs, in particular for coastal populations, which are often among the poorest and most vulnerable. On average globally, fish and fish products account for 18% of animal protein intake. Due to the growing population and per capita income, demand for fish is expected to increase 30% by 2030. If the current trend continues without management, the poorest countries will suffer the most. Climate change aggravate these challenges with rising sea temperatures, harsher weather conditions for fishers, migration of fish to cooler waters away from the equator and shrinking fish size.

## Fisheries in SADC

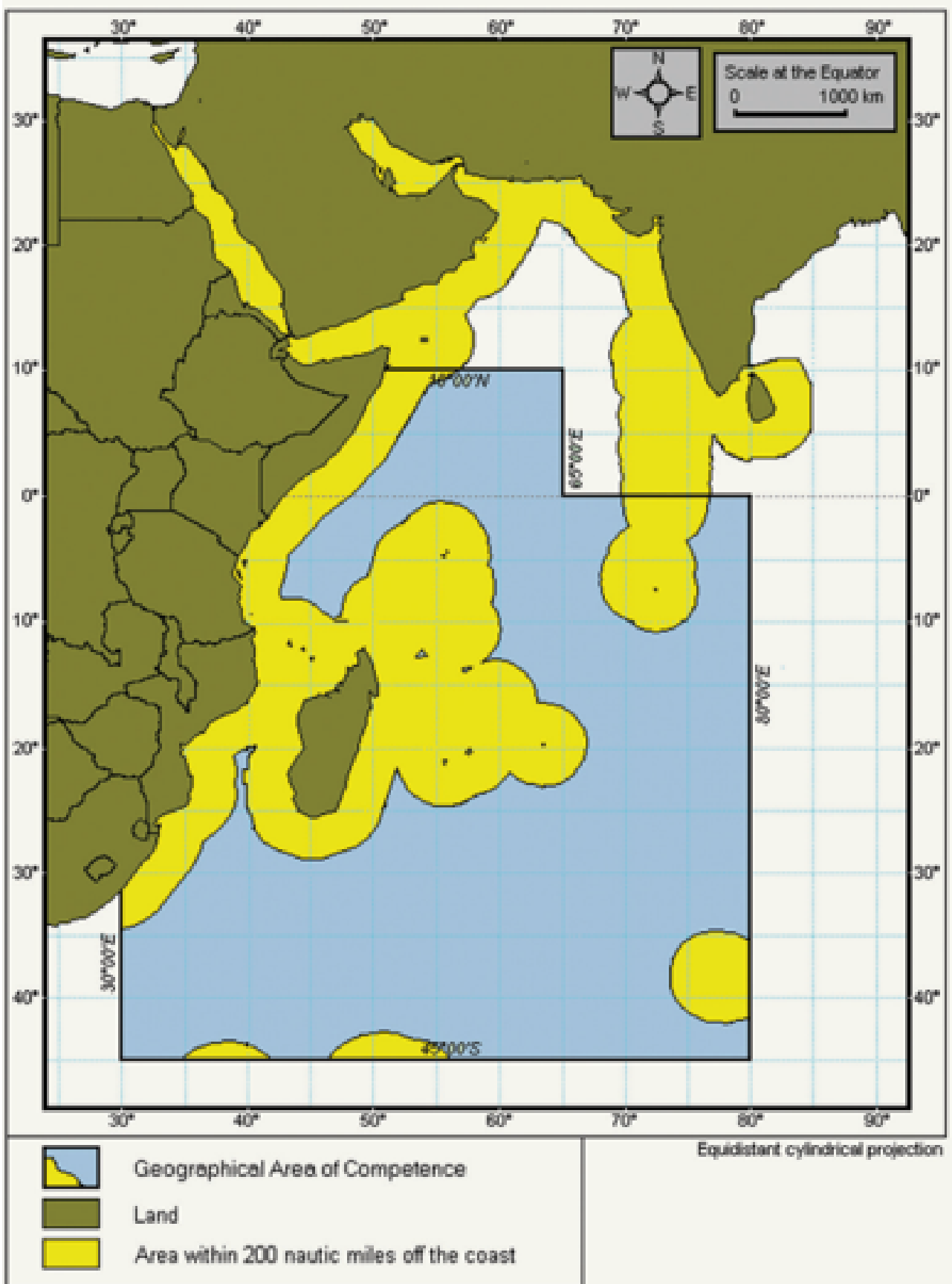
The SADC region has a large Blue Economy still to realize its full potential. The region boasts of thriving fishing enterprises with interconnected trade corridors that have spanned the Atlantic and Indian Oceans for centuries. Currently, the SADC region boast of two large marine ecosystems (LMEs) that are abound with rich transboundary fisheries resources comprising of multiple marine species of tuna, hake, squids, octopus, horse mackerel, abalone, shrimps, prawns, lobsters. The figure below shows estimated annual catch from the four main marine fisheries regions in the SADC region (*SOURCE: SADC. 2021. Protecting our fisheries – working towards a common future. Gaborone. Botswana*).



The marine fish stocks are further complimented by freshwater fishes in in-land lakes and rivers where tilapia dominate. These fisheries resources and their ecosystems are critical to the provision of nutrition sensitive fish diets, supporting SMEs along the fish value chain, eco-tourism/recreational fishing, export earnings and revenues, and non-consumptive ecosystem services and climate buffers. However, challenges such as those relating to fish abundance, limited technical skills, post-harvest technologies, and financing continue to affect the growth of the industries. In addition, fish stocks continue to dwindle due to challenges with illegal, unreported & unregulated (IUU) fishing, degradation of aquatic environments, climate change & lack of capacity to effectively monitor and manage fish stocks.

## The South West Indian Ocean (SWIO)

The southwest Indian Ocean which includes the Mozambique Channel is recognized as one of the most marine biodiverse hotspots on the planet and provides a source of livelihood and food for millions. The SWIO region is shown in the figure below.



The SWIO is the fishing region where the highest estimated annual catch is recorded in the entire SADC region, making it the most important LME in the region. These fish are caught by a combination of small-scale fishers and industrial vessels with the industrially caught fish mostly destined for consumption in Europe and Asia, therefore producing limited benefits for the region either nutritionally or economically. Most of the industrial vessels operating in this fishery are foreign flagged with only Seychelles having a significant number of vessels (around 60) flagged locally but foreign operated. The region is currently being affected by overfishing, pollution and habitat destruction while climate change has the potential to amplify all these threats.

### **The Mozambique Channel and targeted project countries**

The Mozambique Channel is an arm of the Indian Ocean located between the Southeast African countries of Madagascar and Mozambique. The channel is about 1,600 km long and 419 km across at its narrowest point, and reaches a depth of 3,292 m about 230 km off the coast of Mozambique. A warm current, the Mozambique Current, flows in a southward direction in the channel, leading into the Agulhas Current off the east coast of South Africa.

The Mozambique Channel is an important source region for the Agulhas Current which is one of the major western boundary currents flowing along the southeastern coast of South Africa. The Mozambique Channel is also one of the two routes through which the South Equatorial Current feeds the Agulhas Current. The channel is part of the Western Indian Ocean (WIO) surrounding the islands and east coast states where there is a fishery for large pelagic species, mainly tunas.

The Mozambique Channel proper is host to four sovereigns, two mainland and two island states all of whom are members of SADC. These are Mozambique (mainland), The Comoros and Madagascar (Island States). Mozambique especially, connects the rest of continental SADC to the Mozambique Channel. The country has an extensive drainage network that includes about 100 principal river basins and a number of international rivers including the Rovuma, Zambezi, Save, Limpopo and Incomati Rivers. The runoff entering Mozambique through these international rivers has decreased over the years due to damming, water abstraction and irrigation in upstream countries which has resulted in the modification of stream flow leading to either freshwater shortage/reduction or excessive runoff in certain periods of the year. The rivers are main sources of sediments and dissolved inorganic nutrients in coastal zones of Mozambique. The Sofala Bank – one of the most productive shelf regions in Mozambique, is influenced by the discharges from Zambezi, Pungué, Buzi and Save rivers. The highest nutrient concentrations occur in the Angoche shelf area in the north, Sofala Bank in central and Delagoa Bight in the southern shelf.

**Mozambique** is located in the South-Eastern part of the African Continent, between latitudes 10°27'S and 26°52'S and longitudes 30° 12'E and 40° 51'E. The country has a total surface area of 784,032 km<sup>2</sup> subdivided into 10 provinces. The country possesses the third longest coastline in the Indian Ocean covering a total distance of 2700 km from Rovuma River in the North to Ponta do Ouro in the South. Total continental shelf area is about 104,300 km<sup>2</sup>. The current population is slightly more than 20 million people with a growth rate of 2.5% per annum. Most of the population is concentrated in the southern provinces of Maputo, Gaza and Inhambane and in central and Northern provinces of Zambézia and Nampula. About 43% of the population resides within the coastal region of the country is endowed with fairly rich fisheries resources, both

marine and freshwater. The marine waters cover an area of about 100 000 km<sup>2</sup> with an exclusive economic zone (EEZ) of 200 nautical miles while inland waters cover an area of about 13 000 km<sup>2</sup>.

The marine fisheries resources of Mozambique are mostly located in the two major shelves, the Sofala Bank in the center and the Delagoa bight in the south. The main fishing areas are located at the Sofala Bank, Inhambane, Vilankulos, Chiluané and Beira. The most important marine species include deep water crustaceans (prawns, deepwater shrimp, crayfish, lobsters and crabs), marine finfish (demersal and pelagic species mainly grouper, snapper, emperor and sea bream also high migratory tuna species of yellow fin, big eye and albacore, swordfish and shark) and the cephalopods and molluscs (squid, octopus, sea cucumbers, bivalves).

About 40% of the population of Mozambique live in coastal zone and obtain their living from natural resources. The major threats to the biological diversity in Mozambique are natural as well as anthropogenic in nature. Natural factors include extreme floods and draughts, cyclones and El-ñino events. Anthropogenic factors include the obstruction and alteration of natural river flow, overexploitation of the natural resources, destruction and modification of habitats due to inadequate land use planning and to use of inadequate harvesting techniques. Cyclones often cause the siltation of seagrasses and of corals. Extreme floods and droughts place stress on the estuarine and coastal ecosystems. The demand for alleviation of poverty, coupled with the population growth, increases pressure on natural resources and associated ecosystems, leading to a decline in biodiversity. The most overexploited resources are the fisheries and mangroves.

As is the case with most coastal countries in the SADC region, and much of Africa, the marine fisheries in Mozambique can be divided into two sectors –large scale industrial and small-scale and artisanal fishing. The industrial fisheries in Mozambique consist of joint venture between the government and foreign companies from Japan and Spain. This sector has the majority of the Total Allowable Catches (TAC of more than 70 %). The shrimp industry, based in Beira and Quelimane, is mainly export-oriented and represents an important source of foreign exchange income for the country. 70% of the production is coming from two major commercial companies, PESCAMAR and EFRIPEL. The catch is frozen directly on board before being exported to Japan and the European Union. Well-equipped foreign shrimp fleets are still very active in Mozambique's waters. It is estimated that about 187 national industrial vessels are also operating in the industrial fisheries. The main commercial species targeted by the industrial sector include lobster, crabs, gamba (deep water shrimp), fish, shallow water shrimp, crayfish and squid.

The small-scale and artisanal fisheries in Mozambique play a significant role in the national economy. The sector account for about 80% of the total marine catches. The artisanal fisheries consist of individuals or small groups of fishermen with very weak economic power. They make use of non-motoric fishing vessels/ boats of 3-8 m in length. They use beach seine, gillnet and longline to catch fish. The sector also consists of fish collectors and divers. It is estimate that the number of fishing boats and canoes are approximately 15,000, of which 3% are equipped with engines, using beach seine and gillnet fishing gears. In general, the marine artisanal activities take place along the entire coastline, but have special relevance in the provinces of Nampula, Zambezia, Sofala, Inhambane and Maputo.

Coastal resources contribute significantly to the economy including the provision of social and economic benefits for about half of the population. This is particularly so in the key sectors such as fisheries, tourism, agriculture, mining and construction. Much of the wealth of the country is found along the coast which unfortunately is also the most vulnerable region (Sete et al. 2008). The fisheries and aquaculture sector contributed 1.6% of the country's GDP in 2009. The fisheries potential in Mozambique is however large as the yield is estimated to lie between 220,000 and 330,000 tonnes. In 2008, 15% of the domestic fish production came from commercial fisheries whilst 84.3% was from the artisanal fisheries. The semi-industrial fishery employed over 351,700 people and accounted for 93% of the country's total marine fish catch. The gross output of the commercial fishery is estimated to be some US\$63.5 million. It is estimated that the artisanal fishery has a gross value of US\$292.5 million.

The major issues threatening fisheries are over-fishing, use of destructive fishing practices and degradation of the ecosystems. Since most of the population is concentrated along the coast, the pressure on coastal and marine resources is increasing. The problems of coastal erosion, sedimentation, water pollution, over-exploitation of resources, deforestation, reduction and modification of biological diversity, among others, are becoming common along the coast.

**Madagascar** has a total surface area of approximately 590,000 km<sup>2</sup> making it the world's 4th largest island. It has a population of almost 26 million that is currently growing at an annual rate of 2.8% (The World Bank, 2017). The life expectancy remained steady at around 66.7 years since 2009. The country is listed as eleventh poorest in the world (International Monetary Fund, 2015). Total Gross Domestic Product (GDP) was estimated at just over US \$11 billion in 2017, and the gross national income per capita is reported to have declined from approximately USD 478 in 2009 to about US \$400 in 2017. More than 80% of people live on less than \$1.90 per day (The World Bank, 2017) and it is the only non-conflict country where GDP per capita has declined since it gained independence (Pilling, 2018), attributed to cycles of political crisis and being forgotten by other western nations with regard to aid (Razafindrakoto et al., 2018).

With 5,600 square kilometers of coastline and an Exclusive Economic Zone that extends over more than a million square kilometers, Madagascar has substantial marine and coastal resources. In 2018, the fishing sector accounted for almost 7% of national gross domestic product, representing 6.6% of the total exports and supported the livelihoods of 1.5 million people. Overfishing, increase in harmful fishing practices and widespread destruction of marine habitat have contributed to the decline of many coastal fisheries across the region.

The fishery sector plays a leading role on the island's economy with an annual production capacity of \$750 million equivalent to more than 7% of the national gross domestic product (GDP) and a contribution of 6.6% to the total exports. It is also critical to the nutritional health and food security of Malagasy people, contributing around 20% to their animal protein consumption.

Fishing and aquaculture support almost 1.5 million people in Madagascar, most of whom come from coastal areas. This segment of the population is often among the most vulnerable and marginalized communities, with a majority without other assets such as a land that could allow them to diversify their revenues. Fishermen start very young, from the age of 11 to 15. According to a 2012 national survey, around two-thirds of the fishermen do not attend school and only 6% go beyond primary school.

Although fishing is essential for the Madagascar economy, as well as for the livelihood of several thousand individuals, this sector faces numerous and complex challenges. One of the most fundamental issues is finding ways to balance conservation and exploitation of fisheries resources. The key coastal ecosystems supporting livelihood systems include estuaries, mangroves, seagrass beds, coral reefs and offshore marine ecosystem beyond the continental shelf. The mangrove forests occupy about 327 000 ha and the seagrass beds and coral reefs are found along 1 400 km of the coastline. The East coast is very steep compared to the West coast which has gentler slopes. The country experiences tropical climatic conditions with two seasons: a hot, rainy season from November to April, and a cooler, dry season from May to October. There is however, great variation in climate owing to elevation and position relative to dominant prevailing winds.

The **Comoros** archipelago is located in the northern Mozambique Channel about 300 km (186 miles) off the east coast of Africa. Three major islands – Grande Comore (Ngazidja), Anjouan (Ndzuwani), and Mohéli (Mwali) – and many minor islets make up the Comoros Union. With a surface area of 2,034 km<sup>2</sup> (785 sq mi), it is the third smallest African nation. The Union of Comoros is one of the Small Island Developing States (SIDS) with a GNP per capita of 450 USD. The island is ranked 139th out of 177 countries with a Human Development Index (HDI) of 0.547 (Global Report on Human Development 2007). The Union of Comoros is ranked among the poorest countries of the world in terms of per capita income and in terms of indicators of wellbeing.

The Small-scale fisheries in Comoros employs 6% of the country's population, with women mainly being employed in post-catch operations, while 30% of the population is dependent on the fishery. The sector contributes 8% to GDP, 24% to agriculture GDP and also makes up 5% of total foreign exchange annually, making fishing not only a net supplier of foreign exchange, but also a key component of the country's balance of payments. The small-scale fishery is, in this respect, a vital link to the global economy for the Comoros.

Problems that affect the environment in Comoros are mainly ecological fragility and limited economic development, poaching, poor agricultural and forestry practices (burning, clearing of the forest, etc.), the high vulnerability to climate change and natural disasters, low responsiveness and management, as well as the narrow resource base and high costs of energy. The country is known for increasing population pressure with limited resources.

## **The global environmental and/or adaptation problems in the SADC fisheries sector**

**At the SADC level:** The understanding and appreciation of the diverse benefits that fisheries provide in the SADC region and its citizens is steadily growing. Equally, the concern to protect the future of the region's fisheries from growing pressures and threats also grows. Over the last two decades SADC governments have worked to develop, implement, and improve their fisheries management systems, guided by the 2001 SADC Protocol on Fisheries.

Key issues that the region has been addressing, include: controlling overfishing, illegal fishing and by-catch to rebuild fish stocks; the joint management of shared marine and lake resources; harmonizing legislation, reducing overcapacity; protection of the aquatic environment by applying appropriate conservation and management measures; and fighting IUU fishing through improved capacity and coordination in monitoring, control and surveillance (MCS).

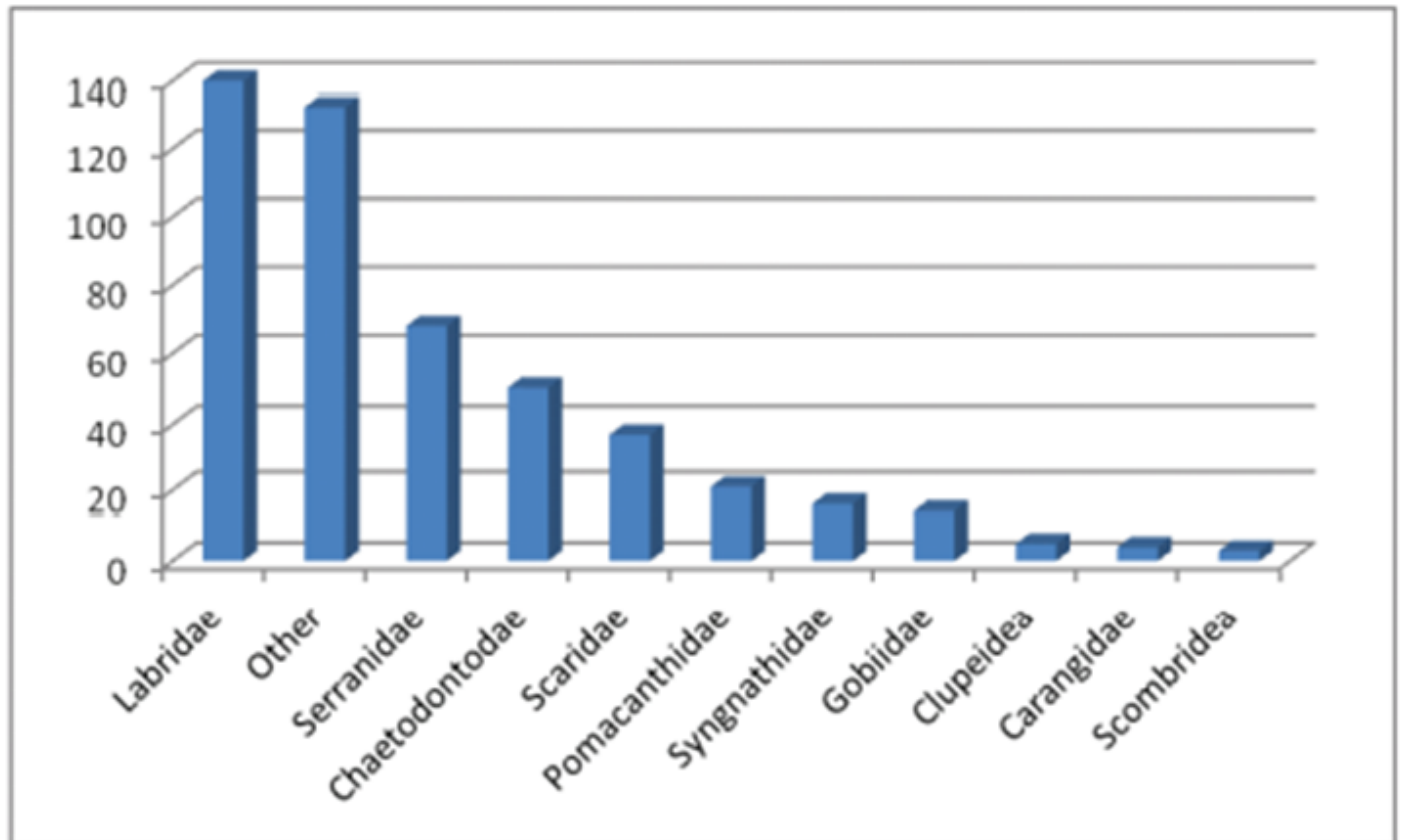
However, these challenges are rapidly evolving and the threats prevailing now are not exactly the same as those faced in the 1990's when the Protocol on Fisheries was negotiated. Of late external threats, those that fisheries managers and decision makers in the region have little or no control of, are having more pronounced, and generally more negative impacts, on the region's fisheries. If unchecked these threats have the potential to undermine the sustainability of fisheries ecosystems, the social-economic benefits they provide, and potentially stop the region from fully realizing the benefits from fisheries resources for the benefit of its citizens.

**In the SWIO region** the Transboundary Diagnostic Analysis (TDA) under the ASCLIME project concluded that environmental degradation and environmental impacts are important constraints across all developmental sectors. The TDA established that over-exploitation of resources is common in fisheries, agriculture and forestry and is frequently linked to poverty and over-dependence on the resources. Alternative livelihoods and livelihood diversification are urgently required to ameliorate these problems. The environmental impacts of tourism, fisheries, mariculture, forestry and agriculture, energy and coastal mining are already a serious concern and development of these sectors must be done in a way that minimizes such impacts and does not cause irreversible damage. Limited and often inadequate human capacity is also common to nearly all of the sectors and encompasses, for example, inadequate governance capacity, research capacity and capacity for fulfilling financial, operational and human resource functions. Security concerns, political instability, weak service delivery, conflicts between sectors and centralized control and over-regulation were also identified as problems in some sectors and countries.

Consequently, fishes in the regional are variably at risk. These risks may be attributed to causes that include ecosystem and/or habitat destruction, climate change and fishing. In the case of fisheries, the risks imposed can be either as a result of directly targeting or incidental as a bycatch or impact on the species' environment. Whatever the case, some species are more vulnerable than others and these require identification and protection. The identification of such species at risk can be done on the basis of several different criteria. Included are issues such as declining populations, limited distributions, endemism, slow turn-over life cycles, reduced distribution range, high mortality rates, etc. While traditional fish stock assessments should be able to deal with harvested fish stocks, it is often the less common but vulnerable species that require special attention. There are several approaches, including the IUCN Red List system as well as national conservation programmes. Based on the IUCN red data listing for marine fishes there are presently a total of 738 marine fish species listed on the Red List for the WIO. Of these, 237 (32%) are elasmobranchs and 492 (68%) teleost

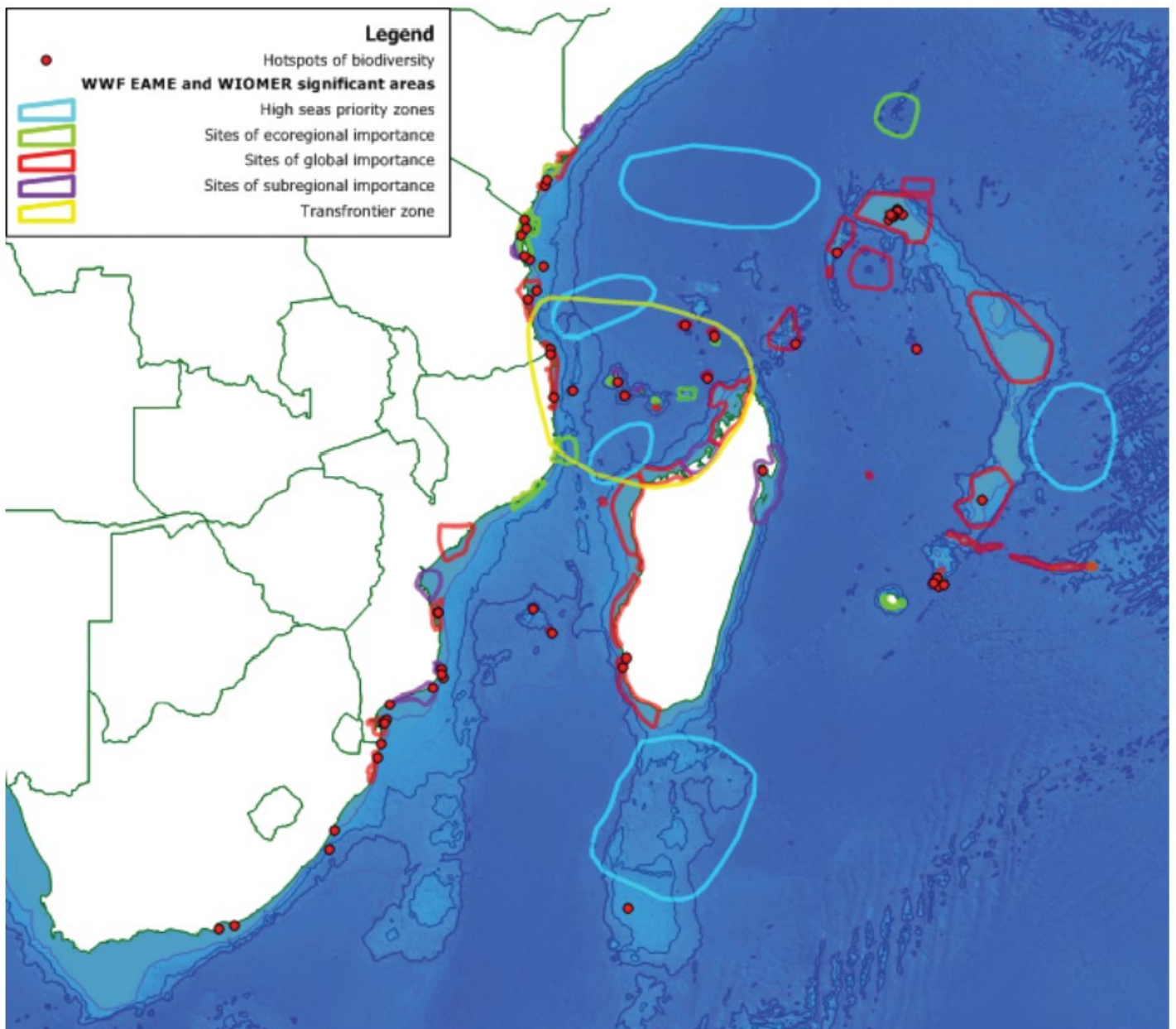


fishes. Amongst the latter are 83 families dominated by coral reef species as shown in the figure below (From the ASCLME TDA report).



In the absence of detailed, rigorous and ultimately expensive assessments it helps the region to focus on preventive and hence more sustainable solutions. It is even better if such solutions are nature based and socially inclusive. Such is the import of the proposed GEF project.

Biogeographically, the tropical Western Indian Ocean region, is characterized by Indo-Pacific biota. The dominant coastal habitats are mangrove forests, seagrass beds, and coral reefs, interspersed with estuarine and lagoon systems, sandy beaches, and rocky shores. The subtropical East Coast Province starts in southern Mozambique and extends to the Eastern Cape of South Africa, where the warm-temperate South Coast or Agulhas Province starts (Griffiths 2005). These species are threatened by a number of factors, mostly climatic, environmental and human induced. As a result several marine regions are classified as threatened. A map of the WIO region showing areas recently identified to be of particular ecosystem importance is presented below, after: a) The SWIOFP Biodiversity Retrospective Analysis: Hotspots of biodiversity importance (SWIOFP 2012); b) The WWF East African Marine Ecoregion Vision (WWF 2004); c) The WWF Western Indian Ocean Marine Ecoregion Report (WWF 2010).



### *Overfishing*

Overfishing is an issue for the fisheries sector worldwide, including from the SWIO region. Globally 29% of the world fish stocks are over-exploited; 61% fully fished; and only 10% under-fished (FAO, 2014). Overfishing threatens livelihoods and food security of local communities; and national and regional economies.

Regional collaboration and approaches to the management, catching, processing, and trading of fish and fisheries products, offers a real opportunity for countries to work together to overcome this threat. For example, re-strategize so that fishery resources could be the building blocks for local supply chains, providing more fish for regional trade rather than export, and more fish for regional consumption, increasing local employment and income. This approach would help build regional resilience to increasing demand for food and nutrition. Regional operational MCS cooperation will enable fisheries authorities to understand, tackle and overcome the expected increase in foreign illegal fishing.

The main cause for overfishing is population increase. In the case of SADC, it is predicted that region's population of 377 million will double by 2050. This growth will be greatest in poorer SADC countries. To maintain or increase current levels of availability of fish or to potentially increase the contribution of fish for nutrition, fish needs to be cheaply available. Lower value species, with limited or no processing, are likely to be more in demand than high value, highly processed products. However, the growing demand for fisheries is not only for food and nutrition, but also to provide jobs and national income. These multiple demands will put pressure on decision makers to choose priorities to fulfil their countries needs in a balanced manner that also safeguards the natural resources that they rely on.

Global population growth will also increase pressure on SADC resources and create challenging choices for the region's policy makers. According to the FAO, global fish consumption is expanding at 3.2 percent annually, faster than global population growth at 1.6 percent. This growth is not uniform, Asia's share of world fish consumption is 70 percent, which is the largest by continent and increasing. This will impact on the SADC region, with higher demand for SADC caught fish to be exported for consumption outside of the region. This will result in less fish for local nutrition and potentially also reduced opportunity for local catching, processing and selling of fish, developing the local and regional value chains and increasing the all-round benefits from fishery resources. Population growth, and the resultant growth in demand, is therefore a diverse and complex threat to regional fisheries, including the likely increase in IUU fishing by foreign vessels, as the pressure to increase catches grows.

**Countries in the SWIO and the Mozambique Channel** are reported to have overfished stocks that need to be better managed. The Scientific Committee of the SWIOFC which regularly monitors the status of stocks in the region reported that in 2013, 34% of the relevant marine fish stocks were overexploited, while 66% were not but tellingly warned that the trend, from 2005 to 2013, generally showed an increase in the number of overexploited fish stocks.

In the **Comoros** the rocky shores are generally well preserved. These are very good at protecting the coast against erosion and therefore shelter a diversity of plant and animal species. However, the rocky shores are often used by fishermen as fishing bases. As a result, fauna populations (crabs, fish) are caught to use as bait for pelagic fish by traditional fishermen resulting in their over-fishing. Shellfish (nerites, periwinkles) are reputed to have medicinal properties against diseases related to malnutrition and therefore suffer the same fate.

In **Madagascar** the lack of information makes planning and management very difficult for the marine fisheries sector. Thus, the ability to monitor over-fishing in the sector remains weak. However, the exploitation particularly of sea cucumber and shellfish, continues to go unchecked and is suspected to exceed sustainable limits.

Over-fishing in **Mozambique** is mainly due to the use of destructive fishing practices and the degradation of the ecosystems. The main destructive fishing practices in Mozambique include the use of inappropriate fishing gears such as mosquito nets, gill nets, traps and poison. These practices do not discriminate between

species and they also destroy the habitats. Beach seine fishery harvests adults and juveniles of both small and large species. Generally, catches of small and juvenile shrimp outweighs those of adult shrimps.

### *Increasing Climate Risk*

**Climate risk in SADC:** Climate change and disasters are already impacting on SADC's fisheries and the livelihoods that they sustain. Although the exact implications of climate changes are not fully understood the most vulnerable fisheries are small-scale or semi-industrial fisheries in which many people are heavily dependent on fish for food and livelihoods, with almost no ability to adapt to a reduction in catches or a disaster.

Climate change is taking its toll on marine ecosystems, fisheries, and the millions of fishers whose livelihoods depend on them. In Sub-Saharan Africa, the intensity of the impacts combined with the reduced adaptation capacity of many in the fisheries sector contribute to the vulnerability of these fishers, their families and communities. Despite this growing body of evidence from assessments, both modeled and observed, more study is needed to better understand these impacts. Policy makers, donors and other stakeholders urgently need additional analysis, evidence-based information, and especially prioritized, cost-effective options to guide investments and initiatives towards climate change mitigation and adaptation, with the goal of maximizing the prospects for development and poverty reduction throughout the continent.

The impact of Climate Change on the region's coastal and the coastal communities that rely on the oceans are considered particularly vulnerable. For example, it is predicted that a 43 centimeter rise in sea level by 2100 could affect more than 2 million people in Mozambique. In the Western Indian Ocean in general, a sea temperature increase of 0.6 Celsius has been observed to trigger coral bleaching and deadly climate-related disasters across the region. For example, in 1998 coral bleaching cost Mombasa, Kenya, US\$15 million in tourism dollars (FAO, WB Brochure, 2017); this is before the cost to marine fisheries and ecosystems is factored in.

The impacts of climate change on marine fisheries will make it difficult for many countries that depend on these fisheries to achieve several of the Sustainable Development Goals (SDGs). This is particularly true with regard to SDG 1 (No poverty), SDG 2 (Zero hunger), and SDG 3 (Good health and well-being) in fishing communities that are especially vulnerable to climate change because of their economic dependence on fisheries for their livelihoods and for food and nutrition security.

Two impacts of climate change have become evident in the region, the warming and acidification of oceans. Ocean warming is an impact of climate change that effects ocean circulation, causing changes in local temperatures and wind regimes, potentially reducing fisheries productivity, and altering fish species distribution. Ocean acidification is when increased carbon dioxide in the atmosphere makes seawater more acidic, resulting in complex and not fully understood physiological and ecosystem impacts.

That climate change impacts, and natural disasters are impacting on the region's marine fisheries ecosystems, and in the freshwater lakes and rivers as well, is no longer debatable. To improve the resilience of the region's citizens, particularly the coastal communities, effective policies, plans and actions are needed to better protect fisheries and their fishers by making them climate-smart and disaster-ready. This will require more integrated MCS especially in small-scale fisheries and implementing regional approaches to monitor and control potential illegal fishing, illegal trade and the migration of fishers across borders, all likely to increase in response to the pressures resulting from climate change impacts and natural disasters.

**Climate risks in the Mozambique Channel:** Increased extreme weather events in the region, such as storms, cyclones, hurricanes, and droughts have interrupted activities in ports and stopped fishing, damaged infrastructure, destroyed fishing vessels and killed fishers, while coastal erosion and salinization of water supplies have forced communities to migrate to new fishing areas. An example is the city of Beira in Mozambique, that was hit by the brutal Cyclone Idai in 2019, killing more than 600 people and destroying fishing vessels and gear. Having not yet fully recovered, in early 2021, the same people suffered again from Cyclone Eloise.

Besides the apparent and obvious economic impacts of climate change, climate variability and eventually change, has profound impact on fishery resources. Inter-annual variabilities in sea level anomaly, indicating presence of eddies, may be related to climate forcing IOD/SOI, which may have an effect on the flow of water into the Mozambique Channel and hence on eddy generation (Tew-Kai and Marsac 2009). During a recent ASCLME survey in the Mozambique Channel, total chlorophyll (TChla) concentrations were found to be greater in cyclonic eddies than anticyclonic eddies, at the surface. TChla in regions of divergence, and on shelf zones, were found to be similar to cyclonic eddies, whereas values in frontal zones were slightly lower (Barlow et al. 2011). Anticyclones tend to have low-nutrient water at their centre due to convergent flow and downwelling, which also promotes retention of passive organisms, but enrichment has been noted at their periphery (Mizobata et al. 2002). This means the climate induced ocean behaviour has a strong bearing on the health and welfare of fishery resources and by extension the livelihoods of the fisher communities.

Furthermore, the Mozambique Channel circulation is also affected by the monsoon regime, with the southwest monsoon associated with strong winds and high volume transport through the Mozambique Channel, while the northeast monsoon is associated with low winds and very low levels of transport through the channel (Biajoch and Krauss 1999). North-East monsoon winds have also been correlated with upwelling off the coast of Mozambique, particularly in the vicinity of Angoche, which has important consequences for local productivity and nutrient availability to the economically important prawn stocks of the Sofala Bank (Maluaene et al. 2012).

Climate change, and with it the profound, but as yet unpredictable consequences for the marine environment, may also add or subtract breeding and visiting species from the SWIO countries' national lists. Subsequently, when the SWIO TDA identified gaps relating to ecosystem management of marine and coastal resources included capacity to formulate climate-resilient policies for agriculture, to buffer overexploitation of marine resources and unsustainable agricultural practices in certain cases.

Recent research has shown that the **Comoros** is vulnerable to the effects of climate change and ocean acidification (Burke, et al., 2011), both of which are likely to become more severe in coming years and may further threaten the nation's food security.

Meanwhile climate change is already impacting **Madagascar**. The mean annual rainfall is predicted to decrease by 5% by 2100. However, an increase of 5% to 10% of rainfall in December to February is predicted. The maximum increase of 10% is predicted in Atsimo Andrefana, Anosy and Androy regions. The projections for change in rainfall suggest that the rainfall will increase during summer and decrease in winter. The magnitude and frequency of cyclones has also changed. Although the total number of cyclones per year has not changed, the percentage of intense cyclones has increased, and cyclones have become more frequent in northeast and southwest coasts of the island. The sea level is rising at a rate of between 7.2 and 21.6 mm on all coastal zones of the island with impacts such as flooding of low-lying coastal areas, coastal retreat and modification of coastal ecosystems. The impacts of climate change on coastal ecosystems are of great concern in view of the various benefits accrued from them.

For **Mozambique** one of the major climate change related issues is increase in sea temperature brought by the global climate change. Increased temperatures cause coral bleaching and subsequent modification of marine ecosystems. Thermal expansion of the ocean will lead to sea level rise and consequent flooding of the low-lying coastal areas. The death of corals will impact biodiversity and tourism, and the associated reduction in ocean productivity will result in reduction in fisheries production, which will have substantial socio-economic impacts. For example, the El Nino of 1997 bleached corals in 90% of the Mozambique (Schleyer et al. 1999). The most affected reefs were those found in the north and the effects diminished considerably further south except at Inhaca Island. A collapse of coral reef structure on the seriously bleached reefs is expected in future. The fish populations on the damaged reefs, the basis of many of Mozambique's valuable artisanal fisheries, will thus be seriously affected in future.

### *IUU fishing threat to marine fisheries*

**IUU fishing general:** IUU fishing results in unfair competition for fisheries resources with depleted resources available to bona fide fishers, which can lead to the collapse of local fisheries, with small-scale fisheries proving particularly vulnerable. Products derived from IUU fishing can find their way into markets outcompeting local food supply. Ending IUU fishing is target 14.4 of the global SDGs, demonstrating its global reach. One estimate puts IUU fishing losses worldwide at between USD 10 and 23.5 billion annually, representing between 11 and 26 million tonnes of fish. The three components of IUU have somewhat different causes and may require different solutions, although all require strengthening the fisheries governance system in a way that provides incentives for compliance and improving fisheries MCS.

The special case for small scale fisheries (SSF): The 2018 status of the world's fisheries (FAO, 2018) concluded that 33% of monitored stocks are currently fished beyond biologically sustainable limits. Yet, these assessed stocks represent less than 1% of all fished species, indicating that this figure is likely a vast underestimate of overfishing occurring worldwide. This is particularly true in small-scale fisheries (SSF), which in the majority of cases remain unassessed and unmanaged (Costello et al., 2012). World trade in fish

and fish products continues to grow, and fisheries exports were worth an estimated \$152 billion in 2017 (FAO, 2018). However, the focus on market contribution often results in an under appreciation of the importance of small-scale fisheries (Chuenpagdee et al., 2006; Grafeld et al., 2017). The small-scale sector provides more than half of all fish for human consumption, making it a significant contributor to international food security and nutrition (World Bank, 2012). The marine sub-sector is estimated to support the livelihoods of approximately 50 million people worldwide (World Bank, 2012). In low-income nations, these fisheries contribute to the development and stimulation of local and national economies, and up to 95% of the small-scale marine fisheries landings are destined for local consumption (Béné, 2006; Chuenpagdee et al., 2006; USAID, 2016; FAO, 2017; Tilley et al., 2018). Despite SSF delivering many benefits with a much smaller environmental footprint than industrial fisheries (Chuenpagdee et al., 2006; Jacquet and Pauly, 2008), SSF have received much less focus to date. Ensuring they are managed effectively is critical for maintaining income generation and food security of the coastal communities who depend on this resource.

**IUU fishing in SADC:** Ministers of the SADC stressed in the 2008 Statement of Commitment to combat IUU fishing that IUU activities are considered a plague to sustainable management of the region's fisheries resources, and they pledged to fight it. IUU fishing is taking place across the SADC region, for example, in coastal fisheries, dynamite fishing, use of nets with small mesh size, and fishing in protected habitats are common, resulting in damage to valuable marine habitats and biodiversity, which are essential for coastal protection and nursery grounds for fish stocks and for the wellbeing of coastal communities.

Offshore fisheries experience violation of fishing zones and underreporting of catches, while document and vessel fraud, modern day slavery and other illegal business practices and crimes also occur, all resulting in not only damage to the fish stocks but also contributing to transnational organized crime. Inland fisheries suffer particularly from the use of unsustainable fishing gear and limited reporting of catches, while informal cross-border trade is used to circumvent customs and tax controls, denying governments revenue. Fisheries crime relates to different manifestations of crime associated with fishing, the fishery value chain, or the fishery sector, for example, document fraud, tax evasion or corruption are fisheries crimes that can be used to facilitate IUU fishing. Therefore, while an illegal act can be both a fisheries crime and IUU fishing they can also be discrete but linked.

While ignorance of rules and regulations causes illegal fishing that can be addressed by awareness and sensitization, more serious and organized illegal activities require a more systematic and cooperative region-wide response. The SADC Statement of Commitment has paved the way for the regional MCSCC. This Centre is an important step for the SADC to increase its ability to tackle organized fisheries crimes and IUU fishing. By working together through the MCSCC, the region will be better able to counter IUU fishing, and abler to work with other SADC sectors to provide a united and integrated response to protect SADC fisheries.

**IUU the SWIO region:** IUU is estimated to be around 400 million/year threatening fish stocks, distorting markets, undermining governance structures, and imposing considerable costs on the economies of developing countries, including the livelihoods of coastal fishing communities. Existing international/regional instruments addressing IUU fishing have not been effective due to a lack of political will among the affected countries and a lack of human, technical and financial resources to enforce existing legislation. Dynamite fishing, use of nets with small mesh size, and fishing in critical/prohibited/protected habitats are common in

coastal fisheries, while in offshore fisheries, violation of fishing zones and underreporting by the industrial fishing fleets are the common features.

**IUU in the Mozambique Channel:** Illegal fishing is on the rise. Fish capture is indiscriminate and marine creatures including sharks, turtles, even dolphins are being removed from the sea in tons, and some of these species will vanish altogether in the near future unless action is taken now. All along the coastal zones, particularly along the Mozambique shoreline and parts of Tanzania as well as Angola and the DRC, meat from endangered species can sometimes be found at the market. The Mozambique Channel is especially hard hit with IUU fishing with boats, nets, even poachers who work from the beach. A “global campaign” is thus needed to protect the marine life. Such a plan should be multi-sector, multi-stakeholder in scope and also endeavour to demonstrate at the local scale response and resilience actions that can be up-scaled regionally.

**Mozambique** is particularly hit hard by IUU fishing. The Mozambican Ministry of the Sea, Inland Waters and Fisheries says the country loses more than \$60m a year to illegal fishing. Monitoring and policing remain weak and signs marking out protected zones are ignored and the number and variety of fish caught is not always declared even by licensed fishing fleets most of which are international. In addition to overfishing there are other threats to the coastal and marine ecosystems along the Mozambican shoreline. These include, industrial and coastal development, natural resources exploitation, unregulated and damaging tourism practices, and pollution, notably wastewater discharge and plastics that come through river discharges from upstream and beyond the boundaries of Mozambique itself.

While the range of challenges is similar to other countries in the region and elsewhere, the case of Mozambique is rather unique in that major rivers in the region, among them the Zambezi and the Limpopo, drain into the ocean from beyond the country’s borders bringing challenges into the country that are not of its own making. The country, therefore, more than most, needs a regional approach to resolve its problems.

In **Madagascar** reports suggest that illegal fish catches represent half of the fishing sector’s total production and that the decrease in fish catches is deeply felt across the country’s coastal regions. The decrease in fish catches due in particular to overfishing and harmful fishing practices. It is estimated that “one out of five canoes, about 22%, is registered with the authorities”. Thus, fish catches are generally not reported, and fish stock assessments are frequent and economic data is limited. Furthermore, decreasing fisheries stocks have been reported in coastal Madagascar where poverty rates are high and implications for fisher communities are severe. Fish is a major source of food security that has rapidly declined in recent years. IUU fishing, including by commercial and artisanal longlines, illegal use of fish aggregating devices (FADs), trawlers, and inappropriate nets, have depleted fishing stocks. Increased sedimentation and climate change effects have also contributed significantly to the changing fisheries. The challenge, however, remains with reasonable attribution of the decline to any of these factors as there is no reliable fisheries data in the country.

### *Coastal zone degradation*

The Coral reefs, mangroves and seagrass beds are critically important habitats that jointly support a large proportion of coastal species and human populations which are reliant on them for a range of food sources,



livelihoods and other ecosystem services. Although each is characterized by certain species assemblages, many coastal species are reliant on more than one habitat for certain life stages or activities. Some pelagic species are also reliant on these coastal habitats for early life stages. All of these habitat types also provide an important protective function to the coastline by way of dissipation of wave energy and consolidation of otherwise mobile sediments. The coral triangle between East Africa, the northern tip of Madagascar and the associated islands constitutes a high biodiversity region which merits greater conservation and resource-use management, especially as it has proven vulnerable to elevated SST-related coral bleaching due to climate change (Sheppard 2003, Obura 2005).

Environmental problems in the coastal zones are caused by several factors among them the rapid degradation of ecosystems; unregulated exploitation of forest resources, marine and coastal resources; increasing siltation of water resources and the exploitation of coral reefs to extract building materials including sands. Urbanization is a major problem - it is explosive, unplanned without basic community facilities. Most countries also do not have sound policies for urbanization and the consequences are land speculation, development in ecologically fragile marginal lands, destruction of natural resources, and proliferation of illegal dumping sites. Lack of an effective system of collection and disposal of waste causes an accumulation of garbage dumps and degradation of urban and coastal areas.

Of late the negative impacts of tourism developments have also been observed in all four countries. These include inappropriate land use and zoning, destruction of natural habitats, malfunctioning of sewerage plants, continued sale of marine souvenirs and use of large amounts of natural resources such as water and fossil fuels. These weaknesses have mainly occurred due to the lack of an overall detailed master plan for tourism and land use in these four countries. As a result, appropriate policies, practices and monitoring systems have not been developed, coupled with a poor understanding by operators and tourism officers of environmental issues.

The resolution of most of the above problems require that Integrated coastal management plans that take into account rapid urbanization and growth and competing demands on coastal zone land use by different sectors, in particular housing, agriculture and tourism are developed. For such plans to work they require a knowledgeable populace that not only takes responsibility to solve the problems but can impress on the authorities to take corrective action in the policy and regulatory arena at the same time holding transgressors, especially commercial ones, to account.

More than 60% of the population of **Mozambique** lives in coastal areas, placing significant pressure on coastal resources and natural capital. The inherent dynamic nature of coastlines combined with exposure to destructive maritime hazards, sea level rise (SLR), inefficient land usage, and strain on natural resources renders the Mozambican coastline highly vulnerable to the impacts of climate change, particularly coastal erosion. Protective ecosystems, such as mangrove swamps, dune systems and coral reefs, are critical to improving resilience against SLR and destructive maritime hazards (storm surges, tsunamis and tropical cyclones). So too is addressing the widespread poverty in coastal areas, which inadvertently contributes to the widespread degradation of ecosystems. As such, livelihood diversification is considered important.

**The Comoros** has much biodiversity and diverse landscapes. However, population growth and the rapid agricultural expansion associated with it, has led to forest destruction with upwards of 57% of total forest area being degraded. The total population in the coastal areas alone is expected to increase to 65% of the total country population by 2050. The anticipated degradation of forests, currently valued at around \$700 Million USD, could be fatal for connected coastal ecosystems. A second notable problem is the use of beach sand for construction materials. This practice has led to the erosion and degradation of the country's beaches to an extent that the country has developed environmental regulations in an effort to curb the practice. However, no management plan on sand mining has been successfully implemented. The destruction of the country's coastal zone has prompted the United Nations - Division for Ocean Affairs and the Law of the Sea to conduct two studies with recommendations for management of the Comoros coastal zone.

While coastal mining does not present any immediate commercial opportunities and the effects of sand mining remain problematic, numerous local NGO's, such as The Association for Intervention for Development and the Environment (AIDE), Action Comoros and the Management Committee of the Marine Park of Moheli, continue to monitor the socio-economic and ecological status of the country's coastal zone. Thus, while the central government lacks the capacity to monitor the impact of economic activity in the coastal zone, there are agencies on the ground that continue to do so.

**Madagascar** is renowned not only for its high biodiversity and high degree of endemism, but also for ongoing loss of the original primary vegetation especially in the coastal zones. The development of the coastal and marine zones of Madagascar is supposed to be guided by integrated coastal zone management (ICZM) but this is largely ineffective. The governance of the coastal and marine environment remains generally weak.

The coastal zones are mainly formed of sedimentary rock. In the West, there is a wide continental shelf extending outwards to a maximum of about 90 km offshore. The presence of estuaries, coral reefs and mangrove swamps is characteristic of the western part of the country which borders the Mozambique Channel. The mangrove forest swamps occupy between 300,000 and 400,000 ha of land (Perrier de la Bathie 1936, Lebigre 1990). Coral reefs are found along 1,400 km of the coastline. Deforestation has been rampant in these areas. The deforestation has been most rapid in areas with low topographic relief (Green & Sussman, 1990). Very little undisturbed eastern littoral forest remains.

The impact of deforestation on the fishery resources has been devastating. A decline in fisheries and changes in ecosystem structure and function have been observed especially for small pelagic fisheries, demersal finfish fisheries, elasmobranchs (sharks and rays), marine turtles, cetaceans and tunas. Habitat modification is also visible as evidenced by the degradation of coral reefs, mangroves and seagrass beds which are critical habitats. Also, other habitats such as soft sediment seabed, sandy beaches, seamounts, and coastal wetlands are being impacted by both human and natural factors.

In addition, sedimentation is an important problem that is responsible for the modification of shorelines. The most spectacular shoreline changes due to sedimentation are often observed in estuaries and mouths of major rivers. The Bay of Betsiboka is an example of an estuary with serious sedimentation problems. The river carries huge quantities of silt which is deposited in large quantities at the bay. In the Southwest, the same

heavy sedimentation occurs at the mouth of the river Fiherenana, resulting in smothering of reef flats and mangrove forests (Bemiasa 2009).

Furthermore, a decline in ocean water quality has also resulted. This is particularly due to alteration of river flow, sedimentation, pollution, agrochemical residues (pesticides and fertilizers) and eutrophication.

### **The root causes and barriers that need to be addressed.**

Whilst a plethora of reasons for the slow pace of resolving environmental challenges at the national and local levels can be found, at the regional level issues are more complex and therefore more difficult to resolve. One key constraint lies in the vast expanse of the SADC region itself. Because the region is so diverse it means spatially its constituent areas experience different problems and therefore interpret issues divergently from each other. The diversity at regional often plays at the sub-regional level.

#### *Regional diversity and contrasts in fisheries management approaches*

**The SADC** is a very complex and multi-layered Regional Economic Community (REC), with countries at varying levels of development. These differences influence the individual member countries' consumption patterns, policy and regulatory frameworks as well as the marketing and trading arrangements in the region. The fisheries sector is no exception. For example, the regulatory arrangements in South Africa and Namibia, which are highly industrialized economies, stand apart from the other SADC countries. There are real contrasts between landlocked and coastal states whilst there is also differences between the states of the Western Indian Ocean (WIO) side of SADC, where tuna is dominant and those to the Atlantic Ocean side where hake is the primary export. The fishing technologies and how the fishing fleets use the local landing ports is also different. Foreign fleets and companies use fisheries access agreements to access tuna in SADC WIO Exclusive Economic Zones (EEZs), whilst in South Africa and Namibia on the Atlantic side, it is through investments in factories and purchases of quota rights. Marine small-scale fisheries also differ between the Atlantic and Western Indian Ocean side as well as in the inland lakes.

Similarly, there are other diversities in terms of legal arrangements. South Africa and Namibia have well developed frameworks of property rights in marine capture fisheries which are based on quota ownership and allocation and Total Allowable Catch systems. In contrast, for Angola and the DRC the management of marine capture fisheries systems is less developed with poor levels of at sea enforcement making high levels of IUU fishing normal. Data is also not as reliable or representative. For Mozambique on the Indian Ocean side of the region, tuna is commercially the most important and access is granted to foreign fleets by licenses and access agreements with little to no enforcement.

In the **Mozambique Channel** and SWIO diversity is as much an issue as it is in the wider SADC. For example fish processing levels differ between countries. There is a high level of final stage processing of tuna products in Seychelles, Mauritius and Madagascar, but not in Comoros, all geared towards the export market to Europe, Asia or the United States either live, semi-processed or canned making trade instruments and considerations critical in these small island developing states (SIDS). Large tuna trading companies operate in these islands and exert undue influence on national fisheries policies. In the mainland country of Mozambique, the situation is different due to the larger but more land dependent economic systems.

Furthermore, fish capture is from both marine and freshwater systems with the domestic small scale fish industry more dominant compared to the marine fisheries sector.

What is more pronounced however is competition among member states as well as external threats. Competition is rife in fishing and tourism especially from Madagascar and other island states that are overly dependent on marine resources for their economic development. Comoros further faces the threat of piracy due to the country's proximity to Somalia. Tanzania and Mozambique on the other hand have simmering disagreements over oil fields of the coast. Such competition hampers efforts at regional collaboration in marine fisheries.

The diversity in fisheries management approach means that there is no “one size fits all solution” to problems even if policy frameworks are agreed at the regional level. For this reason, it is important that SADC countries explore ways to better collaborate and contextualize the regionally agreed policy frameworks. Otherwise, the advancement of a regionally determined fisheries agenda remains embryonic at best and stillborn at worst.

#### *Policy harmonization and implementation challenges at national and regional levels*

A lot of work has been undertaken in the fisheries sector in the region in general and in the SWIO in particular. However, whilst the goal of safeguarding the region's fishery resources is universally shared, the integration and coordination of the multiple, multi stakeholder and multi-funder initiatives remains a challenge.

**SADC level guidelines:** The Southern African Development Community (SADC) has a long experience of cooperation in fisheries. The 2001 SADC Protocol on Fisheries aims to promote responsible and sustainable use of the living aquatic resources and aquatic ecosystems of interest to State Parties, and it contains Articles in relation to, inter alia, the management of shared resources, harmonization of legislation, law enforcement, access agreements and protection of the aquatic environment. It allows for States to establish instruments for co-ordination, cooperation, or integration of management of shared resources (Swan 2012). Guided by the Protocol most Member States participate in established arrangements for coordination, cooperation or integration of management of shared fisheries resources.

Furthermore, in 2017 SADC approved the Charter for the establishment of the SADC regional fisheries Monitoring, Control and Surveillance Coordination Centre (MCSCC) in Maputo, Mozambique to help in fighting IUU fishing. However, by mid-2020 only eight of the sixteen Member States had signed the Charter (Angola, Eswatini, Lesotho, Mozambique, Namibia, South Africa, Tanzania and Zambia) yet at least two thirds (eleven) of the SADC Member States need to sign the Charter for it to enter into force. Thus, ownership and sustainability of common fisheries policy frameworks still needs to be strengthened. The implementation of the SADC Protocol on Fisheries, in particular, is made possible through substantial and continued support from international cooperating partners (ICPs) who have both provided technical and monetary support, notably FAO. These modus operandi bring into question the sustainability of operations and ownership of initiatives by the regional countries themselves. The IUU situation, in particular, is further compounded by

high levels of poverty and illiteracy in coastal communities who cannot report illegal activities and often abate the looting of marine fishery resources in return for payment.

Noting the existential threat to marine fisheries posed by IUU fishing, the SADC held a ministerial conference in Windhoek which culminated in Ministers of the respective fisheries departments of eight of the coastal SADC states signing a ‘statement of commitment’ (SoC) to halt IUU fishing in the region. However, this action has not contributed to increasing the capacity of SADC Secretariat, and individual member states for that matter, for implementation of the commitments to stop IUU fishing. Enforcement remains a key constraint partly because countries have not fully agreed on their maritime boundaries. For example, Mozambique is negotiating with The Comoros (as well as Tanzania and Seychelles) on the delineation of their common EEZ boundaries whilst the The Comoros have not yet concluded the delineation of its maritime zones with Mozambique, and Madagascar, (as well as Tanzania, Seychelles and France). This lack of clarity in jurisdiction not only makes it difficult for sovereigns to police marine area but have the potential for interstate conflicts related to economic use of coastal and marine resources, including fisheries. On top of all this the capacity of SADC Secretariat for coordinating coastal and marine resources still remains quite weak. The proposed project, by designating the SADC Secretariat the Executing Agency, aims to contribute to building that capacity.

In the **Mozambique Channel** there is no dedicated authority specifically set-up to oversee marine fisheries in the Channel. The constituent countries are individually members of initiatives such as SWIOFish. As such there is no policy framework specifically and formally designed to deal with common marine fisheries problems in the channel. This project does not advocate for one but seeks to foster closer collaboration for these countries.

#### *Top-down approaches to problem solving.*

The SADC region as a block, and the national sovereigns that constitute it, have numerous policies and structures that purport to solve marine fisheries related issues. However, as with most other sectors, there remains a disconnect between the top-level planning frameworks and the local level implementation of those plans. The SADC Protocol on Fisheries, to some extent, suffers this fate. Formulated at a regional level, its articles seem to lack currency at the local level. Indeed, often the local communities and even national agencies are not aware of the provisions of the Protocol, let alone their role in implementing them.

Integrated Coastal Management (ICM) suffers the same fate as the fisheries protocol. Implementation of ICM in the SWIO started from 1993 when Ministers of Environment from WIO region met in Arusha, Tanzania to deliberate on the strategy for implementation of Chapter 17 of Agenda 21 of the UNCED. Since then countries of WIO region are progressing towards developing national policies, legislations and strategies for the implementation of ICM. Invariably, the implementation of ICM calls for the establishment of Inter-Ministerial Committees to oversee the integration of actions to achieve sustainable use of marine and coastal resources. The status of these ICM Committees varies from country to country but they have one common characteristic – they are all pegged at the national level, leaving the local government levels and communities further down somewhat in limbo.

The diversity in the region is well captured in the TDA from the ASCLME project which noted that the styles of marine and coastal governance vary from country to country, reflecting their individual histories and cultural backgrounds. These styles have also been influenced by relevant regional and international agreements to which regional member states have assented to as independent sovereigns. Consequently, inadequacies and gaps exist in the application of the existing legislation to ecosystem-based management within the SADC region. As such the harmonization of policies across the region is not feasible unless law and policy makers are appraised of collective regional and transboundary issues.

Notwithstanding the existence of multiple regional frameworks, there is currently no single mechanism that could implement an integrated region-wide approach to the governance of marine and coastal resources in the SADC region. The countries have recognized this and agreed that one is needed if the region is to derive optimal benefits from its marine and coastal fisheries resources.

### **Rationale for the proposed project**

The preceding discussion shows that whilst it important the fisheries sector, in the SADC region and the broader SWIO region, face sustainability challenges from multi-faceted threats which require that both supply side and demand side issues are addressed.

On the demand side, SADC regards the agricultural sector as an engine for socio-economic development, hence its drive towards strategic collaboration among states to boost production and productivity for regional competitive value chains, and to address food and nutritional security. The region has adopted a NEXUS approach to development building on its wide range of natural resources including fisheries and forestry; an abundance of arable land; a generally favourable climate for growing food and non-food crops; an adaptable labour force; a decent network of core road, rail and port infrastructure; and rich mineral deposits. With these diverse endowments, the region has the potential to be the breadbasket of Africa and a significant global player in value added export products. **Fisheries** and natural resource management is therefore an important domain for SADC's development agenda. The fisheries management falls under the SADC Protocol on Fisheries and the Regional Indicative Strategic Development Plan (RISDP) 2015-2020. The Fisheries Protocol and the RISDP aims to promote responsible and sustainable use of the living aquatic resources and ecosystems. The sector is also clearly supported by the Industrialization roadmap. Achieving the SADC agenda of development in the blue economy sectors, including economic growth and poverty alleviation will require addressing several challenges specific to the region which include among others: (i) fisheries malpractices, poor reporting and illegal activities, low value addition, post-harvest loss, quality and standardization, and cross border market integration. These demand side issues will be addressed through the Bank baseline project (fully described below).

The demand side benefits will only be realized fully if the supply side issues are addressed, and the fish resources remain available, i.e., the trade corridors and fish value chains can only operate if the fish resources are available and adequately proofed from shocks. The supply side issues are addressed through the GEF project. As such the Bank baseline and the GEF project should be taken as the two sides of one coin.

### **Project synergies and complementarity**

Cognizant of the many issues in the regional fisheries sector several players have taken steps to help manage the regional fisheries sustainably. **SADC** especially has been spearheading regional approaches to help

resolve regional fisheries governance issues. Since 2003 the Southern Africa region has implemented the **SADC Protocol on Fisheries** which seeks to promote sustainable management of shared fisheries resources by Member States and most of these states participate in established arrangements for coordination, cooperation, or integration of management of shared fisheries resources. To enhance the implementation of the Protocol, SADC approved the Charter for the establishment of the **SADC regional fisheries Monitoring, Control and Surveillance Coordination Centre (MCSCC)** in Maputo, Mozambique in 2017 specifically to help in fighting IUU fishing. Furthermore, in 1990, SADC Member States extended the mandate of the Regional Drought Monitoring Centre to incorporate additional climate effects and established **the SADC Climate Services Centre** with the principal goal to reduce negative impacts from climate extremes, such as droughts and floods. However, the CSC plays a minimal role in the fisheries sector. The SADC initiatives are regionwide and often do not address the specific issues in any given sub-region due to the sheer size and diversity of the SADC region.

The African Development Bank (**AfDB**) has taken a keen interest in addressing regional fisheries issues from a Blue Economy lens with fisheries as the cornerstone. Bank's current blue economy investments in the region focusing on fisheries comprise of eight operations in SADC: two major investments in Zambia (one on aquaculture development and the other on Lake Tanganyika resource management), Democratic Republic of Congo (Lake Edward and Albert Fisheries Management Project Phase II), Angola (Fisheries Sector Support Project), Zimbabwe (Lake Harvest/African Century Foods) and Malawi (Sustainable Fisheries, Aquaculture Development, and Watershed Management project); and two capacity building and knowledge work in Madagascar and Seychelles on BE investments (through trust fund resources). There are additional investment projects (sovereign operations) in the pipeline for Madagascar and Malawi, three potential private sector operations in Lesotho (rainbow trout), South Africa (marine Tilapia in Eastern Cape), and Mauritius (industrial offshore aquaculture); as well as potential second and third phases of the Angola and DRC fisheries projects.

#### *GEF funded projects.*

The GEF has long realized that healthy coastal and marine ecosystems in the SWIO are part of a larger common good, with each country relying on its neighbor to sustainably manage resources and maintain clean waters for the benefit of the region. Several GEF agencies have leveraged on this realization and proceeded to develop projects for the region. The World Bank, in particular, stepped up its fisheries-sector support in the SWIO in response to member countries' request to strengthen sustainable fisheries governance, regional collaboration and policy integration. Noting that the SWIO countries face similar challenges in regard to weak governance, low human and institutional capacity and fragile business environments, the WB working closely with the FAO directed South West Indian Ocean Fisheries Commission (SWIOFC), has encouraged SWIO countries to use a regional platform to share experiences in implementing sustainable and economically viable policies and practices and enhance their ability to participate in international negotiations. Most of these projects, however, have targeted the wider SWIO marine systems and therefore went beyond SADC boundaries and were not specific to sub-regions within the SWIO in general and the SADC maritime borders in particular.

#### **The Agulhas and Somali Current Large Marine Ecosystems (ASCLME) Project**

Between 2008 and 2013, nine countries of the western Indian Ocean region, including Comoros, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, Somalia, South Africa and Tanzania, worked together through the UNDP supported GEF financed Agulhas and Somali Current Large Marine Ecosystems (ASCLME) Project. The objectives of the ASCLME Project were:

- to gather new and important information about ocean currents and how they interact with and influence the climate, biodiversity and economies of the western Indian Ocean region;
- to document the environmental threats that are faced by the countries of the region in a Transboundary Diagnostic Analysis (TDA);
- to develop a Strategic Action Programme (SAP) which sets out a strategy for the countries to collectively deal with transboundary threats;
- to strengthen scientific and management expertise, with a view to introducing an ecosystem approach to managing the living marine resources of the western Indian Ocean region.

The key outputs of the ASCLME project were a regional Transboundary Diagnostic Analysis (TDA) and Strategic Action Programme (SAP). In addition to the regional products the project also produced national level marine diagnostic assessment reports (MEDAs). The TDA was developed jointly by the ASCLME and SWIOF Projects and is the regional synthesis report on the current status of the Agulhas and Somali Current Large Marine Ecosystems. It presents an analysis of the ecosystem status and the threats to the long term sustainability of coastal and marine processes and resources in the region. The relative importance of the immediate and root sources and causes of the problems are assessed with a view to identifying potential preventive and remedial actions.

The TDA established that over 160 million people reside in the ASCLME countries and approximately 55 million of them live on the coast. Although variable from place to place, there is a high reliance by these people on coastal and marine resources for food security and livelihoods in general. Because of their high dependence and limited resilience or adaptive capacity, environmental variability and extreme events have a disproportionately severe effect on the communities. Further, coastal cities and settlements are growing and developing at a rapid rate. Tourism, fisheries, coastal agriculture, mining, mariculture, and ports and coastal transport provide the main coastal livelihoods in the WIO region. The relative contribution of each of these sectors and their specific characteristics vary from country to country but there are important similarities and common themes across the region. Notwithstanding constraints, there are a number of opportunities for sustainable development of the coastal areas in the western Indian Ocean. Regional initiatives are required to bring together and assist the various stakeholders to discuss how best to develop these opportunities. As such, the TDA provided the technical basis for development of a SAP for the region.

Through a thorough process of validation and prioritization at national and regional levels, the TDA identified no less than 21 top priority transboundary issues for inclusion in the Strategic Action Programme (SAP). The issues were categorized into four Main Areas of Concern (MACs):

- MAC01: Water quality degradation,
- MAC02: Habitat and community modification,
- MAC03: Declines in living marine resources, and
- MAC04: Unpredictable Environmental Variability and Extreme Events.



The proposed project tackles issues mainly related to MAC02 and MAC04. The Strategic Action Programme (SAP) elaborated on the MACs in the wider ASCLME of which the SWIO is a sub-region and the Mozambique channel is a subset of the later.

With respect to Habitat and Community Modification (MAC02) the SAP broadly, identified shoreline change, due to modification, land reclamation and coastal erosion caused by disturbance, damage and loss of upland / watershed habitats (>10 m elevation), disturbance, damage and loss of coastal vegetation and flood plain habitats (to 10 m elevation), disturbance, damage and loss of mangrove habitats, disturbance, damage and loss of coral reef habitats, and disturbance, damage and loss of seagrass habitats.

To address these challenges the SAP calls for, among other ecosystem quality objectives; effective mitigation and management of shoreline change, mangrove habitats sustainably managed and their health and ecosystem services protected, status and ecosystem services of coastal habitats protected and effectively managed and corals reef health and ecosystem services protected and sustainably managed.

With respect to environmental variability and extreme events (MAC04) the SAP prioritised climate hazards and extreme weather events, sea level change, ocean acidification, changes in seawater temperatures, changes to hydrodynamics and ocean circulation and changes in productivity (shifts in primary and secondary production) among others.

In order to address the challenges highlighted in the SAP and to fill gaps in knowledge, data capture and scientific/management skills, the project recommended that cooperative programmes of activity be developed and adopted as part of an overall Large Marine Ecosystem management and governance approach. The pillars of such a program include (i) An Ecosystem Monitoring Programme; (ii) A Capacity Building and Training Programme, and (iii) Science-Based Governance Programme. The proposed GEF project builds on these recommendations.

**The South West Indian Ocean Fisheries Governance and Shared Growth Program (SWIOFish)** has been implemented by the World Bank since 2015. The initiative is the brainchild of the SWIOFC,

The SWIOFish program focuses on priority fisheries, the longstanding problem of blast fishing and the relatively low private sector investment in marine fisheries to-date. The program countries are Comoros, Madagascar, Mauritius, Mozambique, Tanzania and Seychelles. The program has been implemented in phases with the broad goal to reduce resource degradation and strengthen fisheries management to boost the regional economy and enhance local livelihoods. The proposed GEF project, without being a direct sequel to the SWIOFish program, seeks to complement and consolidate the achievements of the SWIOFish program. Notably, the proposed GEF project aims to place the SWIOFish initiatives directly under the auspices of SADC to ensure that regional fisheries frameworks are mainstreamed in sub-regional initiatives.

**SWIOFish 1** was launched in 2015 in the Comoros, Mozambique and Tanzania. The project had three main components:

1. Enhancing regional collaboration by integrating management and sustainable development of fisheries in the region,
2. Increasing economic benefits from priority fisheries by supporting the diversification of fishers' livelihoods to reduce poverty and pressure on the region's fisheries, and;
3. Improving governance of priority fisheries by strengthening the sustainable management of fisheries and regional marine environmental health through public policies interventions.

The second component was also designed to improve the regional business climate, by supporting critical public investments and promoting an enabling environment for a sustainable private sector to develop and thrive.

**SWIOFish 2 Project** complements the first project but and aims to ensure that countries in the South West Indian Ocean region, and Madagascar in particular, take advantage of the economic, social and environmental benefits provided by a sustainable fisheries resources management. In Madagascar, the project focuses on five target areas identified as strategic for fishing and for the sector's growth. Three of these areas are considered Ultra Priority: from Ambaro Bay to Ampasindava Bay in the Diana region, Antongil Bay in the Analanjiroro region, and the Melaky region. In 2017, Madagascar obtained support worth \$74.15 million from the World Bank, the Global Environment Facility and the Japan Policy and Human Resources Development Fund. This funding supports interventions that improve the exploitation of selected fisheries resources at the national and community levels and allow fishermen in identified ultra-priority areas to have access to alternative livelihoods. The integrated regional approach of SWIOFISH brings in coastal communities on the Indian Ocean as co-managers of their own resources.

SWIOFish 2 Project activities include supporting village associations ensure a responsible management of resources and the survival of the species. This is done by reinforcing fishermen's awareness on authorized fishing areas, seasons and gear that respect marine habitats. Other activities aim to resolve governance and productivity concerns in the fishing sector in order to remove obstacles that hinder private investment and harm the viability of fishing enterprises. These interventions allow to restore the wealth drawn from a largely offshore fisheries sector, create value chain through regional collaboration, and make national economies benefit from the sector.

**SWIOFish3 Project** is a 6-year fisheries project of the Government of Seychelles supported by the World Bank, GEF and the World's first sovereign Blue Bond. A \$30 million Blue Economy Investment with a project development objective to improve management of marine areas and fisheries in targeted zones and strengthen fisheries value chains in Seychelles. The project has four main components:

1. Expansion of sustainable use marine protected areas
2. Improved governance of priority fisheries, and
3. Sustainable development of the Blue Economy

## **Western Indian Ocean LMEs – Strategic Action Program Policy Harmonization and Institutional Reforms (SAPPHIRE) Project**

The project countries are Kenya, Madagascar, Mauritius, Mozambique, Comoros, Seychelles, Somalia, South Africa, Tanzania with Mauritius being in the lead. The project commenced in October 2017 and is projected to end in April 2023. The overall objective of the project is “To achieve effective long-term ecosystem management in the western Indian Ocean LMEs in line with the Strategic Action program as endorsed by the participating countries”. The project builds on the previous work completed under the UNDP supported GEF financed Agulhas and Somali Current Large Marine Ecosystems (ASCLME) Project in close collaboration with a number of partners. The SAPPHIRE Project aims to support and assist the appropriate and formally mandated government institutions and intergovernmental bodies in the region to implement the activities which they require in order to deliver the SAP and to ensure sustainability of efforts and actions toward long-term management of activities within the LMEs as well as the sustainability of associated institutional arrangements and partnerships. The project's activities have several cross-cutting themes, which will seek to meaningfully address progress towards meeting UNDP goals and targets with respect to sustainable development, poverty alleviation, early warning of disaster and climate change, SDGs, gender mainstreaming and youth. Throughout the implementation, the project will coordinate closely with the UNDEP GEF WIOLaB SAP project with the intention of harmonizing activities and ultimately combining institutional and administrative process for a single implementation strategy for the two WIO Saps. The overall Objectives of this Project is ‘To achieve effective long-term ecosystem management in the Western Indian Ocean LMEs in line with the Strategic Action Program as endorsed by the participating countries’.

The project has 5 Components: Component 1 represents the overarching suite of activities and deliverables in support of management and policy reforms for SAP Implementation and, as such, receives most of the funding, both from GEF and in terms of co-financing (approximately 50% in both cases). The other Components represent specific priority management and governance issues within the LMEs that need to be addressed urgently in order to deliver effective SAP Implementation through Component One. Component 2 focuses on the need for more effective community engagement in the overall management process, with an emphasis on demonstrating such engagement and involvement at the localized level, and particularly in relation to small-scale, artisanal fisheries and associated small-area management approaches. Component 3 aims to develop effective mechanisms for interaction between the maritime industrial sector and governance bodies in the development of joint management approaches within the LMEs. Component 4 will demonstrate best lessons and practices in strengthening partnerships for management of areas beyond national jurisdiction that nevertheless still fall within the LMEs and therefore have transboundary influence and implications. It will also demonstrate the integrated use of Marine Spatial Planning and the Blue Economy framework into the development of Ocean Governance and Policy, in close partnership and collaboration with the UNEP WIOLaB SAP implementation project which is also addressing marine spatial planning with an emphasis on coastal and nearshore planning.

The SAPPHIRE project will aim to up-scale the approaches used and the lessons and best practices developed through this partnership to deliver a more LME-wide planning approach. One very important demonstration of best lessons and practices under Component 4 will be through Deliverable 4.2.1 - Demonstrating Innovative Ocean Governance Mechanisms and Delivering Best Practices and Lessons for Extended Continental Shelf Management within the Western Indian Ocean Large Marine Ecosystems. This will be managed as a ‘stand-alone’ sub-project by UNDP in view of its specific, formally-agreed management arrangements through a joint Treaty between the two countries involved. Component 5 addresses the on-going needs for capacity development and the coordination of training and capacity strengthening within the region in relation to effective SAP management and implementation.

**The Adaptation in the coastal zones of Mozambique project** has been designed to address the most urgent and immediate adaptation priorities identified in the NAPA, which analyzed the multiple climate risks and vulnerabilities of Mozambique (MICOA 2003; MICOA 2007). The NAPA indicates four specific objectives that contribute to the above goal and are as follows: (1) Identify, characterize and map the eroded land and coastal vegetation; (2) Identify rehabilitation techniques for dunes and mangroves to mitigate the effects of erosion; (3) Identify participative actions for erosion mitigation; and (4) Develop strategic actions to sensitize and disseminate good practices in coastal communities.

The project aims to address the vulnerability of communities as a critical aspect in helping to relieve pressure on ecosystem resources. Livelihoods diversification is a key aspect of this project. The project will pilot 3 sites. Each has a specific set of problems and circumstances that render one of the three strategies (managed retreat, accommodation and protection) more or less suitable. The project will tackle barriers in relation to weak inter-sectoral policy coordination and development, low institutional and individual capacity to plan for climate change as well as financial constraints.

The project has two Outcomes relating to the development of adaptive capacity to manage the effects of climate change on coastal resources. The project has four indicators and targets that measure adaptive capacity, in line with the GEF V Results Framework. The project will support the development of human, social, natural, physical and financial capitals to enable communities and government to continue the results delivered with this project grant.

#### *Other relevant projects*

**The Support to the Fisheries Sector of Mozambique 2013-2017 Program** was a continuation of the cooperation in the fisheries sector between Mozambique and Norway that began in the 1970s and later joined by Iceland 1995. The program defined a number of sector assistance programs in phases. The 2013-2017 phase had the objective that “Fisheries authorities strengthened in their abilities; to promote the development and management of small-scale fishing and aquaculture activities that have high potential to improve food security and nutrition in fish to the local population, and to ensure sustainable and viable use of aquatic resources.” A review of the program concluded that “the insufficient availability of statistical information limits the ability of economic analysis, planning and monitoring.” and called for higher priority on this activity. Therefore, the lessons from this program, and the involvement of key players in the program over the years, in the proposed GEF project will provide valuable institutional memory.

#### *Conclusions and lessons learnt.*

The key conclusions coming from these initiatives are that:

- Collaboration mechanisms are the most appropriate for transboundary (fisheries) governance (ASCLME supported TDA).
- Capacity strengthening of regional and national bodies coordinating regional initiatives is critical (SAPHIRE and Bank)
- Diversification of fishers’ livelihoods can reduce poverty and pressure on the region’s fisheries (SWIOFish)

- Water quality degradation, Habitat and community modification, declines in living marine resources, and Unpredictable Environmental Variability and Extreme Events remain areas of concern (ASCLME supported TDA).

However, the ASCLME supported TDA especially noted that to be sustainable initiatives need to be fully embedded in the formal regional policy and institutional frameworks such as those for SADC or the EAC further north. The proposed project, therefore, seeks to implement the TDA recommendation in a sub-region of SADC.

### Incremental cost reasoning

Without GEF's intervention, the observed trend of increasing degradation of marine ecosystems in the Mozambique Channel will continue within a framework of community governance that is still embryonic and incomplete. The Channel resources are currently seen more as an economic asset to be exploited, rather than as a pressured ecosystem that needs to be protected.

Without sustained GEF interventions, the resources of the Mozambique Channel are not likely to be considered as a regional common good that riparian countries must co-manage in a sustainable manner despite the clear guidelines from the SADC Protocol on Fisheries. The MCSCC in Maputo will continue to struggle to demonstrate its importance to in protecting the regional fishery resources especially from IUU fishing.

With the intervention of the GEF, the Mozambique Channel, and the many MPAs in it, will be managed as a global common good and particular attention will be paid to the management of the marine resources to serve as a ground for improving the ecosystem services of the larger WIO for the benefit of coastal communities and the wider SADC citizenry. The GEF will demonstrate the importance of regional cooperation and local community participation even at the sub-regional scale. The GEF will promote a community-based monitoring and management approach of the marine resources, with the active participation of grassroots communities, especially those whose livelihoods are tied to the exploitation of fisheries resources.

Project Outcomes	Baseline and Gaps	GEF Alternative Scenario	Additional cost (US\$)
Component 1: Scale-up of climate services and early warning systems for effective fisheries sector management.	The regional climate monitoring systems do not focus on climate risks as they apply to fisheries specifically. This gap in information suggests that decisions on fisheries might be missing critical climate indicators for effective fisheries management.	The proposed project aims to address institutional, policy and legal issues that climate change monitoring as it relates to marine fisheries health. Systematically monitoring these indicators will result in more robust planning and better resilience.	1,250,000
Component 2: Improved fish protection in selected critically degraded fisheries	The Bank baseline focuses on fisheries value chains and trade corridor management in relation to fisheries. The environmental and/or	Developing sub-regional marine fisheries governance and management system provides an holistic and comprehensive indicator of fisheries health. The	1,875,000

Project Outcomes	Baseline and Gaps	GEF Alternative Scenario	Additional cost (US\$)
hotspots in marine protected areas.	biodiversity requirements are not fully considered which means sustainability considerations are missing.	approach also means the lessons can be shared with the wider SADC and a fully region wide program will eventually be established.	
Component 3: Policy harmonization in the sub-regional fisheries sector.	This issue is not specifically addressed in the baseline project. What is emphasized is the importance of standardization of fish trade practices.	The project focuses on measures for the protection rather than the harvesting of marine fisheries. It aims to ensure that marine fisheries are sustainably managed and governed, starting with the involvement of the communities at the local level all the way to the national and regional policy making levels.	1,250,000
Component 4: Regional fisheries sector KM & Information Sharing.	The lessons from similar regional initiatives have not been mainstream in regional projects nor has SADC member countries been accorded the opportunity to learn from such initiatives and from each other.	The project presents a first attempt at peer learning in marine fisheries management. It also provides an opportunity for lesson learning through visits and contact with similar initiatives in the entire SADC region. An opportunity to create showcase best practices and influence the fisheries curriculum in the region is also proposed.	625,000

## B. PROJECT DESCRIPTION

### Project description

This section asks for a theory of change as part of a joined-up description of the project as a whole. The project description is expected to cover the key elements of good project design in an integrated way. It is also expected to meet the GEF's policy requirements on gender, stakeholders, private sector, and knowledge management and learning (see section D). This section should be a narrative that reads like a joined-up story and not independent elements that answer the guiding questions contained in the PIF guidance document. (Approximately 3-5 pages) see guidance here

Sustaining both marine wild capture fisheries and inland aquatic food systems for food, jobs and trade requires multi-level institutional arrangements coordinated across community-based management systems, national fisheries legislatures and regional governance frameworks. Whilst some of the fishery resources are

sedentary and harvested locally (e.g. shellfish) to meet dietary food intake and value addition for trade, others such as tuna and hake are highly migratory and governed through regional fisheries management organizations and the private sector towards global value chains. These benefits entail coordination and institutional capacity to share information and develop common policy measures and strategies in the SADC region.

## **Introduction**

The marine fisheries governance and management in the region is currently hamstrung by weak policy coherency at the regional, national and local levels whilst over dependency on the physical environment for livelihoods and economic development is exacerbating environmental degradation especially in the coastal zones with dire consequences for the marine fishery resources of the region. Climate Change (CC) is increasingly making the situation worse. The existing governance and management frameworks, for example, the SADC Fisheries Protocol currently fall short of the holistic approach needed to address these interconnected challenges whilst the traditional livelihood systems worsen rather than abate the ensuing environmental degradation. The current fish harvesting, and trade systems do not help the situation as they are undercapitalized, lack common standards and tend to be specific to the different sovereign policy and legislative frameworks. It is thus apparent that restitution is needed if the situation is not to spiral out of hand. Whilst all key stakeholders need to play a part in finding and implementing the solution it is imperative that new and innovative approaches need to be developed.

This project proposition therefore seeks to help address the issues in the marine fisheries in a two-pronged approach presented herein as two sub-projects, one sponsored by the AfDB and the other presented for GEF financing. The first approach seeks to address the “fish demand side” situation in the region by improving the governance and management of fish value chains in the region to ensure that common standards are adopted for regional fish processing and trading. This approach is reflected in the Bank financed baseline project which is SADC wide.

The second approach seeks to improve the “fish supply side” by addressing fish habitat degradation and climate related shocks leading to the decline in fisheries with special focus on sustaining the marine fishery resources in the Mozambique Channel targeting three countries, The Comoros, Madagascar, and Mozambique. The proposed activities will map critical degradation in fish hotspots along the coastal zones and proceed to develop a monitoring database, prepare plans for restitution and pilot agreed solutions in selected areas. This sub-project, to be financed by the GEF, will also seek to improve regional fisheries policy harmonization by promoting multi-stakeholder dialogues on fisheries that bring together policy makers and practitioners from all over the SADC region as well as promote exchange visits and information sharing.

Anticipated outcomes are an improved framework and institutional capacity for regional marine fisheries governance and management as well as a reversal in the environmental degradation trends in the coastal zone in the Mozambique channel. These outcomes will result in restored marine fisheries habitats for coastal zone systems. Besides these ecological benefits the project will also contribute to socio-economic development by supporting alternative and diversified livelihoods with special focus on women, the youth and otherwise traditionally marginalized communities in the regional management discourse. The attention to climate change adaptation, NbS, will invariably reduce human vulnerability to environmental and climate shocks. In this sense the project will contribute to the attainment of Sustainable development goals, especially SDG 14 and SDG12 which state:

*Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development.*

*Goal 12: Take urgent action to combat climate change and its impacts.*<sup>[11]</sup>

The proposed interventions are in alignment with the AfDB Bank's Ten Year Strategy and the High 5s, Private Sector Development Strategy, the Southern Africa Regional Integration Strategy Paper (2020-2025) towards trade corridors and coastal infrastructure needs, support to economic and social pillars for inclusive development and building resilience in various Country Strategy Papers; the 2001 SADC Protocol on Fisheries; the 2008 SADC Statement of Commitment to combat IUU Fishing; the SADC Regional Aquaculture Strategy and Action Plan (2016-2026); the SADC Industrialization Strategy and Roadmap to 2063; the 2014 SADC Regional Agricultural Policy; the 2019 IOC Blue Economy Plan; the Praia Declaration on SIDS; and the 2019 African Union Blue Economy Strategy.

### **The Bank Co-financing baseline**

The AfDB baseline project for the proposed GEF project is entitled “***Program for Improving Fisheries Governance and Blue Economy Trade Corridors in SADC***”. This baseline project seeks to address the various drivers of fragility in the fisheries sector in the SADC region by adopting a more holistic approach toward improving inclusive governance frameworks, capacity building platforms, decision-support tools, and enhancing stakeholder participation in the regional fish trade. The project therefore has a broader scope going beyond safeguarding marine fishery resources into wider Blue Economy, trade facilitation and regional integration issues. The Bank project will integrate risks and vulnerability and mitigation measures that would support a regional and durable solutions to strengthen the harmonization of SADC fisheries policy instruments and the benefits of the blue economy sectors to nutrition, livelihoods and cross-border trade. Through blue economy intervention activities, the Bank project aims to increase fisheries production and productivity through ecosystem-based management, value chain and infrastructure support and knowledge transfer to SMEs and large-scale exporters. Specific objectives include:

1. Promote fish value chains and aquaculture development to enhance productivity and nutrition security, market competitiveness for local consumption, and foreign export earnings.
2. Strengthen capacity building and institutional partnerships for regional approach towards IUU fishing, investment and innovation platforms, digital technologies, eco-tourism, and transboundary fisheries resource management.
3. Incentivize private sector contribution and sustainable financing to including blue bonds and blue carbon stocks, lines of credit and guarantees, public-private partnerships (PPPs), climate services, and de-risking programs.

The Bank project components and activities are summarized in the table below.

*Component 1: Increase national fish production, safety, hygiene, packaging and retail:*

- Providing Covid19 response interventions to hygiene, personnel protective equipment (PPEs), sanitation awareness, quality control and safety, and labeling of fish products based on the SADC harmonized standards through the National Bureau of Standards.



- Modernizing sustainable small-scale fishing and aquaculture inputs towards viable SMEs
- Refurbishing of landing sites for flooding related risks and post-harvest utilization (cold chain networks, smoking and market infrastructures technologies, etc.);
- Training on processing and product differentiation techniques (whole, gutted, filet, smoked, frozen, fresh, canned, etc.) with local preference and regional market needs targeting e-commerce and retail markets;
- Support to research and development for fish value added products with the Bureau of Standards, national food research institutes, for traceability, standardization, etc.
- Developing and strengthening integrated management of shoreline and coastal areas, fish habitats, and integrate protected areas into watershed management plans.

*Component 2: Improving value chain related businesses and intra-regional trade.*

- Harmonizing and coordinating regional and national regulatory frameworks for ‘Port State Measures’ to address biodiversity and resource sustainability, IUU fishing, eco-certification, and a common vessel registry;
- Catalyzing sustainable business models with private sector and convening regional fisheries and seafood marketing expo to seek FDI and potential PPPs.
- Developing a fisheries production and marketing information systems and digital technologies for fish value chain trade, harmonized boarder inspectorates, custom services, bar coding and e-commerce activities.
- Support to research and development for regional marine fisheries stock assessment and data gathering towards harvest strategies such as total allowable catch and maximum sustainable yield.
- Training and capacity buildings on building climate resilience in transboundary fish stock management and fish health in inland lakes.
- Support to national research stations towards brood stock development and feed formulation for sustainable aquaculture, and related knowledge related activities, social innovation platforms, and investment incubation hubs.

*Component 3: regional coordination, monitoring and evaluation.*

- Project management and implementation.
- Finance and administration.
- Human resources and capacity enhancement.
- Monitoring and evaluation and communication.

The Theory of Change for the Bank baseline project is summarized below.

<b>THEORY OF CHANGE – Blue Economy and Fisheries</b>	
<b><i>Impact</i></b>	<b>Contribute to building resilience through maritime infrastructure connectivity, to the contribution of the fisheries and aquaculture sector to local and national economies, and to food security through the promotion of value chains, aquatic resource governance and environmental enhancement.</b>

<b>Intermediate effects</b>	<ul style="list-style-type: none"> <li>• Increased income for players in the fish value chain</li> <li>• Fish production and productivity have increased</li> <li>• increase trade routes and market access</li> <li>• support o integrated livelihoods in eco-tourism, agribusiness and shoreline spatial planning</li> </ul>	<p>Assumptions :</p> <ul style="list-style-type: none"> <li>- Political commitment exists to ensure project governance and sustainability</li> <li>- Financing from banks and MFIs can be mobilized to implement activities.</li> </ul>
<b>Immediate effects</b>	<ul style="list-style-type: none"> <li>• Increased fish production capacity</li> <li>• Aquaculture inputs (juveniles, feed) available</li> <li>• Production and maritime port connectivity infrastructure in place</li> <li>• high skills and empowered labor force</li> <li>• markets and increased household incomes</li> </ul>	<ul style="list-style-type: none"> <li>- Political commitment exists to ensure project governance and sustainability</li> <li>- Financing from banks and MFIs is secured in initial stages</li> </ul>



<b>Outcomes</b>	<ul style="list-style-type: none"> <li>- Strengthened institutions put in place to address vulnerability and resilience across multiple governance scales</li> <li>- Aquatic food production capacities (ponds, cages) set up</li> <li>- Input (feed and fingerlings) and output infrastructure (cold room storage and markets)</li> <li>- Infrastructure for ports and landing site as well as post-production, processing and distribution of fish products in place.</li> <li>- Fishermen/fish farmers/operators trained and financed</li> <li>- Cooperatives and infrastructure management committees set up for sustainability</li> <li>- Aquaculture and agri-business set up for young people and women SMEs</li> <li>- Fisheries and catchment basin management plans incorporating climate risk management</li> <li>- Introduction of quality standards and eco-certification for competitive markets</li> </ul>	<p><b>Assumptions</b></p> <ul style="list-style-type: none"> <li>- Beneficiary populations adhere to the project's main implementation approaches (partnership, value chain integration, etc.).</li> <li>- Access to land for ponds is facilitated by the concerted efforts of local and administrative players.</li> <li>- Climate change mitigation measures are effective</li> </ul>
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	<p>- Improving access to credit and finance</p> <ul style="list-style-type: none"> <li>• regional and cross-border corridors enhance with commodity trade and food security.</li> <li>• integrated livelihood and incubation support for SMEs in agri-business, eco-tourism, fisheries, and conservation financing and Payment for Ecosystem Services</li> </ul>	
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The Bank project is thus supporting the regional approach to fish value chains and the growth of the regional Blue Economy. What is missing, and thus requires extra support, are regional frameworks to protect and sustain the fish resources that underpin the Blue Economy growth given regionwide threats. The value of the project is set at USD10.2 million.

### GEF project proposition

The proposed GEF project is designed to complement the Bank baseline project by targeting marine fisheries protection, rebuilding, and ecosystem restoration to maximize sustainable yield, promote climate resilience and ecosystem services in marine ecosystems in the Mozambique Channel. Noting that the greatest threat to fisheries in the region is in marine ecosystems the project is targeting marine fisheries management in the Mozambican Channel as a pilot case to derive lessons, with a thrust towards regional collaboration at the sub-regional level, that can be scaled up to the entire region and beyond. The overall goal is to build climate resilience and institutional adaptability to shocks in the fisheries sector to sustainably derive optimal benefit from the region’s fisheries and therefore safeguard the regional blue economy into the future.

Specifically, the objective of the project is:

“To improve sustainable marine fisheries in the Mozambique Channel by strengthening collaborative governance, resource management, and resilience to climate shocks”.

Project activities will be concentrated in the three SADC sub-regional countries in the Channel namely, The Comoros, Madagascar, and Mozambique though the project will cover the regional (SADC level), marine commissions, national and the local communities in selected marine fisheries hot spots. Civil Society Organizations (CSOs) and Community Based Organizations (CBOs) are expected to play a prominent role in project implementation. The direct global environmental benefits will include:

- Protecting and rebuilding fisheries and restoring ecosystem to maximize sustainable yield, promote climate resilience and ecosystem services in selected marine fisheries hot spots,
- Strengthening SADC wide Fisheries Joint Planning Frameworks especially national and sub-regional policy setting/implementation as well as inform sustainable management of marine capture fisheries.

- Promoting the implementation of nature-based solutions in coastal zones for the protection and improved management of marine fisheries.

### *Target project sites*

The project will be implemented in selected and agreed marine hotspots along the Mozambique Channel coastal zone covering both currently existing marine protected areas (MPAs) and non MPAs areas. No new MPAs will be created. Existing Transfrontier MPAs and similar transboundary areas will get special attention to increase the likelihood of all project activities being joint and therefore foster direct regional cooperation and integration. The selection of MPAs and non MPAs will also allow for comparisons of project impacts in in different marine area conservation systems in the long term. Currently, MPAs in the Mozambique Channel cover approximately 16,125 square kilometres. The table below presents the main MPAs found in the Mozambique Channel from which some of the potential project sites will be selected. The exact locations and sites will be identified and agreed with the country stakeholders during the PPG stage of the project. The selection criteria will also be agreed with the stakeholders and the critical sites for each country determined on that basis. It is anticipated, given budgetary constraints, roughly between 80 and 100 square kilometres, of the coastal zone will be targeted and distributed across the four participating countries using agreed criteria.

COUNTRY	MARINE PROTECTED AREA	DATE ESTABLISHED	IUCN CATEGORY	APPROX. SIZE (sq. km)
Madagascar	Nosy Atafana Parc Marine	1989/1990	II	1,400
	Masoala Parc National	1997	II	100
	Nosy Tanikely (no fishing zone)	1968/1995	n/a	0.10
	Nosy Ve (community based marine management area)	1999, 2001, 2003	n/a	322
Mozambique	Bazaruto Archipelago National Park	1971/2001	II	1,430
	Ilhas da Inhaca e dos Portugueses Faunal reserve	1965	VI	20
	Primeiras and Segundas coastal marine reserve	2012	n/a	1,041
	Quiribas National Park	2002	n/a	7,500
Comoros	Moheli Marine Park	2001	n/a	404

### **The GEF project Theory of Change**

The SADC region in general, and the Mozambican Channel coastal zone in particular, has been grappling with challenges to sustainably manage its marine fishery resources which are under threat from overexploitation, diminishing habitats and ever-increasing climate shocks. Efforts to resolve these issues have been hamstrung by a weak policy and regulatory framework which encourages countries to operate in silos with no collective regional actions being considered to resolve common challenges in the sector. Institutional weaknesses also exist in that national level policies are crafted by top ranking officials with little or no participation of the local governments and communities that not only bear the brunt of ill-conceived policies but are expected to implement them on the ground.

Naturally, their buy-in tends to be low and the efficacy of the adopted national policies is blunted. On top of this, countries in the region have demonstrated a propensity to withhold critical information from each other such that most either risk repeating the same mistakes that their peers would have made or simply implement poorly designed and ill-thought-out solutions that are not supported by any evidence even though such might be resident in the region but not necessarily in their own specific countries. To help resolve this regional problem, the GEF is proposing a project in four countries that demonstrates the benefits of cooperative management in transboundary marine fisheries management and governance if joint activities are carried out at regional, national, and local levels and knowledge sharing platforms are facilitated to allow cross fertilization of ideas and demonstration of alternative approaches to common problems. In principle the project seeks to improve sustainable marine fisheries in the Mozambique Channel by strengthening collaborative governance, resource management and resilience to climate shocks so that, in the long run, marine fisheries stocks are sustained, the coastal aquatic health restored, and community livelihoods improved.

The project will organize collaborative platforms, targeting policy makers and sector practitioners, to deliberate on fisheries management and governance policy issues in the project countries so that harmonized frameworks are developed and agreed on. Simultaneously, local governments, the private sector and communities will be assisted with the restoration of critically degraded fish habitats and capacitated in climate smart, nature-based approaches to sustainable marine fisheries management. Evidence based decision making at all levels will be improved by ensuring that relevant climate and fisheries data is collected, analyzed, projections made, and the results used to reform or recommend policies that lead to more climate resilient fisheries.

Project inputs will comprise predominantly of material and non-material support in the form of human resources capacity, financial grants, operational spaces, legal access facilitation and other in-kind support from national governments, the regional grouping SADC, local governments and communities as well as international and technical partners, CSOs and the private sector. The figure below summarizes the Theory of Change (ToC) for the proposed GEF project. While the ToC presents a regionwide perspective on the project it is anticipated that the specific context for each participating country will be elaborated during the preparation phase after more in-depth stakeholder consultations.

PROJECT GOAL	To improve sustainable marine fisheries in the Mozambique Channel by strengthening collaborative governance, resource management, and resilience to climate shocks.					
Baseline issues	Barriers	Inputs	Key Activities	Outputs	Outcomes	Impact Achieved
<p><b>Weak regional collaboration</b> due to fragmented and uncoordinated fisheries governance &amp; management systems.</p> <p><b>Poor coastal zone management systems</b> result in proliferation of destructive fishing systems, over-fishing and destruction of fishing habitats and spawning grounds.</p> <p><b>Climate change shocks</b> are accelerating the loss of marine habitats and decline in marine fishery resources.</p> <p><b>Inadequate sector knowledge sharing</b> prevents practitioners and policy makers from learning from each other and build required capacity.</p>	<p><b>Policy incoherency:</b> The existing policy framework (SAP &amp; protocol) provides little specific guidance on joint planning, regulating and managing common marine fishery resources at sub-regional and local levels.</p> <p><b>Weak fisheries habitat management systems at the local level:</b> Lack of structures, incentives, (and knowledge) of the value of natural capital in fisheries management.</p> <p><b>Poor CC knowledge and response capacity:</b> absence of fisheries related CC indicators result in weak resilience to CC shocks in marine fisheries.</p> <p><b>Information gaps and weak KM:</b> Technical knowhow and expertise is not systematically shared by regional fisheries practitioners, policy makers and the wider community</p>	<p><b>SADC/RMO/GOVERNMENTS:</b></p> <ul style="list-style-type: none"> <li>• Technical support and staff time.</li> <li>• Support for technical assistance programme to government institutions and local communities.</li> <li>• Interest to regional policy promotion and implementation.</li> <li>• Project steering &amp; management.</li> </ul> <p><b>LOCAL GOVERNMENTS &amp; COASTAL COMMUNITIES:</b></p> <ul style="list-style-type: none"> <li>• Local level planning and actions.</li> <li>• Local and indigenous knowledge</li> <li>• Time and effort</li> <li>• Adoption of integrated livelihood approaches.</li> </ul> <p><b>INTERNATIONAL AND NATIONAL TECHNICAL PARTNERS</b></p> <ul style="list-style-type: none"> <li>• Human and technical resources from previous experience</li> <li>• Transfer of technical know-how Coastal Zone management, CC adaptation, DRR and integrated livelihoods approaches.</li> <li>• Grants for technical assistance programme to government and Private sector.</li> <li>• Technical assistance /staff time</li> <li>• Project management</li> </ul>	<ul style="list-style-type: none"> <li>Organise political level fisheries sector dialogues</li> <li>Support implementation of on-going multi-species management plans</li> <li>Establish joint fisheries MIS.</li> <li>Promote Integrated fisheries livelihoods .</li> <li>Mangrove and coral regeneration plans implemented.</li> <li>Pilot network of climate buffers and payment for ecosystem services.</li> <li>Establish community-based fisheries surveillance hubs.</li> <li>Establish CC related fisheries monitoring and EWS.</li> <li>Preparation of fisheries CC response guidelines.</li> <li>Awareness raising programs on CC related fisheries disasters.</li> <li>Organise KM workshops</li> <li>Organise sector dialogues</li> <li>Organise exchange visits</li> <li>Disseminate fisheries Knowledge &amp; information.</li> </ul>	<ul style="list-style-type: none"> <li>Fisheries dialogue for legislators organised.</li> <li>On-going regional fisheries initiatives localised.</li> <li>Shared marine fisheries database established.</li> <li>Integrated fisheries livelihoods systems demonstrated.</li> <li>NBS piloted in marine fisheries management.</li> <li>PES piloted in fisheries management.</li> <li>Community level fisheries policing system established.</li> <li>CC related marine fisheries monitoring system established.</li> <li>Fisheries CC response guidelines drafted.</li> <li>Fisheries capacity building on CC threats.</li> <li>Knowledge exchange workshops conducted.</li> <li>Regional fisheries dialogues organized.</li> <li>Fisheries exchange visits are organized.</li> <li>Fisheries information is publicised.</li> </ul>	<ul style="list-style-type: none"> <li>Sub-regional fisheries sector policy is harmonised, and fish value chains are improved.</li> <li>Marine fisheries habitats and spawning grounds are protected and partially regenerated.</li> <li>Coastal zone fisheries CC disaster response capacity is improved.</li> <li>Shared knowledge and information influence behaviour change in marine fisheries policy frameworks.</li> </ul>	<ul style="list-style-type: none"> <li><b>Increased regional cooperation/collaboration in marine fisheries governance and management.</b></li> <li><b>Reduced environmental degradation in coastal zones.</b></li> <li><b>Increased resilience to climate induced shocks in marine fisheries.</b></li> <li><b>Improved fisheries management knowledge and practices.</b></li> </ul>
ASSUMPTIONS	1. Project countries are willing to collaborate and share information with minimal restrictions. 2. Fisheries agencies in the project countries remain fully capacitated and able to participate. 3. Local level stakeholders, especially communities, welcome and participate fully in the project.					

The ToC identifies four baseline issues that hinder the sustainable management of marine fisheries in the Mozambique Channel, namely weak regional collaboration, poor coastal zone management, weak resilience to climate shocks and inadequate sector knowledge sharing. The main barrier to improving regional collaboration is policy incoherency among the member states. To address this problem the GEF project proposes to set up regional collaborative platforms in fisheries management and governance, standardize fisheries manage systems and establish a joint fisheries management information system for the project countries. Key outputs will be strengthened policy frameworks and a shared marine fisheries database the outcome of which will be a harmonized marine fisheries policy framework in the project area from which the SADC region can eventually learn and upscale. The impact is expected to be increased regional collaboration in fisheries management and governance. Alternative livelihoods that reduce the dependency of fisher communities on fishing and promote integrated fisher livelihoods will be showcased at selected demonstration sites along the coastal zone.

The continuation of poor coastal zone management can be attributed to weak fisheries habitat management systems at the local level which the project plans to address by establishing climate buffers and piloting the payment for ecosystem systems (PES) to incentivize local communities to reverse coastal environmental degradation through restoration and rehabilitation of mangroves and coral reefs as well as setting up surveillance hubs to help police the coastline. The outcome will be that marine fisheries habitats and spawning grounds will be protected and partially regenerated in selected sites. Ultimately, coastal environmental degradation will be reduced.

The lack of relevant climate indicator data and poor knowledge of response approaches to climate change shocks on the fisheries is limiting the ability of governments to institute appropriate adaptation measures to improve climate reliance for both the fisheries and the fisher communities dependent on them. The project

seeks to establish a CC related fisheries monitoring and early warning system as well as raise awareness and trigger action against climate change related fisheries disasters. To this end key CC indicators with known impacts on marine fisheries will be monitored and appropriate solutions measures proposed along with the requisite training for key practitioners and stakeholders. The outcome is that coastal zone fisheries CC disaster response capacity will be improved and ultimately there will be increased resilience to climate shocks in marine fisheries along the coastal zones.

The issue of inadequate knowledge is perpetuated by inherent information gaps and generally weak fisheries knowledge management and information sharing systems in the region. The project proposes to convene knowledge sharing platforms to facilitate cross learning and shared access to fisheries related data. This way not only fisheries management knowledge but also livelihood skills will be propagated to a wider regional audience. With this approach fisheries management knowledge and practices will be improved in the project area and the wider region.

### **GEF Project components**

The proposed GEF project has four components on climate resilience, fisheries habitat protection and improvement measures, collaborative frameworks in fisheries governance and management as well as knowledge management and sharing. In all the project components gender and youth empowerment issues will be mainstreamed with the view to deliberately increase the effective participation of women and the youth in the implementation of activities as well as enhance their leadership roles in the various institutions established (both new and existing). A more detailed Gender Plan will be developed at the PPG stage.

#### **COMPONENT 1: Scale-up of climate services and early warning systems for effective fisheries sector management.**

This component seeks to address the climate risks associated with fisheries in the project area. The aim is to introduce fisheries related climate indicators into the regional climate monitoring framework and help project countries adopt “climate-smart approaches to fisheries management”. Such climate-smart approaches have multiple objectives, one of which is to reduce the vulnerability of the sector to the impacts of climate change and build the sector's resilience so that it can cope with the impacts climate variability and climate change. This component seeks to mainstream climate smart responses in marine fisheries management in several approaches including 1) supporting enabling frameworks, 2) expanding the evidence base, 3) and implementing adaptive practices in the field.

ISSUE TACKLED:	Climate change shocks are accelerating the loss of marine habitats and decline in marine fishery resources.
BARRIER ADDRESSED:	Poor CC knowledge and response capacity: absence of fisheries related CC indicators result in weak resilience to CC shocks in marine fisheries.
OUTCOME:	Increased resilience to climate induced shocks in marine fisheries.

The component will have three interlinked outputs, one on actual monitoring activities, another on the crafting of requisite guidelines and the last on capacity building and awareness raising.

#### **1.1.1 CC related marine fisheries monitoring system established.**

To expand the evidence base this output will seek to strengthen the regional climate observation and early warning system. The climate observation system will be upgraded to include fisheries related climate indicators. The SADC region already monitors climate change under the auspices of the SADC Climate Services Centre (CSC) with the principal goal to reduce negative impacts from climate extremes, such as droughts and floods. However, the CSC plays a minimal role in the fisheries sector. This output therefore also seeks to broaden the mandate of the CSC by introducing marine fisheries sector monitoring in the activities of the CSC. The proposition also aims to incorporate the participation of local communities in the monitoring process.

The key indicators to be monitored include sea warming, sea level rise, storm frequencies, coral bleaching, sediment loading and fish stocks. Long-term changes in temperature and other ocean variables often coincide with observed changes in fish distribution and fisheries stocks. For example, Simpson et al. (2011) analyzed 50 abundant species in the waters around the UK and Ireland and established that 70% of the fish species had responded to ocean warming by changing distribution and abundance. Specifically, warm-water species with smaller maximum body size had increased in abundance while cold water, large-bodied species had decreased in abundance. Building on these types of current research trends, the project will help in developing a fisheries specific climate monitoring regime in which different players will be trained and resourced to monitor appropriate indicators which will be consolidated into a single database by the CSC and analyzed. For example, sea warming, and level rise data could be collected by established national level agencies which will then share the data with the project. Similarly, fisheries research institutions will use their expertise and established systems to monitor fish stocks and then share the data with a central repository for comprehensive analysis. Especially important in the analysis is the correlation between fish stocks and distribution versus state indicators like sea level rise, ocean warming and acidification. Monitoring goals and hence the appropriate selection of tools and technologies for monitoring fisheries and climate data will have to be agreed by the participating institutions and organizations. This will be finalized at the PPG stage of the proposed project.

The project will assist fisheries practitioners in the project countries and the CSC to regularly collect the data and perform correlation analysis to establish the patterns of CC impacts on fisheries in the coastal zones of the Mozambique channel. Whilst a system for collecting primary data will be established under the project, extensive use of existing databases will be used in the analysis especially where long term time series data is needed to establish trends which will then inform policy drafting. For example, the project will encourage access to The World Ocean Database (WOD) which is world's largest collection of uniformly formatted, quality controlled, publicly available ocean profile data as well as the Fisheries and Resources Monitoring System (FIRMS) which provides access to a wide range of high-quality information on the global monitoring and management of fishery marine resources. The assumption here is that expanding the evidence base regarding the levels of exposure, vulnerabilities and risks will allow for the formulation of well-targeted adaptation strategies. Further research on the sector's potential to mitigate climate change by reducing emissions and/or improving carbon storage would also support climate-smart development.

### 1.1.2 Fisheries CC adaptation systems established.

To effectively deal with CC impacts on fisheries relevant and appropriate institutional and legal frameworks that clearly outline the procedures for community involvement and the legal status for co-managed areas need to be established. Currently such systems are either non-existent or still in their formative stages in the region. Without a clear and formal framework for incorporating climate data in the management of fisheries, it is



difficult to get buy-in from the various authorities and any momentum built regarding climate resilience can easily be lost and all stakeholders, particularly the communities, will revert to “business as usual” with dire consequences for the fisheries sector and biodiversity in general, not to mention livelihoods.

This output will therefore seek to improve CC resilience in fisheries by supporting enabling management frameworks, investigating innovative financing options for adaptation, and implementing agreed adaptive practices in the field. To achieve this, the sharing of CC information and coordination between regulatory management agencies, fisheries research institutions, local government, and communities will be paramount. Working closely with these key stakeholders, the project will identify the fish management zones worst affected by CC and therefore need strengthened management and proceed to propose appropriate institutional and legal frameworks as well as local level practices that help deal with the challenges posed by the CC shocks. In particular, the project will pilot the drafting of regulations, policies, and incentives for combating climate change in the marine fisheries sector. The main recommendations of the project will seek to grab the “positive opportunities in fisheries” brought about by CC. For example, rising sea levels could create more opportunities for aquaculture in salinized coastal margins and higher temperatures could improve conditions for cultivating local stocks. In such cases, policy recommendations will include promoting aquaculture or decommissioning existing fishing sites and relocating them to new spawning sites favoured by sea level rise or better sheltered from storm surges.

However, the effective adoption of such adaptation measures in the fisheries sector is currently hampered by a widespread lack of targeted analyses of the sector’s vulnerabilities to climate change and associated risks, as well as the opportunities and responses available. This output will therefore utilize the results of the above CC monitoring program. The monitoring data analyses will be supplemented by model projections, as well as national, regional and basin-scale expert assessments to help craft applicable guidelines. To this end, the project will encourage and support the use of advanced simulation and machine learning techniques for making projections. One such fisheries policy simulator is POSEIDON, an agent-based computer modeling approach developed by the Ocean Conservancy, which explores the interactions among fishermen, ocean ecosystems, markets, and management policies to help better understand trade-offs and identify appropriate management approaches. The adoption of such modelling approaches will encourage the participation of universities and other higher institutions of learning in the fisheries sector thus broadening stakeholder engagement in advancing sustainable fisheries management in the region.

Whilst at this stage it is not possible to define the kind of guidelines that will be developed, the project will endeavor to encourage the development and implementation of fishery-specific management plans that address the protection of “most at risk” marine fish species as well as the implementation of local co-management approaches that are grounded in community-based resource management principles. To this end, the recommendations from FAO’s Ecosystem approach to fisheries (Garcia et al., 2003) and Code of conduct for responsible fisheries (FAO, 1995) will be adopted and adapted in line with the analysis findings from the monitoring program in crafting the region-specific guidelines. Moreover, women and youth will be encouraged to participate fully in the analysis and subsequent drafting of guidelines.

### 1.1.3 Fisheries practitioners capacity building on CC threats.

Under this output key marine fisheries practitioners, stakeholders and community leaders will be selected and trained on regional monitoring, alerting and management of climate risk in marine fisheries. In addition, fisheries related Climate Change (CC) and Disaster Risk Reduction (DRR) awareness campaigns will be carried out at community level in selected climate risk fisheries hotspots.

The output attempts to deal with the issues of capacity building relating to climate change and coastal zone degradation as they affect marine fisheries in the project area. The output builds on the Western Indian Ocean Coastal Challenge (WIO-CC) concept which seeks to create a “platform to galvanize political, financial and technical commitments and actions at national and regional levels on climate change adaptation, promoting resilient ecosystems (marine and coastal resources), sustainable livelihoods, and human security”. The concept of the WIO-CC is to mobilize countries that share the ocean’s vast and resource rich waters and coasts to come together and commit to action towards island (and more recently WIO coastal states) conservation and sustainable livelihoods including responses to the threat posed by climate change, including ecosystem-based adaptation over the next twenty years. With a focus on coastal and marine zones, the WIO-CC builds on the long-standing efforts of regional organizations including the Indian Ocean Commission and Nairobi Convention by focusing on the following:

- Countries and territories at both the development and implementation level with a focus on local and national needs and priorities.
- Strengthening and aligning with existing conventions, strategies, action plans, networks, and partnerships as the basis for action.
- Broader coastal zone management approach to ensure sustainable coastal economies and communities and safeguard the resilience of the region’s marine and coastal ecosystems”.
- Evidence and science-based approaches to integrated coastal zone management.

The project will develop specific modules for training of key staff from the fisheries management agencies from the project countries with support from experienced ICPs and consultants in the fisheries sector. A trainee ratio of two females for every male trained will be recommended to ensure that women are empowered to play a more meaningful role in subsequent initiatives beyond the lifetime of the project. The training will serve as a pilot for regionwide training once adopted by SADC.

Under this output marine fisheries related Climate Change (CC) adaptation and Disaster Risk Reduction (DRR) awareness campaigns for community level early warning systems (EWS) will also be undertaken. Because considerable work has already been done by previous, or on-going projects in the sub-region, the work of the proposed project will focus on upscaling the findings and recommendations of previous work. A Community-based resources management approach will be adopted for all activities under this component. Community-Based Fisheries Management (CBFM) gives coastal communities and fisherman primary responsibility for managing their coastal resources. This form of management is more localized and, therefore, the management techniques can take many different forms depending on regional differences and the nuances of different fisheries. Once the requisite awareness is created the community-based planning will commence. Specially selected Civil Society Organizations (CSOs) will be engaged to facilitate this process. The relevant government agencies will be engaged throughout the process.

This co-management approach is expected to result in the establishment of climate resilient Fish Protected Areas (FPAs) along the shores of the project countries. The proposed project will facilitate the establishment of community-based Fisheries Management Committees, formulation of Fisheries Management Plans and, where feasible and funds permitting, procuring community appropriate fisheries management tools such as boats for patrol purposes. As with the training and general capacity building the composition of the management committees is to favour women and youth. Actual rations will be proposed at the PPG stage and will be presented in the planned Gender Action Plan.

**COMPONENT 2: Improved fish protection in selected critically degraded fisheries hotspots in marine protected areas.**

This component aims to support countries reverse degradation in critically degraded marine fisheries hotspots by promoting the use of nature-based solutions (NbS) in restoring fisheries habitats, piloting the payment for ecosystems (PES) as a way of safeguarding newly instituted fish saving interventions and also engaging the communities in monitoring destructive fishing practices.

ISSUE TACKLED:	Poor coastal zone management systems result in proliferation of destructive fishing systems, over-fishing and destruction of fishing habitats and spawning grounds.
BARRIER ADDRESSED:	Weak fisheries habitat management systems at the local level: Lack of structures, incentives, (and knowledge) of the value of natural capital in fisheries management.
OUTCOME:	Marine fisheries habitats and spawning grounds are protected and partially regenerated.

**2.1.1 NBS methods of fisheries management piloted in selected hotspots.**

Nature based solutions (NbS) are defined by the IUCN as “*actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits*”. By this definition NbS includes the restoration and rehabilitation of critical habitats.

This output aims to restore mangroves where they are critically degraded and therefore no longer providing marine fisheries with their critical habitats. Mangroves are specifically targeted because of the multiple co-benefits that they provide including breaking storm surge and sequestering carbon which are climate adaptation and mitigation benefits. Mangroves support large fisheries and protect the shoreline from erosion and sedimentation. They are therefore vital for local communities who rely heavily on fishing for livelihood and cut the mangroves for firewood, furniture and construction poles, etc. These cutting activities, when not managed sustainably, lead to deforestation of the mangroves and loss of the ecosystem services that the mangroves provide (coastal protection, fish spawning habitat and livelihood, sediment regulation, and storm/tsunami protection among others). Furthermore, scientific studies have shown that Mangroves ‘sequester carbon at a rate two to four times greater than mature tropical forests and contain the highest carbon density of all terrestrial ecosystems (Fatoyinbo et al, 2017). The key to mangroves is the large amounts of biomass stored underground in the extensive root system. These roots support the large trees in muddy coastal areas where mangroves thrive (Komiyama et al, 2008). Mangroves therefore offer a nature based sustainable solution to climate change hazards. As such, strategies incorporating this NbS would be helpful in

preserving coastal and marine ecosystem properties and, at the same time, promoting sustainable fisheries as well as promoting equity among the fishers and capacity-building in fishery-based occupations.

This output seeks to implement mangrove management and regeneration plans in selected fisheries hotspots.

The project will draft and implement Nature based solutions for mangrove and coral reef management and regeneration plans in selected hot spots to restore cover, help break storm surges and improve spawning grounds. The project aims to provide mangrove seedlings to be planted at a rate of about 10,000 stems per hectare and cover a total of 4,000 hectares (about 1000 hectares per project country). The project will set up a plant nursery to raise endemic mangrove species seedlings in each country using the skills of the local community. It will also provide Training to existing Forestry Department workers in use of new technology skills such as Drones and train field assistants, park rangers in modern conservation methods in conjunction with the national Forestry Departments.

The project will further raise awareness on the value of mangroves and, building on the developed community adaptation plans, assist the community members to start implementing their plans prioritizing mangrove restoration. The objective will be to restore cover and improve spawning grounds in selected hot spots as well as help break storm surges as a secondary benefit. The mobilization and organization of community members will try as much as possible to follow the processes specific to the affected areas to avoid disrupting local practices, customs and beliefs. For this part of the project traditional and local leadership is expected to play a leading role.

As the restoration of mangroves primarily for fisheries protection will be done as a pilot and it is anticipated that the lessons learnt from this project will be disseminated to a wider NbS audience to deepen community support and compliance, help integration the approach into broader climate adaptation plans and policies as well as identify and secure sustainable financing sources to upscale the approach into the wider region.

### 2.1.2 PES piloted in fisheries management.

Natural climate buffers (NCB) are areas where natural processes are given space to increase social and ecosystem resilience against the impacts of climate change by retaining water, temporarily storing flood waves, reducing CO<sub>2</sub> in the atmosphere, regulating air temperature, adapting to sea level rise, and absorbing wave energy. As such NCBs help restore and preserve the biodiversity at the same time providing a wide range of ecosystem services including fish habitats. NCBs are therefore essential in improving the quality of human life and need to be sustained. Carbon stocks, on the other hand, refers to the quantity of carbon contained in a “pool”, meaning a reservoir or system which has the capacity to accumulate or release carbon such as forest biomass and blue carbon. Once harvested, for example when making wood products, carbon is released into the atmosphere and the capacity of the carbon stocks to accumulate and store carbon is diminished.

Payments for ecosystem services (PES) is a way to compensate people who are protecting nature, maintaining climate buffers and carbon stocks, or using sustainable practices that provide ecosystem services. Revenue is

collected from people who benefit from these practices through taxes or other means and distributed to the nature custodians.

This output is aimed at introducing the idea of PES in the coastal zones of the Mozambique channel as a way of preventing further deterioration, safeguarding on-going investments such as the restoration of mangrove forests proposed in this project (Output 2.1.1) as well as encourage cooperation between local governments, private sector, fishers and communities in the protection of fish resources.

The project will publicize the PES idea among key fisheries stakeholders and help launch an agreed PES mechanism, which will be defined fully during the PPG stage. Expected activities include undertaking scoping and analysis for feasibility, establishing institutional frameworks and advising on legal and regulatory requirements. The project will provide seed money to kick start the system in the project countries.

Initially, the PES pilots will be tied to the sites of mangrove restoration to ensure that the newly planted forests are not neglected. Community members participating in the scheme will be given a unit payment, say \$10 per hectare of restored, to keep watch over the land and ensure that the young trees grow to maturity. The participants will be further required to report their observations on the associated fisheries spawning grounds with additional payments being made if the fish stocks increase in the areas under their watch. This will act as an incentive to reduce overfishing.

The project will also help the countries establish PES funds to ensure continuation of the practice once the project has run its course. In this vein, the private sector, especially the commercial fishing, tourism, and coastal mining companies, will be encouraged to subscribe to the fund through their corporate social responsibility (CSR) programs. During the planned regional sector dialogues and workshops the project will invite non-project countries to share their experiences in the management of marine resources. For example, the Seychelles is involved in innovative climate finance using, inter alia, the Debt-For-Nature-Swap, and is reaping benefits in leveraging financing for adaptation projects related to coastal ecosystems such as Coral Reefs and Mangroves. Their lessons will be valuable for the PES initiatives of the proposed project.

### 2.1.3 Destructive fishing activities policed at community level.

The output aims to involve the local community in the monitoring of spawning grounds, coastal zone habitat degradation, disaster at sea and adaptive response management. To this end local level marine fisheries surveillance hubs will be established for the purpose of observing and reporting all activities that result in the degradation of coastal fisheries habitats and/or the destruction of fish stocks themselves.

The activities under this output are confined to the fisheries hotspots in order to tie them with the mangrove restoration activities of the above output. Since the introduction of surveillance hubs is new it is best to integrate it with other adaptation actions rather than introduce them in separate locations where the relevance of such hubs might be difficult to illustrate.

Community-based Surveillance (CBS) is an active process of community participation in detecting, reporting, responding to and monitoring events in the community. The scope of CBS is limited to systematic on-going collection of data on events and occurrences using simplified case definitions and forms and reporting to responsible authorities for verification, investigation, collation, analysis and response as necessary. CBS is mostly used for health-related issues and is strongly advocated by the World Health Organization (WHO).

The project aims to pilot the CBS approach in managing the coastal zone for the simple reason that communities cover the full extent of the shoreline and therefore roping them in expands the number of observation points along the shoreline. Every village along the coast in the project area is expected to act as a surveillance hub.

The project will first raise awareness on key fisheries issues in the coastal communities in the selected hotspot areas. Once this is done CBS focal points will be identified for the villages along the shoreline. The communities will elect their own CBS focal points who could be any community member acceptable by the community. He or she could be from basic village-level services such as village leaders (religious, traditional or political) or schoolteachers, veterinarians, health extension workers, traditional healers. The project will assist the communities to draft Terms of Reference (ToR) for the CBS Focal Point and all community members will be required to report suspicious fishing activities to the focal point who will be the liaison between the community and the formal MCS agencies operating in the wider area.

It is not expected that such fisheries surveillance hubs are separately funded or standalone institutions but that they are embedded in existing community structures such as the Beach Management Committees (BMCs) or similar community-based organizations (CBOs) that are already operating in the project area. For example, in some parts of Mozambique some degree of oversight and planning has been decentralized to the community level through Beach Management Units (BMUs) and Collaborative Fisheries Management Areas (CFMAs), which empower local fishers to monitor and become responsible for the resources and habitats they depend on. As such the Focal Points and their ToRs will be incorporated in the operations of the existing CBOs. We are thus talking of expanded mandates rather than establishing independent community entities. The approach will be further refined in the PPG stage and pilot tested in a few selected (to be agreed) locations during implementation.

**Component 3: Policy harmonization and socioeconomics in the sub-regional fisheries sector.**

This component will seek to address the barrier to effective cooperation in marine fisheries management among member states at the sub-regional level, in this case the Mozambique Channel, by improving the sub-regional collaborative framework as well as demonstrating the likely benefits of integrated fisheries livelihoods. The hope is to enhance policy harmonization and minimize regional policy implementation challenges with the goal to rein in overfishing in the project area whilst simultaneously integrating, as far as is feasible, WIO and SADC fisheries governance, management, and policy frameworks.

ISSUE TACKLED:	Weak regional collaboration due to fragmented and uncoordinated fisheries governance & management systems.
BARRIER ADDRESSED:	Policy incoherency: The existing policy framework (SAP & protocol) provides little specific guidance on joint planning, regulating, and managing common marine fishery resources at sub-regional and local levels.

OUTCOME:

Sub-regional fisheries sector policy is harmonized, and fish value chains are improved.

The first component output will facilitate high level political dialogue to raise awareness on fisheries and impress on policy makers the urgency of policy reform and harmonization. The second output will seek to accelerate the implementation of recommendation of past and on-going initiatives in the marine fisheries sector whilst the third output will seek to establish a shared marine fisheries database to facilitate evidence-based policy formulation in the fisheries sector. The fourth output will aim to demonstrate how integrated fisheries livelihoods can lead to sustainable fisheries with the view that such real-life experience can influence the pace of policy reform and harmonization in the governance and management of marine fisheries.

### 3.1.1 Fisheries dialogue for legislators organized.

The WIO regional SAP aims to reflect the findings of the regional TDA in terms of the major transboundary ecosystem issues (not just fisheries) in LMEs; their root causes and to define the necessary cooperative actions that need to be taken within the wider WIO region to address these issues. The SAP further notes that these issues are frequently embedded at the management and/or institutional level and calls upon countries in the WIO region to agree on the appropriate institutional and collaborative mechanisms that are necessary to deliver the actions agreed in the SAP and to effectively implement the aims and objectives of the SAP. On the other hand, Article 7, item 5 of the SADC Fisheries Protocol calls on state parties to agree on management plans, for shared resources that are *“harmonized, or integrated systems to monitor resources and their exploitation, joint fish stock assessment programs, agreed scientific methodologies for determination of the state of the stocks and preparation of best scientific advice on sustainable levels of exploitation.”*

The TDA further examined regional ecosystem-based governance options and concluded that an informal collaboration mechanism would be the most appropriate for the ASCLME region in which the SWIO is located and the GEF project is being proposed. Based on this conclusion, regional countries and their partner agencies have endorsed the need to develop and implement a “Western Indian Ocean Sustainable Ecosystem Alliance” (WIOSEA) replicated at the national level. The establishment of the Alliance is one of the major recommendations from the TDA for future action.

However, at the national level agreement on such regional recommendations and policy formulations are the preserve of national legislatures. Therefore, such proposals need political support and, in the case of regionally binding agreements, ratification by national legislatures to come into effect. Because of these procedural issues, regional policies usually take too long to be operationalized. Furthermore, national legislators often take no further interest in the policies once they ratify them. For example, the SADC Fisheries Monitoring, Control and Surveillance Centre (MCSC) took almost 15 years to come into effect. It was first endorsed by ministers in 2008, only signed in 2017 and came into effect in 2022 when it finally received the required two thirds member state ratifications.

This output therefore aims to facilitate an expedited policy reform and harmonization process by placing the regional marine fisheries on top of the reform agenda among legislators in the region. To this end, regional

dialogues on fisheries policy harmonization will be convened for national legislators and fisheries practitioners to enable discussion and creation of networks that support harmonization of enabling policies and guidelines, protocol operationalization and adoption of regional charters by project countries. Two to three such dialogues are anticipated during the project period. Among the key topics to be deliberated on are the issues and recommendations from the SWIO SAP and other similar initiatives on marine fisheries.

### 3.1.2 On-going regional fisheries initiatives localized.

Noting that the local level of government in coastal areas is directly affected and is largely responsible for taking corrective action and therefore must prepare and adopt coastal management programs yet they are usually excluded from formulating Integrated Coastal Zone Management (ICZM) strategies as these are usually led drafted at the national level, the project seeks to bring the ICZM process to the lowest level possible. By so doing it is hoped that coastal management programs will include “a vision for the management of the coastal zone within the jurisdiction of the local level management structures including sustainable use of coastal resources” by allowing community structures to be involved in setting up coastal management objectives, priorities and strategies, performance indicators as well as other relevant targets as they impact on their livelihoods and their fish resources.

Currently, as in most parts of the world, fisheries in the region are managed in a top-down approach with plans designed, implemented and supervised by the central government and its agencies with little involvement of the local people. By adopting the CBFM approach which moves the focus of ocean resource management to individual areas/fishing communities, rather than managing fisheries on a coast wide scale, the proposed project seeks to introduce an alternative way to tackling fisheries issues in the Mozambique Channel building on on-going WIO initiatives. Specifically, the project seeks to support the implementation of multi-species management plans whose development and implementation started under the GEF project SWIOFISH 2, especially the Smart Fisheries Co-Management (SFC) which is promoting the sustainable growth of fisheries sector by providing assistance to all stakeholders and decision makers involved in fisheries to formulate and execute efficient co-management strategies and frameworks for sustainable governance of fisheries at the national and local levels. In the north of Mozambique, for example, compliance with regulations in beach seines fishery has improved when the fishers themselves chose the season the government will declare closed. Beneficial side effects of co-management include a stronger sense of community and individual responsibility toward the common good.

Beach Management Committees (BMCs), Community Fisheries Councils (CCPs) or similar community-based organizations (CBOs) are already in existence in the project area. However, most have narrow mandates in that they are either for fishermen, vessel owners, operators at landing sites, etc. Most do not operate with constitutions, formal guidelines, or recognizable management plans regarding the fisheries that they depend on for their livelihoods. The project will encourage existing CBOs to prioritize the monitoring of fish spawning grounds which they identify in their areas of jurisdiction using guidance from national level fisheries agencies or their own local and indigenous knowledge systems.

The project will start by preparing an inventory of the existing BMCs and their specialties in the selected marine hot spots. The next step will be to convene meetings to deliberate on common issues pertaining to the management and protection of spawning grounds before proceeding to exploitation and conservation of the



marine resources upon which the members' livelihoods depend. This will be done to raise awareness of the broader issues and to push the agenda for joint action.

### 3.1.3 Shared marine fisheries database established.

According to the SWIO TDA findings, cooperation has already been established with the Convention on Biological Diversity (CBD) for the identification of Ecologically and Biologically Sensitive Areas (EBSAs) in national waters and high seas, the World Heritage Convention, WWF (EAME and WIOMER) for the identification of important areas for conservation interventions, and the FAO for the identification of Vulnerable Marine Ecosystems (VMEs). The IOC/UNESCO is another important partner in the implementation of Marine Spatial Planning projects in the region. Furthermore, MPAs have been established along the coastline on all the four targeted project countries. What is lacking however, is a fisheries specific data sets focusing specifically on the Mozambican Channel. As a result, fisheries related data from this sub-region tends to be spread over multiple databases, some national and others global, or confined to scientific studies of limited scope in space and time.

This output is proposing to assist the project countries develop a fisheries data sharing platform which, with further support, will culminate in shared fisheries database. The aim is to develop a central repository of all marine fisheries related data in the sub-region to which key stakeholders in all project countries will have access.

The Joint Fisheries database will help project countries agree and prepare standardized tools and instruments for fisheries governance and management including fish harvest monitoring and analysis templates, regional marine monitoring protocols (e.g., for spatial database and tools, special fisheries surveys/audits, studies, and research to fill knowledge gaps, etc.). The shared fisheries database will, among other things, assist the project countries to:

- Review and adopt a general program for long-term water quality monitoring (biochemical and physical) with the partners of the WIOSEA and ensure that such water quality monitoring programs target vulnerable fishery areas as well as point-sources (e.g., coral reefs and other critical habitats as well as aqua/mariculture facilities).
- Review existing fishery vulnerability assessments to oil and hazardous chemical spills in the Channel and propose a joint monitoring mechanism with agreed specific indicators.
- Strengthen national and sub-regional fisheries databases of indicator monitoring for identification of trends/changes and identify national and regional focal points and institutions for monitoring and data management in the project countries.
- Develop and implement regular reporting protocols at both national and sub-regional level to ensure that the results from monitoring and any indications of changes are rapidly communicated and translated into adaptive management guidelines and policy realignments across the entire Channel.
- Establish regular sub-regional meetings and symposia to share results and discuss trends from ecosystem assessment and indicator monitoring as they relate to Channel fishery stocks.
- Share migratory studies on fishers and the impact on resource use with the view to developing a joint fisher monitoring program for the Channel.

All activities will be undertaken in close collaboration with WIO-LaB and Nairobi Convention as well as SWIOFC, the SADC Secretariat and other national and regional fisheries management bodies operating in the Mozambique Channel.

#### 3.1.4 Integrated fisheries livelihoods systems demonstrated.

The WIO regional TDA notes that considerable effort is being made in the SWIO region to reduce the dependency of coastal communities on fisheries and other accessible marine resources. For example, in The Comoros the government is helping to support development in the small-scale sector with revenues gained from the large-scale industrial fisheries. Also in fisheries, progress towards decentralized and participatory management is being made in Mozambique, Tanzania and South Africa, for example, while Kenya, Tanzania and South Africa are making progress in promotion of participatory management of forests. Good examples of responsible development can be seen in the mariculture sector where prawn farming in Madagascar and abalone farming in South Africa could serve as models for the region. Examples of promotion of alternative sources of income can be seen in the development of bee keeping, honey production and tree nursery management as means of reducing the pressure on coastal resources in Tanzania. Pottery, horticulture, and small-scale cashew nut and coconut collection are fulfilling the same role in Mozambique. Such integrated livelihoods help to reign in over-fishing and discourage destructive fishing practices. However, these innovations remain limited in scope and therefore run the risk of dying out, even though their efficacy in sustainable fisheries management is not in doubt. This output therefore seeks to introduce these approaches to more fisher communities and demonstrate their benefits to a wider audience to upscale their uptake.

To the extent possible and also additional to the traditional alternative livelihoods stated above (bee keeping, tree nurseries, etc.), the project will support less practiced income-generating activities targeting women, youth with the goal to decrease dependency on traditional fishing practices as well as income flows from IUU fishing and indiscriminate and unsustainable harvesting of marine flora and fauna. The project will aim to demonstrate sustainable alternative livelihoods for fishing communities which include vegetable production and conservation agriculture to reduce community dependency on fisheries as a primary or even sole source of food security. CSOs are expected to spearhead these alternative livelihood initiatives.

To reduce dependency on wild fish capture the project will promote aquaculture practices. Where ocean currents permit cage fish farming will be promoted with a condition that cages are only constructed from biodegradable materials and that plastic and metal are strictly forbidden. The shape and size of the cages will naturally vary depending on the enthusiasm of the community members and the viability of the market chains. These aquaculture initiatives will invariably be context specific, and no standard design or format is envisaged at this stage.

Another alternative livelihood activity to be explored, albeit at a commercial scale, will be seaweed fishing. The commercial-grade seaweed has many uses, from toothpaste to food additive thus it offers an opportunity to bring in the private sector in further processing of the raw seaweed and create value chains. The practice has long provided a decent livelihood on Zanzibar. During lower tides, seaweed farmers wear traditional Swahili dress harvest, half-submerged in the blue-green water. Most of the farmers are women. The project

will aim to introduce this practice in other coastal areas in the Mozambican Channel where applicable. The project will first identify suitable areas and help organize local communities into CBOs that will then be trained in the practice of seaweed fishing. The trainers will be drawn mostly from experienced practitioners from Zanzibar. A training of trainers' approach will be adopted where selected individuals from the CBOs will be trained first before being sent back to train their group members.

To reduce dependency on the use of mangroves for firewood, and to reduce the tendency of local communities to accept payments from illegal fishers as supplement to meet their livelihood needs including energy, the project will aim to promote the use of bio-digesters that rely on waste for energy generation. Granted, the use of marine biomass for this purpose is not yet fully embraced. As such the project will seek to raise the idea with the research institutions in the project countries as a long-term solution and no operational pilots are intended. The feasibility of these proposals will be further investigated during the PPG stage of the project.

**Component 4: Regional fisheries sector KM & Information Sharing.**

The aim of this component is to ensure that national level or sub-regional fisheries knowledge and experiences are shared and regionalized. This challenge is highlighted in the WIO regional TDA. To fill gaps in knowledge, data capture and scientific/management skills, the WIO regional SAP calls for certain cooperative programs of activity to be developed and adopted as part of an overall Large Marine Ecosystem management and governance approach, among them a Capacity Building and Training Programme. In similar vein, the Article 4, Section 4 of the SADC Protocol on Fisheries requires that “State Parties with capacity in matters of fisheries shall endeavour to transfer skills and technologies to other State Parties to enhance effective regional co-operation”.

ISSUE TACKLED:	Inadequate sector knowledge sharing prevents practitioners and policy makers from learning from each other and build required capacity.
BARRIER ADDRESSED:	KM: Technical knowhow and expertise is not systematically shared by regional fisheries practitioners, policy makers and the wider community.
OUTCOME:	Shared knowledge and information influence behaviour change in marine fisheries policy frameworks.

**4.1.1 Knowledge exchange workshops/seminars conducted.**

The aim of this output is to allow for cross learning between key stakeholders in the Large Marine Ecosystems (LMEs) of the SADC region, (e.g., Benguela Current Commission (BCC) and the South West Indian Ocean Commission (SWIOC)).

The project will organize workshops and seminars for relevant fisheries practitioners from the project countries to facilitate professional interaction and peer learning. The target stakeholders will include fisheries departments, research and training institutions, local government officials, civil society organizations and the private sector players. Quarterly workshops are envisaged and will be rotated among the four project countries. The topics for discussion will be coordinated by the SADC Secretariat and the PIU in consultation

with national governments, local governments and communities. International organizations in conservation such as the WWF are expected to participate and give expert input to the workshops.

The knowledge exchange workshops/seminars will also be expanded to allow for cross learning between key stakeholders in the Large Marine Ecosystems (LMEs) of the SADC region by bringing in stakeholders from the Banguela Current Commission and the South West Indian Ocean Commission and other similar entities as well as cooperating partners and development agencies active in the WIO such as UNDP, FAO, WWF, UNEP and the WB.

#### 4.1.2 Regional fisheries sector dialogues organized.

To allow for cross learning the project will encourage dialogues between SADC regional members. For example, countries that more advanced in marine fisheries such South Africa, the Seychelles and Mauritius will be invited to share their experiences with their less developed counterparts from the project. Furthermore, inland countries that are not in direct contact with the sea but whose water management affects what happens in the coastal zone will be invited to help raise awareness of the transboundary nature of marine fisheries management.

This project output will facilitate the convening of fisheries multi-stakeholder, multi-sector dialogues and technical workshops among practitioners and policy makers from the project countries and selected countries from the region. The project will organize such regional workshops in The Comoros, Madagascar, and Mozambique on a rotational basis to enable the states to learn from each other on common issues in the Mozambican Channel with the aim to promote harmonized and enabling policies and guidelines, joint SAP implementation and protocol operationalization as well as strengthen national fisheries functions and eventual ratification of regional charters. To be fully inclusive, key regional fisheries players such as research institutes, international Cooperating Partners (ICPs) and financiers in the sub-region will be invited to these sector dialogues.

#### 4.1.3 Exchange visits for key marine fisheries actors are organized.

The aim of this output is to encourage fisheries practitioners to avoid working in silos and learn from each. Exchange visits will be organized between similar organizations, for example, commission to commission, country to country, community to community, SADC to commissions, etc.

The project will organize exchange visits to allow for cross learning. Primarily, the project will organize visits by key fisheries players from one project country to another, i.e., those from Mozambique will visit Madagascar and vice versa, the same for Comoros and so forth until all countries have visited each other. It is anticipated that each country will showcase its strengths in fisheries management for the visiting delegations to learn and take back the knowledge for replication. Such visits will also be accompanied by community to community, i.e., a community in Mozambique can send a delegation to a community doing similar work in Comoros, or Madagascar.

Beyond the country to country exchanges the project will also facilitate exchange visits for regional players if this is jointly agreed by the project countries and the SADC Secretariat. Under this arrangement commission to commission visits will be supported, e.g., by the WIO to the BCC.

#### 4.1.4 Knowledge Management and Information dissemination

The aim of this output is to encourage dissemination of fisheries research publications to a broader audience through regional data sharing platforms, IW: LEARN, education establishments, RBOs, selected public media, etc.

The project will promote IWLEARN activities with the view to showcase to a wider audience the progress and lessons from implementation of the project. Several knowledge products, in addition to formal GEF reporting requirements such as project implementation reports (PIRs) and evaluation reports, will be developed and disseminated within the SADC and WIO regions as well as the wider ocean health and fisheries community. These knowledge products will be tailor-made to suit different audiences among them policy makers, the scientific community, institutions of learning (both primary and tertiary) as well as communities. Project brochures, briefing notes will be prepared and distributed at relevant fora including the GEF Expanded Constituent Workshops, SADC technical working group sessions, etc. Funds permitting, a project website will also be maintained, and topic specific webinars regularly organized.

#### **Project global environmental benefits**

Specifically, the project contributes to the marine fisheries health in the considering the following:

**The South West Indian Ocean (SWIO)** has the longest unfragmented fringing reefs in the world, and globally has the second highest coral reef diversity after the Western and Central Pacific. It is one of most important marine biodiversity hotspots on the planet. The rich natural environment provides the resources - such as fish and invertebrates – which support the livelihoods of more than 60 million people living in the coastal belt. The fisheries have artisanal, semi-industrial and industrial sub-sectors targeting a variety of resources, such as mollusks and small pelagic fish mainly caught by beach/reef collectors, subsistence and artisanal fishers, and, therefore, with significant local and national relevance; demersal fish including fish and crustaceans (such as shrimp, lobster, crab, langoustine) that constitute the most important coastal and continental shelf fisheries group; and large pelagic fish (such as tuna and tuna-like species, billfish and sharks) which are also of great economic importance and constituting some 70% of offshore catches (WWF Concept Note, 2015).

**The Mozambique Channel** could be home to the second most diverse coral populations on earth. In 2012 a study undertaken by the Coastal Oceans Research and Development in the Indian Ocean (CORDIO) to determine the biodiversity and biogeographic patterns of coral reef species in the western Indian Ocean over a ten-year period concluded that that the northern Mozambique Channel has the highest diversity of corals in the central, northern and western Indian Ocean. The researchers found that of 369 coral species identified in the region, sites in the northern Mozambique Channel had from 250-300 species, while sites in northern Kenya, the Gulf of Aden and the outer Seychelles islands had 200 or fewer species. The findings suggested that the total diversity of corals in the region may approach 450 species, equivalent to the Great Barrier Reef

and Andaman Islands, which are on the edges of the Coral Triangle, which would make the northern Mozambique Channel home to the second most diverse coral populations on the planet.

The **Mozambique coastline** is about 2700 km long and is has relatively pristine and highly diverse ecosystems. The major ecosystems include mangroves, estuaries, seagrass beds, coral reefs and wetlands that support a diversity of species. Mozambique possesses nine out of twenty-one sites of recognized ecological importance in the Eastern Africa region, according to the WWF classification. The marine and coastal habitats of Mozambique hosts endangered species such as dugongs, marine turtles, marine mammals, and migratory birds. The coastal and marine ecosystems sustain natural resources that underpin the economy of the country and are the means of subsistence for coastal communities.

The coral reefs of Mozambique are the southern continuation of the well-developed fringing reefs that occur along major sections of the fairly narrow continental shelf of the East African coast. The coral reefs are responsible for 70% of fish catches and provide a hugely important nursery ground for many species of other commercially important marine species. The reefs in protected areas such as those found in Lighthouse Reef – Bazaruto, Barreira Vermelha and Ponta Torres – Inhaca Island, and those found in areas with low accessibility such as Ponta Maunhane – Pemba, are in much better condition than reefs that are freely exploited. Mozambique corals reefs have been impacted by global warming. In 1997-1998, El Niño southern oscillation (ENSO) caused extensive coral bleaching. Full regeneration of corals after the El Niño is yet to be realized.

In addition to global warming, the other major threats to coral reefs include sedimentation, flooding, beach seining and trampling. Mangroves cover a total area of 396,080 ha stretching almost the entire coast of the country, mostly in sheltered shores and estuaries. Mangroves are being depleted at a rate varying from 15.2 % in Maputo province to 4.9 % in Sofala. The increased population pressure in coastal regions is a major factor in accelerating mangrove depletion. Seagrass beds are found in the South and North of the country. The thirteen species of seagrasses are found in Mozambique. The seagrasses are being degraded due to beach seining, trampling during the collection of invertebrates and sedimentation associated with river discharges. A total of 18 marine mammals, including dugong, dolphins and whales, are also found in the country. These include 3 species of migratory whales that breed in Mozambique waters, 2 species of dolphins that occur all year round and dugong that feed on seagrass beds. Mozambique hosts five species of marine turtle including the green (*Chelonia mydas*), olive ridley (*Lepidochelys olivacea*), loggerhead (*Caretta caretta*), hawksbill (*Eretmochelys imbricata*) and leatherback turtles (*Dermochelys coriacea*). These endangered species are threatened due to use destructive and non-selective fishing gears, destruction of habitat, accidental and intentional catches and pollution.

The **Comoros** is characterized by the presence of varied ecosystems and natural resources rich in species diversity and endemism. There are at least four ecosystems: (i) a coastal ecosystem (mangroves, seagrass beds and coral reefs), (ii) a shrub-savanna ecosystem type, (iii) a forest ecosystem type, and (iv) wetland ecosystem type such as Lake Dzilandzé (Anjouan), Lake Dziani boudouni (Moheli) and Salt Lake (Grande Comore). Variability of climate, geomorphology, geology and soils contributes to habitat diversity, diversity of flora and fauna including many endemic, threatened and migratory species, such as sea turtles, whales, dolphins, lemur and dugong, sea cucumbers, among others. The Comoros is also a nature sanctuary for species such as Livingstone bats and the coelacanth.

In **Madagascar** mangroves are widespread along the entire west coast of the country with the largest formations found along the north-west coast (Spalding et al. 2010). Small dense mangrove stands exist on the east coast along the Masoala Peninsula (Taylor et al. 2003). Mangroves in Madagascar are known to function as important nursery grounds for 60 species of juvenile fish, including 44 commercial species (Taylor et al. 2003) as well as crustaceans. The fisheries industry is one of the highest generators of foreign revenue in Madagascar and further employs 14% of the workforce (Taylor et al. 2003). Shrimp is the main product with an annual catch of some 13,000t. Exploitation of mangroves is highest in the vicinity of large coastal cities and considerable degradation has resulted from excessive collection of mangrove wood for a variety of uses including fuelwood to smoke fish and boil sea cucumber, extraction of pole wood for construction, and deforestation for shrimp pond aquaculture (Rajonson 1993, WIOFish 2011).

## Relevant stakeholders

The project will save both biodiversity and humans as well as help arrest coastal zone degradation. The beneficiaries and main stakeholders of the project will primarily be the coastal communities in and around MPAs in the project countries, the population of which is estimated at below 10 million people. Those who will take part in the project itself are expected to be just under one million given the prioritisation of Transfrontier MPAs. There will also be indirect beneficiaries in the wider SADC region who will benefit from improved marine fishery supplies in the long term, bringing the total number of beneficiaries to over 370 million.

The institutional stakeholders comprise the SADC Secretariat through the Directorate of Food, Agriculture and Natural Resources (FANR), the three national governments of The Comoros, Madagascar, and Mozambique. The provincial, district and local authorities of the beneficiary countries, community groups (including women and youth), and CSOs (international, national) hosting or operating the in the selected marine hotspot will be direct beneficiaries of the project.

The Shared Vision development process will strive for broad-based stakeholder engagement, including the central and local governments, private sector and CSOs as well as the different communities within the targeted project areas. A comprehensive dialogue process will be designed to ensure no one is left behind. The values and principles underlying the visioning process will include: full stakeholder involvement in consultations and dialogue; people centered economic growth and effective cooperation between various stakeholders in the project area; social justice and equity; gender considerations and responsiveness.

Some specific stakeholders to be involved in components will be elaborated during the PPG stage. The table below gives an indication of some of the key stakeholders earmarked for participation in the proposed project.

Institution/Organism	Description/interest	Proposed role in project
<b>Regional</b>		
SADC Secretariat, Directorate of Food, Agriculture and Natural Resources (FANR)	It is set-up to deliver on SADC programmes within the areas of Agriculture, Natural Resources and Environment. It coordinates several technical units.	To be the project Executing Agency and steer project activities at the regional level. The FANR will coordinate all project activities and delegate responsibilities as agreed by stakeholders.
South West Indian Ocean Fisheries Commission (SWIOFC)	This is a regional fisheries advisory body established in 2004 through the FAO Council Resolution 1/127 under Article VI to promote	The SWIOFC brings in valuable institutional memory and expertise from implementing past projects in the SWIO

	the sustainable utilization of the living marine resources of the Southwest Indian Ocean.	region. It will have responsibilities delegated to it by SADC and also play an advisory role.
The Indian Ocean Commission (IOC)	It is an intergovernmental organization between Comoros, Madagascar, Mauritius, France (on behalf of Réunion) and the Seychelles to encourage diplomatic, economic and commercial cooperation between member States.	The IOC will protect the interests of the island member states (Comoros and Madagascar) in the planned sub-regional forums and also advise on the protection of the environment and natural resources and sub-regional human development.
<b>Mozambique</b>		
The Ministry of Fisheries	This is the political body, coordinator of the fishery administration system. The main responsibilities of Ministry of Fisheries concern the establishment of fisheries development policies and their translation into development plans.	The ministry will be the focal point for Mozambique and coordinate the implementation project components in the country.
National Institute of Fisheries Research (IIP)	Is responsible for the research and management of fishing resources,	The IIP will be the custodian of all research activities and publications pertaining to Mozambique and will represent the country in the project's knowledge sharing platforms.
National Fisheries Administration (ADNAP)	Defines the management planning, the conditions of access to the fishing resources and monitors and manages the fisheries.	The ADNAP will monitor the implementation of project fisheries activities in Mozambique.
National Institute of Development of Small Scale Fisheries (IDPPE)	It has the mission to promote and assist the development of small-scale fisheries, focusing on poverty reduction and improving the living standard of fishing communities.	The IDPPE will lead project engagement with small scale fishers in Mozambique.
National Institute of Aquaculture (INAQUA)	Is responsible for the promotion and management of aquaculture activities.	The INAQUA will lead the promotion of aquaculture activities as alternative livelihoods in the project.
Fisheries Development Fund (FFP)	Is a financial institution with the mandate to provide credit mechanisms for the development of fisheries.	The FFP will be considered for co-financing of project activities in Mozambique.
School of Fisheries (EP)	It provides basic and medium level training in various fishing areas.	The EP will participate peer learning platforms and lead the formulation of marine fisheries recommendation from the Mozambique side.
National Directorate for Fisheries Law Enforcement (DNFP)	Is responsible for the compliance of all fishing sectors with the national laws and regulations and the requirements of the international Agreements to which Mozambique is a party.	The DNFP will check project activities compliance with, and advise on, legal requirements for Mozambique.
<b>Madagascar</b>		
Ministry of Marine Resources and Fisheries (MRHP)	The ministry is in charge of fisheries policy in Madagascar and has oversight over all national agencies responsible for marine resources management.	The MRHP will provide project liaison and will be responsible for coordinating all project fishery activities in Madagascar.
Ministry of Environment and Forests	The ministry is in charge of environmental policy in Madagascar and has oversight over all national agencies responsible for the environment and biodiversity.	The ministry will be responsible for coordinating all project environment protection activities at the local level in Madagascar.
Fisheries Monitoring Centre (FMC)	It is responsible for data collection, processing and publication in Madagascar.	The FMC will lead the information dissemination and knowledge sharing activities for Madagascar in the project.



Bureau National de Gestion des Risques et Catastrophes (BNGRC)	It manages the national system of Risk and Disaster Management (RDM) in Madagascar. It consists of some structures that correspond to institutions or coordinating entities at central and local levels.	The BNGRC will lead all climate resilience and disaster risk related activities by the project in Madagascar. It will guide the local level planning processes.
<b>Comoros</b>		
National Directorate of Fisheries	Responsible for issues relating to the marine fisheries at the national level. It operates at the island level with regional fisheries commissions	Will have responsibilities to enforce regulations for protecting marine fisheries, among others during project implementation. It will liaise with other project MS in relation to fisheries governance issues.
Directorate of the Environment	Responsible for issues relating to the marine environment at the national level. It operates at the island level with regional departments of the environment.	Will have responsibilities to enforce regulations for protecting the natural environment, among others during project implementation. It will liaise with other project MS in the project in relation to biodiversity and environmental protection.
National Institute of Applied Research Fisheries and Environment (INRAPE)	Responsible for marine fisheries and environment at the national level.	Will manage and lead collaboration in data sharing and management as well as the development of project publications specific to Comoros
Directorate General of the Environment (DGE)	Responsible for the enforcement of regulations, protecting the natural environment and controlling exploitation of natural resources.	Will coordinate policy frameworks with other project countries on behalf of the Comoros.
MPA authorities (various)	MPAs are basically established to assist countries in meeting the objectives of the Convention on Biological Diversity (CBD) specifically the target for marine ecoregions. They can be either national or transboundary.	Advise on the selection of project sites, Specify institutional mandates in selected MPAs, provide and/or advise on regulatory tools for marine spatial planning in designated sites, advise on international legal commitments.
Local CSOs & NGOs (multiple)	Those legally constituted and broadly involved in environmental protection, conservation and sustainable development will be involved in the project.	Will champion project activities at the local level based on the defined scope of works per project site.
Southern Africa Youth Forum	SAYoF is composed of youth organizations & formations working in SADC member States, taking advantage of their diversity and innovativeness to transform lives at regional and national level.	The national chapters will be engaged to mobilize the youth in project activities in the project countries. SAYoF will also present the youth perspective at project dialogues and workshops.
Action Change (Formerly GVI Trust)	Their mission is "To Support communities in creating brighter, better and more sustainable futures for all their citizens". They currently run the Save Our Sharks and The Ocean before it's too late project in Mozambique and have operations in several other African countries.	Will work on multiple local initiatives together with local government and top conservation influencers to tackle marine fisheries issues, by providing training and equipment for locals to train as researchers and monitors for ocean health.
PCI-Media Impact	They empower communities to inspire action for positive social, behavioral, and environmental change through storytelling and creative communications. They also partner with local organizations to produce culturally resonant radio programs, social media, and interactive communication campaigns that achieve local, national, and global impact.	PCI Media is dedicated to women and girls' health and futures. They will carry out radio dramas, television shows, and media campaigns as well as help review policy frameworks, structures and social norms that constrain the participation of women and girls in fisheries management and governance.

Fish Forever in Mozambique (FFM)	FFM works with village groups, community fisheries councils and district governments to build and strengthen community-based fisheries management of Mozambique's coastal waters.	They will lead the ICZM initiatives of the project in Mozambique and share the lessons with other project countries.
Associacao Esmabama (Sofala, Mozambique)	They focus on development opportunities for communities in the Education, Health and Agro-livestock farming sectors.	They will be involved in the integrated livelihoods aspects of the project at community level, especially afforestation initiatives.
ParCo - Associacao dos Parceiros Comunitarios (Mozambique)	ParCo provides technical guidance and linkages so that communities can achieve their visions for social change. They currently have two relevant on-going projects. 1) Save the Seahorses of Mozambique and 2) Beach Cleanup Vilanculos 2023.	ParCo will assist the project in its fisheries co-management activities at the community level.
SEED Madagascar (Madagascar)	SEED Madagascar is a UK registered charity working alongside a Malagasy NGO which aims to help people in communities in SE Madagascar tackle extreme poverty and preserve one of the planet's most unique and endangered environments, working towards health and well-being, sustainable livelihoods, and effective management of natural resources. It currently implements the project "Protecting Threatened Lemur Habitat in Madagascar"	SEED Madagascar will assist the project in its fisheries co-management activities at the community level in Madagascar especially integrated livelihoods and habitat protection initiatives of the project.
Zahana (Madagascar)	Zahana in Madagascar is dedicated to participatory rural development, education, revitalization of traditional Malagasy medicine, reforestation, and sustainable agriculture.	Zahana has experience growing seedlings and planting trees successfully, so can help scale up project mangrove restoration efforts. They can help with production on tree seedlings and setting up tree nursery in community such as school grounds.
Association for Cultural Economics International (ACEI) (The Comoros)	ACEI is an international non-governmental organization (INGO) that helps to mobilize technical and financial partners to support the strategic plans of host countries.	ACEI is expected to be the link organization between NGOs and the national government in implementing the proposed fisheries project.
Private Sector (multiple)	Both large corporations and small to medium enterprises (SMEs) will be targeted, the former for their CSR initiatives and the later primarily to promote alternative livelihoods initiatives.	Contribute to local economic development as well as participate in wider supply chains in project related activities.
The SADC Business Council (SADC BC)	SADC BC is a regional apex body for SADC private sector. It represents national and regional apex business associations of the 16 SADC Member States. SADC BC is the prime public sector partner in forging SADC development and integration.	The SADC BC participated in the project formulation meetings and will continue coordinating the private sector engagement in project.

## Coordination and implementation strategy

The project will build on existing initiatives in the SWIO with special focus on integrating these initiatives into the broader SADC fisheries program. Thus, the SADC Secretariat will return overall project oversight and, as far as is feasible, delegate operational functions to designated and agreed entities within the existing and on-going initiatives. The institutional arrangements will be clarified at the CEO endorsement stage. Below we summaries the basic implementation arrangements for the project.

### *The SADC Secretariat*

The management of fisheries sector in the SADC region falls under the SADC Protocol on Fisheries and the Regional Indicative Strategic Development Plan (RISDP) 2015-2020. The Fisheries Protocol and the RISDP aims to promote responsible and sustainable use of the living aquatic resources and ecosystems. This being a SADC project means that the SADC Secretariat will be the de facto Executing Agency for the proposed project. Other initiatives in the WIO, e.g., SWIOFC, are neither limited to the geographical SADC nor are they juridical entities. They thus lack the mandate, despite having some capacity, to implement the project on behalf of SADC and its member states. The Secretariat will implement and manage the project but will delegate project management responsibilities to appropriate regional entities as agreed and specified in the PPG phase.

SADC Secretariat will seek to use partnerships to coordinate regional efforts to strengthen capacities of Member States regional actions with Regional Fisheries Bodies (RFBs) and Regional Fisheries Management Organizations (RFMOs) in the project countries in the Mozambican Channel. These regional bodies and the lead fisheries ministries in the project countries will constitute a Project Steering Committee (PSC) to be headed by SADC. The final composition of the PSC committee will be finalized during the PPG. The SADC-PANR and SWIOFC will be key members of the PSC.

### *The Bank Baseline PIU*

The proposed GEF project will be administered through a Program Implementation Unit (PIU) established under the baseline project being implemented by the AfDB as co-financing to the GEF project. The PIU will comprise a Project Coordinator, experts in (i) procurement; (ii) an accountant and monitoring and evaluation (all technical staff from the Secretariat (across Directorates)). These key staff will be deployed from the SADC Secretariat supplemented with Technical Assistance by the AfDB as necessary. The SADC Secretariat will provide reports to the Bank and other Strategic Partners and will be accountable for all the resources disbursed. The Bank will report to the GEF.

### *The South West Indian Ocean Fisheries Commission (SWIOFC)*

The South West Indian Ocean Fish Commission (SWIOFC) is a regional collaboration between twelve member states in the SWIO, six of whom are SADC member states being Tanzania, Mozambique, South Africa, Madagascar, Comoros, Seychelles and Mauritius. The non-SADC members are Yemen, Somalia, Kenya, Maldives and France. The members are presented in the figure below. The SWIOFC works with but is not affiliated with SADC. Furthermore, it is not a juridical entity but works under that jurisdiction of the Food and Agricultural Organization (FAO). Despite these limitations the SWIOFC has played a significant role in the implementation of the SWIOFish Programme and has developed valuable capacity and institutional memory that is vital for the successful implementation of any marine fisheries project in the SWIO region.

*The Indian Ocean Commission (IOC)* The Indian Ocean Commission (IOC) was created in 1984 by the General Agreement of Victoria, Seychelles. It is an intergovernmental organization between Comoros, Madagascar, Mauritius, France (on behalf of Réunion) and the Seychelles to encourage diplomatic, economic and commercial cooperation between member States. The Commission is currently administering projects

worth some 62 million Euros; its work is directed towards the protection of the interests of the island member states of the Indian Ocean in international and regional forums, protection of the environment and natural resources and regional human development. In February 2010 the Indian Ocean Commission completed a Feasibility Assessment of an ICZM Protocol to the Nairobi Convention which recommended further exploration of a protocol for East Africa – suggesting that the negotiation process itself would be a major capacity building exercise for the region. A Regional Working Group has been established the Nairobi Convention for the drafting of a new Protocol on Integrated Coastal Zone Management (ICZM). The Secretariat of COI is based in Mauritius. The initiatives of the IOC are not yet well integrated into the SADC frameworks and it is hoped that by encouraging interfacing between the two synergies will be established and these may culminate in a formal working relationship in the near future. The exact role of the IOC in the project will be defined in the PPG stage of the project.

### *National Focal Points*

At National level, the National Focal Point Ministries in the Member States, will serve as the main SADC hub in the respective targeted countries, with respect to project implementation. The National Focal Point at country level is cumulative with his/her position within the Department in charge of Fisheries is responsible for coordinating activities related to the project with stakeholders and beneficiaries. Member States sector committees are also involved in oversight of regional programs and sometimes at SADC Council of Ministers level.

### *Regional initiatives engagement*

Several marine fisheries initiatives have been undertaken in the WIO in which some of the targeted project countries have participated. The key regional initiatives are presented in the table below. The aim of the proposed GEF project therefore is to help share the experiences and knowledge gained by the different countries among all the four project states. For example, the experience of Madagascar and Mozambique in the African Ports Network will be shared with The Comoros.

There are also several on-going and past GEF projects in the project areas. Some of the major ones are described in the baseline assessment. It is the plan of the proposed project to complement these projects as much as possible and avoid duplication of efforts. Importantly, the lessons from these projects will be adopted for the proposed project or upscaled where necessary.

### *Gender considerations*

The SADC Protocol on Fisheries recognizes the need to promote gender equality in fisheries related activities and calls for member states to recognize the role of women in such activities. The proposed project recognizes that women contribute significantly to economic and food security in Africa and therefore have a major role to play in the fisheries value chains and in fishing communities especially in the small-scale fisheries sector. Although women participate throughout the fisheries value chain, the bulk of their employment (around 96%, with variance by country and type of fishery) consists of post-harvest activities such as processing and trading. Roughly half of contribution of fisheries to Africa's gross domestic product is accounted for by post-harvest activities, indicating the importance of women's economic contribution in the sector. Women are also active in fish farming and aquaculture. In addition, beyond direct participation, women are also involved in related activities for instance, some invest in boats or fisheries equipment. They also support, finance and loan out to fisher folks in their daily operations. Women also play hold some decision-making power in fisheries governance institutions, communities and their own households, making them a key stakeholder group in the fisheries sector.

However, women are generally given a lower status in society than men in much of Africa. In all the four countries cultural values give more importance to women as mothers, wives and homemakers. As a result, the level of most gender equality indicators are low. For example, in the Comoros in 2003 school enrolment rates for girls stood at 66.4%; literacy rate was 87 women for 100 men and representation in managerial positions was almost non-existent. In the case of Madagascar, it has been reported that among 40% of illiterate adults, 65% are likely to be women. Similar trends prevailed in the other three states even though the situation has marginally improved since.

Consequently, women in fisheries face specific challenges most of which are reinforced by customs, norms, practices or even laws. First, there are cultural proscriptions against taking on certain types of work and may lack control over their labour and incomes. Regarding harvesting, men tend to be free to use the entire seascape, while women are frequently limited to land or shoreline activities, combining reproductive and household work with productive labour. For female processors and traders that are located far from the shores, they are ultimately precluded from accessing best quality fish from their suppliers/traders. Purchase of low-quality fish is likely to culminate in higher losses after processing. Women also have limited decision-making power in fisheries governance institutions, communities and even their own households.

Because of this multitude of challenges, the role of women is mostly confined to the small-scale artisanal fishery sector. In Mozambique, for example, the semi-industrial fishing fishery employed over 351,700 people in 2007 of which only 2% were women. In the country's total marine fish catch, 91% is caught by the subsistence and artisanal fishers over 90% of whom are male. Income levels in the small-scale fisheries are largely dependent on position within the sector, whereby, three broad positions are classified: Boat and gear owners, crew and fishers. In these areas the role of women is almost negligible due to several factors including lack of capital and cultural values that view actual fishing by women as a taboo thus confining women and girls to fish marketing where post-harvest losses are significant and incomes correspondingly low.

In fisheries related institutions men generally earn more and fill most leadership and management roles, while women are more likely to occupy posts requiring minimum skills, with little job security and poor health and safety conditions. Lower levels of literacy, access to knowledge and confidence may also result in women's contributions being less valued. These factors result in differential and often intersecting vulnerabilities.

Despite the significant presence of women in the sector, most developing country fisheries data collection systems fail to capture disaggregated data showing actual contributions of small-scale fisheries and aquaculture to employment, production, and consumption. These fisheries sector statistics also largely fail to capture the youth and children who are employed in the sector, and the limited data available are rarely sex disaggregated. Furthermore, as fish processing work is often done within the household, census-takers and researchers fail to capture girls' labour contribution in fisheries. These data gaps reinforce the policy neglect of gender issues in fisheries and aquaculture sector, and the problem is worse in Africa where data collection methodologies are poor across various commodities. Poor data capturing and reporting usually leads to biased policies – such as focusing on capture/production (where men are concentrated) rather than post-harvest processing and marketing (dominated by women) – resulting in the underperformance of the fisheries sector. It is also noted that failure to capture the participation of women in informal trade also reduces the development of gendered strategies.

The proposed project seeks to reverse these trends by, among other approaches, adopting lessons from other regions on the continent. For example, in West Africa women dominate the fishing value chains and often handle the finances related to fishing. In the case of artisanal fishing which is under threat, better governance and improved surveillance systems are also making a difference in some countries. In these countries women are increasingly included in the co-management of fisheries. Examples include the World Bank-funded West Africa Regional Fisheries Program (WARFP), South West Indian Ocean Fisheries Governance and Shared Growth Project (SWIOFish), United States Agency for International Development (USAID), and other efforts. Lessons from these initiatives, so far as they improve gender equality, will be mainstreamed into the proposed project activities.

The proposed project will promote gender mainstreaming from the earliest stages of the project cycle. Noting that major fisheries and marine conservation programmes have already been rolled out in the target countries as well as in other parts of Africa, a preliminary gender and social analysis, building on these initiatives, will be undertaken as part of the PPG and a set of suitable gender sensitive indicators developed to measure progress throughout the project, so that results are tracked accordingly. The gender analysis will be incorporated into the project design and will define more specifically how gender considerations will be taken into account. Furthermore, investments will be designed to take differentiated gender roles into consideration.

Needs assessment will be done at the project development phase and be used to define the roles of women and men early on. The knowledge and active involvement of women and youth can make the project more resilient and adaptive to changes, especially in highly vulnerable areas, and increase success rates for the project both in terms of socio-economic and environmental indicators.

Since gender considerations are critical to sustaining development outcomes of investments in marine ecosystems specific gender promotion activities will be designed for the proposed pilots in marine hotspot areas. These will include, but will not be limited to: producing and analyzing gender-disaggregated data throughout project implementation; strengthening the position of women's groups in beach committees; facilitating women's access to and participation in the fisheries workshops and seminars at local, national and regional levels; promoting gender-balancing in the delegations on exchange visits; ensuring equal access by men and women to information, capacity building trainings and awareness campaigns; and gender mainstreaming within institutional capacity building activities.

The project realizes that the benefits of women's inclusion in decision-making go beyond fisheries resource management to include fostering community well-being and economic growth, increasing awareness of other societal issues like domestic violence, increasing attendance at school among children, and women's participation in local politics and general governance issues. The project will therefore support the strengthening of women and youth-owned organizations, especially SMEs and CBOs, in project activities and take deliberate steps to increase participation and leadership roles in all project established and supported initiatives.

### *Private sector engagement*

There has been a growing involvement and interest demonstrated by the private sector and marine industry in cooperating with the countries and with the partners to develop a sustainable approach to management of the goods and services associated with the Western Indian Ocean Large Marine ecosystems.

Positive engagement in local development by the private sector can be found in both the energy and coastal mining sectors. Oil and gas companies have engaged in wide variety of social development activities in Madagascar and all the mainland countries such as construction of community clinics, rehabilitation of roads and community buildings, and support to cyclone-affected populations. Similar contributions have been made by companies engaged in coastal mining.

So far, during the TDA-SAP development process there has been very successful engagement with marine industry through the World Ocean Council - WOC (which is an industry consortium) as well as through growing partnerships with fishing cooperatives such as the Southern Indian Ocean Deep Sea Fishers Association (SIODFA). A recent *Aide Memoire* with the World Ocean Council has brought them into the Alliance partnership and identified areas of mutual cooperation and collaboration as follows:

- Cooperation in the Smart Ocean/Smart Industries programme: Leading ocean industry companies aim to collaborate with the scientific community in a systematic, regular, sustained and integrated collection and reporting of standardised oceanographic and atmospheric data as a contribution to maintaining and improving ocean health and for modelling of ocean conditions and climate change
- Demonstrating an effective process for engaging the Ocean Business Community into the objectives of LME Strategic Action Programme including mutual improved data quality assurance and control along with the development of pragmatic and workable management mechanisms and practices
- Incorporating the private sector into the Alliance of Partners in the region (the Western Indian Ocean Sustainable Ecosystems Alliance – WIOSEA)
- Using the SAP Implementation process as a demonstration of private sector engagement in the monitoring and management process for Large Marine Ecosystems which can be replicated around the world.

The project will try its best to engage the Private Sector. The SADC Business Council (SADC BC) is a valuable partner in tackling challenges faced by the private sector in the region and is expected to spearhead the private sector engagement initiatives of the project in the marine fisheries. Through its strong engagement with both their stakeholders as well as national governments and the SADC Secretariat, the SADC BC will help to meaningfully include business and private sector friendly elements the marine fisheries policy framework reviews. Furthermore, in January 2021 the SADC BC launched its five-year strategy and action plan developed with technical support from the GIZ-ICR facility. This strategy aims to strengthen the role of the private sector in regional affairs and better contribute to shaping the regional business environment and investment climate in a conducive, sustainable, and inclusive manner. The project will ride on this policy direction in its engagement with the private sector. In addition, the countries will be encouraged to explore ways to engage the private sector as they update their Nationally Determined Contributions (NDCs) in fulfilment of their commitments to the United Nations Framework Convention on Climate Change (UNFCCC).

The project recognises the importance of involving the equivalent companies and groups in the private sector that control oil and gas exploration and extraction, shipping, tourism, fishing, mineral extraction, etc. given the multi-sectoral nature of some of the proposed project actions notably those in Integrated Coastal Zone Management (ICZM). The project will especially target the oil and gas as well as tourism industries as these are relatively new and expanding industries whose impacts on marine ecosystems and fisher community livelihoods are not yet fully understood and mitigatory policies are not yet fully developed.

Oil and gas exploration has seen a boom in the Mozambican Channel, especially in northern Mozambique. Securing a peaceful coexistence between the fishing communities and the **oil and gas sector** is therefore critical and will depend particularly on good environmental management and minimizing potential conflict situation. The oil and gas companies are expected to contribute to improved living conditions of coastal countries in general, and in the fishing communities around the oil enclave in particular, through royalties. On top of this they are expected to be a significant contributor and financier in the PES initiatives of the project.

Oil production all over the world is associated with oil spills or pollution which may have health implications for human lives from consuming contaminated marine fishes while carcinogenic compounds leaked into the ocean can lead to public health issues. Empirical research also links oil activities to fever due to heat generated by gas flaring activities. Various gastrointestinal disorders are contracted through the consumption of fish from polluted water bodies in oil producing communities as well as respiratory ailments such as bronchitis, asthma, and cough asphyxiation, among others. Oil exploration activities lead to income losses, migration, and negative social vices such as prostitution, sexually transmitted diseases, high rate of school drop outs, wars, corruption and kidnapping. Oil exploration activities are also known to cause destruction of delicate marine ecology, which is the main source of livelihood in the oil-bearing communities, leading to loss of fish catches, exacerbation of poverty, social conflicts, population displacement, and loss of livelihoods. Often fishermen are forced to move their boats and other fishing gears to allow for drilling activities that disrupt fishing activities and force most of these fishes to run several kilometers away, thereby reducing the number of catches.

The proposed project will encourage governments to engage with the affected communities and the oil and gas companies develop natural resource management systems that include strategies for catering for future compensation and management of environmental damages that might occur because of oil and gas production. Such strategies should ensure that the coastal zone is well protected and that fisher communities are adequately compensated should there be oil spills that affect their livelihoods or loss in their fishing rights due to oil and gas activities. The project will also ensure an intensification of oil monitoring activities in order to forestall oil spills and associated impact on fish stocks and marine ecology.

**Fisheries and tourism** have the potential to threaten the ecological stability of coral reefs, resulting in phase shifts toward less productive coral-depleted ecosystem states. Consistently, growing reef tourism sectors offer more lucrative livelihoods than subsistence and artisanal fisheries at the cost of traditional heritage loss and ecological damage. Also, diving and snorkeling are magical experiences that expose tourists to a diversity of life that they do not typically encounter on land. Thus, there is a growing nature-based tourism market for snorkeling and diving trips. In fact, diving tourism has been shown to be substantially more profitable than



fishing. Nevertheless, there are a variety of environmental threats caused by tourism that include resource consumption, the creation of waste, the need for the construction of infrastructure, and, by its very nature, tourism brings more people to natural areas.

The project fully recognizes the importance of developing strategies to monitor and reduce the impacts caused by tourism in aquatic environments and ensure that a genuinely sustainable ecotourism industry is created. The project will therefore, seek to balance trade-offs between local economic demands, preservation of traditional values, and maintenance of both biodiversity and ecosystem resilience is a challenge for marine resource managers and resource users. The multi-stakeholder, multi-sector dialogues and integrated coastline zone management approaches are designed to realize this goal. As with the oil and gas sector, tourism companies will be engaged in the formulation of policies and are also expected to fund project PES initiatives. Appropriate and exact details of approaches will be defined at the PPG stage.

It is hoped that some project activities, especially the promotion of alternative livelihoods, will attract the participation of the private sector players as the opportunity for profit will be significant. Seaweed fishing and cage fishing supply chains are natural candidates for PS engagement as input material requirements and further processing goes beyond local supply chains. Furthermore, the corporate social responsibility (CSR) efforts of larger companies in the commercial and industrial fishing sector will be engaged as potential sources of project co-financing. These issues will be given special attention in the PPG phase of the project.

### *Knowledge generation and sharing*

Knowledge management, information sharing and best practice exchange will be important elements and will be included as project outcomes and outputs. Knowledge products and communication materials produced by the project, including training tools and publications documenting best practices, will be widely shared to stakeholders through the project and/or partner information avenues. The project will produce knowledge products on key innovations developed and implemented, such as community based marine resources management and transboundary cooperation in marine fisheries.

An M&E system (gender sensitive) will also be set up along with a communication plan to enhance the knowledge management aspect. Project experiences and lessons from joint management, public participation and environmental education on transboundary marine resources management will be promoted in cooperation with GEF IW: Learn website and its networks, possibly even associated events, where the project and its results can be presented. Furthermore, the project will be featured on the SADC website and regional platforms. Ultimately the experiences will be expanded to AWF, NEPAD, AfDB communication tools and other global marine resources management forums.

### **Policy frameworks**

Several critical frameworks affect the governance and management of fisheries in the Mozambique Channel. These are summarized below.

### *International frameworks*

Most SADC countries are party to the legally binding international fisheries instruments, especially those relating to IUU fishing, whilst SADC laws, institutions and policies are underpinned by voluntary fisheries instruments. The international instruments of importance to fisheries are summarized in the table below.

The legally binding	The voluntary instruments
<ul style="list-style-type: none"> <li>• 1982 United Nations Convention on the Law of the Sea</li> <li>• 1993 FAO Compliance Agreement</li> <li>• 1995 United Nations Fish Stocks Agreement</li> <li>• 2009 FAO Agreement on Port State Measures to Prevent, Deter and Eliminate IUU Fishing</li> </ul>	<ul style="list-style-type: none"> <li>• 1995 FAO Code of Conduct for Responsible Fisheries</li> <li>• 2001 FAO International Plan of Action to combat IUU fishing</li> <li>• 2014 FAO Guidelines on Flag State Performance</li> </ul>

### The SWIO frameworks

The key projects in this region are presented in the section on baseline projects. The key guideline documents from these are the WIO regional TDA and SAP which form the basis of this proposal in that the proposal seeks to implement the priorities of the SAP at the same time aligning them with the policy directives of SADC.

### SADC frameworks

2001	SADC Heads of State endorsed the SADC Protocol on Fisheries – a landmark regional policy that provided the stepping stone for region-wide commitment to fisheries cooperation.
2001 to 2006	The first regional project providing MCS capacity building and support to understand IUU fishing in the region, the SADC Regional MCS Project for Marine Fisheries funded by EU and operational in all SADC coastal states.
2006 to 2008	The SADC Secretariat, the Namibian government, regional experts and the UK government, built a partnership that became the Stop Illegal Fishing Network to galvanize action and to bring players and partners together to fight IUU fishing.
2008	SADC Ministers responsible for marine fisheries signed the SADC Statement of Commitment to combat IUU fishing, which is annexed to the Protocol on Fisheries and is at the heart of the SADC's efforts to set-up of the MCSCC to enable regional coordination to combat IUU fishing in SADC waters.
2011	A regional SADC IUU Task Force and SADC Regional Technical Team for the SADC MCSCC were initiated to guide implementation of the Statement of Commitment and development of the MCSCC.
2017	The SADC Charter Establishing Fisheries Monitoring, Control and Surveillance Centre was finalized providing the legal framework for the establishment and operationalization of the institution to coordinate MCS in the SADC – the MCSCC.
2017	SADC Ministers for Environment and Natural Resources, Fisheries and Aquaculture, and Tourism, in November 2017, approved the establishment of the Interim Project Management Unit (IPMU) to advance the operationalization of the MCSCC.
2021	The IPMU is operational and has incorporated mechanisms from the FISH-i Africa Task Force, including the information sharing portal.

*SOURCE: SADC. 2021. Protecting our fisheries – working towards a common future. Gaborone. Botswana.*

SADC operates on the principle that if countries fully collaborate, each country will gain more individually and the overall benefits to the region will be greater than if countries acted alone. Two significant developments have shaped SADC fisheries cooperation in the past 20 years. The SADC Protocol on Fisheries was negotiated between all SADC states, providing the first regional and legally binding policy to guide the sector. While the protocol was regionally grounded it was inspired by the 1995 FAO Code of Conduct for Responsible Fisheries. In the same period, the two sector coordinating units, for marine fisheries based in Namibia, and for inland fisheries based in Malawi, were replaced by an integrated and centralized coordination of fisheries from within the Directorate of Food, Agriculture and Natural Resources (FANR) within SADC headquarters in Gaborone, Botswana. Following on these landmark developments the SADC has developed a range of fisheries dedicated policy commitments and initiatives that promote cooperation as a means of tackling entrenched issues including regional fisheries management and IUU fishing. These are summarized in the table below.

#### *The SADC Protocol on Fisheries*

The objective of the Protocol is to promote responsible and sustainable use of the living aquatic resources and aquatic ecosystems of interest to State Parties in order to: a) promote and enhance food security and human health; b) safeguard the livelihood of fishing communities; c) generate economic opportunities for nationals in the Region; d) ensure that future generations benefit from these renewable resources; and e) alleviate poverty with the ultimate objective of its eradication.

The protocol covers all fishery resources in the region. The key principle of the protocol relevant for the proposed project is Article 4, item 3 which states that “State Parties shall take appropriate measures to regulate the use of living aquatic resources and protect the resources against over-exploitation, whilst creating an enabling environment and building capacity for the sustainable utilisation of the resources.”

Specifically, Article 5, Item 3 informs and guides the propositions in the planned project. The item states that: “State Parties shall co-operate in exchange of information on: a) the state of the shared resources; b) levels of fishing effort; c) measures taken to monitor and control exploitation of shared resources; d) plans for new or expanded exploitation; and e) relevant research activities and results.”

#### *The SADC Climate Change Policy*

Noting that climatic and ecological regions transcend national political boundaries, SADC, through the SADC Secretariat, has developed the SADC Climate Change Strategy and Action Plan (CCSAP), to provide a broad outline for harmonized and coordinated regional actions to address and respond to the impacts of climate change and to plan for a low-carbon resilient future. The overarching objective of the CCSAP is to enhance the adaptive capacities and resilience of Member States (MS) with a view to minimizing their vulnerability; pursue a low-carbon growth path dictated by the principles of the green and circular economy, sustainable development, and poverty reduction; and orient governance, knowledge systems, planning, and national/regional/international structures to addressing climate change as a development imperative.

The CCSAP references the Protocol and calls for strategies that (1) promote sustainable utilization of fisheries (marine and aquaculture) resources, (2) reduce vulnerability of fisheries to climate change and variability, and (3) promote improved data collection and information sharing.

The policy recommends key actions including (1) enhance capacity building in coastal and main land communities on sustainable utilization of resources to reduce climate change vulnerability, (2) improve

knowledge about the effects of climate change and variability on eco-systems and coastal/marine resources, (3) develop an effective monitoring and evaluation, control and surveillance (MCS) system for marine fisheries, and (4) conduct awareness raising events to share relevant information on existing laws, fish stocks, climate change threats to marine resources and ecosystems, adaptive techniques and others.

### **Project Member States Frameworks**

The fisheries policy frameworks for the project countries are all country specific. It is hoped therefore that by collaborating more closely and sharing their fisheries instruments the countries can learn from each other but also unpack the common elements in each other's individual approaches that can be upscaled to the wider SADC region.

**Mozambique** has several sector instruments for the development of fisheries and aquaculture. The Fisheries Master Plan 2010-19 (FMP 2010-19) corresponds to the immediate objective of PARP (Action Plan for Poverty Reduction 2010-14) and directs efforts in the fisheries sector towards the goal of poverty reduction in the country. The FMP 2010-19 aims at increasing food security, improving the living conditions of the communities living through fishing and small-scale aquaculture, greater fundraising from commercial fisheries for poverty alleviation and a growing contribution to the country's balance of payments. All subsequent fisheries instruments derive from the FMP 2010-19.

The Strategic Plan of the Sub-Sector of Artisanal Fisheries (PESPA) aims to improve the living conditions of artisanal fishermen in the communities. It targets fishing activities based on traditional crafts and methods and advocates more advanced forms of fishing. It also supports expanded marketing networks for fishery products and inputs, providing a solid base for sustainability and development of artisanal fishing activities. Importantly, it promotes the diversification of the activities of members from the communities while providing education and water supply in a bid to strengthen the capacity of communities to solve their priority problems.

The Strategic Plan for Fishery Inspection (PEIP) seeks to ensure that a competent national authority is developed and authorized to give official guaranties, with no restrictions, to access to food of aquatic origin for its availability in the international markets. It supports actions that improve the quality of hygiene and health in food products of artisanal fishing and small-scale aquaculture. Its ultimate goal is fisheries certification. It aims to gradually create conditions for all industrial establishments and commercial fishing vessels to sell products to the domestic market only if in possession of a sanitary certificate.

The country also has a document of MCS Policies and Strategies that aim to improve the MCS system in Mozambique through the coordination of the Ministry of Fisheries. The document provides a technical approach, a geographical area and the human, technical and financial resources necessary to achieve the vision and objectives of the MCS policy in Mozambique.

The country has a National Plan of Action to Prevent, Impede and Eliminate Illegal, Unreported and Unregulated (NPOA-IUU) Fishing. This is a policy document that seeks to address national and international concerns for states to adopt a national plan that brings together efforts to prevent, impede and eliminate illegal, unreported and unregulated fishing. This document is patterned after the FAO IPOA-IUU and brings the efforts down to the national and regional level to deter and eliminate IUU fishing.

Since 1994, the **Comoros** have formulated a National Environment Policy (NEP), an Environmental Action Plan and strategies for implementation of this policy. These policies and strategies also include strategies for agriculture as well as marine and coastal resources, aimed at better management of these resources. There is also the national tourism strategy which is aimed at promoting tourism in the Comoros and the Environmental Action Plan (EAP) which is aimed at promoting better environmental management. The strategy for implementation of NEP is based on establishing real partnership between government, NGOs, private sector and local communities, strengthening institutions and environmental legislations.

**Madagascar** issued the National Environmental Action Plan (PNAE), in 1989. The plan has four objectives: designed to prevent environmental degradation and create closer ties between the population and its environment: (1) to develop human resources through environmental education, training and active participation; (2) to improve environmental management; (3) to promote biodiversity conservation and management; and (4) improve living standards for both urban and rural areas.

In 1999, Madagascar issued a ministerial decree established the Fisheries Surveillance Center (Centre de Surveillance des Pêches – CSP). The mandate of the CSP is to ensure compliance with fishing regulations for the preservation of fishery resources and the sustainable development of fisheries. The CSP is a public administrative body benefitting from an autonomy status for financial management, belonging to three ministries: MFFR, the Ministry in charge of budget, and the Ministry in charge of public accounting.

In 2010 the country issued the [Decree N° 2010-137](#) which regulates Integrated Coastal Zone Management (ICZM) in the country. It was initiated in 2002 and is one of Madagascar National policies / strategies related to mangroves or coastal ecosystem. This policy lays the foundation for a comprehensive, multi-stakeholder and multi-sector planning approach, which includes coordination between relevant administrative levels and Ministries.

### **Project innovativeness**

Project innovativeness relates to its truly integrated, cross-sectoral, inclusive and participatory nature. First, the project aims to promote local level engagement regional marine resources management mechanisms. This will be achieved by implementing regionally formulated policy frameworks such as the SADC Protocol on Fisheries at the local level. By bringing multiple stakeholders together in the protocol actions, and providing a mechanism for openly sharing marine fisheries data, the project builds both ownership of regional initiatives as well as trust among the players at different levels from the community level to the regional level. The common platforms enable different interests, including those of the private sector, to be openly debated and reconciled with environmental concerns and developmental, or livelihood goals, at the local, national and regional levels.

Second, the community level monitoring of both fisheries habitats and climate stresses is a key innovation in the African context in that focus for fisheries management is shifted from access to, and use of, marine fisheries resources for mere survival to their protection and preservation in pursuit of higher regional and even global goals. Furthermore, embedding the regional project activities in both the national and local government institutional frameworks will facilitate effective implementation and mainstreaming long after the funded phase of the project is concluded. By allowing the key stakeholders to define the course of action, participate in the data collection and dissemination, the project is promoting ownership by beneficiaries and better dispersal of lessons learned.

Lastly, the Mozambique Channel has experienced coastal degradation over the years without a joint approach by the countries in the sub-region to resolve the problem. By fostering cooperation between hitherto competing countries and unconnected communities the project will help foster a sense of common ownership of shared marine resources. Thus, the potential impact of the project goes beyond just management of marine resources but will inculcate a sense of joint responsibility.

With respect to sustainability, the focus on capacity building at both institutional and community level will not only establish the infrastructure and systems for cooperation but will also generate lasting knowledge that can be utilized for future replication in other parts of the larger SADC region. Furthermore, and perhaps more importantly, the project seeks to bring hitherto standalone marine health initiatives such as SWIOFish into the SADC policy framework by (1) coordinating all activities through the SADC Secretariat and (2) aligning and integrating SWIO regional TDA and SAP activities with the requirements and provisions of the SADC Protocol on Fisheries.

## Core Indicators

Project Core Indicators		Expected at PIF
2	<b>Marine protected areas</b> created or under improved management for conservation and sustainable use (Hectares)	8,000
5	Area of <b>marine habitat under improved practices</b> (excluding protected areas) (Hectares)	4,000
7	<b>Number of shared water ecosystems</b> (fresh or marine) under new or improved cooperative management	1
8	Globally over-exploited <b>marine fisheries</b> moved to more sustainable levels (metric tons)	127,604
11	Number of <b>direct beneficiaries disaggregated by gender</b> as co-benefit of GEF investment.	1,560 females and 1,440 males

[1] TRANSFORMING OUR WORLD: THE 2030 AGENDA FOR SUSTAINABLE DEVELOPMENT A/RES/70/1. [sustainabledevelopment.un.org](https://sustainabledevelopment.un.org)

### Coordination and Cooperation with Ongoing Initiatives and Project.

Does the GEF Agency expect to play an execution role on this project?

No

If so, please describe that role here. Also, please add a short explanation to describe cooperation with ongoing initiatives and projects, including potential for co-location and/or sharing of expertise/staffing

**The proposed GEF project is building on past and on-going projects as presented earlier in the project rationale and justification section. As such the proposed project will cooperate and coordinate its activities with those of on-going activities. The aim is to complement the activities of the on-going projects and avoid duplication of effort. This aim will be realized by (1) avoiding working in the same geographical locations where similar activities are being done and (2) building on the existing structures that have been set up by other initiatives in the project areas and (3) jointly plan complementary activities in areas of joint operations.**

Particularly, the proposed GEF project will follow-on and build on the activities of SWIOFISH projects under which community-based fisheries organizations have been established. (This is a specific output of this project). Other similar national level and regional projects will also be engaged with in similar manner. For example, SWIO-Lab will be engaged to jointly analyze project data.

The project also recognizes the many local level projects that are being carried at various locations in the coastline and coastal zones in the Mozambique Channel. These kinds of projects are usually driven by civil society organizations (CSO) and non-governmental organizations (NGOs) and other similar non-state actors (NSAs). The project will seek to engage such organizations and enlist them to implement project activities at the local level in the identified project areas.

A critical consideration will be the use of the institutional memory and capacity that has been built in marine fisheries management and governance in the wider SWIO region and SADC over the years. The project will make deliberate efforts to engage sector specialists who have participated or played a role in prior projects. Such personalities will be invited to formally join as staff on the project or to assume advisory roles in the many project initiatives at both the local level and in broader initiatives such as project dialogues.

## Core Indicators

### Indicator 2 Marine protected areas created or under improved management

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
8000	0	0	0

### Indicator 2.1 Marine Protected Areas Newly created

Total Ha (Expected at PIF)	Total Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
0	0	0	0

Name of the Protected Area	WDPA ID	IUCN Category	Total Ha (Expected at PIF)	Total Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
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### Indicator 2.2 Marine Protected Areas Under improved management effectiveness

Total Ha (Expected at PIF)	Total Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
8000	0	0	0

Name of the Protected Area	WDP A ID	IUCN Category	Total Ha (Expected at PIF)	Total Ha (Expected at CEO)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)	METT score (Baseline at CEO)	METT score (Achieved)	METT score (Achieved)
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				Endorsement)			Endorsement)	ed at MTR)	ed at TE)
Bazaruto Archipelago National Park		Protected area with sustainable use of natural resources	3,000.00						
Moheli Marine Park		Protected area with sustainable use of natural resources	1,000.00						
Nosy Atafana Parc Marine		Protected area with sustainable use of natural resources	2,000.00						
Tanga Collaborative Management Areas		Protected area with sustainable use of natural resources	2,000.00						

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

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
4,000.00			

#### Indicator 5.1 Fisheries under third-party certification incorporating biodiversity considerations

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

#### Type/name of the third-party certification

#### Indicator 5.2 Large Marine Ecosystems with reduced pollution and hypoxia

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



LME at PIF	LME at CEO Endorsement	LME at MTR	LME at TE

### Indicator 5.3 Marine OECMs supported

Name of the OECMs	WDPA-ID	Total Ha (Expected at PIF)	Total Ha (Expected at CEO Endorsement)	Total Ha (Achieved at MTR)	Total Ha (Achieved at TE)
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### Indicator 7 Shared water ecosystems under new or improved cooperative management

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
Shared water Ecosystem	Area 51 ( Indian Ocean, Western)			
Count	1	0	0	0

### Indicator 7.1 Level of Transboundary Diagnostic Analysis and Strategic Action Program (TDA/SAP) formulation and implementation (scale of 1 to 4; see Guidance)

Shared Water Ecosystem	Rating (Expected at PIF)	Rating (Expected at CEO Endorsement)	Rating (Achieved at MTR)	Rating (Achieved at TE)
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### Indicator 7.2 Level of Regional Legal Agreements and Regional management institution(s) (RMI) to support its implementation (scale of 1 to 4; see Guidance)

Shared Water Ecosystem	Rating (Expected at PIF)	Rating (Expected at CEO Endorsement)	Rating (Achieved at MTR)	Rating (Achieved at TE)
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### Indicator 7.3 Level of National/Local reforms and active participation of Inter-Ministerial Committees (IMC; scale 1 to 4; See Guidance)

Shared Water Ecosystem	Rating (Expected at PIF)	Rating (Expected at CEO Endorsement)	Rating (Achieved at MTR)	Rating (Achieved at TE)
Area 51 ( Indian Ocean, Western)	1			

### Indicator 7.4 Level of engagement in IWLEARN through participation and delivery of key products(scale 1 to 4; see Guidance)

Shared Water Ecosystem	Rating (Expected at PIF)	Rating (Expected at CEO Endorsement)	Rating (Achieved at MTR)	Rating (Achieved at TE)
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### Indicator 8 Globally over-exploited fisheries moved to more sustainable levels

Metric Tons (Expected at PIF)	Metric Tons (Expected at CEO Endorsement)	Metric Tons (Achieved at MTR)	Metric Tons (Achieved at TE)
127,604.00			

### Fishery Details

The estimate of over-exploited marine fisheries of 127,604 is based on the total marine fisheries production for each project country as estimated by the World Bank.

### Indicator 11 People benefiting from GEF-financed investments

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
<b>Female</b>	1,560			
<b>Male</b>	1,440			
<b>Total</b>	<b>3,000</b>		<b>0</b>	<b>0</b>

Explain the methodological approach and underlying logic to justify target levels for Core and Sub-Indicators (max. 250 words, approximately 1/2 page)

The marine protected areas estimate of 8000 ha assumes that project activities will be confined to about 7% of the total marine protected areas in the project countries which amount to 16,125 square kilometers. The Area of marine habitat under improved practices is estimated as a fraction of the area of mangrove forest and swamps that occupies the coastal zones of the project countries.

The estimate of over-exploited marine fisheries of 127,604 is based on the total marine fisheries production for each project country as estimated by the World Bank. The justification for each country is presented in the below table.

COUNTRY	TOTAL	Alloc.	PROJECT	JUSTIFICATION
Mozambique	120,000	60%	72,000	The project will operate along 60% of the coastline of the entire coastline of Mozambique.
Madagascar	130,000	30%	39,000	The project will operate along 60% of the western coastline of Madagascar.
Comoros	20,755	80%	16,604	Assuming 80% of the entire Comoros coastline will be part of the project.
<b>TOTAL</b>	<b>270,755</b>		<b>127,604</b>	All the figures are World Bank estimates for the years 2019, 2020 and 2021.

The population of direct beneficiaries disaggregated by gender is estimated as 0.03% of the total 10 million population living in the coastal zones of the Mozambique Channel project countries based on a gender ration of 52% females to 48% males which is an average split in the project countries and much of SADC.

### Risks to Project Preparation and Implementation

Summarize risks that might affect the project preparation and implementation phases and what are the mitigation strategies the project preparation process will undertake to address these (e.g. what alternatives may be considered during project preparation- such as in terms of consultations, role and choice of counterparts, delivery mechanisms, locations in country, flexible design elements, etc.). Identify any of the risks listed below that would call in question the viability of the project during its implementation. Please describe any possible mitigation measures needed. (The risks associated with project design and Theory of Change should be described in the "Project description" section above). The risk rating should reflect the overall risk to project outcomes considering the country setting and ambition of the project. The rating scale is: High, Substantial, Moderate, Low.

Risk Categories	Rating	Comments
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Climate	High	<p>The frequency of cyclones is increasing in the Indian Ocean and the risk of at least one cyclone event occurring during the project lifespan is real. Interruptions to project activities are thus anticipated.</p> <p>MITIGATION: The project will encourage more widespread use of the EWS that are nationally managed by the project countries. The SADC Climate Services Centre (CSC) will be encouraged to work closely with the FANR managing the project so that climate information is mainstreamed in project activities and evidence-based decisions made as and when required. The design of the project will also include climate proofing measures.</p>
Environment and Social	Moderate	<p>The issue of marine pollution is not the focus of this project. however, it is expected that pollution especially that of plastics and effluent will impact the project activities.</p> <p>MITIGATION: The private sector and local governments will be encouraged to adopt “circular economy solutions” to reduce the production and consumption of plastic by revising their byelaws and trade practices, e.g., banning of single use plastic bags and bottles as well as increased use of reusables. Recycling initiatives targeting SMEs and community youth will also be encouraged. In addition, awareness raising on plastics and effluent will be embed in wider climate shock and resilience campaigns of the project at the local community level. The PS will be encouraged to support such initiatives as part of their CSR activities. Local population gives higher priority to short-term livelihoods activities than to support coastal zone sustainable management</p>

		efforts. MITIGATION: The project will include incentives for local communities to participate in the project by working through existing institutions and appropriate information dissemination.
Political and Governance	Substantial	Lack of sustained political commitment to collaboration and joint project initiatives. MITIGATION: The project will be executed through SADC working through existing national institutions to spread benefits, costs and region wide responsibilities. Furthermore, the inclusion of legislators and policy makers in project fisheries dialogues will help resolve this challenge.
Macro-economic		
Strategies and Policies	High	Countries have own policies and strategies for fisheries management which they may not be willing to change for sovereignty reasons or simply because it takes long to have them changed once they are enshrined in the national laws. Policy harmonization is therefore not likely to be achieved during the lifetime of the proposed project. MITIGATION: It will be stressed early in the project that policy harmonization during the lifespan is not a project result. Rather, the focus will be on starting the process that leads to policy harmonization. This way, the stakeholders will take ownership of the policy changes that they will agree on eventually.
Technical design of project or program	High	Deficient technical and institutional capacity for fisheries governance and management in the project country institutions. MITIGATION: The project will finance priority capacity-building activities at the regional, national and local levels and

		encourage cross learning to leverage and upscale existing capacity.
Institutional capacity for implementation and sustainability	High	RMCs and SADC itself have capacity challenges with regard to manpower, skillsets, equipment and finances. MITIGATION: The project will counter this through seconding of staff across institutions and technical assistance from external experts. Also, peer-to-peer learning and training of trainers approaches are intended to cover these deficiencies.
Fiduciary: Financial Management and Procurement	High	The riparian states and SADC have no resources to augment the requested grant financing and implement project activities beyond the funded phase. MITIGATION: The requested grant finance will also help SADC expedite the operationalization of its own institutional frameworks, for example the CSC will compel countries to pay their contributions towards SADC wide Climate monitoring activities.
Stakeholder Engagement		It is important to note that communication and stakeholder participation will pose a significant challenge when working across the extensive sub-region, especially due to the different languages, many countries and accessibility of some coastal communities involved. MITIGATION: Advice will be sought from the countries based on their experience with prior similar projects. The communication network will also be deliberately expanded to ensure broad communications and stakeholder participation. Where necessary and unavoidable formal translation services will be engaged.

Other	Moderate	<p>The post COVID 19 pandemic effects are likely to impact negatively on the economic performance of the countries involved in the project and curtail their capacity to co-finance the project. Furthermore, the loss of requisite manpower due to covid deaths cannot be ignored whilst community apprehension and therefore diminished participation in project activities can be anticipated. MITIGATION: It is hoped that the Covid impacts in the project countries is not catastrophic. However, the project will endeavour to support the countries seek more co-financing from other sources including bi-lateral arrangements. This may result in delayed implementation and the project will factor this in its work plan and procurement arrangements</p>
Financial Risks for NGI projects		
Overall Risk Rating	Moderate	<p>Working through existing systems and learning from on-going and immediate past project is likely to make implementation easier. The safeguards risk rating is considered “moderate”. However, a detailed assessment of the actual risks and required safeguards shall be determined at the PPG stage when the exact hot spots and other project areas are fully determined. The locations of these sites, and subsequent consultations with the affected people, will clarify which communities will be affected, what vulnerabilities they face, what compensatory measures need to be considered and whether total or partial relocations will be required.</p>

### C. ALIGNMENT WITH GEF-8 PROGRAMMING STRATEGIES AND COUNTRY/REGIONAL PRIORITIES

Describe how the proposed interventions are aligned with GEF- 8 programming strategies and country and regional priorities, including how these country strategies and plans relate to the multilateral environmental agreements.

Confirm if any country policies that might contradict with intended outcomes of the project have been identified, and how the project will address this.

For projects aiming to generate biodiversity benefits (regardless of what the source of the resources is - i.e., BD, CC or LD), please identify which of the 23 targets of the Kunming-Montreal Global Biodiversity Framework the project contributes to and explain how. (max. 500 words, approximately 1 page)

Broadly, the proposed GEF project supports the International Waters Focal Area goal to support transboundary cooperation in shared marine and freshwater ecosystems, albeit focusing on marine ecosystems. The GEF8 focal area objective is to “accelerate joint action to support a Sustainable Blue Economy”. The targeted sub-objectives are:

- 1) Sustaining healthy blue ecosystems; and
- 2) Advancing sustainable fisheries management.

Under (1) the project targets the following IW entry points:

- Foster collaboration among LMEs, Regional Seas Conventions and Regional Fisheries Management Organizations (RFMOs) to protect and restore these key habitats.
- Restore degraded key marine and coastal habitats through deployment of Nature-based Solutions and Payment for Ecosystems Services demonstrations; and
- Mainstream marine area-based management and spatial tools in regional entities, to deliver towards global targets.

Under (2) the project targets the following IW entry points:

- Strengthening and creating policy frameworks, including work with countries to eliminate harmful incentive structures; and
- Development of sustainability indicators and monitoring systems in respect to the local ecological carrying capacities, considering observed and projected impacts of climate change, biodiversity loss, natural disasters, overfishing and pollution.

Through the Bank baseline the project also contributes to the following:

- Implementation of market mechanisms to support sustainable fisheries value chains.
- Advancement of adoption and implementation of the Port State Measures Agreement; and,
- Stimulate private sector engagement, through relevant industry sectoral roundtables and industry groups.

In addition to meeting GEF targets the project very much addresses Global Biodiversity Framework (GBF) targets. Target 8 on climate impacts is addressed through Component 1 of the project, Target 2 on degraded ecosystems is addressed in Component 2 through the restoration of mangrove forests, Targets 1 and 11 on participatory approaches and sustainable use through the use of nature based solutions are the central themes of the proposed project. The specific GBF targets are stated as follows:

**TARGET 8:** Minimize the impact of climate change and ocean acidification on biodiversity and increase its resilience through mitigation, adaptation, and disaster risk reduction actions, including through nature-based solutions and/or ecosystem-based approaches, while minimizing negative and fostering positive impacts of climate action on biodiversity.

**TARGET 2:** Ensure that by 2030 at least 30 per cent of areas of degraded terrestrial, inland water, and marine and coastal ecosystems are under effective restoration, in order to enhance biodiversity and ecosystem functions and services, ecological integrity and connectivity.

TARGET 1: Ensure that all areas are under participatory, integrated and biodiversity inclusive spatial planning and/or effective management processes addressing land- and sea-use change, to bring the loss of areas of high biodiversity importance, including ecosystems of high ecological integrity, close to zero by 2030, while respecting the rights of indigenous peoples and local communities.

TARGET 11: Restore, maintain, and enhance nature's contributions to people, including ecosystem functions and services, such as the regulation of air, water and climate, soil health, pollination, and reduction of disease risk, as well as protection from natural hazards and disasters, through nature-based solutions and/or ecosystem-based approaches for the benefit of all people and nature.

In some respects, the project also touches on Target 19c and 19d on blended financing and the payment for ecosystem services respectively as well as Target 23 on gender equality and special attention to women in decision making structures.

#### D. POLICY REQUIREMENTS

##### **Gender Equality and Women's Empowerment:**

We confirm that gender dimensions relevant to the project have been addressed as per GEF Policy and are clearly articulated in the Project Description (Section B).

Yes

##### **Stakeholder Engagement**

We confirm that key stakeholders were consulted during PIF development as required per GEF policy, their relevant roles to project outcomes and plan to develop a Stakeholder Engagement Plan before CEO endorsement has been clearly articulated in the Project Description (Section B).

Yes

##### **Were the following stakeholders consulted during project identification phase:**

Indigenous Peoples and Local Communities: Yes

Civil Society Organizations: Yes

Private Sector: Yes

##### **Provide a brief summary and list of names and dates of consultations**

Consultations were carried out over a three-year period from 2020 to 2023. The AfDB baseline and GEF co-financing projects were formulated jointly and discussed with regional stakeholders at the same meetings. These meetings were held in Gaborone, Botswana. Several workshops were held, namely preparation mission, appraisal mission, and review meetings. In addition, several bi-lateral follow-up meetings were held with a number of sector specialists in the region. During the consultations and discussions, the GEF project focus shifted several times before the current version was finally agreed. The relevant SADC ministers have been informed of the pending GEF project and it has high level political support in the region. Below we share the contact details of the participants during the consultations.

##### **Review mission 29<sup>th</sup> March to April 1<sup>st</sup> 2022**



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### Appraisal Mission 15<sup>th</sup> – 30<sup>th</sup> JUNE 2021

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### Preparation Mission, 15th – 18th DECEMBER 2020.

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(Please upload to the portal documents tab any stakeholder engagement plan or assessments that have been done during the PIF development phase.)

### Private Sector

Will there be private sector engagement in the project?

Yes

And if so, has its role been described and justified in the section B project description?

Yes

### Environmental and Social Safeguard (ESS) Risks

We confirm that we have provided indicative information regarding Environmental and Social risks associated with the proposed project or program and any measures to address such risks and impacts (this information should be presented in Annex D).

Yes

### Overall Project/Program Risk Classification

PIF	CEO Endorsement/Approval	MTR	TE
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Medium/Moderate

## E. OTHER REQUIREMENTS

### Knowledge management

We confirm that an approach to Knowledge Management and Learning has been clearly described in the Project Description (Section B)

Yes

## ANNEX A: FINANCING TABLES

### GEF Financing Table

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



GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	Grant / Non-Grant	GEF Project Grant(\$)	Agency Fee(\$)	Total GEF Financing (\$)
AfDB	GET	Regional	International Waters	International Waters: IW-1	Grant	5,250,000.00	498,750.00	5,748,750.00
<b>Total GEF Resources (\$)</b>						<b>5,250,000.00</b>	<b>498,750.00</b>	<b>5,748,750.00</b>

### Project Preparation Grant (PPG)

Is Project Preparation Grant requested?

true

PPG Amount (\$)

150000

PPG Agency Fee (\$)

14250

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	Grant / Non- Grant	PPG(\$)	Agency Fee(\$)	Total PPG Funding(\$)
AfDB	GET	Regional	International Waters	International Waters: IW-1	Grant	150,000.00	14,250.00	164,250.00
<b>Total PPG Amount (\$)</b>						<b>150,000.00</b>	<b>14,250.00</b>	<b>164,250.00</b>

Please provide justification

### Sources of Funds for Country Star Allocation

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Sources of Funds	Total(\$)
<b>Total GEF Resources</b>					<b>0.00</b>

### Indicative Focal Area Elements

Programming Directions	Trust Fund	GEF Project Financing(\$)	Co-financing(\$)
IW-1-2	GET	5,250,000.00	14200000

<b>Total Project Cost</b>		<b>5,250,000.00</b>	<b>14,200,000.00</b>
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### Indicative Co-financing

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Investment Mobilized	Amount(\$)
GEF Agency	African Development Bank (Regional Public Goods Window)	Grant	Investment mobilized	10200000
Recipient Country Government	The Comoros	In-kind	Recurrent expenditures	1000000
Recipient Country Government	Madagascar	In-kind	Recurrent expenditures	1500000
Recipient Country Government	Mozambique	In-kind	Recurrent expenditures	1500000
<b>Total Co-financing</b>				<b>14,200,000.00</b>

Describe how any "Investment Mobilized" was identified

The GEF project was developed jointly with the Bank baseline project after requests from the regional member states and the SADC Secretariat.

### ANNEX B: ENDORSEMENTS

#### GEF Agency(ies) Certification

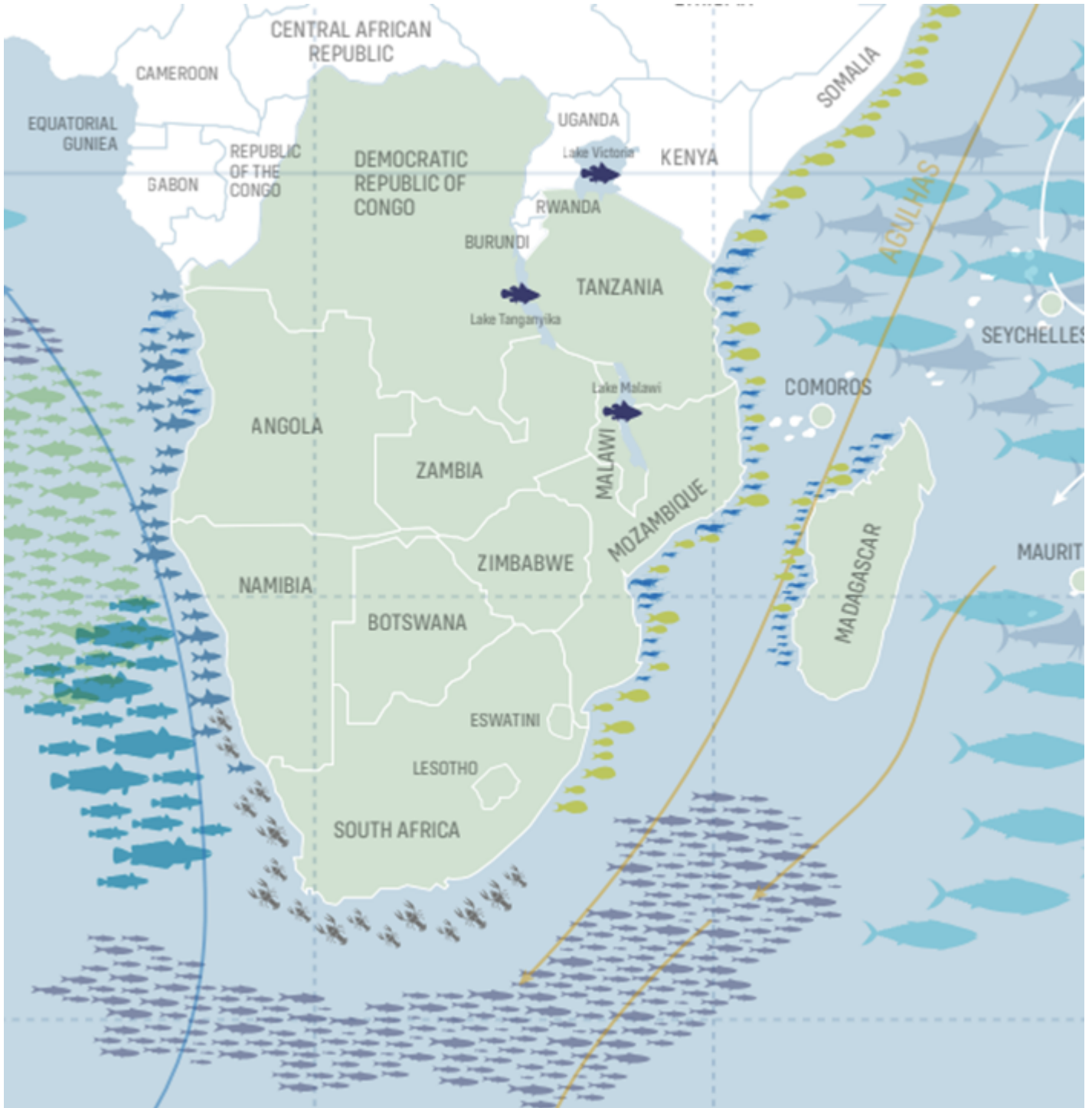
GEF Agency Type	Name	Date	Project Contact Person	Phone	Email
GEF Agency Coordinator	Ayanleh Daher Aden	10/18/2023	Ahmed S. Khan		a.khan@afdb.org

#### Record of Endorsement of GEF Operational Focal Point (s) on Behalf of the Government(s):

Name	Position	Ministry	Date (MM/DD/YYYY)
Mr. Youssouf Elamine Youssouf Mbechezi	Director General for Environment and Forests	Ministry of Agriculture, Fishing, Environment and City Planning	10/11/2023
Mr. Hery Andriamirado Rakotondravony		Ministry of Environment and Sustainable Development	10/17/2023
Mr. Eduardo Baixo	Head of Department of Mitigation and Low Carbon Development	Ministry of Land and Environment	10/16/2023

ANNEX C: PROJECT LOCATION

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



ANNEX D: ENVIRONMENTAL AND SOCIAL SAFEGUARDS SCREEN AND RATING

(PIF level) Attach agency safeguard screen form including rating of risk types and overall risk rating.

Title

SADC Fish Preliminary safeguard screening\_Oct23

## ANNEX E: RIO MARKERS

Climate Change Mitigation	Climate Change Adaptation	Biodiversity	Land Degradation
No Contribution 0	Significant Objective 1	No Contribution 0	No Contribution 0

## ANNEX F: TAXONOMY WORKSHEET

Level 1	Level 2	Level 3	Level 4
<b>Influencing models</b>			
	<b>Transform policy and regulatory environments</b>		
	<b>Strengthen institutional capacity and decision-making</b>		
	<b>Convene multi-stakeholder alliances</b>		
	<b>Demonstrate innovative approaches</b>		
	<b>Deploy innovative financial instruments</b>		
<b>Stakeholders</b>			
	<b>Indigenous Peoples</b>		
	<b>Private Sector</b>		
		Capital providers	
		Financial intermediaries and market facilitators	
		Large corporations	
		SMEs	
		Individuals/Entrepreneurs	
		Non-Grant Pilot	
		Project Reflow	
	<b>Beneficiaries</b>		
	<b>Local Communities</b>		
	<b>Civil Society</b>		
		Community Based Organization	
		Non-Governmental Organization	
		Academia	
		Trade Unions and Workers Unions	
	<b>Type of Engagement</b>		
		Information Dissemination	
		Partnership	
		Consultation	
		Participation	
	<b>Communications</b>		
		Awareness Raising	
		Education	
		Public Campaigns	
		Behavior Change	
<b>Capacity, Knowledge and Research</b>			
	<b>Enabling Activities</b>		
	<b>Capacity Development</b>		
	<b>Knowledge Generation and Exchange</b>		
	<b>Targeted Research</b>		
	<b>Learning</b>		
		Theory of Change	
		Adaptive Management	
		Indicators to Measure Change	
	<b>Innovation</b>		
	<b>Knowledge and Learning</b>		
		Knowledge Management	
		Innovation	
		Capacity Development	
		Learning	
	<b>Stakeholder Engagement Plan</b>		
<b>Gender Equality</b>			

	<b>Gender Mainstreaming</b>		
		Beneficiaries	
		Women groups	
		Sex-disaggregated indicators	
		Gender-sensitive indicators	
	<b>Gender results areas</b>		
		Access and control over natural resources	
		Participation and leadership	
		Access to benefits and services	
		Capacity development	
		Awareness raising	
		Knowledge generation	
<b>Focal Areas/Theme</b>			
	<b>Integrated Programs</b>		
		Commodity Supply Chains (I <sup>2</sup> Good Growth Partnership)	
			Sustainable Commodities Production
			Deforestation-free Sourcing
			Financial Screening Tools
			High Conservation Value Forests
			High Carbon Stocks Forests
			Soybean Supply Chain
			Oil Palm Supply Chain
			Beef Supply Chain
			Smallholder Farmers
			Adaptive Management
		Food Security in Sub-Saharan Africa	
			Resilience (climate and shocks)
			Sustainable Production Systems
			Agroecosystems
			Land and Soil Health
			Diversified Farming
			Integrated Land and Water Management
			Smallholder Farming
			Small and Medium Enterprises
			Crop Genetic Diversity
			Food Value Chains
			Gender Dimensions
			Multi-stakeholder Platforms
		Food Systems, Land Use and Restoration	
			Sustainable Food Systems
			Landscape Restoration
			Sustainable Commodity Production
			Comprehensive Land Use Planning
			Integrated Landscapes
			Food Value Chains
			Deforestation-free Sourcing
			Smallholder Farmers
		Sustainable Cities	
			Integrated urban planning
			Urban sustainability framework
			Transport and Mobility
			Buildings
			Municipal waste management
			Green space
			Urban Biodiversity
			Urban Food Systems
			Energy efficiency
			Municipal Financing
			Global Platform for Sustainable Cities
			Urban Resilience
	<b>Biodiversity</b>		

		Protected Areas and Landscapes	
			Terrestrial Protected Areas
			Coastal and Marine Protected Areas
			Productive Landscapes
			Productive Seascapes
			Community Based Natural Resource Management
		Mainstreaming	
			Extractive Industries (oil, gas, mining)
			Forestry (Including HCVF and REDD+)
			Tourism
			Agriculture & agrobiodiversity
			Fisheries
			Infrastructure
			Certification (National Standards)
			Certification (International Standards)
		Species	
			Illegal Wildlife Trade
			Threatened Species
			Wildlife for Sustainable Development
			Crop Wild Relatives
			Plant Genetic Resources
			Animal Genetic Resources
			Livestock Wild Relatives
			Invasive Alien Species (IAS)
		Biomes	
			Mangroves
			Coral Reefs
			Sea Grasses
			Wetlands
			Rivers
			Lakes
			Tropical Rain Forests
			Tropical Dry Forests
			Temperate Forests
			Grasslands
			Paramo
			Desert
		Financial and Accounting	
			Payment for Ecosystem Services
			Natural Capital Assessment and Accounting
			Conservation Trust Funds
			Conservation Finance
		Supplementary Protocol to the CBD	
			Biosafety
			Access to Genetic Resources Benefit Sharing
	<b>Forests</b>		
		Forest and Landscape Restoration	
			REDD/REDD+
		Forest	
			Amazon
			Congo
			Drylands
	<b>Land Degradation</b>		
		Sustainable Land Management	
			Restoration and Rehabilitation of Degraded Lands
			Ecosystem Approach
			Integrated and Cross-sectoral approach
			Community-Based NRM
			Sustainable Livelihoods
			Income Generating Activities

			Sustainable Agriculture
			Sustainable Pasture Management
			Sustainable Forest/Woodland Management
			Improved Soil and Water Management Techniques
			Sustainable Fire Management
			Drought Mitigation/Early Warning
		Land Degradation Neutrality	
			Land Productivity
			Land Cover and Land cover change
			Carbon stocks above or below ground
		Food Security	
	<b>International Waters</b>		
		Ship	
		Coastal	
		Freshwater	
			Aquifer
			River Basin
			Lake Basin
		Learning	
		Fisheries	
		Persistent toxic substances	
		SIDS : Small Island Dev States	
		Targeted Research	
		Pollution	
			Persistent toxic substances
			Plastics
			Nutrient pollution from all sectors except wastewater
			Nutrient pollution from Wastewater
		Transboundary Diagnostic Analysis and Strategic Action Plan preparation	
		Strategic Action Plan Implementation	
		Areas Beyond National Jurisdiction	
		Large Marine Ecosystems	
		Private Sector	
		Aquaculture	
		Marine Protected Area	
		Biomes	
			Mangrove
			Coral Reefs
			Seagrasses
			Polar Ecosystems
			Constructed Wetlands
	<b>Chemicals and Waste</b>		
		Mercury	
		Artisanal and Scale Gold Mining	
		Coal Fired Power Plants	
		Coal Fired Industrial Boilers	
		Cement	
		Non-Ferrous Metals Production	
		Ozone	
		Persistent Organic Pollutants	
		Unintentional Persistent Organic Pollutants	
		Sound Management of chemicals and Waste	
		Waste Management	
			Hazardous Waste Management
			Industrial Waste
			e-Waste
		Emissions	
		Disposal	
		New Persistent Organic Pollutants	
		Polychlorinated Biphenyls	
		Plastics	
		Eco-Efficiency	
		Pesticides	
		DDT - Vector Management	

		DDT - Other	
		Industrial Emissions	
		Open Burning	
		Best Available Technology / Best Environmental Practices	
		Green Chemistry	
	<b>Climate Change</b>		
		<b>Climate Change Adaptation</b>	
			Climate Finance
			Least Developed Countries
			Small Island Developing States
			Disaster Risk Management
			Sea-level rise
			Climate Resilience
			Climate information
			Ecosystem-based Adaptation
			Adaptation Tech Transfer
			National Adaptation Programme of Action
			National Adaptation Plan
			Mainstreaming Adaptation
			Private Sector
			Innovation
			Complementarity
			Community-based Adaptation
			Livelihoods
		<b>Climate Change Mitigation</b>	
			Agriculture, Forestry, and other Land Use
			Energy Efficiency
			Sustainable Urban Systems and Transport
			Technology Transfer
			Renewable Energy
			Financing
			Enabling Activities
		<b>Technology Transfer</b>	
			Poznan Strategic Programme on Technology Transfer
			Climate Technology Centre & Network (CTCN)
			Endogenous technology
			Technology Needs Assessment
			Adaptation Tech Transfer
		<b>United Nations Framework on Climate Change</b>	
			Nationally Determined Contribution

[1]