

Document of  
The World Bank

Report No:

GEF PROJECT BRIEF

ON A

PROPOSED GRANT FROM THE  
GLOBAL ENVIRONMENT FACILITY TRUST FUND

IN THE AMOUNT OF USD 12 MILLION, divided in varying amounts

TO THE

Governments of Mozambique, Kenya, United Republic of Tanzania, South Africa, Madagascar,  
Seychelles Comoros, and Mauritius

FOR A

Southwest Indian Ocean Fisheries Project

July 20, 2005

CURRENCY EQUIVALENTS  
(Exchange Rate Effective {Date})

Currency Unit =  
= US\$1  
US\$ = SDR 1

FISCAL YEAR  
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

ACEP	Africa Coelacanth Ecosystem Project
ASCLMEs	Agulhas and Somali Currents Large Marine Ecosystems Project implemented by UNDP
BCLME	Benguela Current Large Marine Ecosystem Project
DLIST	Distance Learning and Information Sharing Tool
EAC	East African Community
FAD	Fish Aggregating Device
FAO	Food and Agriculture Organization
GEF	Global Environment Facility
IA	GEF Implementing Agencies (UNDP, World Bank, UNEP)
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IDF	International Development Fund
IOC/COI	Indian Ocean Commission/Commission de l'Océan Indien
IOTC	Indian Ocean Tuna Commission
IUCN	World Conservation Union
IW	International Waters
LME	Large Marine Ecosystem
IWLEARN	the International Waters Learning Exchange and Resource Network
M & E	Monitoring and Evaluation
MMA	Marine Management Areas
MPA	Marine Protected Areas
MCS	Monitoring, Control and Surveillance
NEPAD	New Partnership for African Development
NGO	Non Governmental Organization
PA	Programmatic Approach
POI	WSSD Plan of Implementation
POPs	Persistent Organic Pollutants
PMU	Project Management Unit
PMS	Project Management Structure
PPF	Project Preparation Fund
SADC	Southern Africa Development Community
SWIO	Southwest Indian Ocean
SWIOFP	Southwest Indian Ocean Fisheries Project
SWIOFC	Southwest Indian Ocean Fisheries Commission
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
VMS	Vessel Monitoring System
WIO	West Indian Ocean
WIO LaB	Land Based Issues and the West Indian Ocean Project

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Africa  
EF SWIO Fisheries  
GEF BRIEF

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## STRATEGIC CONTEXT AND RATIONALE

### Overview

Determination of how to sustainably use natural resources requires, amongst other things, an understanding of the ecosystem from which the targeted resource is extracted. This ecosystem-based approach helps to more fully identify direct risks of resource depletion and the indirect impacts of resource use on "non-target" species within the ecosystem. This is particularly important when a regionally shared resource is involved and one country's use could impair beneficial management of that resource by others.

The GEF supports environmentally and socially sustainable management of shared marine resources such as fisheries through its International Waters (OP8) and Biodiversity (OP2) focal areas. The Southwest Indian Ocean Fisheries Project (SWIOFP) is seeking support under both of these focal areas in the development of a sustainable, biodiversity-friendly, model for management of regionally shared fish stocks. The development of this model will follow LME methodology.

The Large Marine Ecosystem (LME) approach, which is also used in this Project Brief as surrogate for the Biodiversity Focal Area's "Seascape", has been developed through international collaboration as a tool for enabling ecosystem-based management and to provide a collaborative approach to management of resources within ecologically bounded transnational areas. SWIOFP is one of three linked projects that utilize this methodology to address resource management in two separate LMEs in the Southwest Indian Ocean (SWIO). The core project is the Agulhas and Somali Currents Large Marine Ecosystems Project (ASCLMEs) implemented by the UNDP. The ASCLMEs Project, along with the associated Western Indian Ocean Land Based Impacts on the Marine Environment Project (WIO-LaB) implemented by UNEP, will provide the descriptive information about the targeted LMEs to SWIOFP. SWIOFP will use these data to enable development of a long-term, environmentally sustainable, management strategy for offshore exploited fish stocks that will also preserve marine biodiversity and the biodiversity of other species that are incidentally impacted by commercial fishing.

The following Project Brief describes how SWIOFP will link the ASCLMEs and WIO-LaB Projects to identify: i) fish stocks that are most sensitive to anthropogenic impacts and environmental variability; ii) a set of prioritized issues that countries riparian to these two LME's would need to address to ensure sustainable utilization of these resources and conservation of biodiversity within the LMEs, and; iii) how each country will respond to these issues to address its responsibility to sustainably manage these shared fisheries both at national and regional levels.

### Country and sector issues

#### a) *Why is the Southwest Indian Ocean Important?*

The world's marine environment has been divided into 19 major fishing areas by FAO. One of the largest of these is the West Indian Ocean (WIO), accounting for some 8% of total marine waters, at 30 million square kilometers. The Western Indian Ocean (WIO) is the site of some of the most dynamic and variable large marine ecosystems (LMEs) in the world (Box 1). Complex current systems that include the Agulhas Current retroflexion, migrating anti-cyclonic eddies in the Mozambique Channel and di-polar vortices off East Madagascar induce variability into the ecosystems of the region. The Indian Ocean is also largely surrounded by developing countries, with close to half the world's population residing in countries that edge on it. The challenges faced in meeting expectations and demands are enormous – more especially so in times of drought, climate change and unsettled socio-economic conditions. These facts are especially true for the SWIO portion of the WIO.

The SWIO is considered a distinct biogeographical province of the Indo-West Pacific, with high levels of regional endemism. Areas of high endemism, however, are not uniformly distributed and are generally found around island states such as Mauritius and Reunion, and in Southern Mozambique. Although waters of the region are considered oligotrophic with relatively low fish biomass, there is significant

***Box 1: LME DEFINITION: DELINEATION***

Large marine ecosystems are natural regions of ocean space encompassing coastal waters from river basins and estuaries to the seaward boundary of continental shelves and the outer margins of coastal currents. They are relatively large regions of 200,000 km<sup>2</sup> or greater, the natural boundaries of which are based on four ecological criteria: bathymetry, hydrography, productivity, and trophically related populations.

***LME INDICATOR MODULES***

A five-module indicator approach to the assessment and management of LMEs has been proven to be useful in ecosystem-based projects in the United States and elsewhere. The modules are customized to fit the situation within the context of a transboundary diagnostic analysis (TDA) process and a strategic action plan (SAP) development process for the groups of nations or states sharing an LME. These processes are critical for integrating science into management in a practical way and establishing appropriate governance regimes. The five modules consist of 3 that are science-based indicators focused on: productivity, fish/fisheries, pollution/ecosystem health; the other two, socio-economics and governance, are focused on economic benefits to be derived from a more sustainable resource base and implementing governance mechanisms for providing stakeholders and stewardship interests with legal and administrative support for ecosystem-based management practices. The first four modules support the TDA process while the governance module is associated with periodic updating of the Strategic Action Program or SAP.

diversity among fish species (see Annex 1). The coastal zone of the Southwest Indian Ocean represents a source of major economic activity for the estimated 140 million people who live within the countries along its boundaries and for the estimated 28- 30 million in the coastal zones. Population trends indicate a doubling of population in about 25 years in the major coastal cities of Mombasa, Dar es Salaam, and Maputo. Fishing, and its associated economic activities, is often extremely important to coastal communities and local economies. In some SWIO countries, fish represents the primary source of animal protein available to local populations. In a region faced with chronic scarcities of foreign exchange, exports of fishery products or income from licensing of fisheries may represent vital sources of exchangeable earnings. Fish landings, processing and supporting operations associated with the fisheries industry provide an important stimulus in the economic development of harbors and the coastal zone.

*b) Is biodiversity a relevant issue in the SWIO?*

One of the most valuable assets of the West Indian Ocean region is its high biodiversity. More than 10,000 species of marine fish and invertebrates have been described from this East African Marine Ecoregion, with several zones of exceptionally high levels of endemism having been identified. The region also has a high diversity of so-called “charismatic” species such as cetaceans (at least twenty species), five species of marine turtles, numerous seabirds, and an important remnant population of the threatened dugong. The region is also home to the coelacanth, a unique marine fish, originally thought to be found only in the SWIO region, but have also been found in Southeast Asia. In addition to living marine resources, other aspects of the marine and coastal ecosystem provide valuable environmental services in the form of food sources, fish spawning and rearing areas, and wave buffers through coral reefs, mangroves, seagrass beds, beaches, and estuaries. Annex 1 provides greater details on significance and importance of the SWIO. This biodiversity underpins many of the fisheries and provides opportunities for future potential sources of food and other natural products. However, it also introduces

elements of risk, in that greater ecological complexity complicates an ecosystem approach to resource management. This is especially true considering the great diversity of fishery types (more than 163 described) and the high incidence of non-target by-catch in many of these.

The offshore fisheries in the 200 mile EEZ's of the SWIOFP countries are generally exploited under license agreements by foreign fishing fleets. These vessels are primarily interested in commercial gain and are unlikely to exercise self-restraint in commercial activities that impact on non-target, sensitive marine species. Government regulations and regional approaches to harmonizing fisheries management and MCS (monitoring, control and surveillance) are essential if these fisheries are to be sustainably exploited and biodiversity conserved.

c) *What are the major threats and barriers to sustainable use of the marine and coastal ecosystem's natural resources?*

Threats to the long-term sustainable exploitation of the SWIO marine and coastal ecosystems are both anthropogenic and environmental. Annex 18 provides a detailed analysis of the threats, root causes and mitigation strategies employed under the project to overcome these pressures. Primary anthropogenic threats include overexploitation of marine resources, land based sources of pollution, and other human induced sources of habitat degradation due to economic activity, encroachment, and climate change.

Particular threats caused by commercial fishing include overexploitation of nearshore and offshore fishery resources; unnecessarily high by-catch and incidental mortality of marine fauna in commercial fisheries operations; and fisheries induced habitat destruction and alteration of the marine environment. Natural environmental perturbations such as changes in oceanographic or atmospheric characteristics also pose a threat to the living resources of the ecosystem. A major barrier to assessment of ecosystem health is incomplete information about the level of these threats within the ecosystems. Although the region is the focus of significant research effort and falls within the mandate of several regional institutions, important gaps exist in the data. Existing knowledge is not comprehensive, and aggregation of data for regional assessment is limited. Additionally, lack of institutional and human capacity and poor regional collaboration prevent wise management of marine biological resources, especially trans-boundary species and stocks. Participating countries are not able to adequately assess or develop marine resources within their EEZs and hence cannot draw sustainable benefits from them.

d) *How does the proposed Project fit, geographically, into the existing regional management of West Indian Ocean natural resources?*

The geographic focus of SWIOFP is the Agulhas and Somali Currents LMEs. The Agulhas Current Large Marine Ecosystem (ACLME) stretches from the north end of the Mozambique Channel to Cape Agulhas and is characterized by the swift, warm Agulhas current, a western boundary current that forms part of the anticyclonic Indian Ocean gyre. The Somali Current Large Marine Ecosystem (SCLME) extends from the Comoros Islands and the northern tip of Madagascar up to the Horn of Africa. It is characterized by the monsoon-dominated Somali current, which has a strong, northerly flow during the summer, but reverses its flow in the winter. These two LMEs are both complex and interactive, and are strongly influenced by the South Equatorial Current, which is funneled across the Mascarene Plateau east of Madagascar before diverging north and south to become components of the Agulhas and Somali Currents. These LMEs are characterized by a dynamic system of ocean currents and upwelling cells, which regulate climate and influence weather patterns, sea temperatures, water chemistry, productivity, biodiversity and fisheries. They also represent an important repository of living marine resources, which underpin the livelihoods of coastal communities (see maps in Annex 19).



Based on the needs expressed and the overall study area defined, the following countries are participating in the SWIOFP project: Comoros, France (by virtue of its islands in the region)<sup>1</sup>, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, South Africa (East Coast only) the United Republic of Tanzania<sup>2</sup> and Somalia (as formal observers with the Provisional Government of Somalia being the current focal point<sup>3</sup>). The inshore and offshore boundaries of the study area are defined by national jurisdiction and comparative advantage of SWIOFP over existing multilaterally and bilaterally supported coastal zone management projects. The Project is therefore restricted to outer boundaries of national 200 mile Exclusive Economic Zone (EEZ) of the participating coastal states. The inshore boundary of the study will be defined by individual countries but are agreed to be sufficiently far offshore not to cause duplication with the ASCLMEs (which has responsibility for coastal assessment within the LME program activities) or other purely national projects addressing coastal and near-shore areas.

### Rationale for Bank and GEF involvement

a) *How does SWIOFP fit within the LME Program to be financed by the GEF?*

The SWIOFP is one of three closely linked projects. SWIOFP is the beneficiary of environmental data produced by the Agulhas and Somali Currents Large Marine Ecosystem Project (ASCLMEs) implemented by the UNDP, and the WIO-LaB Project which is implemented through UNEP in Nairobi. SWIOFP uses the outputs of these other related projects to produce a “Program level” outcome- an ecologically based series of regional or sub-regional fisheries management plans. .

This multi-project approach is driven by an internationally defined and accepted LME assessment methodology. This is conceptually based on an ecosystem management approach that monitors and assesses changing states of ecosystem health by tracking key biological and environmental parameters ( Box 2). The LME modular approach is being applied to the two SWIO large marine ecosystems through the project preparation process, and which has resulted in a number of inter-related sector interventions (see Table 1 below).

Table 1. Inter-relations between the three ASLME Projects

Module	Project
Productivity	ASCLMEs
Ecosystem health & pollution	WIO-LaB/ASCLMEs
Fisheries	SWIOFP/ASCLMEs (Near-shore based)
Management and governance	SWIOFP/WIO-LaB/ASCLMEs
Socio-economics	ASCLMEs / WIO-LaB / SWIOFP

<sup>1</sup> Although nine countries will participate in project activities, France will not be a recipient of the GEF grant. Thus, although the SWIOFP consists of nine countries, and is referred to as such throughout the document, it is technically composed of eight GEF country recipients and one non-GEF recipient country.

<sup>2</sup> The United Republic of Tanzania consists of the Tanzanian Mainland and the People’s Revolutionary Government of Zanzibar. Fisheries is not a “Union” issue and representatives of both the mainland fisheries and Zanzibarian fisheries agencies participated in SWIOFP preparation.

<sup>3</sup> Observer status implies that the beneficiary countries have agreed to collectively use Project funds to support attendance of the Provisional Government of Somali attendance at all important Project meetings, that the Provisional Somali Government can have access to relevant Project data, and to invite and support Somali scientists on relevant SWIOFP research cruises.

All eight countries that are part of SWIOFP are eligible for World Bank and GEF funding. All are also signatories to the International Law of the Seas Convention and the Convention of Biodiversity (see Table 2 below).

Table 2: Dates of Accession/Signature

SWIOFP Participating Country	Date of Signing/Declaration Law of the Seas Convention	Date of Signing of Convention of Biodiversity
1. Kenya	March 2, 1985	June 11,1992
2. Tanzania (declaration)	September 3, 1985	June 12,1992
3. Mozambique	March 13, 1997	June 12,1992
4. South Africa (declaration)	December 23, 1997	June 04,1992
5. Comoros	June 21, 1994	June 11,1992
6. Madagascar	August 22, 2001	June 08,1992
7. Seychelles	September 16, 1991	June 10,1992
8. Mauritius	November 4, 1994	June 10,1992

b) How does SWIOFP fit into long-term management and development of Southwest Indian Ocean resources?

Although the processes and ecosystem functions related to these two LMEs have a major influence on the societies and economies of the area, very little detailed information is available upon which to base effective, cooperative transboundary management initiatives. The management of marine resources is currently sectoral and country-based. The main barriers to the development of an ecosystem approach to transboundary management include inadequate data, lack of regionally based and coordinated monitoring and information systems, lack of national and regional capacity, and the absence of full stakeholder involvement. It is impossible, under this situation for governments to manage fisheries and other marine resources in the absence of an understanding of the ocean-atmosphere, trophic and biogeochemical dynamics that characterize the LMEs.

Therefore there is a clear need for an effective assessment process to capture the requisite data to fill important gaps in information for management purposes. This project and the overall LME program aims to replicate the successful approach used by the Benguela Current LME (BCLME) project wherein the presence of BENEFIT (the Benguela Environment Fisheries Interaction and Training Program) was instrumental in providing much of the requisite scientific data and information necessary to the development of a TDA and subsequently focused the SAP which will now be used for regional management of the BCLME. The project will not only move the countries of the region toward an important WSSD target i.e. an ecosystem based approach to management of the LMEs, it will also help to achieve other WSSD targets including strengthened regional cooperation frameworks, and the maintenance or restoration of fish stocks on an urgent basis, and where possible by 2015.

The ASCLMEs and WIO-LaB Projects represent the base upon which sustainable management of shared, offshore fisheries can be built. An ecologically based fisheries management plan is an applied expression of these data (see Box 2). But application of such a plan is a long term process and is likely to require significant resources. But why should the various modules of the LME approach be divided amongst the three GEF implementing agencies?

The reason for the Bank, UNDP and UNEP to be collectively involved reflects the GEF's experience with similar LME activities elsewhere and an acceptance by all three groups that the LME process. It has proven very difficult for any single GEF Implementing Agency to lead a process that identifies transboundary strategic natural resource management issues, assist several nations to develop harmonized strategies to address these issues, AND provide the long term support that these countries will need to develop the capacity to implement and derive sustainable benefits from the shared resources. The UNDP has very significant experience with management of LME projects in Africa and elsewhere around the world. The Bank also has significant regional experience that is very management oriented and has the added benefit of being able to fund long term activities supporting regional management strategies. And while the production of a harmonized regional approach to natural resource management issues as part of a Agulhas and Somali Currents LME process is a useful output in itself, sustainability will rely on being able to integrate these results into national development priorities which can be funded by the Bank and other development assistance agencies.

Box 2: Definition of Ecosystem Based Management of Fisheries (from: Pew Commission Report and that of the U.S.I Commission on Ocean Policy, 2003)

Ecosystem-based management is an integrated approach to management that considers the entire ecosystem, including humans. The goal of ecosystem-based management is to maintain an ecosystem in a healthy, productive and resilient condition so that it can provide the services humans want and need. Ecosystem-based management differs from current approaches that usually focus on a single species, sector, activity or concern; it considers the cumulative impacts of different sectors. Specifically, ecosystem-based management:

- emphasizes the protection of ecosystem structure, functioning, and key processes;
- is place-based in focusing on a specific ecosystem and the range of activities affecting it;
- Explicitly accounts for the inter-connectedness within systems, recognizing the importance of interactions between m any target species or key services and other non-target species;
- acknowledges interconnectedness among systems, such as between air, land and sea; and
- Integrates ecological, social economic and institutional perspectives, recognizing their strong interdependencies.

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The Bank's main role is to help its member governments sustainably develop, and it has the financial resources and experience to help SWIOFP countries with the long-term implementation of environmentally and socially sustainable management of shared fisheries resources in the SWIO. SWIOFP will be a five-year project to undertake initial and very basic institutional capacity building and targeted research that are essential to environmentally sustainable management of shared fish stocks. Once the shared and straddling fish stocks of the SWIO are adequately described and understood, SWIOFP will be followed by a 7-10 year second phase, possibly supported by one or more Bank credits. SWIOFP will lay the groundwork for a justifiable capacity building plan developed to meet short, medium and long-term goals for sustainably exploiting straddling and migratory fish stocks that would be built into these follow-on projects which would apply the knowledge gained to more efficiently manage and exploit regional fisheries resources for greater national benefit. Bank participation from the start will give greater sustainability to the proposed GEF investment and facilitate the implementation of the Bank's longer term support for sustainable fisheries management. The Bank's "convening power" and global knowledge can also benefit and help integrate relevant African regional organizations working on environmentally sustainable fisheries management.

SWIOFP is closely aligned to identify priorities in marine resource management and will be an important instrument for meeting international treaty obligations, the Code of Conduct for Responsible Fisheries, and many of the marine resource strategies developed by regional institutions such as the NEPAD, the IOC and SADC (see Table 3, Annex 17). It is envisaged that SWIOFP's efforts to establish ecosystem

management of shared fisheries resources will have direct application to the activities and objectives of the Southwest Indian Ocean Fisheries Commission (SWIOFC). Synergy between SWIOFP and SWIOFC will therefore be fully developed which could include financial support to help establish the Commission. A more comprehensive description of SWIOFP linkages to regional strategies, international agreements (Table 2) and institutions are provided in Annex 17.

*c) What are the knowledge gaps that, if filled, would improve natural resource management in the Southwestern Indian Ocean?*

**Baseline Scenario** (The joint ASCLMEs project and SWIOFP perspective)

Under the Baseline Scenario, numerous, but largely fragmented, efforts will be made to improve management of the coastal and marine environments of the WIO. Despite the number of programs underway and planned *inter alia* in the arenas of fisheries management, pollution control and integrated coastal zone management, the scale of action is being outpaced by human induced threats to the coastal and marine environment. Countries generally lack the absorptive capacities and the financial wherewithal to take these initiatives to scale. A number of regional initiatives are in place, nested in a regional policy framework and growing consensus on the need to work collaboratively to address the suite of threats facing marine ecosystems and their constituent resources. However, these focus heavily on the coastal zones of the participating countries. Accordingly, current and planned initiatives will not by themselves be sufficient to institute an ecosystem approach to LME management. Given the transboundary nature of many threats, their root causes and effects, the threats to the environment cannot effectively be contained through national and sectoral initiatives alone, and a holistic multi-sectoral regional ecosystem management approach is needed. There are several barriers to 'mainstreaming' an LME approach into national and regional management structures and processes. These are detailed below.

*Poor ecosystem level assessment capacity:* A solid understanding of oceanographic, chemical and ecological processes is necessary to manage LMEs and the fisheries resources in them. The understanding of energy flow and trophic interactions in marine ecosystems in the SWIO is poor and connectivity studies are needed to facilitate management of shared marine resources and systems. Biodiversity patterns and ecosystem processes need to be recognized, understood, and managed effectively in order to maintain ecosystem integrity and to maintain existing, and indeed to develop future, fisheries industries. The SWIO region has been the focus of a limited number of oceanographic and fisheries-related assessment efforts. However system wide understanding is rudimentary. Assessments are hampered by a lack of dedicated ships time, lack of coordination of ship cruises to assess priority knowledge gaps, dearth of trained scientists within the region, long and irregular breaks in baseline sampling, and a lack of specialized equipment. These need to be addressed, to facilitate more comprehensive environmental assessments and thus to address the knowledge gaps hampering management of the LMEs.

A number of workshops have been organized within the past two years in an attempt to document the information that is currently available. This includes a Workshop sponsored by the Royal Society of London in January of 2003 entitled "Atmosphere - Ocean - Ecology Dynamics in the Western Indian Ocean"<sup>15</sup>. In addition, a comprehensive multi-disciplinary review of existing, oceanographic and fisheries-related literature was undertaken during project preparation. The review shows clearly that there is a dearth of bio-physical information and appropriate empirical data sets compared to other LMEs elsewhere on the globe. There is considerable asymmetry in data coverage across the region. For example, the oceanographic data sets for the continental shelves adjacent to the Agulhas Current are relatively robust. By contrast, *no* appropriate oceanographic data of any kind has been collected for certain shelves off Madagascar. Further, a detailed assessment of available hydrographic, remotely sensed and marine biological data for the SWIO was conducted during preparation<sup>16</sup> and verified through two multi-stakeholder workshops. A number of information gaps have been identified and include a need to: •

- Identify components of the offshore circulation that affect shelf regions in the SWIO and thus the distribution of marine organisms and the geographic structure of marine ecosystems. •
- Help determine the extent to which circulation of the ASCLMEs regions plays a critical role in local climate variability and global climate change. •
- Provide information on the water characteristics, water quality indexes, and productivity on the shelf regions of the West Indian Ocean that have the most marked effects on the cross-boundary ecosystems and thus national and transboundary fish stocks.
- Identify important components of terrestrial run-off that influence coastal ecosystems and their health.
- Identify aspects of the cross-boundary marine ecosystem on the shelves of the West Indian Ocean are most easily disturbed by, most vulnerable to human interference or climate variability.

*Lack of regionally based monitoring and information systems:* To the limited extent that multi-country assessment programs are underway at regional level, there has been little attempt to aggregate existing data, and little attention has been paid to ensuring the ready accessibility of data by end users to facilitate joint management efforts. There is a major unmet need, identified during project preparation to repatriate data that has been gathered over many years in the SWIO by foreign fishing fleets and research vessels. Weak information coordination at regional level reduces the value of the information that has been gathered on ecosystem status. These factors, coupled with the fact that regional institutions have varying numbers of participating countries as members, and have fragmented mandates, present the greatest barriers to adoption of an ecosystem approach to LME management. A data and information workshop convened by the ASCLMEs project and attended by SWIOFP showed clearly that existing programs and institutions do not possess cross-cutting information at regional scale or, with the exception of South Africa, even across a full range of marine issues at national scale. There is at present no regional program or institution with the mandate to create and manage such an integrated and over-arching, regionally based information system which could be accessed by regional stakeholders. Information systems at both national and regional scale are fragmented, poorly described, lacking in synthesis, and generally unavailable to managers even at national scale. What little integrated regional information that there is exists in incompatible formats, is not centrally stored, not synthesized and thus not readily accessible to decision-makers and stakeholders.

*Lack of regional level capacity building and coordination:* No organization is currently responsible for regional level capacity building on behalf of the participating countries, as the current array of regional organizations either lack full regional membership or have an insufficient mandate to address regional issues in an ecosystem context. In those isolated instances where there are dedicated cruises in the region's national and international waters, information gained is often not shared with the countries and participating countries have generally not received the benefit of ship board training areas of oceanography and fisheries. A concerted focus on priority oceanographic related management issues is difficult as countries have a shallow layer of qualified people. Much of the focus of capacity building, and accompanying donor support has been related to biodiversity conservation. These gaps will need to be addressed through a structured long-term program, aimed at building a cadre of experienced resource managers. At present no organization has assumed an over-arching coordinating role for regional activities. However, the ODINAFRICA project, supported by KMFRI in Mombasa, Kenya (and who is also the coordinator of the Data and Information Management Working Group for SWIOFP preparation) is serving a facilitative role with regard to data collection and dissemination as it has begun to: •

- Provide Scientists in the Western Indian Ocean Region with bibliographic information;•  
Prepare and distribute various data products relevant to marine sciences of the WIO region:

- Promote communication between SWIO marine and fisheries scientists and marine and fisheries scientists globally;
- Publicize marine and fisheries science of the SWIO region and other parts of the world; and
- Provide information equipment, software and training.

*Absence of public participation, education and stakeholder involvement schemes:* Public participation, education and stakeholder involvement programs are virtually non-existent at regional level. Some national level public participation and education activities through national and donor-funded projects at regional level are underway but limited mainly to coastal zone areas. No current institution has the mandate to expand public participation and related activities to regional level and to strengthen regional level capacity to undertake and sustain regionally based public participation activities. A key element to building governmental support for a regional approach to LME management and thus for SAP approval and execution will derive from growing public support for the approach. Thus the absence of regionally based public participation and education approaches is a barrier to realization of this objective. The need for a structured stakeholder awareness program is now recognized as a priority by NEPAD.

### **The SWIOFP Perspective within the LME Modular Assessment**

The SWIOFP has adopted a scientific and capacity-building approach as a first step in promoting a regional model of environmentally sustainable management of fisheries. This model only becomes possible when sufficient data are available that describe a fishery, the anthropogenic pressure on the various fish stocks, and when a sufficient understanding of the environment in which the fish live exist to support an ecosystem approach to that management. Data on key ecosystem indicators are judged to be incomplete in the following areas:

- Biological characteristics. Information on biodiversity in the ASLME area including habitats, threats and monitoring, connectivity, taxonomic research and spatial species data.
- Fishing pressure. Valuable offshore fisheries are harvested predominantly by distant-water fishing fleets from Europe and eastern Asia and the proportion of unreported catches is largely unknown. As fish stocks elsewhere in the world are diminishing, more fleet operators are certain to turn their attention to the commercial fish stocks along the East African coast until these stocks have been exhausted and catches are no longer economically viable. This may be well below the threshold of a biological sustainable population of commercial fish species. Simultaneously, by-catches may already have put non-exploited fish species into commercial extinction, with possible damage to biodiversity and the ecosystem of the WIO.
- Fish stocks. There are inadequate information about the species composition, distribution, and behavior and migration patterns of non-commercial and non-commercial fish stocks in the SWIO. It is unclear to what extent commercial marine resources are fully exploited and how existing and potential exploitation of some fish stocks may impact on these non-target species. The WIO has been classified by FAO as having future developmental potential and other studies have also identified various fishery resources as under-exploited, particularly small pelagic and off shore demersal fisheries. Nonetheless, there is debate about the potential for further expansion.
- The effect of land based sources of pollution: Levels of primary production are highest around margins of ocean basins near coastal areas. As a result, land based pollution can have a particularly disruptive effect. Localized cases of pollution due to increased sedimentation in rivers, and sewage/waste disposal have been reported in SWIO countries; however, detailed data on primary production and the effects of land based pollution are unavailable.
- Linkages between ecosystems. The Somali and the Agulhas LMEs are unique and are of great global importance. Yet there is generally little information about the LMEs and the systems

linking them, particularly the Somali LME, which has not been the focus of any scientific or national studies.

### **Higher level objectives to which the project contributes**

Participation in SWIOFP partially fulfills commitments made by the participating countries at the World Summit on Sustainable Development (WSSD) to sustainably manage fisheries resources, and to national development priorities related to alleviation of poverty through the sustainable development of marine resources. This is a common thread in the Bank's Country Assistance Strategy for all eight countries in SWIOFP. Namely, that poverty alleviation is fostered through a program of Bank development assistance that places emphasis on environmental sustainability and social equitability. The project is also clearly linked to the various National Development Plans, strategies and legislations within the participating countries, which have been extensively elaborated in Figure 2, Annex 1.

### **GEF Operational Program Goals:**

The SWIOFP is closely aligned to the objectives of Operational Program #8 (International Waters – Waterbody-based), particularly in its focus on addressing transboundary environmental concerns within the framework of large marine ecosystems. In the biodiversity focal area, SWIOFP is very relevant to Operational Program #2 (Coastal, Marine and Freshwater Ecosystems) in that it operationalizes sustainable use of natural resources, including biodiversity.

*SWIOFP Compliance to Priorities within OP#8: International Waters:* SWIOFP is a regional project and all fish and fish stocks included for assessment within the Project will be migratory, have a range that straddle the EEZ's of two or more countries, or have species present in two or more EEZ's that may not be genetically the same stock but would benefit from regional management experiences. SWIOFP focuses on assessment of existing and Project-acquired information to develop and understanding of fisheries issues within the Agulhas and Somali Current LME's. This assessment will, along with data from the ASLME and WIO-LaB Projects, feed into an overall TDA and SAP, with an expected outcome being national commitments to address key transboundary fisheries management issues, and establishing monitoring and evaluation indicators (process, stress reduction and environmental status indicators) to monitor long term ecosystem health. SWIOFP, together with the other two projects linking to the ASLME Project, is therefore consistent with the following GEF International Waters (IW) strategic priorities:

The SWIOFP is consistent with OP #8 of the GEF, the Water-Body based Operational Program. Further it is consistent with Strategic Priority IW-2 of the GEF Operational Programs for the International Waters focus area. This focuses on the expansion of GEF foundational capacity building work in priority African waterbodies. Moreover, the project stresses south-south learning opportunities, and technology transfer, particularly within the WIO region, where great asymmetries in institutional capacities are evident. The project will use institutions with high capacity to build capacity where it is weak. In addition to the provision of GEF finance, the project will catalyze investments in LME management from other financing bodies. As the project targets two mainland LDCs and four SIDS, it helps achieve the goal of ensuring project coverage in 90% of LDCs and 90% of SIDS. Finally, the SWIOFP further satisfies the IW Strategic Priorities by enabling countries to achieve targets agreed at the World Summit on Sustainable Development (Johannesburg WSSD, 2002). These include strengthened regional cooperation frameworks, adoption of an ecosystem approach to LME management, and the maintenance or restoration of fish stocks on an urgent basis, and where possible by 2015.

SWIOFP Compliance to Priorities within GEF OP#2: Biodiversity- is described in the discussion of Component 6 (Mainstreaming biodiversity in national and regional fisheries management)

## PROJECT DESCRIPTION

### Lending instrument

There is no IDA Credit involved in the financing of this Project. Main funding is from a full-size GEF project grant related to its Operational Program #8 (International Waters – Waterbody-based) which finances Components 1-4 and 7. Funding for Component 6 comes from the GEF Biodiversity Focal Area. Cofinance will come from bilateral donors (currently including France and Norway), and very significant contributions from countries participating in the Project.

### ASCLMEs Project Overall Global Objective

The Global objective of the overall ASCLMEs Project is to ensure the long term sustainability of the living resources of the Agulhas and Somali LMEs.

This will be achieved through a Programmatic Approach (PA) that uses the various comparative skills and experience of all three GEF Implementing agencies to support country implementation of the linked and collaborative SWIOFP, ASCLMEs, and the WIO-LaB Projects.

The proposed PA will also result in a more iterative approach to the development of SAPs and TDAs than has been the case with previous GEF International Waters initiatives. The three Projects will, among other things, work toward the following long-term management outcomes:

- Define the current state of the blue-water fishery, the extent of fishing pressure in the blue-water zone, determination of the conditions of sustainability for this fishery, and creation of regionally based blue-water fisheries agreements;
- Using the BCLME Program as a model, develop a science-based capacity within the countries of the region that will support justifiable resource management actions and overall policy development for achieving sustainable use management objectives for the resources of the Agulhas and Somali Large Marine Ecosystems;
- Creation of an effective Plan of Action consistent with the Global Program of Action for the attenuation of land based sources of marine pollution; and
- Through a joint Implementing Agency and Participating Country process, develop a process for continually updating the TDAs and SAPs for the Agulhas and Somali Currents LMEs which would delineate long-term, regionally based and agreed to policy to achieve long-term sustainable use of the natural resources of the two LMEs.

### SWIOFP Global and Development Objectives and Key Indicators

#### Global Objective (GO)

The Project's GO (OP#8 and OP#2) is “

*To promote the environmentally sustainable use of fish resources through adoption by SWIO-riparian countries of an LME-based ecosystem approach to fisheries management in the Agulhas and Somali LMEs that recognizes the importance of preserving biodiversity.*

This will be achieved by linking regional management of these resources to an ecosystem-based model that ensures sustainability of exploitation and that recognizes the importance of preserving of biodiversity.



The primary Project outputs will be to contribute the fisheries input into TDAs and SAPs for the Agulhas and Somali Current's LMEs which will be jointly produced by the WIO-LaB, ASCLMEs Project, and SWIOFP and driven by the ASCLMEs Project.

Key Performance Indicators of the GO: Progress on achieving the Global Objective of the Project will be measured by the following performance indicators:

- (i) *To identify and study exploitable offshore fish stocks within the SWIO, and more specifically to become able to differentiate between environmental (LME-related) and anthropogenic impacts on shared fisheries.*
- (ii) *To develop institutional and human capacity through training and career building needed to undertake and sustain an ecosystem approach to natural resource management consistent with WSSD marine targets;*
- (iii) *To foster development of a regional fisheries management structure for implementing the LME-based approach to ecosystem based management through strengthening the , Southwest Indian Ocean Fisheries Commission (SWIOFC) and other relevant regional bodies;*
- (iv) *To mainstream biodiversity in national fisheries management policy and legislation, and through national participation in regional organizations that promote sustainable exploitation of fisheries resources..*

All national fisheries management plans/strategies for shared stocks of commercially exploited or exploitable fish stocks resulting from SWIOFP will incorporate elements of biodiversity conservation (both by-catch minimization and reduction in mortality of seabirds, marine mammals, sea turtles, etc.).

#### Development Objectives (DO)

The project has four development objectives, namely:

- (i) *To identify and study exploitable offshore fish stocks within the SWIO, and more specifically to become able to differentiate between environmental (LME-related) and anthropogenic impacts on shared fisheries.*
- (ii) *To develop institutional and human capacity through training and career building needed to undertake and sustain an ecosystem approach to natural resource management consistent with WSSD marine targets;*
- (iii) *To foster development of a regional fisheries management structure for implementing the LME-based approach to ecosystem based management through strengthening the , Southwest Indian Ocean Fisheries Commission (SWIOFC) and other relevant regional bodies;*
- (iv) *To mainstream biodiversity in national fisheries management policy and legislation, and through national participation in regional organizations that promote sustainable exploitation of fisheries resources.*

The project aims to generate scientific knowledge and develop the core legal and institutional capacity needed to implement an action plan in order to manage these fisheries for maximum economic returns, consistent with a management strategy that stresses environmental sustainability and socially equitable distribution of the benefits of exploitation. The project will adopt an ecosystem approach which will lead to an improved understanding of transboundary and environmental influences on stock health, the life histories of key species and variability in inter-annual estimates of stock abundance.

Key Performance Indicators of DO: Progress on achieving the Development Objectives of the Project will be measured by the following performance indicators:

- Adoption of at least one national or multi-national management plan for a specific demersal, pelagic or crustacean fishery by each country participating in the project.
- Regional fisheries database fully operational and inclusive of new and historic data, which contributes to the development of regional management plans for at least 2 fisheries
- Production of a baseline assessment (accompanied by database) that defines the current status of relevant crustacean, demersal and pelagic fisheries in each of the participating SWIOFP countries.
- Production of a sustainable fisheries management framework leveraged onto the agenda of regional fisheries management bodies that include biodiversity conservation as an underlying principle.

### **Project components**

#### a) What is the rationale for country participation in Project components?

The SWIOFP components are “thematic”. Each country in the Project has the option to participate or not, depending on whether the fishery to be assessed or activity to be undertaken is relevant to the country. The major determining factor from the Project-side as to whether a country should participate in a Component (decided by the countries themselves through Project Working Group Meetings) is whether the targeted fishery or activity is “regional” in nature (i.e., excluding purely national stocks from SWIOFP). This ensures that development of a regionally harmonized ecosystem-based approach to fisheries management within SWIOFP is fully country-driven. In addition to the tuna and tuna-like species, fisheries resources that are currently of particular interest to the SWIOFP countries include smaller schooling pelagics, deep water demersal species, deep water lobsters and crabs, langoustine, sharks, and squid.

Since the number of countries participating in a component varies, it was found necessary to appoint one of the countries participating in a component to be a technical coordinator for that component.

The following matrix shows the distribution of countries participating in each SWIOFP component.

**Table: 1 \*\* SCHEDULE OF EXPECTED LEVELS OF COUNTRY PARTICIPATION**

H=high; M=medium; L=low

Component	Topic	Comoros	Seychelles	Mauritius	Madagascar	Kenya	Tanzania	Mozambique	South Africa	France
1	Data & Information									
	Data collection	H	H	H	H	H	H	H	H	H
	Data atlas	H	H	H	H	H	H	H	H	H
2	IT systems	H	H	H	H	H	H	H	H	H
	Crustaceans resources									
	Deep		m		H	H	H	H	H	
3	Shallow				H	M	H	H	M	
	Demersal resources									
	Deep		H	L	H	H	H	M	L	
4	Shallow	h	M		M	M	M	M	L	
	Pelagic resources									
	Large	h	H	H	H	H	H	M	H	H
5	Small	h	H	H	H	H	M	H	M	
	super-small	l	M		H	M	L	H	L	
	MSC									
6	Monitoring	H	H	H	H	H	H	H	H	H
	Surveillance	H	H	H	H	H	H	H	H	H
	Non-consumptive resources									
7	Mapping		M	M	M	M	M	M	M	
	fisheries interaction		M	M	M	M	M	M	M	
	bio-indicators		M	M	M	M	M	M	M	
7	Management									
	Compliance (indirectly related to SWIOFP)	H	H	H	H	H	H	H	H	H
	Legislation	H	H	H	H	H	H	H	H	H

Highlighted country is component coordinator

b) What are the SWIOFP Components?

The project is designed to have seven components. Each component is subdivided into sub-components which are further subdivided into specific activities and action steps (see also Table 2). A total of some 60 such activities were described during the development phase of the project which allows more specific outputs from each component and is the basis for establishing costing and manpower needs. Assessment of the SWIOFP project document for funding purposes by the World Bank is done to the subcomponent level. Detailed description of each component is available in Annex 4.

*Component 1: Data Gap Analysis, Data Archiving and Information Technology.* The project will establish a regional data management system, managed by staff of the Regional Coordination Unit (with skills specific to this task) to underpin management of regional fisheries and undertake a gap analysis to

identify the specific research activities to be supported by the project. This regional database created during the first year of the Project will continue to operate and service the participating and observer countries in SWIOFP, expanding the database with new information from the SWIOFP ship cruises and other relevant data from projects in the SWIO. The project database will include fields for existing data describing by-catch, and provision for information from Project-leased and commercial vessels (that have Project observers onboard). The gap analysis will rely on development of a data atlas of historic data describing offshore fisheries of the WIO. A single regional fisheries database will be created using the data atlas, which reflects published information, along with repatriated and consolidated data from various sources. National fisheries related IT and communications infrastructure will also be procured or upgraded for each of the nine countries along with training in data handling and reporting. The French Government has agreed to provide STATBASE (an archival software system for fisheries statistics developed for a similar activity in West Africa) to SWIOFP to facilitate archiving of existing data, and development of the data gap analysis. This database will be transferred and/or mirrored to an existing regional fisheries management body such as the SWIOFC at the conclusion of the Project and with the mutual consent of all SWIOFP countries.

- ⇒ Inputs: i) Protocols will be developed and mutually agreed that define how fisheries data are to be shared between SWIOFP countries. Once these are in place, each country (including where possible, Somalia) will inventory, collect and transfer copies of all relevant written output and raw data describing shared fisheries resources to the country hosting the regional database; ii) consultant assistance to collect data describing regional fisheries held outside of Africa by public and private institutions and commercial fishing fleets
- ⇒ Outputs/Outcomes: i) Each country will analyze data relevant to components in which it will participate and identify specific gaps in existing data that would collectively form the gap analysis used to identify the data collection program facilitated by SWIOFP; ii) A workshop consisting of all SWIOFP countries will be held at which a conceptual, harmonized, data gap analyses (by type of fishery, i.e. demersal, pelagic, invertebrate) will be undertaken leading to synthesis of a year-by-year data collection program, iii) GEF/OP2 support will allow inclusion of by-catch information and information about fisheries related incidental mortality to marine organism other than fin fish and crustaceans (sea turtles, marine mammals, sea birds, dugongs, etc.). These data would not ordinarily be present in a fisheries management-oriented database. Also, SWIOFP will link with the ASLMEs Project to host a distance learning website to share LME program information in compliance with IW LEARN processes and systems.

*Component 2: Assessment and sustainable utilization of crustaceans.* The second component will undertake an assessment of the stock dynamics of shallow and deep water crustaceans and their fisheries. Using ship-based surveys, baseline assessment of crustacean stocks and fisheries will be undertaken in the EEZs of Kenya, Tanzania, Mozambique, South Africa, Seychelles and Madagascar. In addition, evaluation will be made of fisheries bycatch (which are substantial in crustacean fisheries), discard impacts, exclusion devices, and overall ecosystems impacts of crustacean fisheries.

- ⇒ Inputs: i) targeted ship cruises on Project vessels; ii) data from Project “observers” on commercial fishing vessels; iii) data supplied voluntarily by commercial fishing fleets and other international programs operating in the Western Indian Ocean
- ⇒ Outputs/Outcomes: i) Identify current status of important species, threats matrix, and regional/sub-regional management issues and needs; ii) preparation and adoption of national action strategies for each fishery relevant to the various SWIOFP countries detailing how each relevant country will address issues identified; and, iii) GEF OP2 funding will specifically lead to identification of species most impacted by the commercial fishery, possible impact of the gear used on species diversity, effectiveness of existing “excluding devices” in the fishing gear,

identification of opportunities for modifying fishing methods to reduce by-catch and possible use of the by-catch; iv) Preparation and adoption of country specific, regionally harmonized, approaches to management of specific fishery(ies) detailing the role of the environment and the role of anthropogenic impacts (fishing pressure, habitat change, pollution, etc) in determining the nature of the fishery, and how the participating countries will act to address both types of issues as noted by WSSD targets.

*Component 3: Assessment and sustainable utilization of demersal fishes (excluding crustaceans).* This component will support assessment of the stock dynamics of demersal species and their fisheries. Ship-based surveys will be used to undertake a baseline assessment of demersal stocks and fisheries and evaluate demersal fisheries by-catch, discard impacts, exclusion devices, and ecosystems impacts in the EEZs of Kenya, Tanzania, Mozambique, South Africa, Seychelles and Madagascar.

- ⇒ Inputs: i) targeted ship cruises on Project vessels; ii) data from Project “observers” on commercial fishing vessels; iii) data supplied voluntarily by commercial fishing fleets and other international programs operating in the Western Indian Ocean
- ⇒ Outputs: i) Identify current status of important species, threats matrix, and regional/sub-regional management issues and needs; ii) preparation and adoption of national action strategies for each fishery relevant to the various SWIOFP countries detailing how each relevant country will address issues identified; and, iii) GEF OP2 funding will specifically lead to identification of species most impacted by the commercial fishery, possible impact of the gear used on species diversity, effectiveness of existing “excluding devices” in the fishing gear, identification of opportunities for modifying fishing methods to reduce by-catch and possible use of the by-catch; iv) Preparation and adoption of country specific, regionally harmonized, approaches to management of specific fishery(ies) detailing the role of the environment and the role of anthropogenic impacts (fishing pressure, habitat change, pollution, etc) in determining the nature of the fishery, and how the participating countries will act to address both types of issues as noted by WSSD targets.

*Component 4: Assessment and sustainable utilization of pelagic fish.* This component will assess the stock dynamics of large, small, and mesopelagic species and develop strategies to optimize small and large scale pelagic fisheries, including fish aggregating devices (FADs). Activities will include ship-based surveys to assess the potential of new and existing pelagic fisheries, studies on migration and movement of selected large pelagic species (including sharks), and research on optimization and development of FADs for large and small scale pelagic fisheries. Baseline assessment of pelagic stocks and fisheries will be undertaken in the EEZs of all nine SWIOFP countries. This component is specifically designed to strengthen the projects of the IOTC by focusing on activities related to smaller scale fisheries and by incrementally adding to the design of the IOTC Tuna Tagging Program (using archival popup and sonic tags).

- ⇒ Inputs: i) targeted ship cruises on Project vessels; ii) data from Project “observers” on commercial fishing vessels; iii) historic and recent data supplied voluntarily by commercial fishing fleets and other international programs operating in the WIO.
- ⇒ Outputs: i) Identify current status of important species, threats matrix, and regional/sub-regional management issues and needs; ii) preparation and adoption of national action strategies for each fishery relevant to the various SWIOFP countries detailing how each relevant country will address issues identified; and, iii) GEF OP2 funding will specifically lead to identification of species most impacted by the commercial fishery, possible impact of the gear used on species diversity, effectiveness of existing “excluding devices” in the fishing gear, identification of opportunities for modifying fishing methods to reduce by-catch and possible use of the by-catch;

iv) Preparation and adoption of country specific, regionally harmonized, approaches to management of specific fishery(ies) detailing the role of the environment and the role of anthropogenic impacts (fishing pressure, habitat change, pollution, etc) in determining the nature of the fishery, and how the participating countries will act to address both types of issues as noted by WSSD targets.

*Component 5: Monitoring of fishing effort and catch, existing value, and exploitation conflicts.* The project will build capacity for regional management by developing and testing fisheries monitoring techniques. The component will support training of scientific observers at sea; monitoring of commercial landings and establishment of land based monitoring and data verification systems; establishment of discharge monitoring programs; aerial surveys and data collection to monitor fishing effort in select areas of the SWIO; linkage of communication infrastructure; and development of coordination mechanisms and verification systems to establish a regional Vessel Monitoring System. It will also support an assessment of the financial value of exploited fisheries and use conflicts that might exist because of exploitation (and particularly exploitation by foreign fishing fleets).

⇒ Inputs: i) Simultaneous, seasonally stratified, air surveys of exploited areas (taking into account the target fisheries); ii) input of MCS data from ongoing government activities and from programs funded by donors; iii) consultant assistance to determine value, and fishery-specific value chains of commercial fisheries; iv) capacity building and training  
⇒ Outputs: i) Part of overall Project output leading to agreements between countries sharing fishery resources that improve harmonized MCS actions; ii) Agreements between countries that each will recognize regional pressure and the need to consult as precursor to setting exploitation limits on a fishery (particularly regarding licensing of foreign fishing fleet access to its 200 mile EEZ)

*Component 6: Mainstreaming biodiversity in national and regional fisheries management.* This component will be financed under the GEF Biodiversity Focal Area. The Component approach will include specific activities that lead to an understanding of the overall relationships between fisheries and biodiversity processes and species diversity and how these relationships can be managed at the national and regional levels. Typical examples will include:

- A regional approach to by-catch assessment and reduction in all fishery types
- Identification of biodiversity “hotspot” issues, such as spawning aggregations and nursery areas
- Understanding the possible impacts of fisheries on seed populations, larval transport.
- Ecological implications of selective removal of target species, such as top predatory sharks
- Identification and understanding of the inshore/offshore dynamics of several key commercially valuable species and associated biodiversity
- Potential impact of changes in fishing technology, including Fads.

Without an improved understanding of the relationship between fisheries in the SWIOFP region and the associated biodiversity, any future decision support of fishery development could be flawed and compromised. While it is recognized that such topics are often difficult to investigate, this is no reasons to ignore their probable implications on long term sustainable fishery development and an ecosystem approach.

This component will undertake an assessment of the interaction between non-commercial marine resources (such as sea-birds, turtles and other species) and commercial fisheries. Studies will be funded out of a grant fund and would generate a baseline assessment, GIS mapping of key species, assessments of marine biodiversity as alternative sources of income and identification of bio-indicator species and

relationships between target species and ecosystem health. The following sub-components and activities are planned under Component 6:

- ⇒ Inputs: i) Data from Project “observers” on commercial fishing vessels; ii) competitive research grants to regional universities funded by the Project to investigate success of “excluding devices” in fishing gear and pilot new measures to minimize fishing impact on important species; iii) linkage to other government/donor and international biodiversity assessment and management activities within and outside the WIO; iv) data from Project vessels through harmonized cruises for other Project components
- ⇒ Outputs (largely contributing to OP#2): i) Biodiversity map including indications of sensitive areas for reproduction and rearing of sensitive species; ii) Action plan detailing issues and actions related to fishery exploitation impacts on non-target species and how nations of the SWIO will manage commercial fishing impacts (production systems) on biodiversity (establishing legislation; iii) Establish an ongoing monitoring program that includes Monitoring, Control and Surveillance of Action Plan implementation and that will allow comparison of the biodiversity, ecosystem health and status of exploited fisheries against the baseline established by SWIOFP

#### Objectives and functions of the SWIOFC

Without prejudice to the sovereign rights of coastal States, the Commission shall promote the sustainable utilization of the living marine resources of the area of the Commission, by the proper management and development of the living marine resources, and address common problems of fisheries management and development faced by the Members of the Commission. To this end the Commission shall have the following functions and responsibilities:

1. to contribute to improved governance through institutional arrangements that encourage cooperation amongst members;
2. to help fishery managers in the development and implementation of fishery management systems that take due account of environmental, social and economic concerns;
3. to keep under review the state of the fishery resources in the area and the industries based on them;
4. to promote, encourage and coordinate research related to the living marine resources in the area and draw up programmes required for this purpose, and to organize such research as may be necessary;
5. to promote the collection, exchange, dissemination and analysis or study of statistical, biological, environmental and socio-economic data and other marine fishery information;
6. to provide a sound scientific basis to assist Members in taking fisheries management decisions;
7. To provide advice on management measures to member governments and competent fisheries organizations;
8. to provide advice and promote co-operation on monitoring, control and surveillance, including joint activities, especially as regards issues of a regional or sub-regional nature;
9. to encourage, recommend and coordinate training in the areas of interest of the Commission;
10. to promote and encourage the utilization of the most appropriate fishing craft, gear, fishing techniques and post harvesting technologies;
11. to promote liaison with all competent institutions within the area served by the Commission and adjacent waters, including in particular any agreement or arrangement for the management and conservation of the high seas non-tuna fisheries resources of the Southern Indian Ocean, the Indian Ocean Tuna Commission, the South East Atlantic Fisheries Organization and the Commission for the Conservation of the Antarctic

Because it is virtually impossible to undertake a detailed design of the biodiversity component until existing data are collected, processed and discussed on a regional identification of the detailed program to describe biodiversity in the two LME's will not be possible until after the Data Atlas is produced (under Component 1). This will be after the first year of the Project. Once these biodiversity data are available to all countries, a regional biodiversity component coordination meeting will be called by Mauritius (the coordinating country for biodiversity in SWIOFP).. This meeting will prepare the detailed work plans for field data collection to be supported under the Project. These will include how the Project scientific observers will be deployed on commercial fishing boats and Project research vessels, how these data collection programs will link to data collection from other component of SWIOFP, and the ASCLMEs and the WIO-LaB Projects. The Grant Agreement will include a condition of disbursement that specifies

Bank and GEFSEC Monitoring Unit “no objection” to this detailed workplan before disbursement of funds under the Biodiversity Focal Area can begin.

Component 7: Strengthening regional and national fisheries management. The last component will support the emerging regional fisheries management framework in the SWIO and build capacity in regional and national fisheries management bodies. The project will establish a working relationship and technical interface between SWIOFP and the Southwest Indian Ocean Fisheries Commission; establish a regional PMU and build the capacity of national project offices to undertake project activities. The project will also assess national fisheries regulations and identify areas where harmonization is needed.

- ⇒ Inputs: i) Support for Project staff (scientific and regional management) to participate in meetings of regional bodies relevant to resource management in the WIO; ii) Assistance for establishment (goods and works) of a regional fisheries management body; iii) publication of activities and interim results from SWIOFP to keep relevant government and non-government groups apprised of Project progress; iii) support for regional meetings of government legal staff to support drafting of multicountry legal agreements, harmonization of national fisheries legislation to an agreed regional standard, and/or establishment of a stronger regional fisheries management authority as agreed by participating countries
- ⇒ Outputs: i) legal agreements and memoranda of understanding between two or more SWIOFP countries facilitating regionally harmonized resource management; ii) a stronger regional management structure for management of shared or straddling fisheries resources through leveraging development of the SWIOFC; iii) . Legal agreements and memoranda of understanding between two or more SWIOFP countries facilitating regionally harmonized resource management. These agreements and regionally harmonized management plans will be for specific fisheries shared between the participating countries and will collectively feed into the TDAs and SAPs for the Agulhas and Somali Currents LMEs, and

In addition to the activities of specific components, there will be cross-cutting specialist activities, some of which will be integrated with the ASCLMEs Project and will likely include studies on ecosystem effects, training, bio-economics and marketing, and conflict resolution. Project costs by component and finance source is presented below.

**TABLE 2. COMPONENT FINANCING SUMMARY (US\$)**

	<b>Component</b>	<b>Total GEF Alternative</b>	<b>Total GEF Incremental</b>	<b>GEF Actual OP8 &amp; OP2</b>
1	Data gap analysis, data archiving and information technology	6.89	4.61	2.4
2	Assessment and sustainable utilization of crustaceans	21.83	7.73	3.0
3	Assessment and sustainable utilization of demersal fishes	22.62	8.1	3.0
4	Assessment and sustainable utilization of pelagic fish	43.03	3.8	1.0
5	Monitoring of fishing effort and catch, existing value, and exploitation conflicts	33.96	4.17	1.0
6	Mainstreaming biodiversity in national and regional fisheries management	7.5	2.25	.0.5*
7	Strengthening regional and national fisheries management	9.96	4.45	1.1
		<b>145.79</b>	<b>35.11</b>	<b>12.0</b>



(\*US\$ 3 million has been earmarked for funding under the biodiversity focal area. The total GEF costs for Biodiversity related activities are spread under components 1,2 ,3 & 4 and are estimated at US\$ 2.5 million. Therefore the total GEF incremental cost for Biodiversity adds up to US\$ 3 million (2.5+.5))

c) *How will SWIOFP be implemented?*

Implementation of SWIOFP will occur in three stages, namely:

**Stage 1:** The first stage of 12-18 months will focus on collection and analysis of existing data including data-gap analysis, harmonization of data collection and analysis procedures for new data, and initiation of core capacity building. SWIOFP will identify regional management issues and responses as its major outcome. Real capacity needs cannot be fully identified until after the Project is nearing completion and the assessments of which fisheries are priorities have been and discussed on a regional basis (a detailed capacity building plan would be one output of SWIOFP and provide guidance for funding needs in follow-on activities). As such, capacity building in SWIOFP will be limited to that needed to undertake the Project. This will include:

- The Project includes support to allow sharing of regional fisheries knowledge and experience between countries. There are several very strong fishing nations in the Project such as France (IRD, IFREMER), Seychelles, South Africa, Mozambique and Mauritius. The Project has been designed to allow this experience to be shared and used in a “South:South” partnership to build experience of countries that are not as strong or have as long a history of offshore fisheries management;
- Training programs will mainly focus on “On-The-Job” activities. The Nansen Program that will be involved (under bilateral arrangements with the Ministry of Foreign Affairs, Norway and the FAO) includes ship-based Norwegian experts and experts from the Institute for Marine Research of the Norwegian Directorate of Fisheries that will be involved in daily SWIOFP operations;
- The Project will support short training courses and a small number of BSc/MSc degree courses in African universities;

**Stage 2:** Once the activities of stage 1 are complete and a data collection program has been designed to fill the gaps in existing knowledge of the offshore fishery, the field monitoring program will begin to collect new information describing fish stocks and basic systematics, and fishing pressure in the Project study area. Collection of new data and establishment of a baseline is expected to run for 24-36 months.

**Stage 3:** Once the baseline is established and data analyzed, Stage 3 of the Project will begin. During this stage, the countries will identify regional issues that need to be addressed by SWIOFP countries. This will include a harmonized and mutually agreed set of priority actions that each country agrees to undertake to address the identified regional issues. Once this has been completed, SWIOFP will provide input into preparation of two TDA's and one SAP<sup>4</sup>. (one TDA each for the Somali Current LME and one for the Agulhas Current LME, and a SAP for the ACLME). The UNDP-implemented ASCLMEs Project will host and drive the production of these TDA's and SAP's, while SWIOFP provides finance for its own participation in the work. This last stage is expected to take 18 months and will lead into development of a follow-on project to SWIOFP.

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<sup>4</sup> The TDA for the ASCLME will by definition not be definitive due to the political instability in Somalia, making on the ground work in that country not possible at this time.

SWIOFP also includes a commitment of at least US\$150,000 to allow relevant staff and managers to participate in international GEF international waters and biodiversity conferences, and to produce project-related information for presentation at these meetings.

### **Lessons learned and reflected in the project design**

International best practice highlights a number of issues for improved fisheries management including the need to link governments, communities and fishers in co-management of resources provide habitat protection to rejuvenate depleted stocks, change exploitation patterns to avoid excessive discards or immature catch, and adjust fishing capacity and licensing to match resource constraints. Experience from other fisheries management initiatives also show achieving such objectives requires effective institutions to support resource management and a sound body of knowledge upon which decision making can be based. Lessons have been drawn from various initiatives and programs. Annex 2 provides details on the linkages to the various projects that have influenced the design of this project.

Historically, management of marine resources in the WIO has been fragmented and uncoordinated. Political instability and poor capacity has resulted in nations failing to benefit from their marine resources. The benefits of these fragile and limited marine resources only seem to accrue to fishing nations other than the coastal states themselves. Countries of the region have joined together in regional efforts to better manage regional resources. Organizations like the IOC, the IOTC and the SWIOFC (and associated High Seas Fisheries Agreement) provide opportunities for countries riparian to the WIO to meet and discuss regional issues related to fisheries and management of regional stocks. There are also scientific activities sponsored by these groups (such as the Tuna Tagging Program of the IOTC and the SADC program for Monitoring, Control and Surveillance of fishing pressure. But these programs and organizations are either focused on a single fishery (tuna) or do not include all countries in the region.

SWIOFP is an initiative aimed at consolidating the scientific activities of all African countries that are riparian to the WIO, and it begins a process whereby these countries can make sensible decision about the value of the resource and appropriate budget needed for their sustainable and equitable management. To achieve this, preparation has followed a strict process of stakeholder involvement through a participatory process. All SWIOFP countries shared responsibility for designing (and eventually, implementing) the Project, which has resulted in a strategy of national implementation with regional coordination.

The LME approach to fisheries also highlights the need for fisheries development to be better integrated with ecosystem management, which often calls for an additional level of integration and coordination between assessment of the various fisheries and evaluation and description of the environment in which the fish live. Implementation of LME programs have, up to now, been the responsibility of a single GEF-implementing organization. Experience has shown that a single organization, even one as large as the Bank or as technically focused as UNDP and UNEP, may have difficulty designing and managing such a large, multisectoral undertaking. Although each of the 3 GEF implementing groups (World Bank, UNDP and UNEP) has individual strengths, each also has weaknesses that do not become apparent until implementations of multisectoral LME programs begin. The proposed assessment of the Agulhas and Somali Current LME's using the standard LME modular approach with UNDP, the Bank and UNEP all being involved is a pilot to see if all three implementing agencies can work together to design a stronger LME program that will be implemented in a more efficient manner than at present. Project design within this Programmatic Approach allows each implementing agency to concentrate on a specific technical area, but requires that each project within the program participates in all preparation activities of the other project and feed outputs from the other projects into its own project design.

Based on the above, and experiences with preparation and implementation of other regional projects in Africa (Lake Victoria Environmental Management Project and the Lake Malawi Biodiversity Management Project), the development of SWIOFP was accomplished in a fully participatory manner. Preparation was coordinated through a SWIOFP Secretariat, hosted by Mozambique. Implementation of the Project will be at the national level and each country will have its own National Secretariat, managed by a National Coordinator. National Coordinators will be the government organization in each that is currently the Project preparation focal point. This ensures consistency and helps preserve institutional memory of original Project objectives. Activities at the national level will be assigned to implementing institutions and run by civil servants. National activities will be integrated into a regional component/subcomponent/activity by a regional coordinating Project Management Unit.

### **Alternatives considered and reasons for rejection**

More than 90% of fisheries currently under exploitation are threatened or endangered, a situation exacerbated by the increasing efficiency of industrial fishing fleets and the declining number of fish available for capture - both because of this increased efficiency and because of increased demand for the fish products. It is certain continued demand and high prices will lead to greater exploitation of existing fisheries and development of new commercial fisheries based on species that are currently only lightly exploited. Under a no project scenario, it is likely SWIO countries will continue to scale up exploitation of their national fisheries resources without knowledge of what is environmentally sustainable or what constitutes a sustainable level of harvest. Worse, without a scientifically justifiable “picture” of the life history of fish in a regionally exploited fishery, it may be difficult to reconcile one country’s view of sustainable harvest from that fishery with the views of others. Similar situations around the world have shown that management guided by politics and profit alone lead both to depletion of the resource and political tensions between nations. SWIOFP countries have rejected this unstructured management option and have, through SWIOFP, committed to manage shared fisheries resources based on knowledge and fact rather than conjecture.

Investments in fisheries management at the country level only. Investing in a number of projects at the country level was rejected for several reasons. SWIOFP focuses on management and long-term sustainable development of shared offshore biological marine resources. Although the SWIO does not appear likely to support levels of exploitation as great as the highly productive commercial fisheries found in many upwelling areas linked to Western Boundary current systems in West Africa, there are existing transboundary fisheries that have value. Because fish and fisheries do not respect national boundaries, most of the existing and potentially exploitable fisheries can only be managed in a regional way. One country, promoting exploitation in an unsustainable way, can significantly impact the value and long-term exploitability of a fishery. The only approach to identifying, describing and managing migratory fish stocks and fish stocks that straddle national boundaries is through a cooperative, regional approach.

The extent of the proposed Project area (6.3 million km<sup>2</sup>) and the number of coastal states involved suggest the need for a well structured and focused approach to implementation. Although there are examples of LME projects, none involve as many countries or an area as large as the Agulhas and Somali LMEs. Also, as described above, SWIOFP is part of an experiment by the GEF to pilot a new and unique collaborative approach to assessing and managing LME’s. SWIOFP focuses on those fisheries that are currently exploited (mainly the large pelagic fish), or fisheries within the various EEZ’s that research from one or more of the SWIOFP countries suggest might have development potential and links to independent projects assessing the environment and land based impacts on the marine ecosystem.

Balance between research needed for ecosystem assessment and fisheries management. The project is designed to engage in both research and capacity building for regional fisheries management. The option

of focusing solely on fisheries management was not pursued as it was deemed necessary by countries to ascertain the true size of shared fish stocks within their EEZs.

## **IMPLEMENTATION**

### **Partnership arrangements**

#### **.1.1. between IA's and Project beneficiaries**

The SWIOFP will rely extensively on partnerships for implementation and financing of project activities. SWIOFP will be implemented in partnership with several institutions: (i) The GEF; (ii) the countries themselves; (iii) France (through technical assistance and the French GEF); (iv) Norway (through the Fridtjof Nansen Program); (v) South Africa through use, and cost-sharing, of its fisheries research vessels; (vi) Seychelles through use, and cost-sharing, of its fisheries research vessel; (vii) Tanzania through use and cost sharing of its fisheries research vessel; and (viii) FAO and the emerging Southwest Indian Ocean Fisheries Commission. All of these partners will provide in kind or financial support to SWIOFP implementation. French assistance will be parallel finance through provision of several leased vessels that can be used to undertake SWIOFP activities. These vessels will be funded for a specific number of days per year. Norway will provide part of the cost of its scientific research vessel, the RV Fridtjof Nansen—mainly the crew, scientists on board, maintenance and scientific consumables. The RV Fridtjof Nansen will also be used by the ASCLMEs Project, which will share the operational costs with SWIOFP when the vessel is used for joint activities.

An unusual nature of the finance of SWIOFP is that there will be a proportionally greater amount of counterpart contribution than usually seen in similar projects. Besides the usual contribution of staff, office space and support services by participating countries, the Project will have access to research vessels from South Africa and Seychelles. These countries will contribute maintenance and equipment while the Project pays for operational costs (mainly fuel). Finally, the country to host the regional coordinating PMU has agreed to provide office space and other support services to house the unit. The SWIOFP regional PMU will also have some functions in common with its sister Project, the ASCLMEs, which will allow cost-sharing between these two Projects. Annex 17 provides further elaboration on the partnership arrangements.

#### **.1.2. Consultation, Coordination and Collaboration between and among IAs and Projects**

The Implementing Agencies (UNDP, UNEP and the WB) have been and will continue to work collaboratively toward the realization of the overall objectives of the ASCLME Program. Each of the three IAs has been represented at most of the preparation sessions for the respective projects of the Program. The WB implemented SWIOFP project and the UNDP implemented ASCLME project were developed in close collaboration between the respective Project Managers and other expert resources associated with the two projects. These two projects have collaborated closely in developing their respective baselines and logical frameworks. The latter accommodates outputs of the WIO-LaB project. In addition, UNDP has ensured that the project has been designed to complement other planned and complementary GEF projects within the ASCLME region, in Africa and globally. A list of the relevant projects is provided in Annex 10 of the Project Document.

The **Program Coordination Committee (PCC)** would be comprised of members from each of the projects. Overall responsibility for coordination will be assumed by the ASCLMEs project. Each of the projects would be represented on the PCC by the respective task team leaders for the IAs, Project Managers, and two members from each of the respective Project Steering Committees. The PCC would

meet not less than once annually, and will meet at the call of any of the project managers. Among other things, the PCC would focus on establishing a unified approach to capacity building, LME module coverage, TDAs and SAPs development, donor recruitment and other related issues. The UNDP, working through the PCC would also ensure that projects in combination, and in relation to other related GEF projects and program operative in the region.

The UNDP ASCLMEs project will also assume ultimate responsibility for the development of the TDAs and SAPs that will be a principal product of the programmatic approach. It is foreseen that a two TDAs and two SAPs will be prepared within the programmatic approach for the two LMEs, one for the Agulhas Current LME and a separate TDA and SAP for the Somali LME<sup>5</sup>. The UNDP ASCLMEs project will utilize TDA and SAP inputs from the WIO-LaB and SWIOFP projects in final TDAs and SAPs preparation, utilizing also Interministerial Committees (IMCs) and technical workgroups as necessary to assure a comprehensive TDA and SAP for the Agulhas LME and a preliminary TDA for and SAP for the Somali LME. A harmonized implementation structure for the projects has been agreed:

- Each of the Project Managers will sit on the respective Project Steering Committees established under the Program to assure a continuing and effective set of programmatic linkages, the avoidance of activity duplication, and the creation of cost efficiencies at the administrative level.
- The Regional Management Office of SWIOFP will house the Ship Coordination Specialist. This expert will be an ASCLME Program officer and the funding to support the position, including provision of office space and support, will be assumed by SWIOFP.
- The Regional Management Office of the UNDP ASCLMEs project will house the ASCLMEs Information Systems Officer. This expert will be a ASCLMEs program officer and funding to support the position, including provision of office space and support, will be assumed by the UNDP ASCLMEs project.
- Annual Work Program for the three projects will be prepared jointly, using the vehicle of an annual Program meeting. The responsibility for hosting this meeting will alternate among the projects, and the UNDP ASCLMEs project will be responsible for overall coordination. Further, the annual program meetings will include comprehensive reports from each of the projects on the status of information gathering pursuant to TDAs and SAPs preparation.
- There will be a UNDP ASCLMEs/WB SWIOFP Coordination Committee whose membership, as initially discussed, will include the National SWIOFP Manager of each SWIOFP country and the Regional Executive Secretary, and the senior member of the UNDP ASCLMEs Project Steering Committee from each country and the ASCLMEs project manager. This group will meet immediately before and in conjunction with the Annual Work Program meeting. This will be a technical meeting and deal with inter-project coordination issues. Chairmanship of the meeting will alternate among the Project Managers.
- EcoAfrica will execute the DLIST project on behalf of the UNDP ASCLMEs project and for the benefit of the three projects within the ASCLMEs Program as a whole. EcoAfrica has successfully assumed such a role for the GEF supported Benguela Current Large Marine Ecosystem project.

### **Institutional and implementation arrangements**

The project will be implemented on the national and regional level. The project management structure will consist of three units: a high level political steering committee, a Regional Executive Secretariat, which will act as the project's core operational unit and national management units for each of the

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<sup>5</sup> As previously mentioned, it will not be possible to do a comprehensive TDA and SAP for the Somali LME due to the continuing instability in Somalia, which comprises a large shoreline area for the Somali LME. Emphasis at the early stages would be on completing a preliminary TDA for the Zanzibar Current area.

participating countries. The bulk of implementation of the technical aspects of SWIOFP will occur through National Management Units that are entirely staffed by civil servants. The Regional Executive Secretariat will act as a kind of Project Management Unit which will provide financial, regional procurement, ship coordination and harmonization services to the National Management Units. The Political Coordination of the Project will be managed by a Regional Political Steering Committee with delegates being “permanent secretary-level staff” that has authority to speak for their respective governments.

The Regional Executive Secretariat will be staffed by four full-time persons: 1) a Regional Executive Secretary (who will head a Regional Management Board), 2) a Data and Information Technology Manager whose major role will be to oversee management and maintenance of the regional database, 3) a Regional Procurement and Financial Manager and 4) a Ships Manager to coordinate and integrate use of the various vessels undertaking SWIOFP and ASCLMES survey work. Regional Coordination will be established in one country using a selection criteria determined by the nine countries. The regional coordination unit will also be integrated with the ASCLMES Project secretariat and national management structure. This will aid in the planning and utilization of sampling activities and ships time. For greater detail, see Annex 6.

There will be a standard structure for National Management Units in each country including the following posts: a National Executive Secretary, a Sub-component Manager, a National Procurement and Financial Manager and different Project Leaders. Some countries will host a specific Component Coordinator such as for Pelagic fish (Seychelles), Demersal fish (Kenya), Crustaceans (South Africa), non-consumptive resources (Mauritius) and Monitoring (Madagascar). Although Component Coordinators will be situated in a given country, their responsibilities will have a regional scope. All national project management and coordinating staff will be civil servants.

The proposed project management structure of SWIOFP was developed in a transparent way by all participating countries, and will operate solely as a means to achieve project implementation. It will, however, have a mandate to work in harmony with and support existing regional institutional frameworks and management agreements in place when the program begins. It is intended that SWIOFP, and its project implementation structure, will support and strengthen management mechanisms that are already in place, rather than replace them.

#### **Flow of Funds:**

The total amount of money for the regional SWIOFP will be apportioned to the various SWIOFP member countries reflecting each country’s agreed obligation to contribute to those Project components and subcomponents in which they have agreed to participate. This gives direct technical and financial management responsibilities to countries participating in SWIOFP and facilitates overall Project financial management through the regional executive secretariat, without compromising the contractual obligations that each country will have with the Bank through the individual Project Grant Agreements (8 needed - France is a participant in the Project but not a beneficiary of the GEF grant). Funds to support the coordination activities of the regional executive secretariat and pay harmonization activities between two or more countries will be retained by the regional office. Interest accrued on this special account will be retained in the Project Special Account and used equally to support SWIOFP activities of all countries

#### **Monitoring and evaluation of outcomes/results**

Monitoring and Evaluation (M&E) will be undertaken by all key partners. The objective of the M & E system will be to ensure better planning, targeting, and feedback to participating countries and timely decision making in order to improve impact of the project activities under both the focal areas. The

Regional Executive Secretariat will maintain primary responsibility for monitoring and evaluation during project implementation and play a supervisory role in monitoring implementation at the national level by the nine National Secretariats. The Regional Executive Secretariat, National Secretariats and component managers will be responsible for reporting on performance based on the performance indicators developed in the results framework and the targets set in annual work plans, on a quarterly and annual basis.

The performance of the Regional and National Secretariats will be assessed annually by the Regional Management Board and Regional Steering Committee as well as through periodic supervision visits by the World Bank. At the project mid-point, a mid-term review will be carried out to evaluate implementation progress. At project end, an implementation completion report will be prepared to assess project impact and the degree of success on achieving project objectives. Overall, the project will assess its project management systems and procedures in respect of their relevance, effectiveness, efficiency and impact on both the national and regional levels. This will be carried out through input, process, output, outcome and impact tracking indicators which have been developed within the results framework.

In addition to the specific monitoring and evaluation arrangements that will take place as part of project management, M&E will be an integral part of project activities. Project outputs will include baseline data collection which will be used to measure progress during project implementation and beyond. In addition, specific M&E activities have been defined within components 1, 5 & 6. In particular component 1-Data and Information Technology, will include a comprehensive review sourcing of data from various entities, including repatriation of some data from private and national bodies and establishment of a regional database. Specific capacity strengthening will occur through the inclusion of M&E elements into training activities in all components.

The GEF guidance for M&E (the GEF International Water Monitoring and Evaluation Framework) in IW projects which distinguishes the three types of indicators: Process Indicators (PI), Stress Reduction Indicators (SRI) and Environmental Stress Indicator (ESI), will be used to guide the finalization of the M&E system at project appraisal, and made ready by the time of CEO endorsement. Under the biodiversity focal area, the WWF tracking tool/METT will be used for monitoring and evaluation of project outcomes, and will be fine-tuned and customized to fit with the context of the participating countries. More detailed information on project's monitoring and Evaluation plan can be found in Addendum 1 to Annex 3 of the GEF Project Brief

### **Sustainability and Replicability**

The initiative to promote ecosystem management of natural resources through an LME assessment involving a suite of 3 separate projects is a complicated initiative. It will involve a large number of countries, many institutions, and three separate but closely integrated operations under a common program. Clearly, this presents administrative and logistic hurdles and an element of risk at both the program and project levels which may affect long term sustainability. However, as the preparation phase was extremely thorough and involved participation by all parties, this risk is substantially reduced. In spite of this inherent complexity, the extensive partnership arrangements developed and envisaged by the SWIOFP and the ASCLMEs and WIO-LaB Projects, will increase the sustainability of project investments by incorporating project outcomes into on-going and long term development initiatives and, also the institutional sustainability.

At the LME program level, a number of on-going political processes within the region provide the foundations for ensuring the political sustainability of interventions, and level of confidence that an ecosystem management framework for the Agulhas and Somali Currents LMEs will be operationalized as part of SAPs implementation. These processes include those related to NEPAD, the Nairobi Convention,

SADC, and the SWIOFC. The LMEs program has established early linkages with the SWIOFC, and while the ASCLME Project and SWIOFP projects will be able to assist the SWIOFC over the period of project implementation by fulfilling many of the objectives that are foreseen by the SWIOFC, the SWIOFC will continue to exist beyond the life of the program and thus will be an instrument of sustainability over the longer term. The Nairobi Convention will also be a key vehicle for assuring the longer term sustainability of the outcomes. Finally, the overall program will help leverage resources from national budgets, and multi-lateral and bilateral funders to implement the activities identified as priorities in the SAP. Interventions will help match funding needs with prospective funding sources. Economic evaluations of the costs and benefits of LME management will provide a basis for justifying budgetary appropriations to the Program including from fishery license fees. This will be facilitated through efforts to mainstream activities within Poverty Reduction Strategies and Disaster Mitigation Program, which influence the budget plans of governments and donors.

At the project level, participating countries in SWIOFP have designed this project to help ensure that sustainable benefits accrue either through direct exploitation of the fisheries resources themselves or through more scientifically informed granting of access rights. The data on national fish stocks is expected to improve the ability of member countries to more efficiently regulate their commercial fisheries and possibly increase the revenue associated with them, while the development of the longer-term resource management model accommodates a revenue-generating scheme based on the use of EEZ marine resources in an environmentally and socially sustainable way. See also section C.4 of the Project Brief.

It is envisaged that, after the five-year SWIOFP is completed, a 7-10 year follow-on program will be initiated. This second phase would be oriented more towards sustainable exploitation of fisheries identified as having commercial value, and more effective management over impact of commercial fishing on “non-target” species, such as seabirds, large mammals, turtles, etc.

*Financial Sustainability:* The SWIOFP countries have undertaken the design and implementation with the clear belief that the Project will help ensure that sustainable benefits accrue either through direct exploitation of the resource themselves or through more scientifically informed granting of access rights. The data on national fish stocks generated by the project is expected to improve the ability of SWIOFP countries to more efficiently regulate their commercial fisheries and possibly increase the revenue associated with them. The development of the longer-term resource management model of SWIOFP accommodates a revenue-generating scheme based on the use of EEZ marine resources in an environmentally and socially sustainable way. This includes levies, access rights, permit fees and other instruments that will provide for the permanent funding of resource management and scientific assessment. It is envisaged that after the five-year SWIOFP is completed, a 7-10 year follow-on program will be initiated to focus upon management. The second phase of this long term commitment to sound regional marine resource management would be oriented more towards sustainable exploitation of fisheries identified as having commercial value, and more effective management over impact of commercial fishing on “non-target” species such as seabirds, large mammals, turtles, etc. This is particularly important since the demand for investment in developing offshore fisheries will continue to grow even in the absence of sustainable management options. SWIOFP will be an important means of shifting fisheries management in the SWIO countries towards adoption of an ecosystem approach. The SWIOFC and other regional institutions are also expected to provide forum for leveraging funds for the activities identified for future phases of SWIOFP.

*Institutional sustainability:* Financial sustainability of the project’s outputs will be assisted by the regional nature of the project, the relatively low long term financial burden created by project activities, and the increased financial benefits associated with more efficient fisheries regulation. Although SWIOFP will create a regional PMU, it is will be hosted by a country and will, by project end, incorporate itself within



a regional institution to be determined by the SWIOFP participating countries. The primary tasks of the staff of the regional PMU will be to manage data collection and regional coordination. The former will not be required after the project's end and the latter will most likely be transferred, according to the above-mentioned arrangement, to the Southwest Indian Ocean Fisheries Commission (SWIOFC). The recently established Commission is fully developed, but is still developing the vision of its role in regional fisheries management. It is expected to play more substantial role in the long term as it reaches institutional maturity.

#### **Replicability:**

Replication of SWIOFP achievements will focus on scaling-up regional and sub-regional management activities based on the outputs of the fisheries management plans rather than on geographical expansion. The SWIOFP lays the groundwork for embarking on a long-term development strategy for offshore fisheries including the likelihood of spinning-off many sub-regional projects using SWIOFP's scientific/information-based approach to management. The Programmatic Approach, through its use of the three IAs to undertake specific projects within the Programme based on comparative advantage, is a promising approach for replication in other, future GEF IW projects. Further, the emphasis on establishing strong scientific baselines across a broad range of oceanographic and biodiversity values is also an approach that could be replicated in other developing regions where a modular approach is being applied to the management of LMEs. The elements of SWIOFP that will be replicated through potential follow-on projects are:

- Targeted and prioritized capacity building appropriate to the likely commercial gain from sustainable management of a fishery(ies);
- Mainstreaming ecosystem-based management of shared fisheries resources through continuing baseline monitoring programs and scientific linkages between SWIO countries;

Promoting regionalization of shared fisheries resources by continued support to existing regional bodies such as the SWIOFC, maintaining a regional database of fisheries and offshore environmental data available to all fisheries managers in the West Indian Ocean, and promoting scientific links and regular interactions between scientists in the SWIOFP countries.

Stage 3 of the project (the last 43 to 60 months) is designed to assist participating countries in developing this "post SWIOFP" phase and, as part of implementation of stage 3, funds will be earmarked for workshops and production of specific regional, sub-regional and national plans. Replication will also be greatly assisted by the project's close alignment with regional institutions with a mandate covering SWIO LMEs. It is foreseen that the project will result in establishment of comprehensive scientific information base that will serve as a platform for informing long-term management decisions for shared waters, fisheries and biodiversity. This is an approach that could well be of use for other GEF IW initiatives. The programmatic approach to public participation and community education through the incorporation of DLIST and other stakeholder involvement activities across a range of GEF projects in the SWIO region is also an approach that could lend itself to useful replication in other development regions where the GEF has cross-Programmatic interventions planned or underway.

The Project will take advantage of the IW:LEARN to develop training courses at the regional level and will be used to help both disseminate and harvest lessons/ good practices to and from other projects. SWIOFP, in close cooperation with ASCLMEs also aims at building the capacity among transboundary water resource projects worldwide through Internet-based applications, networking within a community of practice, and knowledge management. The information systems and networking initiatives planned through the ASCLMEs (with SWIOFP input) will be closely tied to IW Learn information systems. Provision is made for south-south knowledge transfer, which would benefit from the IW Learn network, and the participation of project stakeholders in IW Learn sponsored conventions, including the biennial

GEF IW Conference<sup>6</sup>. SWIOFP and the ASCLMEs share the person responsible for overseeing this activity (the data and information systems specialist for both projects), but the specialist will be within the ASCLME coordination office in South Africa.

A minimum of US\$150,000 is earmarked in the SWIOFP budget to allow relevant staff and managers to participate in biennial GEF IW and biodiversity conferences, and to produce project related information for presentation.

### Critical risks and possible controversial aspects

The most immediate risks facing SWIOFP is the possible failure of a particular country to endorse the project, implement the regional management plans or allocate revenue to future sustainability. Individual countries are expected to contribute substantial manpower resources to SWIOFP, as itemized in the detailed budget. Failure to allocate and support such staffing requirements will compromise that country’s ability to implement a particular component and hence, place aspects of SWIOFP at risk.

The Science Plan of SWIOFP is based on individual country needs that are of a transboundary nature. To a considerable extent, there is an expectation that “new” resources may be “discovered” or existing resources more extensively exploited. While this is likely to be true in part, it is equally important for countries to have a sound scientific knowledge of the resources in their EEZ, even if these prove to be modest. Should only modest resources be found in a particular region, the information would still be useful and yield financial returns to the governments, based on an ability to tailor the level of government investment in the management requirements. Modest resources may only require modest management intervention and cost.

Risk	Risk Rating	Risk Mitigation Measure
Political instability and conflict scenarios between coastal states with different political agendas	L	All countries in SWIOFP have a history of working together on shared fisheries resources. Most are active members of the IOC, the IOTC and the SWIOFC. SWIOFP includes activities that allow close liaison with these groups and in some cases, funds to strengthen their operation and outreach.
General performance risks related to variability in capacity between countries and with harmonization of mutual activities.	H	Establishment of a regional Project Management Unit to coordinate activities, and a Regional Policy and Steering Committee made up of senior government civil servants to address Project issues quickly and efficiently. Peer pressure by other member countries on those not performing has been found in other regional projects to be extremely effective in managing performance risk.
Problems with flow of funds related to one or more countries failing to account	M	Assigning responsibility for control of the Project Special Account to the regional

<sup>6</sup> A minimum of US\$150,000 is earmarked in the SWIOFP budget to allow relevant staff and managers to participate in biennial GEF IW and biodiversity conferences, and to produce project related information for presentation

for expenditures in a timely way		Project Management Unit should mitigate this potential problem. Should one country fail to be financially accountable, a Project-based response, representative of all 9 countries in SWIOFP, would be added to official Bank supervision pressure. Peer pressure has been shown to be a powerful management tool in other regional projects.
Integration difficulties with the ASLME Project Components led by UNDP and UNEP	M	Although SWIOFP is a “stand-alone” operation, it is closely linked to the WIO LaB and WOMEP Projects. These are implemented by UNEP and UNDP, respectively, and have their own project management structures. However, on-the-ground management of these projects is linked through local institutions. Those institutions managing SWIOFP are also managing the WIO LaB and ASCLMES Projects.
Delivery capacity is constrained because of non-availability of qualified staff.	S	Targeted capacity building efforts are imbedded into all project components to ensure staff of key implementing agencies has the skills necessary to carry out the proposed project activities. Training programs explicitly incorporated in start-up years, with a training plan currently being developed. Project preparation was also country driven and scoped by the countries themselves in full realization of current staffing levels and demands.
That the members of the SWIOFC may not want to assume political management control over SWIOFP	L	The initial political-level of Project Management will be vested in a Regional Policy and Steering Committee. If SWIOFC is unable or unwilling to take over this role from the RPSC, the RPSC will need to continue to function for the life of the Project. The Project would compensate for this occurrence by working with the SWIOFC to ensure that the Project outputs are adopted by the Commission.
Parallel activities in Tanzania through the MACEMP that will support both MACEMP and SWIOFP management failing to be realized.	M	National management of SWIOFP in Tanzania will largely be financed through the “parallel” MACEMP
Overall Risk Rating	S	The high level of country ownership and country participation in preparation is expected to provide significant mitigation of what would otherwise be a full “H” risk rating.

Risk Rating – H (High), S (Substantial), M (Modest), N (Negligible or Low)

In spite of these Project risks, the likelihood that over-exploitation of a shared fishery resources in one or more EEZs (or perhaps more likely the cumulative exploitation of the resource in all EEZs in which the fishery exists) will occur is very much greater.

### **Grant conditions and covenants**

Conditions of Effectiveness:

1. Regional Executive Secretary and Financial Specialist in the regional PMU appointed.
2. National Project Implementation Units established and appropriate staff identified for each of the SWIOFP countries;
3. The Project Special Accounts established;
4. M&E Manual acceptable to the Bank has been adopted and indicator baselines and targets identified.
5. Functional financial management system and Procurement Plan for Year One in place and satisfactory to the Bank.

*Conditions of Disbursement:*

Memorandum of Understanding detailing agreement by the participating countries in SWIOFP to allow unfettered access of Project assets (vessels, aircraft, vehicles) and staff on Project business into its 200 mile EEZ and territorial waters, and to participate in SWIOFP in a harmonized manner, and recognizing the right of the country hosting the regional PMU to supervise the operation of that unit on their behalf. Disbursement of the funds under the GEF Biodiversity window will be contingent on a detailed work plan being submitted to the Bank and cleared by GEFSEC for Component 6 (describing the biodiversity activities within the Project). This is expected no later than 14 months after Project Effectiveness.

### **APPRAISAL SUMMARY**

#### **Economic and financial analyses**

Calculation of the rate of return for this project is difficult, given its scientific nature, and a quantitative economic analysis was not attempted. Nonetheless, it was possible to make a general assessment of the potential economic benefits to be generated by the project and it is expected that scientifically based management of shared offshore fisheries resources will, over the longer term, have a positive economic benefit.

#### **Technical**

Ensuring the sustainability of regionally shared resources requires the resources be understood and well-described, and that all parties that share the resource assess and manage them in a harmonized way. This level of collaboration between countries is often difficult to achieve and must evolve over time. Regional collaboration in SWIOFP is further complicated by the very large size of the study area (6.3 million km<sup>2</sup>) and the number and nature of the countries that needed to be involved (8 African developing states and one European developed country).

SWIOFP participating countries and the Bank have recognized that if SWIOFP is to achieve the desired benefits, participating countries will need to assume maximum responsibility for all aspects of scientific discovery and resource management. At the initial concept workshop, funded by a GEF PDF-A grant, the countries of the SWIO decided they would commit to a “NEPAD-like” operation where use of local

assets (regardless of country of origin) would be used to prepare and implement SWIOFP. Project preparation responsibilities were divided amongst the participating countries. GEF preparation funds were managed and disbursed to the various countries with preparation responsibilities by Mozambique, and country scientists, managers and financial staff from the region undertook all design responsibilities. Relevant organizations with interest in fisheries in the WIO were invited to attend and participate in preparation workshops. This approach will continue into Project implementation. Countries will take the lead and assume sole responsibility for implementation and interpretation/presentation of results. Consultant advisors will be used, as necessary, but mobilization of African resources and knowledge will be the main objective. The alternative approach would have been to appoint an international organization to manage the Project and its resources, but the countries believed that this approach would limit government buy-in of results and minimize potential capacity building opportunities to the region.

The design conforms to internationally accepted standards. It permits EEZ issues to be addressed within a regional framework that promotes sustainable management of natural resources (consistent with international codes of conduct and best practices) while also providing a basis for monitoring the effectiveness of revenue generation efforts linked to exploitation of shared commercial fisheries. The Project also helps identify and reverse depletion of fisheries in the region, and will assist the SWIOFP countries to meet their agreed fisheries targets set by the WSSD. Specifically, the Project will identify species of fish within the 200 mile EEZ that are currently under commercial exploitation or might be in the future.

**Fiduciary**

Financial assessment to be undertaken during appraisal.

**Social**

SWIOFP is one of three integrated operations covering the Agulhas and Somali Currents LMEs. SWIOFP addresses the 200 nautical mile EEZ's of participating countries, excluding the near-shore marine and coastal areas. These areas are addressed, under the LME-definition umbrella, by the ASCLMEs (implemented through UNDP). As artisanal fishermen tend not to be able to access the resources in the areas covered by SWIOFP, the vast majority of SWIOFP activities relate to industrial and semi-industrial fisheries. The social assessment module of the LME assessment is presented in the ASCLMEs Project Brief. SWIOFP activities, per se, are not expected to have direct or indirect social impact.

**Environment**

Not applicable. The Project focuses purely on scientific assessment of the offshore fishery, and developing a better understanding of the life histories of fish species that make up and existing or potential fishery. The fisheries that are the target of SWIOFP are not generally accessible by artisanal fishermen. The Project will, however, make assessment of environmental impact associated with future management decisions (i.e. post-Project) on offshore fisheries exploitation possible. Indeed, achievement of this level of knowledge underpins accomplishment of the SWIOFP Global Development Objective.

**Safeguard policies**

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment (OP/BP/GP 4.01)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Natural Habitats (OP/BP 4.04)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Pest Management (OP 4.09)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Cultural Property (OPN 11.03, being revised as OP 4.11)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Involuntary Resettlement (OP/BP 4.12)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Indigenous Peoples (OD 4.20, being revised as OP 4.10)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Forests (OP/BP 4.36)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Safety of Dams (OP/BP 4.37)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Projects in Disputed Areas (OP/BP/GP 7.60)*	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Projects on International Waterways (OP/BP/GP 7.50)	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The only relevant safeguard policy triggered by SWIOFP is that relating to Projects in International Waterways. This policy requires all “riparians” to be informed and to consent to the Project. As all countries riparian to the WIO within or bordering the Project Study Area are within and designed the Project, de-facto approval is effectively given (and confirmed once each country signs the Credit Agreement to fund the work).

### Policy Exceptions and Readiness

Seychelles, a participant in SWIOFP, is currently in arrears to the Bank on an earlier IDA Credit. An exception to allow its participation has been granted by the Africa Regional Vice President on the grounds described below.

Although disbursements of all IBRD loans, PPFs and IDF grants to Seychelles were suspended in 2002, the communication to the Government did not cover on-going GEF grants in the country. With respect to a GEF Project in Argentina, the Acting General Counsel advised that even though there was no cross default in these situations, the Regional Management would have to determine whether the conditions that led to the default on the part of the country (political/institutional/financial, etc.) would negatively impact the implementation of the GEF grant and that the conditions were present in the country to enable achievement of the objectives of the GEF grant. Thus in this instance, it is our view that the implementation conditions for this GEF grant do not present the same features as have prevented repayment of Bank loans. In 2003 a GEF grant for improving management of NGO and privately owned nature reserves and high biodiversity islands was approved for Seychelles under these exceptional circumstances.

Based on the above and following factors, the Africa Regional Vice President has issued an “exemption” to allow Seychelles to participate in SWIOFP. :

- The main activities of SWIOFP are targeted at assessment of fish stocks that migrate between territorial and Law-of-the-Sea Exclusive Economic Zones (EEZ), or that straddle territorial waters and EEZ’s, of SWIOFP countries. It would be impossible to undertake these scientific surveys without the cooperation of Seychelles, whose waters make up a very significant part of the Project study area;
- SWIOFP lays the scientific groundwork for regional cooperation in management of commercial migratory and straddling fish stocks. Fishing pressure on these shared stocks is rapidly increasing through new fishing agreements between foreign fishing fleets and SWIOFP countries- and particularly those that have not traditionally extracted value from offshore fisheries. Without regional harmonization of exploitation, actions by one country will severely impact on revenue generation and social welfare of another;
- There are regional bodies in existence and being formed whose purpose is to harmonize and coordinate marine fisheries issues between countries in the western Indian Ocean. These are

\* By supporting the proposed project, the Bank does not intend to prejudice the final determination of the parties' claims on the disputed areas

the Indian Ocean Tuna Commission (which is hosted by Seychelles) and the Southwest Indian Ocean Fisheries Commission (of which Seychelles is a part). SWIOFP works closely with both these groups. It would be awkward to have the Bank, through SWIOFP, working with Seychelles as a key member of these two groups, but refusing to include Seychelles as part of SWIOFP which will be the largest fisheries assessment initiative in the region;

- The GEF sees SWIOFP as one of 2 linked initiatives assessing the Somali and Agulhas Current Large Marine Ecosystems (the ASLME Program). The other project under this LME Program is a UNDP supported assessment of oceanography and associated ecological links to the offshore fishery. Seychelles is a member of the UNDP Project. Excluding Seychelles from the Bank-executed part of this GEF Program could perhaps hold reputational risks for the Bank both associated with public perception of administrative entanglements acting to the detriment of the global environment and raising questions about the Bank's ability to cooperate with other GEF implementing agencies on a common program.

## **Annex 1: Country and Sector or Program Background**

### **Project Background**

The Western Indian Ocean (WIO) is the site of some of the most dynamic and variable large marine ecosystems (LMEs) in the world. Complex current systems that include the Agulhas Current and its retroflection, migrating anti-cyclonic eddies in the Mozambique Channel and di-polar vortices off East Madagascar induce variability into ecosystems of the region. In addition, coupling between atmospheric circulation and ocean processes lead to extensive monsoon systems that in turn lead to the development of unique events, such as the seasonal Somali LME, one of the most intense and nutrient-rich coastal upwelling systems in the world. Similarly, the Agulhas LME, to the south, represents a region of dynamic nutrient cycling and associated fisheries potential. These two large LMEs, as well as the influence of the 2000km long Mascarene Plateau, have a profound basin-wide and transboundary influence over the region's ecosystems, biodiversity and fishery resources. These WIO-LMEs are unique and of great regional, and probable global, importance. Yet there is generally little information about these LMEs and the systems or mechanisms that link them. Nor is there adequate and specific information about the species composition, distribution, and behavior and migration patterns of fishery resources associated with these systems. At their present level of economic development, countries of the WIO region are neither able to estimate the potential of their marine ecosystems nor to draw sustainable long-term benefits from them.

The world's marine environment has been divided into 19 major fishing areas by FAO. One of the largest of these is the WIO, accounting for some 8% of total marine waters, at 30 million square kilometers. While global trends in fish landings for most of the 19 areas are negative, the WIO has maintained a steady rate of increase in total landings. This has largely been as a result of the increased harvest of tuna and mackerel-like species, with recent additions of toothfish and orange roughy. While the total catch is relatively modest at about 4 million mt, being only 4.6% of the world total marine fish landing, (FAO, 2000) it is seen by distant fleets as an opportunity to offset their decreased landings from other regions. This body of water provides sustenance and job opportunities to an ever-increasing human population. The Indian Ocean is the only ocean fully surrounded by developing countries, with close on half the world's population residing in countries that edge on it. The challenges faced in meeting expectations and demands are enormous – more especially so in times of drought, climate change and unsettled socio-economic conditions. These facts are especially true for the South West Indian Ocean (SWIO).

Unfortunately, this region has not enjoyed the same level of research interest and coordinated resource management as many other regions. While there was a spate of academic interest many years ago, this was mostly undertaken by foreign countries as part of exploratory surveys. To a large extent, the countries that edge onto the SWIO lack the capacity to investigate and manage the offshore marine resources of this region. Consequently, such countries are unlikely to draw appropriate benefits from the resources in their EEZ.

In recognition of the above facts, countries of the region collaborated during the project development phase by identifying their own needs in a regional and transboundary context. These have been integrated into a suite of components and activities, thus creating the regional SWIOP project. This project is closely linked with a project that has as its focus the region's LMEs.



**Box. 1: Vision Statement for SWIOFP**

As part of the project development process and to ensure country inclusiveness, a common vision for the SWIOFP was developed by all 9 SWIOFP countries in a collaborative way. This vision, as stated by the 9 countries, recognizes that:

- The SWIO is one of the last areas where fishing activities are largely unregulated.
- There is inadequate capacity or effective institutional framework to exercise jurisdiction over the 200nm EEZ of most countries.
- There is a lack of reliable information about the nature, size and potential harvest of living resources.
- The relationship between the environment and fish abundance is neither understood, nor predictable.
- There is inadequate information on the potential threats to the environment as a result of fishing activities.

**Further noting that,**

- There is inadequate regional collaboration to ensure wise management of resources, especially transboundary species.
- Lessons learnt from other fishery regions elsewhere indicate that sharing of data and management responsibilities are essential to avoiding stock collapse.
- There are already a number of related initiatives underway in the region.

**It is hereby agreed that participating countries will develop a long-term program that will,**

- Develop a national position towards this project, including administrative and legal mechanisms.
- Forge close collaboration and partnerships between fishery, academic and other relevant institutions of participating countries.
- Generate baseline information on the quantitative and qualitative aspects of resources and fishing effort in the defined study region.
- Investigate the relationship between fisheries and the environment.
- Contribute to the effective human and institutional capacity building to assist in the long-term management of resources.
- Develop a common resource management strategy, including an ecosystem approach, which will guarantee sustainable use of the region's living marine resources.
- Adopt harmonized legislation that will facilitate regional management.
- Develop fishery-linked revenue-generating schemes that will underpin the long-term management of resources.

**So that:**

Adequate capacity and institutional frameworks exist that will regionally ensure that the living marine resources of the WIO can be sustainably used with associated socio-economic benefits accruing to the participating countries of the region.

**Project area and participating countries**

SWIOFP is a regional and multinational project with an overall study area that incorporates the West Indian Ocean from the Horn in Somalia to Cape Agulhas and eastward to 60°East, all of which falls within FAO fishing area 51 (see Figures 1 and 2 in Annex 19: Maps ). Within this study region there will be areas of focus. In the case of the fisheries, this will be confined to continental shelf regions of the 200nm EEZ of the participating coastal states. While the LME project necessarily includes a broader

geographic region, it too will strategically focus on certain areas of key interest and environmental significance. The inshore boundary of the study will be defined by individual countries.

Based on the needs expressed and the overall study area defined, the following countries are thus participant in the SWIOFP/LME project: Comoros, France (by virtue of its islands in the region), Kenya, Madagascar, Mauritius, Mozambique, Seychelles, South Africa (East Coast only) and the United Republic of Tanzania.

### Involvement of the Riparian Communities

As a regional project, the SWIOFP will focus on transboundary resources, including migratory fish and stocks that straddle national boundaries. By agreeing to work together under SWIOFP and to develop consensus agreements on harmonizing offshore fisheries regulations, controlling fishing pressure on shared stocks and collaborating in compliance, this means that the Project places the rights of riparian countries at the heart of its activities.

### Synergies with other projects

The SWIOFP is one of three closely linked projects which, together will form the basis for the GEF Large Marine Ecosystem Program in the WIO. The SWIOFP will be prepared and supervised by the World Bank, the other two projects being prepared by different GEF implementation agencies. The Agulhas and Somali LME (ASCLMEs) project will be prepared and executed by the UNDP while a third component (WIO-LaB), relates to land-based impact on the marine environment and is implemented through the UNEP in Nairobi.

In addition, there are other projects in the region with which mutually beneficial relationships will be developed.

**Figure 2: Linkages between SWIOFP and National Development Plans**

Country	Development Plans, Strategies and Legislation	SWIOFP Linkages
Kenya	<ul style="list-style-type: none"> <li>• National Economic Recovery Plan (ERP), 2003/2004</li> <li>• Environmental Management Plan</li> <li>• Maritime Zones Act, 1991</li> <li>• Fisheries Act, 1991</li> <li>• Fisheries Regulations, 1991</li> </ul>	<ul style="list-style-type: none"> <li>• Contributes to ERP objectives of increasing economic growth through sustainable management of resources.</li> <li>• Complements on-going fisheries management initiatives and objectives, which include: i) general encouragement of responsible fishing practices and co-management structures; ii) curtailment of destructive fishing methods; iii) further development of Marine Protected Areas (MPAs) with both park (non-fishing) and reserve (fishing restrictions) sectors; and iv) resolution of local conflicts related to use of fisheries resources</li> </ul>
Tanzania	<ul style="list-style-type: none"> <li>• Poverty Reduction Strategy Paper, 2000</li> <li>• Tanzania Vision 2025</li> <li>• Fisheries Policy and Strategy, 1997</li> <li>• National Integrated Coastal Environmental Strategy Act, 2003</li> <li>• Blueprint 2050, 2005</li> </ul>	<ul style="list-style-type: none"> <li>• Contributes to Government policy to exploit fishery resources in a sustainable manner in order to enhance food security by increasing the availability of animal protein on local markets, and to create employment for local populations.</li> <li>• Meets objectives recently elaborated in coastal and marine management strategies to improve coastal management, increase co-management and community involvement, and expand the networks of MPAs</li> </ul>
Mozambique	<ul style="list-style-type: none"> <li>• Program do Governo 2000 – 2004</li> <li>• Política Pesqueira e</li> </ul>	<ul style="list-style-type: none"> <li>• Promotes overall goal of national fisheries management of ensuring the preservation of the fishery resources while maximizing economic income for the country</li> </ul>

	<p>Estratégias de Implementação (PPEI)</p> <ul style="list-style-type: none"> <li>• Law of Fisheries, 1990</li> </ul>	<ul style="list-style-type: none"> <li>• Will help improve the knowledge base that underpins national fisheries regulation by providing more information for the Government's existing system of fishing quotas</li> <li>• Will complement national efforts to promote the involvement of the coastal communities in the exploitation and management of living aquatic stocks in order to take advantage of local management know-how and facilitate the introduction of biologically sustainable natural resources usage patterns that can be both socially and economically efficient.</li> </ul>
South Africa	<ul style="list-style-type: none"> <li>• Marine Living Resources Act, 1998</li> </ul>	<ul style="list-style-type: none"> <li>• Provides for the conservation of the marine ecosystem, the long-term sustainable use of marine living resources and the orderly access to exploitation, utilization and protection of certain marine living resources; and also to exercise control over harvesting marine living resources in a fair and equitable manner to the benefit of all the citizens of South Africa.</li> <li>• Contributes to higher goal of national marine fisheries policy, which is to contribute to the long-term vision for a democratic South Africa through a competitive, fast-growing economy which creates sufficient jobs for all work-seekers; a redistribution of income and opportunities in favor of the poor; a society in which sound health, education and other services are available to all; and an environment in which homes are secure and places of work are productive.</li> <li>• Improve the knowledge base underpinning management of commercial fisheries operations, particularly as fishing effort has increased substantially after restructuring of the industry in the late 1990s</li> <li>• Complements national efforts to assess vulnerable stocks and designate Marine Protected Areas (MPA's) for the purposes of scientific study, experimental fishing or conservation.</li> </ul>
Madagascar	<ul style="list-style-type: none"> <li>• Poverty Reduction Strategy Paper 2003</li> <li>• Fisheries and Aquaculture Ordinance 1993</li> <li>• Rural Development Action Plan (PADR)</li> </ul>	<ul style="list-style-type: none"> <li>• Contributes to overall goal of national fisheries management which is to contribute to: i) improvement of rural livelihoods; ii) the fight against poverty; iii) improvement in food security, particularly deficits in animal protein; iv) improved export receipts and volumes; and v) employment creation</li> <li>• Supports national efforts to establish a management system based on analysis of sustainable catch</li> <li>• Complements efforts to renew overexploited stocks and monitor fishing pressure</li> </ul>

### Preparation of the SWIOFP

In December 2000, a GEF-PDF-A grant facilitated a meeting in Maputo of interested parties to discuss a possible strategy for collective action in protection and sustainable development of shared WIO marine resources. This resulted in a project preparation phase that began in January 2002 with a GEF-PDF-B grant agreement, signed between IDA (representing the GEF) and the Government of Mozambique, the country that had been nominated by the participating countries to be the regional coordinator of project preparation and therefore custodian of the PDF-B Special Account.

The development of the Project Brief was achieved through individual countries taking responsibility for key portfolios. Following progress with the above portfolios, participating countries were invited to submit specific proposals for research within the broad objectives of SWIOFP and the Science Plan. Proposals received were collated into distinct project components so as to create the basic structure of the

SWIOFP. Following several iterations, this plan now reflects the needs of individual countries in the light of the SWIOFP vision.

While this Project Brief is specific to SWIOFP and is closely linked to the ASCLMEs Project, the ASCLMEs has its own distinct Project Brief. However, the synergies between the projects will culminate in a two TDAs and SAPs (one for the Agulhas and one for the Somali Current LME) thus identifying thematic environmental issues and the manner in which countries within the LME Program will be able to address the larger ecosystem issues. UNDP will be responsible for the coordination and harmonization of input from the UNEP, World Bank and UNDP-supported components under the LME needed to produce this thematic output. UNEP will also be responsible for the reporting requirements.

Funding of SWIOFP preparation has been accomplished through a PDF-A grant (USD 25,000) executed in 2001, and two PDF-B grants that total USD 700,000. The countries attending the original PDF-A workshop at which the project concept for SWIOFP was developed also voted to appoint the Government of Mozambique to be the regional coordinator of all preparation activities. Mozambique is therefore the country of record, and the beneficiary, of the two PDF-B grants. The first PDF-B has been fully disbursed and was closed in February, 2005. The arrangement of having one Special Account under the control of a single country who then disburses to the other countries participating in preparation has proven to work remarkably well and serves as the model for how financial management of implementation funds will be organized.

**Annex 2: Major Related Projects Financed by the Bank and/or other Agencies**

Sector Issue	Project	Latest Supervision (PSR) Ratings (Bank-financed projects only)	
		IP	DO
<p><b>Bank-financed</b> Marine and Coastal Management</p>	<p><u>Mozambique:</u> Coastal and Marine Biodiversity Management Project</p> <p><u>South Africa:</u> Cape Peninsula Biodiversity Conservation Project (GEF)</p> <p><u>Tanzania:</u> Marine and Coastal Environment Project (MACEMP)</p>		
<p>Environmental Management</p>	<p><u>Kenya:</u> Western Kenya Integrated Ecosystem Management Project Lewa Wildlife Conservation Project</p> <p><u>Madagascar:</u> Third Environment Support Project</p> <p><u>Mauritius:</u> Environmental Sewerage and Sanitation Project</p> <p><u>South Africa:</u> Maloti-Drakensberg Transfrontier Conservation and Development Project Greater Addo Elephant National Park Project</p> <p><u>Tanzania:</u> Dar es Salaam Water Supply and Sanitation Project Lower Kihansi Environmental Management Project Forest Conservation and Management Project</p>		
<p>Freshwater Fisheries</p>	<p><u>Regional:</u> Lake Victoria Environmental Management Project</p>		
<p><b>Other Development Agencies</b> <u>Regional Marine Fisheries Projects</u><sup>7</sup> COI/COMESA/EU</p>	<p>Sustainable Management of Coastal Zones of the Countries of the Indian Ocean</p>		
<p>SADC/EU</p>	<p>Fisheries Monitoring, Control and Surveillance Program</p>		

<sup>7</sup> Due to the large volume of international and national donor funded projects, only a select few are listed here. A longer list is available in the Project File.

Sector Issue	Project	Latest Supervision (PSR) Ratings (Bank-financed projects only)	
Norway	Dr. Fridtjof Nansen Program		

**Other GEF Financed Projects**

**Benguela Current Large Marine Ecosystem Program (BCLME)** is designed to improve the structures and capacities of Namibia, Angola and South Africa to deal with the environmental problems that occur across the national boundaries, in order that the Benguela Current Large Marine Ecosystem may be managed as a whole.

These transboundary issues include the migration or straddling of valuable fish stocks across national boundaries, the introduction of invasive alien species via the ballast water of ships moving through the region, and pollutants or harmful algal blooms that can be advected by winds and currents from the waters of one country into another.

The Program is funded by the Global Environment Facility (GEF) which has contributed \$15.2 million through the United Nations Development Program (UNDP) for the regional initiative. The GEF's funding complements an investment of \$16 million by the three countries, and over \$7 million from other sources such as the Benguela Environment Fisheries Training Interactions Program, BENEFIT.

**The Black Sea Ecosystem Recovery Project (BSERP)** has been developed under the auspices of the Global Environmental Facility (GEF) International Waters (IW) Program, and is implemented by the United Nations Development Program (UNDP). The project builds upon a series of GEF IW projects for the Black Sea that together represent one of the most extensive and consistent interventions in the GEF IW portfolio.

In the period 1997-1999, National Strategic Action Programs were developed and implemented with the help of funding from the regional GEF intervention. GEF-PDF-B support also enabled completion of reviews of the current legal, policy and institutional provisions for limiting nutrient discharges to the aquatic environment at the national level in the year 2000. This latest effort, commencing in 2002, is linked under the Danube / Black Sea Strategic Partnership, together with the Danube Regional Project (UNDP), and the Black Sea Nutrient Reduction Facility (World Bank). The Strategic Partnership is a US\$ 97 million support framework, providing investments and capacity building to the 17 riparian countries of the Danube / Black Sea basin, to improve water quality and reduce nutrient loading. The project was split into two implementation phases - Phase I (Apr 2002 - Oct 2004) and Phase II (Nov 2004 - Oct 2007), based on a reconsideration of the relative priorities of achieving certain targets and evaluation of the need for earlier delivery of certain project outputs which will be essential inputs for the implementation of other activities envisaged for the 5 years integrated project.

**The Bay of Bengal Large Marine Ecosystem Program** is being prepared by the World Bank on behalf of the IW Program of the GEF. The Executing Agency will be FAO, and implemented by the Bangladesh Fisheries Research Inst, India Dept. Animal Husbandry & Dairying (Fisheries Unit), Indonesia Direct Gen Capture Fisheries, Maldives Marine Research Ctr, Malaysia Marine Research Ctr, Myanmar Dept Fisheries. The project will develop an agreed strategic action program for the sustainable management of the Bay of Bengal Large Marine(LME) Ecosystem. The executing agency (FAO) will work with the implementing governments to address transboundary marine resources issues along the coast of this LME. During preparation, some opportunities for World Bank financing may arise to address the key issues. Among them would be land-based sources of marine pollution, artisanal fisheries versus

commercial fisheries, habitat conservation and restoration, and potentially ICM strategies for adapting to extreme climatic events that devastate coastal communities.

The **Tanzania Marine and Coastal Environmental Management Project (MACEMP)** currently under preparation is proposed as a six-year, IDA/GEF supported project that is to improve the management of coastal and marine resources, with a view to contributing to economic growth and poverty reduction in coastal communities. The Project emphasizes the establishment of an effective regulatory and institutional framework, participatory planning and the creation of an enabling environment for integrated coastal and marine resources management and private investment.

MACEMP will, amongst others: strengthen marine management institutions both in Zanzibar and on the Mainland, with a focus on creating a common governance regime for the Exclusive Economic Zone (EEZ) (Component 1); support coastal area planning and the establishment of a network of marine protected areas (MPAs), community management areas (CMAs) and marine management areas (MMAs) for conservation of biodiversity and sustainable utilization of coastal and marine resources (Component 2); and create an enabling environment for environmentally sustainable investment along the coast (Component 3).

**Strategic Partnership for a Sustainable Fisheries Investment Fund in Sub-Saharan Africa-** The GEF is supporting creation of a Sustainable Fisheries Investment Fund of US\$ 60 million, which would be disbursed in three tranches over a ten-year period. This Fund would be available to co-finance, along with the World Bank and any other interested donors, country-level projects aimed at assisting Sub-Saharan African countries to meet the fisheries and poverty reduction targets set by the WSSD and achieve sustainability in their marine fisheries. The concept also suggests that the Fund would be advised by a Strategic Partnership of Government representatives and stakeholders from African countries, donors, technical agencies and regional and international partner organizations. Furthermore, this Strategic Partnership could promote learning exchanges and sub-regional cooperation between various country-level projects supported by the Fund and other donor partners. To begin discussion on this potential Strategic Partnership, the World Bank is working together with the FAO and the World Wildlife Fund(WWF), as the three planning partners for this initiative.

### Annex 3: Results Framework and Monitoring

#### ANNEX B: RESULTS AND MONITORING FRAMEWORK

Global Environmental Objective (OP8 & OP2)	Outcome Indicators	Use of Results Information
<p><b>ASCLMEs Program:</b> Long term sustainability of the living resources of the WIO LMEs maintained for the benefit of current and future populations of the region</p> <p><b>SWIOFP:</b> To promote the environmentally sustainable use of fish resources through adoption by SWIO-riparian countries of an LME-based ecosystem approach to fisheries management in the Agulhas and Somali LMEs that recognizes the importance of preserving biodiversity</p>	<ul style="list-style-type: none"> <li>• Development of a regionally harmonized strategy for ecosystem-based management of shared fish stocks in the SWIO adopted by all countries participating in the Project through strengthening existing regional management bodies such as the SWIOFC</li> <li>• Production and adoption of at least two sub-regional management plans (including policy, institutional and legal framework) governing management of a specific transboundary fisheries for each of the three species categories of the project (crustacean, demersal, pelagic)</li> <li>• Adoption by all SWIOFP countries of a monitoring and evaluation framework (including environmental status and stress reduction indicators) that defines ecosystem health within the framework of a regional management institution (possibly the SWIOF Commission) legally mandated to undertake this function</li> </ul>	<p>Development of common strategy will demonstrate sustainability of project interventions</p>
Project Development Objectives	Outcome Indicators	Use of Results Information
<p><b>SWIOFP:</b> (i) To identify and study exploitable offshore fish stocks within the SWIO, and differentiate between environmental (LME-related) and anthropogenic impacts; (ii) To develop institutional and human capacity through training and career building needed to undertake and sustain an ecosystem approach to NMR consistent with WSSD targets. (iii) To foster development of a regional fisheries management structure and associated harmonized legislation through strengthening the SWIOFC and other regional bodies. (iv) To mainstream biodiversity in national fisheries management policy and legislation, and through national participation in regional organizations that promote sustainable exploitation of fisheries resources..</p>	<ul style="list-style-type: none"> <li>• Adoption of at least one national or multi-national management plan for a specific demersal, pelagic or crustacean fisheries by all countries participating in project</li> <li>• Regional fisheries database fully operational and inclusive of new and historic data, which contributes to the development of regional management plans for at least 2 fisheries</li> <li>• Production of baseline assessment (accompanied by database) that defines current status of relevant crustacean, demersal and pelagic fisheries in each of the participating SWIOFP countries.</li> <li>• Production of a sustainable fisheries management framework leveraged onto the agenda of regional fisheries management bodies that include biodiversity conservation as an underlying principle.</li> </ul>	<p>Development of regional initiatives and joint regional fisheries management strategy to indicate willingness and capacity of nations to adopt ecosystem management approach to LMEs in the WIO.</p>



Intermediate Results One per Component	Results Indicators for Each Component	Use of Outcome Monitoring
<p><b>Component One: Data and Information Technology.</b> (i) Assessment of the state of knowledge of fisheries resources in the WIO and recommendations on new data collection initiatives. (ii) Development of a regional data management system to underpin management of SWIO fisheries.</p>	<p><u>By end of Project year 2:</u></p> <ul style="list-style-type: none"> <li>• Regional database piloted and ranked effective by majority of SWIOFP countries</li> <li>• Production of a gap-analysis which identifies gaps in knowledge of SWIO fisheries resources and presents research agenda to be implemented by SWIOFP</li> <li>• 50% of historic data identified for inclusion in database/data atlas sourced or entered into database</li> </ul> <p><u>By end of project implementation:</u></p> <ul style="list-style-type: none"> <li>• Regional fisheries database fully operational and inclusive of 75% of data identified for inclusion</li> <li>• National fisheries related IT and communications infrastructure procured or upgraded for each of nine SWIOFP countries</li> <li>• Training in data handling and reporting provided for each of nine SWIOFP countries</li> </ul>	<p>The identification and evaluation of historic data will underpin the gap analysis and, once completed, signal the project's readiness to move towards a data collection phase.</p> <p>Progress made on training in data handling and reporting will indicate country readiness to participate in regional database management system.</p>
<p><b>Component Two: Assessment and sustainable use of crustaceans.</b> (i) Baseline assessment of shallow and deep water crustacean stocks and fisheries in the EEZs of Mozambique, Kenya, South Africa, Tanzania, Seychelles, Madagascar and Comoros. (ii) Assessment of crustacean fisheries bycatch, evaluation of discard impacts, testing of exclusion devices, and measurements of ecosystems impacts in selected areas of the SWIO.</p>	<p><u>By end of project year 3:</u></p> <ul style="list-style-type: none"> <li>• Survey methodology defined and found scientifically sound</li> <li>• Seven ship-based surveys and data collection exercises to assess the potential of new and existing fisheries.</li> </ul> <p><u>By end of project implementation:</u></p> <ul style="list-style-type: none"> <li>• Production of seven preliminary country reports and two to three consolidated sub-regional reports on status of crustacean fisheries</li> <li>• Two pilot studies on optimizing artisanal shallow-water lobster fisheries completed</li> <li>• # of published articles based on SWIOFP survey data</li> </ul>	<p>Results of baseline assessments, stock dynamics and fisheries impacts to guide regional management plans and TDA and SAP contributions.</p>
<p><b>Component Three: Assessment and sustainable use of demersal fish.</b> (i) Baseline assessment of demersal stocks and fisheries in the EEZs of Kenya, Tanzania, Mozambique, South Africa, Seychelles, Comoros and Madagascar.</p>	<p><u>By end of project year 3:</u></p> <ul style="list-style-type: none"> <li>• Survey methodology defined and found scientifically sound</li> <li>• Four ship-based surveys and data collection exercises to assess the potential of new and existing fisheries.</li> </ul> <p><u>By end of project implementation:</u></p> <ul style="list-style-type: none"> <li>• Production of seven preliminary country reports and two to three consolidated sub-regional reports on status of demersal fisheries</li> <li>• # of published articles based on SWIOFP survey data</li> </ul>	<p>Results of baseline assessments, stock dynamics and fisheries impacts to guide regional management plans and TDA and SAP contributions.</p>
<p><b>Component Four: Assessment and sustainable use of pelagic fish.</b> Baseline assessment of selected large, medium and small</p>	<p><u>By end of project year 3:</u></p> <ul style="list-style-type: none"> <li>• Survey methodology defined and found scientifically sound</li> <li>• Five ship-based surveys and data collection</li> </ul>	<p>Results of baseline assessments, stock dynamics and fisheries impacts to guide regional</p>

<p>pelagic stocks in the EEZs of all nine SWIOFP countries and development of strategies to optimize small and large scale pelagic fisheries, including FADs.</p>	<p>exercises to assess the potential of new and existing pelagic fisheries.</p> <p><u>By end of project implementation:</u></p> <ul style="list-style-type: none"> <li>• Production of nine preliminary country reports and three to four consolidated sub-regional reports on status of pelagic fisheries</li> <li>• # of published articles based on SWIOFP survey data</li> <li>• Number of improved FADs tested and produced for large and small scale pelagic fisheries</li> </ul>	<p>management plans and TDA and SAP contributions.</p>
<p><b>Component Five: Monitoring of fishing effort and catch.</b> Development and testing of fisheries monitoring techniques and linkage of communication infrastructure and development of coordination mechanisms and verification systems</p>	<p><u>By end of project implementation:</u></p> <ul style="list-style-type: none"> <li>• # of scientific sea observers trained</li> <li>• Improvement ( x %) in frequency and coverage of national monitoring activities in each country</li> <li>• Initiation of land based monitoring and data verification systems in at least half of participating countries</li> <li>• Initiation of discharge monitoring program in at least half of participating countries</li> <li>• Two aerial surveys and data collection to monitor fishing effort in select areas of the SWIO.</li> <li>• Initiation of a regional Vessel Monitoring System</li> </ul>	<p>Progress on training and establishment of monitoring systems will demonstrate national capacity for long term ecosystem management and will guide future investments to be made in building national capacity for fisheries management.</p>
<p><b>Component Six: Mainstreaming biodiversity in national and regional fisheries management</b> Baseline assessment of fisheries interactions with non-consumptive marine resources and assessment of marine biodiversity as alternative sources of income</p>	<p><b>Component Six:</b> <u>By end of year 1:</u></p> <ul style="list-style-type: none"> <li>• Development of guidelines for study grant proposals completed</li> <li>• A detailed biodiversity assessment and management response work plan put in place.</li> </ul> <p><u>By end of project implementation:</u></p> <ul style="list-style-type: none"> <li>• Six studies on interaction between commercial and non commercial marine resources or potential alternative livelihoods completed</li> <li>• Key marine species GIS mapped in each of eight SWIOFP countries (all except Réunion)</li> <li>• Key bio-indicator species identified and relationships between target species and ecosystem health established through development of a biodiversity map.</li> </ul>	<p>Identification of interaction between fisheries and other marine resources will provide guidance in national and regional fisheries management planning.</p>
<p><b>Component Seven: Strengthening of Regional and National Fisheries Management.</b> Development of regional fisheries management framework and support to regional and national fisheries management bodies.</p>	<p><b>Component Seven:</b> <u>By end of project implementation:</u></p> <ul style="list-style-type: none"> <li>• Evaluation of national fisheries regulations and identification of areas where harmonization is needed completed</li> <li>• Establishment of working relationship and technical support between SWIOFP and Southwest Indian Ocean Fisheries Commission as measured by participation in steering groups and number of joint activities</li> <li>• Regional PMU and national project offices in place</li> <li>• # of national level workshops to disseminate project outputs and develop follow on activities</li> </ul>	<p>Inadequate progress on development of coordination mechanisms will threaten successful regional fisheries management</p>

### Arrangements for results monitoring

Results/Outcome Indicators	Baseline	Target Values					Data Collection and Reporting		
		YR1	YR2	YR3	YR4	YR5	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
<b>Global Environmental Objective</b>									
Development of a regionally harmonized strategy for ecosystem-based management of shared fish stocks in the SWIO adopted by all countries participating in the Project through strengthening existing regional management bodies such as the SWIOFC	No regional Strategy, partial data collection	Data Collection (see components 1-5 for monitorable targets)	Data Collection (see components 1-5 for monitorable targets)	Data collection complete, analysis, drafting of Strategy begins	75% completed – draft Strategy distributed and discussed	100% completion. Formal adoption by all nine countries	Annual project reports to give updates on evolution of regional fisheries management	SWIOFP Annual Reports  SWIOFC publications	SWIOFP PMU
Adoption by all SWIOFP countries of a monitoring and evaluation framework (including environmental status and stress reduction indicators) that defines ecosystem health within the framework of a regional management institution (possibly the SWIOF Commission) legally mandated to undertake this function	SWIOFC newly established, No common M & E framework	Data collection (see components 1-6 for monitorable targets)	Data Collection (see components 1-6 for monitorable targets)	Identification of environmental status and stress reduction indicators and baselines based on input from Components 1-7	Drafting of regional M & E plan and dissemination within region	Finalization of Adoption of environmental status and stress reduction indicators	Quarterly and annual project reporting	SWIOFP Reports  Minutes and Proceedings of SWIOFC	SWIOFP PMU
Production and adoption of at least two sub-regional management plans (including policy, institutional and legal framework) governing management of a specific transboundary fisheries for each of the three species categories of the project (crustacean, demersal, pelagic)	Outside of tuna, little joint management of transboundary stocks	Data collection (see components 1-6 for monitorable targets)	Data Collection (see components 1-6 for monitorable targets)	Identification of specific fisheries and countries to participate in joint management based on input from Components 1-5	Drafting of at least three sub-regional management plans (i.e. at least one each for crustaceans, demersal and pelagic species ) with each plan including two or more countries	Formal adoption of at least three sub-regional management plans (i.e. at least one each for crustaceans, demersal and pelagic species) with each plan including two	Quarterly and annual project reporting	SWIOFP Reports  Minutes and Proceedings of SWIOFC	SWIOFP PMU

Results/Outcome Indicators	Baseline	Target Values					Data Collection and Reporting		
		YR1	YR2	YR3	YR4	YR5	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
						or more countries			
<b>Development Objectives</b>									
Adoption of at least one national or multi-national management plan for a specific demersal, pelagic or crustacean fisheries by all countries participating in project	Relatively few multinational management agreements outside of tuna, some national management plans	Data Collection (see components 1-5 for monitorable targets)	Data Collection (see components 1-5 for monitorable targets)	Identification of specific fisheries for management based on input from Components 1-5	Drafting of national plans (at least one national or sub-regional plan for each country). Dissemination in country	Finalization and adoption of management plans (at least one national or sub-regional plan for each country).	Quarterly and Annually	Individual country reports forwarded to SWIOFP PMU	National Executive Secretariats  SWIOFP PMU
Regional fisheries database fully operational and inclusive of new and historic data, which contributes to the development regional management plans for at least 2 fisheries	National fisheries management plans exist but do not contribute to no national TDA or SAP for LME	Data Collection (see components 1-5 for monitorable targets)	Data Collection (see components 1-5 for monitorable targets)	Data collection complete, analysis, drafting of regional management plans started	75% completed – draft inputs for TDA and SAP distributed and discussed	100% completion, 2 regional management plans	Quarterly and Annually	Individual country reports forwarded to SWIOFP PMU	National Executive Secretariats  SWIOFP PMU
Production of baseline assessment (accompanied by database) that defines current status of relevant crustacean, demersal and pelagic fisheries leading to a sustainable fisheries management framework to mainstream biodiversity into the regional agenda.	Some national marine capture fisheries data collected but few baseline assessments on stocks available	Data Collection (see components 1-5 for monitorable targets)	Data Collection (see components 1-5 for monitorable targets)	Data collection complete, analysis begins	On-going data analysis, production of eight preliminary country reports on baselines produced	Baseline assessment produced for relevant fisheries in each country and aggregated for specific transboundary species	Quarterly and Annually	Individual country reports forwarded to SWIOFP PMU	National Executive Secretariats  SWIOFP PMU
<b>Results Indicators for Each Component</b>	<b>Baseline</b>	<b>YR1</b>	<b>YR2</b>	<b>YR3</b>	<b>YR4</b>	<b>YR5</b>	<b>Frequency and Reports</b>	<b>Data Collection Instruments</b>	<b>Responsibility for Data Collection</b>
<b>Component One: Data and Information Technology</b>									

Results/Outcome Indicators	Baseline	Target Values					Data Collection and Reporting		
		YR1	YR2	YR3	YR4	YR5	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
Regional database piloted and ranked effective by majority of SWIOFP countries	Tentative agreement by SWIOFP countries on database platform	Formal agreement on database platform, procurement of services and licenses	Database structure established and piloted	Piloting of database completed	N/A	N/A	Quarterly	SWIOFP Project Reports  Informal user survey	SWIOFP PMU  National Executive Secretariats
Production of a gap-analysis which identifies gaps in knowledge of SWIO fisheries resources and present research agenda to be implemented by SWIOFP	Preliminary review of gaps in knowledge as part of PDF B	Procurement of services for gap analysis, draft gap analysis disseminated by end of year	Gap analysis found acceptable by SWIOFP countries and research agenda adopted	N/A	N/A	N/A	Quarterly and Annually	SWIOFP Reports  Minutes of Steering Group Meetings	SWIOFP PMU
Historic data identified for inclusion in database/data atlas sourced or entered into database		Historic data identified based on input from gap analysis and agreement reached on composition of historic data in database/data atlas	25% of data entered into newly established database or sourced in form of a data atlas,	50% agreed data sourced or repatriated into new regional database	60%	75% of data repatriated or sourced in database/data atlas	Quarterly and Annually	SWIOFP Reports	SWIOFP PMU
National fisheries related IT and communications infrastructure procured or upgraded for each of nine SWIOFP countries		Beginning of procurement process	Continuous	Procurement complete in 75% of countries	Procurement completed in all countries	N/A	Quarterly	SWIOFP Reports	SWIOFP PMU  National Executive Secretariats
Training in data handling and reporting provided for each of nine SWIOFP countries	Limited capacity in data handling and reporting	Identification of training needs by each country	Trainings scheduled or underway in all countries	Training underway in all countries	Training underway in all countries	Training completed in all countries	Quarterly and Annually	SWIOFP Reports	SWIOFP PMU  National Executive Secretariats
<b>Component Two: Assessment and sustainable use of crustaceans</b>									
Ship-based surveys and	None.	Survey	Finalization	4 cruises	N/A	N/A	Quarterly and	SWIOFP Reports	SWIOFP PMU

Results/Outcome Indicators	Baseline	Target Values					Data Collection and Reporting		
		YR1	YR2	YR3	YR4	YR5	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
data collection to assess the potential of new and existing fisheries.		methodology developed, draft cruise plan produced	of cruise plan, 3 cruises completed	completed			Annually		National Executive Secretariats
Production of seven preliminary country reports and two to three consolidated sub-regional reports on status of crustacean fisheries	Some data available on stock dynamics, full baseline unknown	Study methodology developed	Baseline data collected	Baseline data collected	Data Analysis and seven draft reports produced	Dissemination of reports and finalization of 2 or 3 sub-regional reports	Quarterly and Annually	SWIOFP Reports Scientific Publications Stock Assessments	SWIOFP PMU National Executive Secretariats
Two pilot studies to optimize artisanal shallow-water lobster fisheries	None	Proposals developed and submitted	Two studies underway	Two studies underway	Studies completed	N/A	Quarterly and Annually	SWIOFP Reports Scientific Publications	SWIOFP PMU National Executive Secretariats
# of published articles based on SWIOFP survey data	None	Survey Design stage (see above)	Data Collection Stage	Data collection complete,	# of articles submitted for review	# of articles submitted for review		SWIOFP Reports Scientific Publications	SWIOFP PMU National Executive Secretariats
<b>Component Three: Assessment and sustainable use of demersal fish</b>									
Ship-based surveys and data collection to assess the potential of new and existing fisheries.	None.	Survey methodology developed, draft cruise plan produced	Finalization of cruise plan, 2 cruises completed	2 cruises completed	N/A	N/A	Quarterly and Annually	SWIOFP Reports	SWIOFP PMU National Executive Secretariats
Production of seven preliminary country reports and two t consolidated sub-regional reports on status of demersal fisheries	Some data available on stock dynamics, full baseline unknown	Study methodology developed	Baseline data collected	Baseline data collected	Data Analysis and seven draft reports produced	Dissemination of reports and finalization of 2 sub-regional reports	Quarterly and Annually	SWIOFP Reports Scientific Publications Stock Assessments	SWIOFP PMU National Executive Secretariats
# of published articles based on SWIOFP survey data	None	Survey Design stage (see above)	Data Collection Stage	Data collection complete,	# of articles submitted for review	# of articles submitted for review	Quarterly and Annually	SWIOFP Reports Scientific Publications	SWIOFP PMU National Executive Secretariats
<b>Component Four Assessment and sustainable use of pelagic fish</b>									
Ship-based surveys and	None.	Survey	Finalization	3 cruises	N/A	N/A	Quarterly and	SWIOFP Reports	SWIOFP PMU

Results/Outcome Indicators	Baseline	Target Values					Data Collection and Reporting		
		YR1	YR2	YR3	YR4	YR5	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
data collection to assess the potential of new and existing fisheries.		methodology developed, draft cruise plan produced	of cruise plan, 2 cruises completed	completed			Annually		National Executive Secretariats
# of studies on migration and movement of selected large pelagic species (including sharks).	Tuna tagging program in place, data on movement of other large pelagics incomplete	Study methodology developed	Data Collection	Data Collection	Data Analysis		Quarterly	SWIOFP Reports Scientific Publications	SWIOFP PMU and National SWIOFP focal points
# of improved FADs tested and developed for large and small scale pelagic fisheries	Some work already underway	Study methodology developed	Data collection and testing of FADS	Data collection and testing of FADS	Draft finding produced	Assessment completed	Quarterly	SWIOFP Reports Scientific Publications	SWIOFP PMU and National SWIOFP focal points
Production of nine preliminary country reports and two to three consolidated sub-regional reports on status of pelagic fisheries	Some data available on stock dynamics, full baseline unknown	Study methodology developed	Baseline data collected	Baseline data collected	Data Analysis and seven draft reports produced	Dissemination of reports and finalization of sub-regional reports	Quarterly and Annually	SWIOFP Reports Scientific Publications Stock Assessments	SWIOFP PMU National Executive Secretariats
# of published articles based on SWIOFP survey data	None	Survey Design stage (see above)	Data Collection Stage	Data collection complete,	# of articles submitted for review	# of articles submitted for review	Quarterly and Annually	SWIOFP Reports Scientific Publications	SWIOFP PMU National Executive Secretariats
<b>Component Five: Monitoring of Fishing Effort and Catch</b>									
# of scientific sea observers trained	Limited national monitoring capacity	Training requests submitted	Procurement of training services	50 number of trained	50 number of observers trained	N/A	Quarterly	SWIOFP Reports	SWIOFP PMU and National SWIOFP focal points
Improvement in frequency and coverage of national monitoring activities in each countries	Limited national MCS activity	N/A	Assessment of monitoring capacity produced by each country (baseline)	Draft monitoring plans produced	Implementation of country monitoring plans	Implementation of country monitoring plans	Quarterly and Annually	Individual country reports forwarded to SWIOFP PMU	National Executive Secretariats SWIOFP PMU
Initiation of land based monitoring and data verification systems in at least half of participating	Limited land based monitoring	N/A	Assessment of monitoring capacity produced by each country	Design of monitoring and data verification system drafted	Implementation of monitoring and data verification system	Implementation of monitoring and data verification system in at least half of	Quarterly and Annually	Individual country reports forwarded to SWIOFP PMU	National Executive Secretariats SWIOFP PMU

Results/Outcome Indicators	Baseline	Target Values					Data Collection and Reporting		
		YR1	YR2	YR3	YR4	YR5	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
countries			(baseline)			SWIOFP countries			
Initiation of discharge monitoring program in at least half of participating countries	Limited discharge monitoring	N/A	Assessment of monitoring capacity produced by each country (baseline)	Draft discharge monitoring program produced	Implementation of discharge monitoring program	Implementation of discharge monitoring program in at least half of SWIOFP countries	Quarterly and Annually	Individual country reports forwarded to SWIOFP PMU	National Executive Secretariats SWIOFP PMU
Aerial surveys and data collection to monitor fishing effort in select areas of the SWIO.	None	N/A	Survey methodology developed, draft aerial survey plan produced	2 of aerial surveys completed	N/A	N/A	Quarterly	SWIOFP Reports	SWIOFP PMU and National SWIOFP focal points
Initiation of a regional Vessel Monitoring System	No regional VMS system	N/A	N/A	Study on gaps in regional monitoring and potential for regional VMS	Study results and recommendations disseminated	Agreement and Adoption of regional VMS	Quarterly and Annually	Individual country reports forwarded to SWIOFP PMU	National Executive Secretariats SWIOFP PMU
<b>Component Six: Mainstreaming biodiversity in national and regional fisheries management</b>									
Six studies on interaction between commercial and non commercial marine resources or potential alternative livelihoods completed	None	Guidelines for research proposal developed and disseminated  Regional meeting to define a detailed biodiversity assessment and management response workplan for overall component	Proposals received and around six grants awarded	Studies begin	Studies completed and results published and disseminated	N/A	Quarterly and Annually	Individual country reports forwarded to SWIOFP PMU	National Executive Secretariats SWIOFP PMU
Key marine species GIS mapped in each of eight SWIOFP countries (all except Réunion)	None	Methodology developed and species identified by	Data Collection	Data analysis and mapping	Eight country reports produced with results and data included in	N/A	Quarterly and Annually	Individual country reports forwarded to SWIOFP PMU	National Executive Secretariats



Results/Outcome Indicators	Baseline	Target Values					Data Collection and Reporting		
		YR1	YR2	YR3	YR4	YR5	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
		country  Regional meeting to define detailed biodiversity workplan for overall component			regional database				SWIOFP PMU
Key (#) bio-indicator species identified and relationships between target species and ecosystem health established	None	Methodology developed and species identified by country	Data Collection	Data Collection	Data analysis and baseline assessment produced and disseminated	N/A	Quarterly and Annually	Individual country reports forwarded to SWIOFP PMU	National Executive Secretariats  SWIOFP PMU
By-catch assessment for major demersal, crustacean and pelagic fisheries. Assessment of effectiveness of excluding devices and recommendations for new fishing methods and devices	None	Methodology developed and species identified by country	Data Collection and pilot studies (research grants)	Data Collection and pilot studies (research grants)	Component reports produced, published and disseminated	Component reports produced, published and disseminated	Quarterly and Annually	Individual country reports forwarded to SWIOFP PMU	Coordinating country for Components 2, 3, 4
Mainstreaming biodiversity into national and regional management plans	None	Regional meeting to define detailed workplan for overall component	Data Collection and Analysis	Data Collection and Analysis	Component 2,3, & 4 harmonization meetings between countries	Production of fishery-level (demersal, crustacean and pelagic) action plan (a sustainable fisheries management framework) to mainstream biodiversity into national & regional mgt. Plans	Quarterly and Annually		
<b>Component 7: Strengthening of National and Regional Fisheries Management</b>									
Evaluation of national fisheries regulations and identification of areas	No regional picture of national	Documentation of legislation, protocols and	National fisheries policies and	Draft report produced and harmonization	Harmonization workshops held within	Harmonization workshops held within	Quarterly and Annually	Individual country reports forwarded to	National Executive Secretariats

Results/Outcome Indicators	Baseline	Target Values					Data Collection and Reporting		
		YR1	YR2	YR3	YR4	YR5	Frequency and Reports	Data Collection Instruments	Responsibility for Data Collection
where harmonization is needed	fisheries regulations available	guiding principles relevant to SWIOFP	regulations collated from countries	workshops held	framework of SWIOFP annual meeting and SWIOFC	framework of SWIOFP annual meeting and SWIOFC		SWIOFP PMU	SWIOFP PMU
Establishment of working relationship and technical support between SWIOFP and Southwest Indian Ocean Fisheries Commission	SWIOFC established in early 2005	Participation in SWIOFC meetings, technical teams	Participation in SWIOFC meetings, technical teams	Participation in SWIOFC meetings, technical teams	Transfer of regional database/data atlas to SWIOFC		Quarterly and Annually	Individual country reports forwarded to SWIOFP PMU	National Executive Secretariats SWIOFP PMU
Establishment of regional PMU and national project offices	SWIOFP Secretariat functioning under project preparation	Regional PMU established, Procurement of equipment to nine countries and regional management office	PMU and National Offices fully operational	PMU and National Offices fully operational	PMU and National Offices fully operational	PMU and National Offices fully operational	Quarterly and Annually	Individual country reports forwarded to SWIOFP PMU	National Executive Secretariats SWIOFP PMU

## **Addendum 1 to Annex B: Monitoring and Evaluation**

**Objectives.** The objective of the M & E system will be to ensure better planning, targeting, and feedback to participating countries and timely decision making in order to improve impact of project activities. The M & E system will also:

- Improve management of programs, subprojects and supporting activities
- Ensure optimum use of funds and other resources draw lessons from experience so as to improve the relevance, methods and outcomes of cooperative programs
- Strengthen the capacity of national fisheries management agencies to monitor and evaluate
- Improve the mechanism for fisheries statistics production and stock assessment information analysis, storage and dissemination
- Improve the scientific knowledge base on which domestic, regional and international resource management policies and decisions rely
- Improve information sharing systems and enhance advocacy for policies, programs and resources that improve management of transboundary fisheries and related biodiversity processes.

**Performance Indicators.** Monitoring and evaluation of project implementation will be guided by the performance indicators developed in the results framework and the targets set in annual work plans to track progress under both international waters and biodiversity focal areas.

**Monitoring and Evaluation Arrangements.** The Regional Executive Secretariat will maintain primary responsibility for M & E during project implementation. The Regional Secretariat will have a direct responsibility for monitoring implementation of project activities at the regional level and a supervisory role in monitoring implementation at the national level by the nine National Secretariats. The Regional Executive Secretariat, National Secretariats and component managers will be responsible for reporting on performance based on the performance indicators developed in the results framework and the targets set in annual work plans, on a quarterly and annual basis. The Regional Executive Secretariat will consolidate reports and forward them to the Regional Management Board, Project Steering Committee and GEF/World Bank<sup>8</sup>. The Regional Executive Secretariat will maintain an information database linked to the Management Information System (MIS) and the results framework which will allow the project to assess and report on the quality and quantity of work at each level of implementation.

The performance of the Regional and National Secretariats will be assessed annually by the Regional Management Board and Regional Steering Committee as well as through periodic supervision visits by the GEF/World Bank. At the project mid-point, a mid-term review will be carried out to evaluate implementation progress. At project end, an implementation completion report will be prepared to assess project impact and the degree of success on achieving project objectives. Overall, the project will assess its project management systems and procedures in respect of their relevance, effectiveness, efficiency and impact on both the national and regional levels. This will be carried out through input, process, output, outcome and impact tracking indicators which have been developed within the results framework.

Reporting formats and procedures will be developed in greater detail in the Project Implementation Plan, which will be a requirement for project effectiveness.

**Monitoring and Evaluation within project design.** In addition to the specific monitoring and evaluation arrangements that will take place as part of project management, M & E will be an integral part of project activities and have been built into project design. Project outputs that include baseline data collection will be used to measure progress during project implementation and beyond. In addition, specific M&E

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<sup>8</sup> For a fuller description of the project management structure see Annex 6: Implementation Arrangements.

activities have been defined within components 1, 5 & 6. The first project component, Data and Information Technology, will evaluate the historical and current knowledge of transboundary fisheries to identify knowledge gaps to be filled by the project. In doing so, the project will establish a baseline that will be used to measure progress over the following four years of the project. The data collection and analysis of specific fisheries and related biodiversity processes that will take place in components two, three and four (crustacean, demersal and pelagic fisheries assessments) will establish baselines for the nine countries participating in the project, allowing better monitoring of fisheries in the future. The sixth component, which will measure fisheries impacts on other non-commercial marine species, as part of efforts to mainstream biodiversity within the fisheries management agenda, will also establish baselines for key species and develop metrics for bio-indicator species to monitor overall ecosystem health. Specific capacity strengthening will occur through the inclusion of M&E elements into training activities in all components.

The GEF guidance for M&E (the GEF International Water Monitoring and Evaluation Framework) in IW projects which distinguishes the three types of indicators: Process Indicators (PI), Stress Reduction Indicators (SRI) and Environmental Stress Indicator (ESI), will be used to guide the finalization of the M&E system at project appraisal, and made ready by the time of CEO endorsement. Under the biodiversity focal area, the WWF tracking tool/METT will be used for monitoring and evaluation of project outcomes, and will be fine-tuned and customized to fit with the context of the participating countries. Broadly speaking two kinds of information will be required: ecological data (bio indicators, biodiversity threat levels etc.) to monitor the impact of conservation measures taken, and project performance data (surveillance effort, consultation effort, revenue levels, financial investments, etc.) to monitor progress of project implementation.

## Annex 4: Detailed Project Description

**Project Objectives.** The Global Environmental Objective of the SWIOFP is to promote the sustainable use of fish resources and adoption of an ecosystem approach to fisheries management in the Agulhas and Somali LMEs which will require cooperation with the UNDP implemented ASCLMEs Project and the UNEP implemented WIO-LaB Project to produce TDAs and SAPs for the Agulhas and Somali Currents LMEs.

The SWIOFP has three specific project objectives: (i) to identify and study exploitable offshore fish stocks within the SWIO, more specifically, to determine existing fishing pressure on these stocks and to investigate the role of environmental influences on the life histories, seasonal variability and health of stocks in order to differentiate between environmental and anthropogenic impacts. (ii) To develop institutional and human capacity through training and career. (iii) To develop a regional fisheries management structure and associated harmonized legislation in collaboration with the SWIOFC. The Project Objective relates specifically to offshore fisheries within the 200nm EEZs of coastal states in the SWIO. The project aims to generate scientific knowledge and develop legal and institutional capacity to implement an action plan in order to manage these fisheries for maximum economic returns, consistent with a management strategy that stresses environmental sustainability and socially equitable distribution of the benefits of exploitation. The project will adopt an ecosystem approach which will lead to an improved understanding of transboundary and environmental influences on stock health, the life histories of key species and variability in inter-annual estimates of stock abundance.

**Project Design.** In designing project components, the nine participating countries engaged in a collaborative process to identify institutional capacity needs and gaps in knowledge. A Science Plan was developed to guide research activities and a total of seven components were identified, three focusing on fisheries management issues, four focusing on research. The project is designed so that each member country participates in the core fisheries management components and selects only those components relevant to its own context. In this way, each member country is an active participant and the structure around which research, data collection, skills and capacity-building and development of regional management structures evolve is fully country-driven.

Each component is subdivided into sub-components which are further subdivided into specific activities and action steps. A total of some 60 such activities were described during the development phase of the project which allows more specific outputs from each component and is the basis for costing and manpower needs. Assessment of the SWIOFP project document for funding purposes by the World Bank is done at the subcomponent level.

**Project Phasing.** Implementation of SWIOFP will occur in three stages. The first stage of 12-18 months will focus on harmonization of legislation, collection and analysis of existing data including data-gap analysis, harmonization of data collection and analysis procedures for new data, and initiation of capacity building. Once this is complete and a data collection program designed to fill the gaps in existing knowledge of the offshore fishery, the field monitoring program (stage 2 of the Project) to collect new information describing fish stocks and basic systematics, and fishing pressure in the Project study area will begin. Collection of new data and establishment of a baseline is expected to run for 24-36 months. Once the baseline is established and data analyzed, Stage 3 of the Project will begin. During this stage, the countries will develop Project inputs and help prepare Trans-boundary Diagnostic Analyses (TDAs), followed by a Strategic Action Programs (SAPs), coordinated by the ASCLMEs project, that identifies how each country proposes to address the regional natural resource managements-24 issues identified in

the TDA. This last stage is expected to take 18-24 months and will lead into development of a follow-on project to SWIOFP.

**Component 1: Data gap analysis, data archiving and information technology**

*Total GEF Alternative component cost:* US\$ 4.61 million, out of which GEF financing US\$ 2.4 million

*Lead Country:* PMU-designated country

This component will establish a regional data management system managed by staff of the Regional Coordination Unit (with skills specific to this task) to underpin management of regional fisheries and undertake a gap analysis to identify the specific activities to be supported by the project. This regional database created during the first year of the Project will continue to operate and service the participating and observer countries in SWIOFP, expanding the database with new information from the SWIOFP ship cruises and other relevant data from projects in the SWIO. A data atlas that will be created will compile national, regional and repatriated data as possible that are relevant to SWIO fisheries. The following sub-components and activities are planned under Component 1: The assessment of the amount and species diversity of by-catch will be an important element of components 2 (crustacean and other invertebrate fisheries), 3 (demersal fisheries), and 4 (pelagic fisheries). The project database will include fields for existing data describing by-catch, and provision for information from Project-leased and commercial vessels (that have Project observers onboard).

*Subcomponent 1.1: Fisheries data collection and evaluation*

- Review and evaluation of key national datasets of fish and fisheries;
- Sourcing of published information on SWIO from peer-reviewed journals, grey literature, conference proceedings and FAO manuals;
- Repatriation and evaluation of data from national academic and research institutions, international scientific surveys, programs and commissions;
- Repatriation and evaluation of data from selected foreign fishing companies;
- Sourcing and description of unconventional and outdated data held in formats that are incompatible with modern operating systems and software, including non-digitized raw data and;
- Inter-calibration of national and historic data sets.

*Subcomponent 1.2: Compiling of a data atlas for SWIOFP*

- Indexing and storage of data;
- Assessing the quality of the various data types, and their compatibility;
- Gap analysis to determine projects to be supported by SWIOFP and;
- Valuation of data to serve as an in-kind contribution from member countries to SWIOFP.

*Subcomponent 1.3: Establishment of Information Technology, data handling and communications systems*

- Upgrading and/or procurement of national IT and communications infrastructure;
- Training of skilled manpower for data handling;
- New data handling and
- Review of existing database systems for adoption by SWIOFP.

There is also a shared activity with ASCLME under this subcomponent. SWIOFP, in close cooperation with ASCLMEs aims at building the capacity among transboundary water resource projects worldwide through Internet-based applications, networking within a community of practice, and knowledge management. The information systems and networking initiatives planned through the ASCLMEs (with SWIOFP input) will be closely tied to IW Learn information systems. Provision is made for south-south

knowledge transfer, which would benefit from the IW Learn network, and the participation of project stakeholders in IW Learn sponsored conventions, including the biennial GEF IW Conference<sup>9</sup>. SWIOFP and the ASCLMEs share the person responsible for overseeing this activity (the data and information systems specialist for both projects), but the specialist will be within the ASCLME coordination office in South Africa.

This office will implement a Distance Learning and Information Sharing Tool (DLIST) which will provide a web based platform for disseminating information on marine and coastal management issues to a broad array of stakeholders (particularly at the local level). The system will engender a two-way flow of information from end users of information to data providers and vice versa, ensuring that it is demand driven and country-cleared fisheries information from SWIOFP will be made available through this system. This initiative is compatible and follows guidelines of the IW LEARN program (the International Waters Learning Exchange and Resource Network )

The outputs/outcomes for Component 1 will be:

- An analysis at national and then at a regional level of data relevant to components and the countries that will participate in them to identify specific gaps in existing knowledge that would allow the participants in each component to identify detailed data collection programs to be facilitated by SWIOFP; and
- A workshop consisting of all SWIOFP countries at which a conceptual, harmonized, baseline data collection program and data sharing protocols will be established to enable regional evaluation of the harmonized, ecosystem-based management of fisheries resources promoted by SWIOFP will be finalized

The outputs for Component 1 will be:

- An analysis at national and then at a regional level of data relevant to components in which it will participate and identification of specific gaps in existing data that would collectively form the gap analysis used to identify the data collection program facilitated by SWIOFP; and
- A workshop consisting of all SWIOFP countries at which a conceptual, harmonized, data gap analysis (by type of fishery, i.e. demersal, pelagic, invertebrate) will be undertaken leading to synthesis of a year-by-year data collection program.

The GEF OP2 funding will specifically lead to a Database will include fields for existing data describing by-catch (amount and species diversity).

### **Component 2: Assessment and sustainable utilization of crustaceans**

*Total GEF Alternative component cost:* US\$ 7.73 million, out of which GEF financing US\$ 3.0 million

*Lead Country:* South Africa

This component will undertake an assessment of the stock dynamics of shallow and deep water crustaceans and their fisheries. Using ship-based surveys, baseline assessment of crustacean stocks and fisheries will be undertaken in the EEZs of Kenya, Tanzania, Mozambique, South Africa, Seychelles and Madagascar. The following sub-components and activities are planned under Component 2:

#### *Subcomponent 2.1: Deep-water crustaceans*

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<sup>9</sup> A minimum of US\$150,000 is earmarked in the SWIOFP budget to allow relevant staff and managers to participate in biennial GEF IW and biodiversity conferences, and to produce project related information for presentation

*Activities include:* 1) Distribution, stock discrimination and biological reference points of key resources; 2) Ship-based surveys to assess the potential of new and existing fisheries and 3) By-catch assessment: utilization, reduction and ecosystems impacts.

*Subcomponent 2.2: Shallow-water crustaceans*

*Activities include:* 1) Distribution, stock discrimination and biological reference points of key resources; 2) Ship-based surveys to assess the potential of new and existing fisheries; 3) By-catch assessment: utilization, reduction and ecosystems impacts; 4) Impact of river run-off on prawn larval recruitment; 5) Optimization of artisanal shallow-water lobster fisheries: pilot studies.

The outputs/outcomes for Component 2 will be:

- Information identifying the current status of important species, threats matrix, and regional/sub-regional management issues and needs; and
- Preparation and adoption of country specific, regionally harmonized, approaches to management of specific fishery(ies) detailing the role of the environment and the role of anthropogenic impacts (fishing pressure, habitat change, pollution, etc) in determining the nature of the fishery, and how the participating countries will act to address both types of issues as noted by WSSD targets.
- GEF OP2 funding will specifically lead to: identification of species most impacted by the commercial fishery, possible impact of the gear used on species diversity, effectiveness of existing “excluding devices” in the fishing gear, identification of opportunities for modifying fishing methods to reduce by-catch and possible use of the by-catch.

**Component 3: Assessment and sustainable utilization of demersal fishes (excluding crustaceans)**

*Total GEF Alternative component cost:* US\$ 8.1 million, out of which GEF financing US\$ 3.0 million

*Lead Country:* Seychelles

This component will support assessment of the stock dynamics of demersal species and their fisheries. Ship-based surveys will be used to undertake a baseline assessment of demersal stocks and fisheries and evaluate demersal fisheries by-catch, discard impacts, exclusion devices, and ecosystems impacts in the EEZs of Kenya, Tanzania, Mozambique, South Africa, Seychelles and Madagascar. The following are important demersal fishes in the SWIO.

Species	South Africa	Seychelles	Kenya	Mozambique	Mauritius	Tanzania	Comoros	Madagascar	Ttl/ species
Polyprion	T	T						T	3
Etelis	T	T	T		T	T		T	6
Pristipomoides	T	T	T	T	T	T			6
Cheimerus	T			T				T	3
Polysteganus	T			T				T	3
Pagellus	T	T							2
Deep water cardinals	T	T						T	3
Beryx	T	T						T	3
Sharks	T		T			T		T	4
Chrysoblephus	T			T		T		?	3
Eels	T					T		T	3
Monk Fish		T							1
Aphareus rutilans		T							1
Epinephalus		T		T		T			3



Lutjanus			T	T	T	T			4
Otolithes	T		T						2
Croakers	T		T						2
Serranidae					T				1
Lethrinidae					T	T			2
Carangoides	T								1
Sphyraenas	T								1
Oreo - dories	T								1
<b>TOTAL PER COUNTRY</b>	<b>16</b>	<b>9</b>	<b>6</b>	<b>6</b>	<b>5</b>	<b>8</b>	<b>0</b>	<b>8</b>	

*Subcomponent 3.1: Deep-water demersal fish*

Activities include: 1) Distribution, stock discrimination and biological reference points of key resources; 2) Ship-based surveys to assess the potential of new and existing fisheries; 3) Resource assessments; 4) By-catch assessment: utilization, reduction and ecosystems impacts

*Subcomponent 3.2: Shallow-water demersal fish*

Activities include: 1) Distribution, stock discrimination and biological reference points of key resources; 2) Ship-based surveys to assess the potential of new and existing fisheries; 3) Resource assessments; 4) By-catch assessment: utilization, reduction and ecosystems impacts.

The outputs/outcomes for Component 3 will be:

- An assessment of the current status of important species, threats matrix, and regional/sub-regional management issues and needs; and
- Preparation and adoption of country specific, regionally harmonized, approaches to management of specific fishery(ies) detailing the role of the environment and the role of anthropogenic impacts (fishing pressure, habitat change, pollution, etc) in determining the nature of the fishery, and how the participating countries will act to address both types of issues as noted by WSSD targets.

GEF OP2 funding will specifically lead to: identification of species most impacted by the commercial fishery, possible impact of the gear used on species diversity, effectiveness of existing “excluding devices” in the fishing gear, identification of opportunities for modifying fishing methods to reduce by-catch and possible use of the by-catch.

**Component 4: Assessment and sustainable utilization of pelagic fish**

*Total GEF Alternative component cost:* US\$ 3.8 million, out of which GEF financing US\$ 1.0 million

*Lead Country:* Tanzania

This component will assess the stock dynamics of large, small, and mesopelagic species and develop strategies to optimize small- and large-scale pelagic fisheries, including fish aggregating devices (FADs). Activities will include ship-based surveys to assess the potential of new and existing pelagic fisheries, studies on migration and movement of selected large pelagic species (including sharks), and study on optimization and development of FADs for large and small scale pelagic fisheries. This component is specifically designed to incrementally strengthen (using archival pop-up and sonic tags that track horizontal and vertical movement of specific fish) the Tuna Tagging Program and other relevant projects of the Indian Ocean Tuna Commission (IOTC) rather than developing “stand alone” activities. This will be accomplished by harmonizing SWIOFP activities with the IOTC and by focusing on activities related to smaller-scale pelagic fisheries. SWIOFP linkages with IOTC programs will also help leverage input of IOTC recommendations into regional ecosystem-based management plans to come from SWIOFP. The following sub-components and activities are planned under Component 4:

*Subcomponent 4.1: Large pelagic species*

Activities include: 1) Gear optimization and development of Fish Aggregating Devices (FADs); 2) Migration and movement of large pelagics.

*Subcomponent 4.2: Small pelagic species*

Activities include: 1) Distribution, stock discrimination and biological reference points of key resources; 2) Surveys to assess the potential of new and existing fisheries; 3) Resource assessments and, 4) Gear optimization and development of FADs.

*Subcomponent 4.3: Super-small pelagic species*

Activities include: 1) Distribution, stock discrimination and biological reference points of key resources; 2) Surveys to assess the potential of new and existing fisheries; 3) Resource assessments

The outputs/outcomes for Component 4 will be:

- Assessment of the current status of important species, threats matrix, and regional/sub-regional management issues and needs; and
- Preparation and adoption of country specific, regionally harmonized, approaches to management of specific fishery(ies) detailing the role of the environment and the role of anthropogenic impacts (fishing pressure, habitat change, pollution, etc) in determining the nature of the fishery, and how the participating countries will act to address both types of issues as noted by WSSD targets .

**Tentative Research focus on small and super small pelagic species**

	<b>Small to Medium</b>	<b>Super Small</b>
Species examples	King/ queen mackerel; dorado, smaller tuna, dogtooth tuna; rainbow runner, barracudas, carangids, etc	Scads, sardines, mackerels, <i>magumba</i> , anchovies, smaller carangidae, etc.
Nature of fishery	Artisanal & semi-industrial, linefish, longlines, traps, gill.	Purse seines- artisanal small seines, drift nets
Rationale	Huge catch- transfrontier stocks, widespread & migratory, landings unrecorded, non-managed, high value to coastal communities, poor biological knowledge, substantial future potential. By-catch in shrimp-trawl fisheries (juveniles), optimal benefits. High value food.	Large concentrations, associated with offshore banks & upwelling. May be better suited to small-scale (niche) exploitation than industrial, environmentally sensitive (indicators), low cash value but major source of food; little or no management. Highly variable. By-catch in trawl fisheries.
Requirements	Small research or fishing vessels, collaboration with small-scale operators, handline, tagging and genetics to establish stock distribution. Excellent training and student topics.	Purse seine, smaller gear technology and experimental/ development opportunities
Countries	All (France?)	All except Mauritius & France (Comoros=?)

GEF OP2 funding will specifically lead to: identification of species most impacted by the commercial fishery, possible impact of the gear used on species diversity, effectiveness of existing “excluding devices” in the fishing gear, identification of opportunities for modifying fishing methods to reduce by-catch and possible use of the by-catch.

**Component 5: Monitoring of fishing effort and catch, existing value, and exploitation conflicts**

*Total GEF Alternative component cost:* US\$ 4.17 million, out of which GEF financing US\$ 1 million

*Lead Country:* Madagascar

This component will build capacity for regional management by developing and testing fisheries monitoring techniques. The component will support training of scientific observers at sea; monitoring of commercial landings and establishment of land-based monitoring and data verification systems; linkage of communication infrastructure; and development of coordination mechanisms and verification systems to establish a regional Vessel Monitoring System. It will also support an assessment of the financial value of exploited fisheries and use conflicts that might exist because of exploitation. The following sub-components and activities are planned under Component 5:

*Subcomponent 5.1: Monitoring*

Activities include: 1) Observer-based monitoring at sea and 2) Discharge monitoring program linked with the GEF Marine Electronic Highways Project.

*Subcomponent 5.2: Surveillance*

Activities include: 1) Aerial survey to identify and document specific fishing operations and 2) Development and implementation of regional VMS program.

*Subcomponent 5.3: Socio-economics and marketing.*

Activities include: 1) Development of an understanding of market forces that both impact and potentially enhance fisheries returns and 2) Use of such information to guide management and maximize benefits from fisheries.

*Subcomponent 5.4: Conflict resolution*

Using a multidisciplinary approach combining fisheries and biological assessments, socio-economic understanding, economic expertise and negotiating skills, this sub-component will facilitate resolution of fisheries user-conflicts between local industrial and artisanal fishermen and foreign fishing fleets operating in the SWIO.

*Subcomponent 5.5: Ensure sustainable benefits for member countries and their people*

Activities include: 1) Development of an understanding of the social needs and structures of national stakeholder groups exploiting marine resources and 2) Use of such information to guide management and maximize benefits from fisheries.

The outputs/outcomes for Component 5 will be:

- A contribution to the overall Project output leading to agreements between countries sharing fishery resources that improve harmonized MCS actions; and
- Agreements between countries that each will recognize the importance of regional pressure and the need to consult as a precursor to setting exploitation limits on a fishery (particularly regarding licensing of foreign fishing fleet access to its 200 mile EEZ). Likewise, regional harmonization of

management should address the environmental impact on the fishery, as changes in the ecosystem related to transitory or evolutionary changes associated with natural cyclic events and global anthropogenic impacts such as climate change may both require modification of exploitation limits.

#### **Component 6: Mainstreaming biodiversity in national and regional fisheries management**

*Total GEF Alternative component cost: US\$ 2.25 million, out of which GEF financing US\$ 0.5 (Biodiversity activities spread under components 1,2, 3 and 4 add upto a total of US\$2.5 million. Therefore the total cost for Biodiversity activities consolidated under this component (for clarity) is US\$ 3 million)*

*Lead Country: Mauritius*

*Is biodiversity important and are there reasons to take concerted action to protect it in these two LMEs?*

One of the most valuable assets of the West Indian Ocean region is its high biodiversity. More than 10 000 species of marine fish and invertebrates have been described from this East African Marine Ecoregion, with several zones of exceptionally high levels of endemism having been identified. This biodiversity underpins many of the fisheries and provides opportunities for future potential sources of food and other natural products. However, it also introduces elements of risk, in that greater ecological complexity complicates an ecosystem approach to resource management. This is especially true considering the great diversity of fishery types (more than 163 described) and the high incidence of non-target by-catch in many of these.

There are several relationships between fisheries in the SWIOFP study region and its biodiversity. Some of these are direct, such as those fisheries that have a high by-catch or those where the gear impacts adversely on the environment and its biota. There are also indirect impacts, for example, where natural processes are impeded. Thus, the removal of top predators in a fishery (such as the growing shark fin fishery) can result in cascading ecological effects, already demonstrated in some regions. Similarly, depletion of one species could benefit a close competitor species that may be of less economic value. There appears to be a unique situation with bi-polar distribution of some stocks of lobster and fish, found only in the Somali and KwaZulu-Natal region. The genetic relationship between these populations needs to be understood. Also of consequence is the relationship between inshore and offshore populations of fish, and hence biodiversity. In the case of several important species, part of the life cycle (spawning and juvenile rearing) occurs inshore, with adults moving to offshore regions. Several species of shark, the larger mackerels and some smaller tuna display this behavior. Lack of understanding of this relationship could compromise overall management of an exploited stock and in some cases threaten species survival locally and regionally.

The fishery of the SWIO region includes a greater diversity of species, often at lower commercial capture tonnage, than in West Africa. Although the region provides greater diversity of opportunities, because of lower primary productivity there is also a greater sensitivity to fishing pressure and a corresponding need for close cooperation between nations in managing shared fish stocks.

*Why a biodiversity component in SWIOFP?*

**If protection of marine and related biodiversity is to be a sustainable undertaking in the Agulhas and Somali Currents LMEs it must be integrated into national management of offshore fisheries resources, and receive long-term support by riparian nations and their donors.** It is difficult for two or more countries that share a fishery to work together to ensure that exploitation is sustainable. It is even more difficult for the nations that “own” the resource to equitably share the value and cost of management of the resource, and to work together to ensure that exploitation does not cause impacts on non-target

assets that would reduce the overall benefit exploitation. The individual nations of the SWIO that rely directly or indirectly (licensing of fishing vessels from distant fishing nations) on offshore fishing are concerned about by-catch issues, unintentional capture of marine mammals, sea birds, sea turtles and other marine life and attempted to identify solutions. Unfortunately, most countries of the SWIO do not have the resources to adequately address these issues. And at least half of the countries in SWIOFP have no capacity to research or manage fisheries impacts (caused by licensed and unlicensed foreign fishing vessels) on non-target species.

This component is actually “cross cutting” and will be implemented through this and Components 2 (crustacean fisheries), 3 (demersal fisheries) and 4 (pelagic fisheries). As funding for these biodiversity-oriented activities will be supported under the Biodiversity Focal Area (OP2), the description of what will occur in all components, why these activities have been included in the Project, and what the Project and long-term objectives are will be consolidated and presented in this Component.

The majority of fish species currently commercially exploited in the SWIO LME's have distributions that straddles or migrate through the 200 mile EEZs of two or more countries. If a country has a history of exploiting, or licensing a foreign fishing vessel, to exploit an offshore fishery, it is likely that it will be spending at least some resources on managing impacts on non-target fish and non-fish species.

#### *How does commercial fishing impact on biodiversity in the SWIO?*

In the SWIO the primary fisheries include longlining and purse seining for large pelagic species and bottom trawling for crustaceans and demersal fish. In other large marine ecosystems longlining has been shown to impact on many species. Incidental catches of seabirds on longlines is a major concern, particularly mortality of albatrosses and petrels where it has been shown, that without appropriate mitigation methods, populations of some species are seriously threatened. Similarly the incidental catch of turtles on longlines is a serious concern as mortality rates are also high. Tuna purse seiners also have incidental catches of dolphins and other small cetaceans. Trawling also affects many of the same species. Trawl warps are known to result in the death of many bird species foraging in or near trawl operations, and nets frequently incidentally trap seals, dolphins, turtles and other non-consumptive species.

Ultimately the loss of these species will not only impact the diversity of the SWIO, but also on the potential livelihoods of the riparian communities who benefit from healthy populations of these species.

Non-targeted bycatch also is a worldwide concern, but is an issue that to date has not been appropriately addressed in the fisheries of the SWIO. Of particular concern is the bycatch of chondrichthyans. Fishing nations are obligated to comply with the FAO Code of Conduct on Fisheries, which includes the management of bycatch and discard species. Further, fishing nations are also obligated to develop National Plans of Action for their chondrichthyan resources. These NPOA's should address shark bycatch on longlines, finning and discarding.

Other concerns relate to the interactions between mammals and fishing gear (degradation). In many longline fisheries, killer whales, sperm whales and seals remove large quantities of commercially valuable fish caught on longlines and introduce mortality effects on target species that are difficult to quantify, thus increasing the variability of resource assessments.

The impacts on and interactions between non-consumptive species and non-target species with commercial fisheries will be addressed in all facets of the SWIOFP. In Components 1 and 2 the state of knowledge of the non-consumptive species worldwide and specifically in the SWIO, shall be collated in the data atlas to establish a baseline for the SWIOFP so that appropriate mitigation methods can be

investigated. Within each of the specific SWIOFP Fishery Components, either existing knowledge or new methodology will be investigated through the training and deployment of specialist Observers in the SWIOFP survey program. Specialist research activities will be invited from a spectrum of interested and affected parties, including universities and Non Government Organizations. As many of the species in question are also apex predators, they frequently provide clues as to ecosystem health. For example, bird and whale populations may mirror the distribution and abundance of small pelagic fishes. Accordingly, it is planned that Component 6 will focus on identification of such resources and their potential relationship with WIO fisheries development and ecosystem health.

*How will SWIOFP establish the groundwork for a regional strategy to preserve biodiversity in the SWIO?*

The SWIOFP approach will include specific activities that lead to an understanding of the overall relationships between fisheries and biodiversity processes and species diversity and how these relationships can be managed at the national and regional levels. Typical examples will include:

- A regional approach to by-catch assessment and reduction in all fishery types
- Identification of biodiversity “hotspot” issues, such as spawning aggregations and nursery areas
- Understanding the possible impacts of fisheries on seed populations, larval transport.
- Ecological implications of selective removal of target species, such as top predatory sharks
- Identification and understanding of the inshore/offshore dynamics of several key commercially valuable species and associated biodiversity
- Potential impact of changes in fishing technology, including Fads.

Without an improved understanding of the relationship between fisheries in the SWIOFP region and the associated biodiversity, any future decision support of fishery development could be flawed and compromised. While it is recognized that such topics are often difficult to investigate, this is no reason to ignore their probable implications on long term sustainable fishery development and an ecosystem approach.

This component will undertake an assessment of the interaction between non-commercial marine resources (such as sea-birds, turtles and other species) and commercial fisheries. Studies will be funded out of a grant fund and would generate a baseline assessment, GIS mapping of key species, assessments of marine biodiversity as alternative sources of income and identification of bio-indicator species and relationships between target species and ecosystem health. The following sub-components and activities are planned under Component 6:

*Subcomponent 6.1 Assessment of the state of knowledge of non-consumptive resources and marine biodiversity within the SWIOFP for inclusion in the Data Atlas*

It is virtually impossible to undertake a detailed design of a biodiversity component until existing data are collected, processed and discussed on a regional basis to identify a program within SWIOFP to describe biodiversity in the two LME’s, identify threats and possible solutions, and to develop regional and national management approaches to address the biodiversity issues identified. Unfortunately, there have been little or no efforts to collate sparse existing data into a central database for evaluation. As a result it is impossible to make more than a guess about the number and location of biodiversity hotspots and to describe the current biodiversity status in the SWIO. The biodiversity component, funded under the OP2 focal area, will include a budget of \$3 million to address. Implementation of the biodiversity component will need to proceed in three stages. These are:

**Stage 1:** As part of the data gap analysis described in Component 1, all existing data from the region and repatriation of data from overseas public and private institutions describing biodiversity in the two LME's will be collected and stored in a regional database (integrated with the regional fisheries database). As these data will be incremental to the fisheries information to be collected, no OP2 support is needed;

**Stage 2:** Once these biodiversity data are available to all countries, a regional biodiversity component coordination meeting will be called by Mauritius (the coordinating country for biodiversity in SWIOFP).. This meeting will prepare the detailed work plans for field data collection to be supported under the Project. These will include how the Project scientific observers will be deployed on commercial fishing boats and Project research vessels, how these data collection programs will link to data collection from other component of SWIOFP, and the ASCLMEs and the WIO-LaB Projects.

**Stage 3:** Implementation of the work plan for biodiversity including annual meetings to discuss finding and modify the Component (as necessary). This will culminating in a final workshop to discuss and present solutions to biodiversity preservation within national and regional fisheries management plans.

Stage 1 and 2 will require \$150,000, sourced from the \$3 million OP2 Focal Area contribution to SWIOFP. Disbursement of the remaining \$2.85 million will be dependent on production of the detailed biodiversity assessment and management response work plan to come at the end of 12 months by both the Bank and GEFSEC Monitoring Unit.

#### Activities

- 1) Assessment of the state of knowledge of non-consumptive resources and marine biodiversity within the SWIOFP for inclusion in the Data Atlas
- 2) Identification and assessment of key non-consumptive species and ecosystem relationships that could provide potential sources of income.
- 3) Regional workshop and detailed work plan

Subcomponent 6.2 *Identification, through field data collection, of key biodiversity values in the two LME's*

#### Activities

- 1) Gathering of baseline information relating to fisheries interactions
- 2) Improving biological knowledge on species most impacted by fishing activities in the SWIO.
- 3) Create a database of fishery interactions based on surveys, observer data and logbook analyses.
- 4) Investigation of Mitigation methods to reduce mortality of non-consumptive species
- 5) Investigation of by-catch and by-catch reduction methods e.g. exclusion devices, fishing practices
- 6) Identificative and assessment of key non-consumptive species and ecosystem relationships that could provide potential sources of income and production of a biodiversity map.

*Subcomponent 6.2: Interactions with fisheries*

#### Activities

- 1) Gathering of baseline information relating to fisheries interactions
- 2) Improving biological knowledge on species most impacted by fishing activities in the SWIO.
- 3) Create a database of fishery interactions based on surveys, observer data and logbook analyses.

- 4) Investigation of Mitigation methods to reduce mortality of non-consumptive species
- 5) Development, within national and regional/sub-regional fisheries management plans, an awareness of the importance and an imperative to protect the biodiversity of the Agulhas and Somali Currents LMEs. These could include no fishing zones, restrictions on fishing gears, closed seasons, size restrictions, use of excluding devices; etc.

*Subcomponent 6.3: Bio-indicators of ecosystem health*

This subcomponent will be shared with the ASCLMEs Project. Identification of bio-indicators of ecosystem health will need to be associated with corresponding oceanographic indicators during the TDA/SAP process. The SWIOFP also intends to tap expertise outside the government management and research agencies by inviting and funding (under competitive review) proposals from specialists in regional universities and non-government research groups that will identify possible relationships between target species and ecosystem health (bio-indicators).

The outputs/outcomes for Component 6 will be largely contributed from OP2:

- Biodiversity map; and
- Action plan (as part of TDA/SAP process) detailing issues and actions related to fishery exploitation impacts on non-target species and how nations of the SWIO will manage commercial fishing impacts (production systems) on biodiversity (establishing legislation and enforcing that legislation on fishing fleet from within and outside the African region;.
- Establish an ongoing monitoring program that includes Monitoring, Control and Surveillance of Action Plan implementation and that will allow comparison of the biodiversity, ecosystem health and status of exploited fisheries against the baseline established by SWIOFP. .

**Component 7: Strengthening regional and national fisheries management**

*Total GEF Alternative component cost:* US\$ 4.45 million, out of which GEF financing US\$ 1.1 million

*Lead Country:* PMU-designated country

This component will support the emerging regional fisheries management framework in the SWIO and build capacity in regional and national fisheries management bodies. The project will establish a working relationship and technical interface between SWIOFP and the SWIOFC, and establish a regional project management unit (PMU). The project will also assess national fisheries regulations and identify areas where harmonization is needed. The following sub-components and activities are planned under Component 7:

*Subcomponent 7.1: Identification of relevant national and international legislation and other instruments relevant to the SWIOFP goal*

Activities include: Documentation of legislation, protocols and guiding principles relevant to SWIOFP.

*Subcomponent 7.2: Harmonization of legislation between countries*

Activities include: 1) Collation of national fisheries policies and regulations from each country; 2) Identification of common and conflicting items; identify specific gaps.

*Subcomponent 7.3: Development of regional resource management structures and capacity*

Activities include: 1) Establishment of working relationship with the SWIOFC; 2) Support for the development of management structures and procedures through the SWIOFC; 3) Provision of technical and other support to the SWIOFC; 4) Development of a support base from participating countries to endorse the regional management initiatives.



*Subcomponent 7.4: SWIOFP project administration and national and regional facilities*

Activities include: 1) Development of national management capacity and infrastructure and; 2) Development of a regional management facility.

The outputs/outcomes for Component 7 will be:

- Legal agreements and memoranda of understanding between two or more SWIOFP countries facilitating regionally harmonized resource management. These agreements and regionally harmonized management plans will be for specific fisheries shared between the participating countries and will collectively feed into the TDAs and SAPs for the Agulhas and Somali Currents LMEs, and
- A stronger regional management structure for management of shared or straddling fisheries resources through leveraging ecosystem management and LME-modular approach to assessment onto the agenda of the SWIOFC and other relevant regional bodies.

**Cross-cutting themes**

In addition to the activities of specific components, there will be cross-cutting specialist activities, some of which will be integrated with ASCLMEs project and will likely include studies on ecosystem effects, training, bio-economics and marketing, social and cultural considerations, regional resource management structures, numerical modeling, species and stock identity and conflict resolution.

Ship Cruises

Offshore collection of fisheries data require suitable vessels be used. Without these vessels, SWIOFP would not be possible. And the cost of vessels with cruise durations long enough to meet SWIOFP needs can be expensive. A great deal of project preparation time was spent trying to identify the most cost-effective method of procuring the ships to serve as research platforms for the Project. Basically, ships will come from three sources: i) Ships provided by SWIOFP member countries (SWIOFP pays operation and maintenance costs associated with our cruises and the countries pay general maintenance and depreciation); ii) Ships provided by parallel finance (the French GEF is providing the services of commercial vessels that are wet leased specifically for SWIOFP activities and Norway is providing the RV. Fridtjof Nansen- SWIOFP pays 50% of the daily rate and Norway pays the other 50%), and smaller commercial fishing vessels that will be fully wet-leased by SWIOFP (these represent the smallest part of the SWIOFP “research fleet”). This has resulted in almost halving the initial estimated costs of vessel procurement to the Project. A table of proposed cruises and vessel expected to be used for each follows.

**Table 1: Proposed SWIOFP Cruises by Component and Vessel**

Survey No.	Fishery	Vessel Type	Survey Area / Country	Charter Days	Comments
1	Deepwater Crustaceans	Commercial Trap (RSA Cape Flower possibility)	Tanzania / Kenya	45	Approx 20 days Kenya, 25 Days Tanzania
2	Deepwater Crustaceans	Commercial Trap (RSA Cape Flower possibility)	Madagascar	40	Splits 20 days east, 20 days west
Deepwater Crustaceans Trap				85	
3	Crustacean Trawl - Exp. New Resources	Com Prawn Trawl (Local charter or MV Mafunzo)	Kenya (15) & Tanzania (25)	40	Deep and shallow - full extent of shelf and beyond where possible - Co-financed (industry)
4	Crustacean Trawl - Exp. New Resources	Com Prawn Trawl (Local charter or MV Mafunzo)	Kenya (15) & Tanzania (25)	40	Deep and shallow - full extent of shelf and beyond where possible - Co-financed (industry)
5	Crustacean Trawl - Exp. New	Com Prawn Trawl (local charter commercial vessel - Leanne)	Mozambique	20	Deepwater to shelf - cofinancing possible

6	Resources Crustacean Trawl - Exp. New Resources	Com Prawn Trawl (local charter commercial vessel - Leanne)	Madagascar	40	Deep and shallow - full extent of shelf and beyond where possible 15 days east and 25 days west
Deepwater Crustaceans Trawl				140	
7	Demersal Trawl - Commercial or Research	Commercial Bottom Trawl or Research Vessel (Alpha Amboseli / MV Mafunzo / Algoa / Nansen)	North Mozambique	15	Shelf is relatively narrow - semi-random depth stratified survey from Mozambique to Kenya possibly cofinaced with ASCLMEs/ Sa/ Norad research vessel option
			Tanzania	30	
			Kenya	15	
8	Demersal Trawl	Commercial Bottom Trawl or Research Vessel (Algoa, Nansen, A.N. Other)	Madagascar East (20) and West (20)	40	Large area to target - isolate survey areas based on information - semi-random depth stratified bottom trawl survey cofinanced 50%
9	Demersal (shallow)	Research Vessel L'amite	Mascarene <150 m depth	45	Demersal shallow - use own research vessels L'Amitie : gear dropline, trap?
10	Demersal (shallow)	Research Vessel L'amite	Mascarene <150 m depth	45	Demersal shallow - use own research vessels L'Amitie : gear dropline,?
11	Demersal deep	Commercial (to be chartered LL vessel)	Mascarene >150 m depth	40	Demersal exp. gear - drop line, short longline
12	Dem. line >30 m - 500m	Commercial Line (Phantom or other)	Mozambique north	20	Exp. gear - drop line, short longline,trap
13	Dem. line >30 m - 500m	Commercial Line (Phantom or other)	Mozambique north	20	Exp. gear - drop line, short longline,trap
Total Demersal Trawl, dropline and longline				270	
14	Midwater Trawl small pelagics	Commercial /Res. MidwaterTrawl (Nansen, Algoa, Alpa Amboseli)	North Mozambique	10	Shelf is relatively narrow - semi-random depth stratified survey from Mozambique to Kenya possibly cofinaced with ASCLMEs / Sa/ Norad research vessel option
			Tanzania	20	
			Kenya	15	
15	Midwater Trawl small pelagics	Commercial / Res. MidwaterTrawl (nansen / Algoa)	Mascarene & Mauritius	40	Random shelf survey with acoustic transects and target identification with midwater trawl Res vessel possible
16	Midwater Trawl small pelagics	Commercial / Res. MidwaterTrawl (Nansen / Algoa)	Madagascar East (20) and West (20)	40	Random shelf survey with acoustic transects and target identification with midwater trawl Res vessel possible
Total Midwater Trawl				125	
17	Large Pelagics	Commercial Longliner Cap Morgane	Madagascar (1)	36	FAD Deployment and Fish Behaviour
18		Commercial Longliner Cap Morgane	Comoros (2)	15	
19		Commercial Longliner Cap Morgane	Tanzania (1)	15	
		Commercial Longliner Cap Morgane	Kenya (1)	15	
		Large research vessel Amite	Seychelles (1)	40	
20	Large Pelagics	Small research vessel (local vessel)	Madagascar (2)	41	FAD Deployment and Fish Behaviour
21		Small research vessel (Local Vessel)	Comoros (1)	15	
		Small research / commercial vessel	Seychelles (2)	80	
22		Small research / commercial vessel	Tanzania (2)	15	
		Small research vessel	Mauritius (1)	15	
		Small research vessel	Kenya (2)	15	
23	Large Pelagics	Commercial Longliner	France	60	Gear Optimization of Longlines
24		Commercial Longliner	Mauritius	50	

25	Large Research Vessel	Seychelles	48	
26	Commercial Longliner	France (French GEF Funds)	32	Migration and movements using Archival Tags
27	Commercial Longliner	Mauritius	30	
28	Large research vessel	Seychelles	48	
29	Large research vessel (Mafunzo)	Tanzania	10	
	Large research vessel (Mafunzo)	Kenya	10	
30	Commercial Longliner	South Africa	27	

## Project Outputs

### Primary output

The primary output of the SWIOFP will be to provide fisheries and fisheries management related information on offshore fish stocks that migrate or straddle the 200 mile EEZs of more than one country into the preparation of Trans-boundary Diagnoses (TDAs) and Strategic Action Programs (SAPs) for the Agulhas Current LME and the Somali Current LME. The SAPs will serve to identify the country-driven reforms and investments countries pledge to seek in order to sustainably manage the use of natural resources of these LMEs. The stress reduction indicators then established will track whether implementation of the reforms and investments have proceeded expeditiously.

### Secondary Outputs

The following outputs, when consolidated, will collectively support the Project activities designed to describe exploited and potentially exploited fish stocks, regional fisheries management issues, and biodiversity protection measures appropriate in a sustainable use system:

- a) Collation of historical and new data relating to fishing and all research-based and other environmental data, to facilitate resource assessment and understanding of ecosystem status;
- b) Regionally coordinated and managed assessment of the current status of commercially valuable fish stocks in the WIO. This would be done through a program of observers on commercial vessels supplemented by dedicated and spatially (time and geographically) coordinated “stock assessment” research cruises by leased vessels;
- c) Undertake a fishing pressure survey by remote sensing and aerial surveys to obtain a spatial (both time and geographical) snapshot of who is exploiting the resource (legal and IUU), what type of fish are being exploited (as indicated by the type of vessel fishing), variability in the “where” and “when” of fishing effort;
- d) Develop a preliminary level of harmonization of regulation and cooperation in management of regional and straddling fisheries that could form the basis of better and more formal regional management in the future;
- e) Develop a “culture of regional cooperation” between fisheries research and fisheries management scientists in the WIO, and strengthen capacity in government agencies.
- f) Training. This activity will generate the human resources needed to implement the components of SWIOFP including specialist, technical, academic, managerial and operational skills. A skills gap-analysis of the region, followed by implementation of a comprehensive skills development

program, including workshops, courses and tertiary training. Outputs will be skilled individuals engaged in all levels of SWIOFP.

- g) Regional resource management structures. The ultimate aim of SWIOFP is the establishment of a functional SWIO resource management structure. This activity will assess and integrate the scientific data from SWIOFP in order to develop such a plan. Outputs will include regional management plans, implementation strategies and appropriate structures
- h) Numerical modeling. The SWIOFP will require quantitative resource assessments. Numerical modeling of such resources is a pre-requisite. Output will be numerical models of stock dynamics and fisheries activities.
- i) Species and stock identity. As many species of the SWIOFP study region are shared between member countries, it is essential to define the trans-boundary range of their stocks in order to implement effective management. Such stock discrimination will involve accurate species identity and possible genetic definition.

## Annex 5: Project Costs

**Table 2: Breakdown of Project Costs** (to be completed at appraisal)

Project Cost By Component and/or Activity <sup>1</sup>	Local US \$million	Foreign US \$million	Total US \$million
Component 1: Data and Information Technology			
Component 2: Assessment and Sustainable Use of Crustacean Species			
Component 3: Assessment and Sustainable Use of Demersal Species			
Component 4: Assessment and Sustainable Use of Pelagic Species			
Component 5: Monitoring of fishing effort and catch, existing value, and exploitation conflicts			
Component 6: Fishing Impact on Non-consumptive Resources			
Component 7: Strengthening Regional Management			
 Total Baseline Cost			
Physical Contingencies			
Price Contingencies			
<b>Total Project Costs<sup>2</sup></b>			
Interest during construction			
Front-end Fee			
<b>Total GEF Financing Required</b>			

<sup>1</sup> Identifiable taxes and duties are US\$m \_\_\_\_, and the total project cost, net of taxes, is US\$m \_\_\_\_.  
Therefore, the share of project cost net of taxes is \_\_\_\_%.

**Table 3: Total Project Costs** (US\$ millions- reflecting requested GEF funding)

	Component	Total GEF Alternative	Total GEF Incremental	GEF Actual OP8 & OP2
1	Data gap analysis, data archiving and information technology	6.89	4.61	2.4
2	Assessment and sustainable utilization of crustaceans	21.83	7.73	3.0
3	Assessment and sustainable utilization of demersal fishes	22.62	8.1	3.0
4	Assessment and sustainable utilization of pelagic fish	43.03	3.8	1.0
5	Monitoring of fishing effort and catch, existing value, and exploitation conflicts	33.96	4.17	1.0
6	Mainstreaming biodiversity in national and regional fisheries management	7.5	2.25	.0.5*
7	Strengthening regional and national fisheries management	9.96	4.45	1.1
		<b>145.79</b>	<b>35.11</b>	<b>12.0</b>

(\*US\$ 3 million has been earmarked for funding under the biodiversity focal area. The total GEF costs for Biodiversity related activities are spread under components 1,2 ,3 & 4 and are estimated at US\$ 2.5 million. Therefore the total GEF incremental cost for Biodiversity adds up to US\$ 3 million (2.5+.0.5))

## Annex 6: Implementation Arrangements

### 1. Project Management

The project management structure of SWIOFP was developed by participating countries and will operate solely as a means to achieve project implementation. It will have a mandate to work in harmony with and support existing regional institutional frameworks and management agreements in place when the program begins. It is intended that SWIOFP, and its project implementation structure, will support and strengthen management mechanisms that are already in place, rather than replace them.

SWIOFP will need an effective coordinating structure to manage the inherent complexity in the program and to ensure:

- overall coordination for a coherent regional program;
- monitoring of individual projects to ensure that they meet regional objectives;
- effective provision of regional support services such as procurement vessels; and,
- monitoring and responding to the evolving regional and international context.

The project management structure will therefore consist of three levels: a high level political steering committee, a 'Regional Executive Secretariat', which will act as the project's core operational unit and national management units for each of the participating countries. The bulk of implementation of the technical aspects of SWIOFP will occur through National Management Units that are entirely staffed by civil servants. The **Regional Management** structure will act as a kind of Project Management Unit which will provide financial, regional procurement, ship coordination and harmonization services to the 'National Management'. The **Political Coordination** of the Project will be through a Regional Political Steering Committee (delegates being "permanent secretary-level staff" that have authority to speak for their respective governments.

**Regional Political Coordination:** The political nature of the fisheries organizations, departments or institutions in the different member States, and the complex relationship between these organizations and the international bodies engaged in fishery activities in the region, raise vital political issues that cannot be ignored in the structural framework of any regional program established to address management of common fisheries resources. The political interests of the member States must be taken into account in the structural arrangement of the project, and this must include relationships with the fisheries departments or directorates of the SWIO coastal States, as well as involving these States in policy formulation at ministerial level. The project will establish a regional political steering committee comprised of Fisheries Ministers or Permanent Secretaries that will provide a forum for engaging in the resource management issues raised by the project. The steering group would meet annually and exercise oversight over the technical teams at the regional and national level.

**Regional Technical Coordination:** Technical coordination at the regional level will involve two structures: a Regional Executive Secretariat, which will manage the operational aspects of the project, and a Regional Management Board, comprised of the technical heads of fisheries (Fisheries directors or their delegates), that will provide technical oversight over the secretariat and the project.

The Regional Executive Secretariat will be staffed by four full-time professionals: 1) a Regional Executive Secretary (who will head a Regional Management Board), 2) a Data and Information Technology Manager, 3) a Regional Procurement and Financial Manager and 4) a Ships Manager. An appropriate level of support staff would also be hired in the Secretariat. The Secretariat will be established in one country using selection criteria determined by the nine countries<sup>10</sup>. The regional coordination unit will also be integrated with the ASCLMEs secretariat and national management structure. This will aid in the planning and utilization of sampling activities and ships time.

The Regional Management Board, which will include staff of the Regional Executive Secretariat and the Directors of Fisheries of the member States, will be headed by a Regional Executive Secretary. The Regional Executive Secretary will be appointed by the Regional Policy and Steering Committee and will be a citizen of any member State; serve for a period of 2 years renewable only once upon the agreement of the steering committee on a rotational basis.

The Regional Management Board has the supreme power and authority over all matters relating to the overall Project Management Structure, and its decisions are subject to ratification by the Steering Committee of the SWIO States meeting once annually. All decisions taken are binding on member States. Only the Steering Committee can overrule Management Board decisions.

The Regional Management Board shall be responsible for the formulation of policies on the recommendation of, and inputs from the Steering Committee. This arrangement will ensure that the objectives, plans, goals, policies and decisions of the management board reflect the individual and collective interests of the member States. It is at this level that conflicts and political interests will be resolved and harmonized. The legal aspect of research and fishing activities will fall under the responsibility of the Regional Executive Secretary.

The Regional Secretariat and the nine national management structures will regularly submit their various reports to the regional management board for assessment, monitoring and evaluation.

**National Implementation Coordination:** Although the exact structure of each national implementation unit will vary, there will be a standard **national structure** in each country that has the following posts: a National Executive Secretary, a Sub-component Manager, a National Procurement and Financial Manager and different Project Leaders. Some countries will act a specific Component Coordinators to coordinate and manage activities across countries, for pelagic fish (Seychelles), demersal fish (Kenya), crustaceans (South Africa), non-consumptive resources (Mauritius) and Monitoring (Madagascar). Although Component Coordinators will be situated in a given country, their responsibilities will have a regional scope. All national project management and coordinating staff will be civil servants.

**Coordination of in kind inputs:** The SWIOFP will rely extensively on partnerships for implementation and financing of project activities. Coordination and planning of all in kind inputs will take place at the Regional Management Board with the Regional Executive Secretary and the Ships Manager taking a lead in managing and coordinating activities.

In kind inputs are expected from four sources, including the GEF, the countries themselves, France (the French GEF), and Norway (through the Fridtjof Nansen Program). French assistance will be parallel finance through provision of several leased vessels that can be used to undertake SWIOFP activities. These vessels will be funded for a specific number of days per year. Norway will provide part of the cost

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<sup>10</sup> The selection criteria for the location of the regional coordinating unit includes level of country commitment to host the project, ease and affordability of transport access to other SWIOFP countries, and quality of communication and IT infrastructure.

of its scientific research vessel, the RV Fridtjof Nansen- mainly the crew, scientists on board, maintenance and scientific consumables. GEF funds will be used to pay the operating costs of the vessel, which mainly relate to fuel. The RV Fridtjof Nansen will also be used by the ASCLMEs project, which will share the operational costs with SWIOFP when the vessel is used for joint activities.

**Organizational structure for the SWIOFP Project Management**

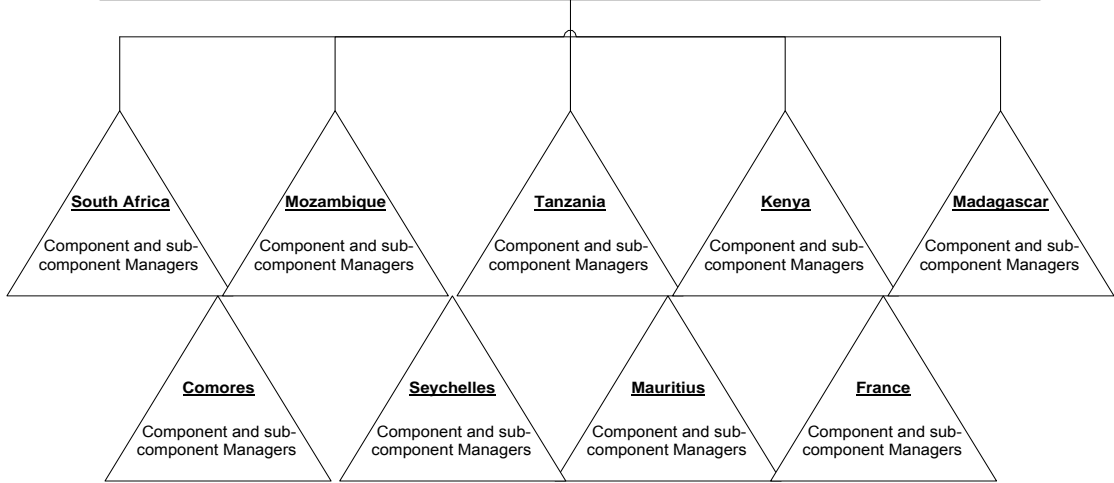
**SWIOFP Regional Political Steering Committee**  
(Annual meeting of Fisheries Ministers of Member States)

**REGIONAL COORDINATION (MANAGEMENT UNIT)**

**LOCATION:** pending (South Africa, Madagascar, Kenya)

Activities of Unit :

1. Regional Executive Secretary
2. Data and Information Technology Manager
3. Regional Procurement and Financial Manager
4. Ships Manager



**Implementing Agency Consultations, linkages and Cooperation**

The Implementing Agencies (UNDP, UNEP and the WB) have been and will continue to work collaboratively toward the realization of the overall objectives of the assessing the Agulhas and Somali Currents LMEs. Each of the three IAs has been represented at most of the preparation sessions for the respective projects of the program. The WB implemented SWIOFP project and the UNDP implemented ASCLMEs project were developed in close collaboration between the respective Project Managers and

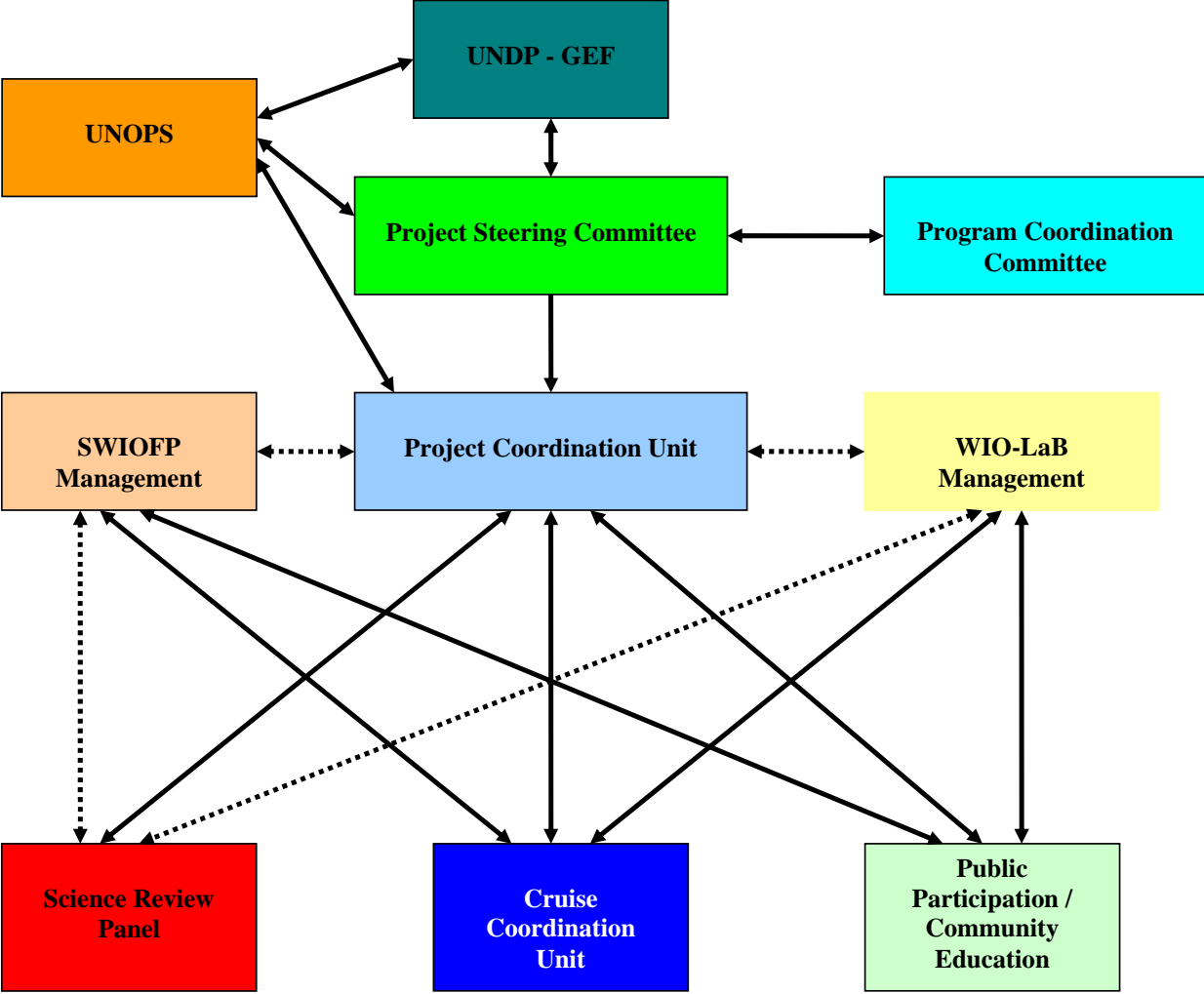


other expert resources associated with the two projects. These two projects have collaborated closely in developing their respective baselines and logical frameworks.

A Program Coordination Committee (PCC) will be formed to link the ASCLMEs and SWIOFP projects and will comprise members from each of the projects. Overall responsibility for coordination would be assumed by the ASCLMEs project. Each of the Projects would be represented on the PCC by the respective task team leaders for the IAs, Project Managers, and two members from each of the respective Project Steering Committees. The PCC would meet not less than once annually. Among other things, the PCC would focus on a unified approach to capacity building, donor recruitment and other issues to ensure long-term program sustainability. The PCC would also ensure that projects in combination are working in a coherent and coordinated way and that implementation of the program through the projects is consistent with a modular approach to LME management. A harmonized implementation structure for the projects has also been agreed to by the IAs. Specific areas of cooperation include:

- Each of the Project Managers will sit on the respective Project Steering Committees established under the Program, to assure a continuing and effective set of programmatic linkages, the avoidance of activity duplication, and the creation of cost efficiencies at the administrative level.♦ The Regional Management Office of SWIOFP will house the Ship Coordination Specialist. This expert will be a shared officer and the funding to support the position, including provision of office space and support, will be assumed by SWIOFP.
- The Regional Management Office of ASCLMEs will house the shared Information Systems Officer. This expert will be an ASCLMEs Program officer and the funding to support the position, including provision of office space and support, will be assumed by the ASCLMEs Project.
- Annual Work Programs for the three projects will be prepared jointly, using the vehicle of an annual program meeting. The responsibility for hosting this meeting will alternate among the projects.
- There will be a ASCLMEs/SWIOFP Coordination Committee whose membership, as initially discussed, and will include the National SWIOFP Manager of each SWIOFP country and the Regional Executive Secretary, and the senior member of the ASCLMEs Steering Committee from each ASCLMEs country and its project manager. This group will meet immediately before and in conjunction with the Annual Work Program meeting. This will be a technical meeting and deal with inter-project coordination issues. Chairmanship of the meeting will alternate between the Project Managers.
- EcoAfrica will execute the DLIST project on behalf of the ASCLMEs project and for the benefit of the three projects within the ASCLMEs Program as a whole. EcoAfrica has successfully assumed such a role for the GEF supported Benguela Current Large Marine Ecosystem project.

**Project Management Organigram**  
(Including Cross-Project Linkages)



## **Annex 7: Financial Management and Disbursement Arrangements**

### **Flow of Funds**

The total amount of money for the regional SWIOFP will be apportioned on a universally developed and approved basis to the various SWIOFP member countries, reflecting each country's agreed obligation to contribute to those Project components and subcomponents in which they have agreed to participate. This gives direct technical and financial management responsibilities to countries participating in SWIOFP Project activities. This also facilitates overall Project financial management through the regional PMU, without compromising the contractual obligations that each country will have with the Bank through the individual Project Grant Agreements (8 needed- France is a participant in the Project but not a beneficiary of the GEF grant).

Flow of funds will occur from the Project Account in Washington to the Project Special Account managed by the regional coordinating Project Management Unit. Upon submission of individual quarterly disbursement requests, based on a yearly workplan approved by the Project Regional Policy and Steering Committee, the regional coordinating Project Management Unit will transfer funds to the SWIOFP implementing agency in each country. These funds will be used to pay for local operational costs, small procurement, and any other local expenses. Disbursement by the regional PMU to the SWIOFP country implementing agencies for the following quarter(s) will be based on submission of Statement of Expenditures, with attached receipts, to the regional PMU.

Funds to support the coordination activities of the regional PMU and pay harmonization activities between two or more countries will be retained by the regional office. Interest accrued on this special account will be retained in the Project Special Account and used equally to support SWIOFP activities of all countries

The preferred disbursement method for SWIOFP is transaction-based disbursement monitored by the PMU directly into individual country special accounts. Under special circumstances (for large sums) suppliers or contractors can be paid directly by the Bank (eg. Ship procurement). With respect to procurement procedures, funds for specific components will be managed independently by the country designated to manage each component.

### **Purchase of Goods, Works and Services**

For the procurement of goods and services, the national offices will utilize the existing procurement procedures applicable to that country. The regional office will consolidate larger, like-items, and procure through single tenders. This larger procurement done at the regional level will utilize the procurement procedures of the World Bank – mostly large procurement. Regional procurement of goods and services will involve such things as:

- Vehicles
- Computer equipment
- Fish aggregating devices
- Wet-leasing of Vessels
- Wet-leasing of aircraft
- Larger consultant advisory assignments

## Project Audits

Auditing of all Statements of account will take place at the regional co-coordinating office. Original payment documents will be forwarded to the regional co-coordinating office and copies will be retained at the national office. The various National Audit Offices will perform an audit of the payment documents retained by the national offices.

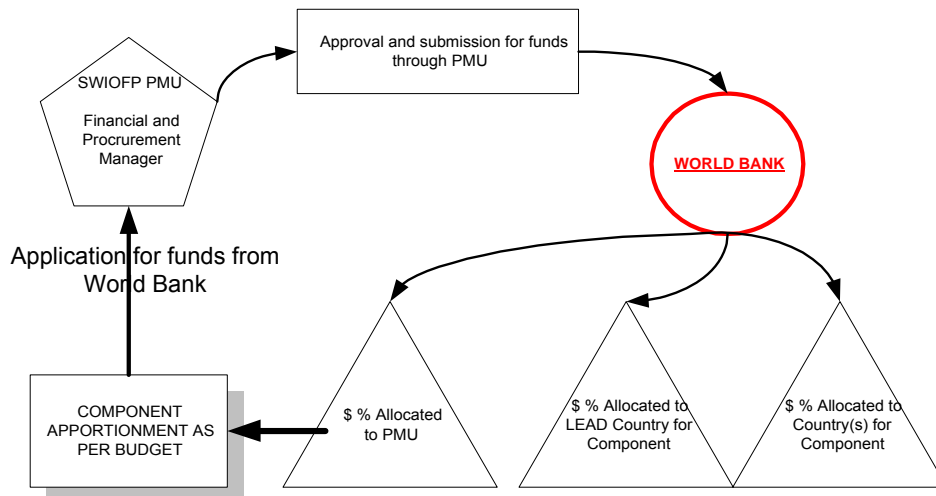
## Monitoring and evaluation of outcomes/results

The performance of the **Project Management Structure** shall be assessed annually by the Regional Policy and Steering Committee through the analysis of its achievements as contained in annual reports, and measured in relation to the extent the stated goals have been realized. Strategies for more efficient operation of the **PMS** can then be developed at this meeting and transmitted to all the subsystems and the nine national management structures for performance improvement.

The World Bank's Articles of Agreement require that the proceeds of loans be used economically, efficiently and solely for the purpose for which the financing is intended. Financial management policies and procedures for SWIOFP are therefore designed to facilitate compliance with the World Bank's requirement including that the borrower(s) ensure that financial management and accounting systems are adequate to generate timely and reliable financial information before implementation begins. Further, periodic financial monitoring reports will be submitted regularly for each project with verification of annual financial reports via regular external audits.

The preferred disbursement method for SWIOFP is transaction-based disbursement monitored by the PMU directly into individual country special accounts. Under special circumstances (for large sums) suppliers or contractors can be paid directly by the Bank (eg. Ships procurement). With respect to procurement procedures, funds for specific components will be managed independently by the country designated to manage each component.

## SWIOFP PROCURMENT PROCEDURES



A procurement procedure that is initiated by the country leading the Component (or sub-component) with a request for funds from the World Bank, vetted through the PMU, and submitted to the World Bank by the financial manager of the PMU for approval and ultimately disbursement to individual country special accounts. Fund apportionments by component or sub-component are predetermined and subject to separate contractual obligations between the World Bank and participating country. This gives direct responsibility to participating countries to manage each account, and also facilitates overall Project Financial Control through the PMU without compromising the contractual obligations of each country participating in a particular Component. The purchase of equipment and other costs for the implementation of each component is then managed at the national level and is audited by the World Bank and PMU.

Expenditures of GEF and World Bank funds will be audited by auditors appointed by each institution as required.

## Annex 8: Procurement Arrangements

### A. General

Procurement for the proposed project would be carried out in accordance with the World Bank's "Guidelines: Procurement Under IBRD Loans and IDA Credits" dated May 2004; and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated May 2004, and the provisions stipulated in the Legal Agreement. The various items under different expenditure categories are described in general below. For each contract to be financed by the Loan/Credit, the different procurement methods or consultant selection methods, the need for pre-qualification, estimated costs, prior review requirements, and time frame are agreed between the Borrower and the Bank in the Procurement Plan. The Procurement Plan will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

**Procurement of Works:** Works procured under this project would include: *[Describe the types of works]*. The procurement will be done using the Bank's Standard Bidding Documents (SBD) for all ICB and National SBD agreed with or satisfactory to the Bank. *[Indicate any special requirements specific to the project.] [If the project involves procurement carried out by communities, indicate where details can be found in the Project Implementation Manual or similar documents.]*

**Procurement of Goods:** Goods procured under this project would include: *[ Describe the types of goods]*. The procurement will be done using the Bank's SBD for all ICB and National SBD agreed with or satisfactory to the Bank. *[Indicate any special requirements specific to the project.]*

**Procurement of non-consulting services:** *[ Provide a general description of non-consulting services to be procured under the project and information on the bidding documents to be used for the procurement.]*

**Selection of Consultants :** *[Provide a general description of the consulting services from firms and individuals required for the project.]* Short lists of consultants for services estimated to cost less than \$\_\_\_\_\_ equivalent per contract may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines. *[If applicable, provide any information regarding engaging universities, government research institutions, public training institutions, NGOs, or any special organizations.]*

**Operating Costs:** *[Describe the operating costs which would be financed by the project and procured using the implementing agency's administrative procedures which were reviewed and found acceptable to the Bank.]*

**Others:** *[Describe if any special arrangements for scholarships, grants etc. ]*

The procurement procedures and SBDs to be used for each procurement method, as well as model contracts for works and goods procured, are presented in the *[name the Project Implementation Manual or the equivalent document]*.

### B. Assessment of the agency's capacity to implement procurement

Procurement activities will be carried out by *[name of the Implementing Agency]*. The agency is staffed by *[describe the key staff positions]*, and the procurement function is staffed by *[describe the staff who will handle procurement]*.

An assessment of the capacity of the Implementing Agency to implement procurement actions for the project has been carried out by *[name of the procurement staff]* on *[date]*. The assessment reviewed the organizational structure for implementing the project and the interaction between the project's staff responsible for procurement Officer and the Ministry's relevant central unit for administration and finance.

The key issues and risks concerning procurement for implementation of the project have been identified and include *[describe the risks/issues]*. The corrective measures which have been agreed are *[Describe the corrective measures]*.

The overall project risk for procurement is *[give the risk rating]*.

**C. Procurement Plan**

The Borrower, at appraisal, developed a procurement plan for project implementation which provides the basis for the procurement methods. This plan has been agreed between the Borrower and the Project Team on *[date]* and is available at *[provide the office name and location]*. It will also be available in the project's database and in the Bank's external website. The Procurement Plan will be updated in agreement with the Project Team annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

**D. Frequency of Procurement Supervision**

In addition to the prior review supervision to be carried out from Bank offices, the capacity assessment of the Implementing Agency has recommended *[frequency]* supervision missions to visit the field to carry out post review of procurement actions.

**E. Details of the Procurement Arrangements Involving International Competition**

**1. Goods, Works, and Non Consulting Services**

(a) List of contract packages to be procured following ICB and direct contracting:

1	2	3	4	5	6	7	8	9
Ref. No.	Contract (Description)	Estimated Cost	Procurement Method	P-Q	Domestic Preference (yes/no)	Review by Bank (Prior / Post)	Expected Bid-Opening Date	Comments

(b) ICB contracts estimated to cost above *[fill in threshold amount]* per contract and all direct contracting will be subject to prior review by the Bank.

**2. Consulting Services**

(a) List of consulting assignments with short-list of international firms.

1	2	3	4	5	6	7
---	---	---	---	---	---	---

<b>Ref. No.</b>	<b>Description of Assignment</b>	<b>Estimated Cost</b>	<b>Selection Method</b>	<b>Review by Bank (Prior / Post)</b>	<b>Expected Proposals Submission Date</b>	<b>Comments</b>

(b) Consultancy services estimated to cost above [fill in threshold amount] per contract and single source selection of consultants (firms) for assignments estimated to cost above [fill in threshold amount] will be subject to prior review by the Bank.

(c) Short lists composed entirely of national consultants: Short lists of consultants for services estimated to cost less than [fill in threshold amount] equivalent per contract, may be composed entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines.



## Annex 9: Economic and Financial Analysis

### Economic and Financial Analysis Annex

A quantitative economic analysis was not carried out for the proposed project due to the nature of project activities, which are primarily focused on generating scientific outputs and capacity building for regional and national fisheries management. Nonetheless, it is possible to make a general assessment of the potential economic benefits to be generated by the project as it is expected that scientifically based management of shared offshore fisheries resources will, over the longer term, have a positive economic benefit. The following discussion very briefly describes the assumptions underpinning this assessment and the likely economic and environmental benefits generated by the project.

### Background Data

Country	Population* (million)	GDP* (US\$ billion)	Land area (km <sup>2</sup> )	Coastline (km)	EEZ (km <sup>2</sup> )
Comoros	0.6	0.32	217	427	100,000 (est.)
Kenya	31.3	13.8	586,000	640	100,000 (est.)
Madagascar	16.9	5.5	587,000	4,500	1,150,000
Mauritius	1.2	5.2	1860	276	1,500,000 (est.)
Mozambique	18.8	4.3	800,000	2,700	400,000 (est.)
Seychelles	0.08	0.72	455	600	1,300,000
Somalia	9.6	-	637,000	3,320	600,000 (est.)
South Africa	45.3	159.8	1,220,000	2,798	540,000 (est.)
Tanzania	36	9.9	945,000	1,424	280,000 (est.)

\* 2003 data, World Bank

	<u>Average annual marine catch<sup>1</sup></u> <u>2001-2003</u>			<u>Average annual marine</u> <u>exports 2001-2002</u>	
	Mt	% change from average annual marine catch 1995-2000	% of annual average WIO marine catch <sup>2</sup> 2001-2003	Mt	Value in US\$ '000s
Comoros	13,132	3.8	0.32	-	-
Kenya	6,943	16.8	0.17	2,460	8,554
Madagascar	108,402	21.8	2.61	31,823	138,796
Mauritius	10,942	0.0	0.26	28,140	65,710
Mozambique	42,400	61.2	1.02	12,749	96,234
Réunion	3,202	-16.8	0.08	-	-
Seychelles	67,509	256.4	1.63	57,230	83,942
Somalia	18,500	-20.4	0.45	2,231	2,550
South Africa					
<i>Indian Ocean</i>	1,573	103.4	0.04	-	-
<i>Atlantic and Indian Oceans</i>	778,845	40.9	-	152,682	272,167
Tanzania	50,457	1.3	1.22	7,397	16,215
<b>Total (Indian Ocean only)</b>	323,061	32.8	7.78	142,029	411,999

Source: FAO

<sup>1</sup> Includes marine fish, mollusks and crustaceans

<sup>2</sup> Western Indian Ocean area includes East Africa, South Asia, Red Sea and Persian Gulf countries

## **Assumptions**

In addition to assumptions that the project would be fully successful in meeting its objective of establishing fisheries stock baselines and contributing to establishment of a regional fisheries and adoption of an ecosystem approach to fisheries, the following assumptions were also made:

Fisheries catch: The project is expected to increase the sustainability of fisheries through better management and knowledge of specific stocks. Estimates of fisheries catch in the SWIO show yields have gradually increased over the past seven to eight years although there are cases of declining stocks in certain fisheries. The SWIO is not classified by FAO as overexploited and it is possible the project could identify new, unexploited fisheries in the national EEZs of some countries. Nonetheless, commercial fisheries may be nearing full exploitation and given the oceanographic characteristics of the SWIO, the likelihood of discovering significant new stocks may be low. It is also possible the project would identify certain overexploited fisheries, providing justification for targeted reductions in fishing effort in the future. Thus, a likely scenario for the project's impact on fisheries production would be to contribute to a sustainable management regime that maintains the current level of production over time, somewhere between 300,000 to 350,000 Mt per annum.

Demand for fish products: Increasing global demand for fisheries products and an overall decline in fish production have created a general increasing trend in prices for fish products. As a result, even as the costs of fisheries operations rise due to scarcer resources, higher prices still maintain a certain level of profitability. This situation is expected to continue in the future as more fisheries become depleted or fishing effort is reduced to recover stocks.

## **Project Benefits**

Environmental benefits. The project is expected to contribute to improvement of the long term sustainability of the Agulhas and Somali LMEs which is home both to globally important biodiversity and the source of numerous ecological services and uses including recreation, food, energy, transportation, livelihoods, and research, all of which is difficult to quantify. Specific environmental benefits to be generated by SWIOFP would include developing and testing modifications to fishing gear to reduce by catch or incidental mortality of other marine species, and assessment of fisheries interactions with other species and the marine environment.

Macroeconomic benefits: Although marine fisheries production often constitutes a small part of overall GDP for many SWIOFP countries, it remains an important contributor to GDP. The contribution of fisheries to GDP ranges from less than 1% of GDP, up to 50% of GDP in Seychelles. Fisheries exports also represent an important source of foreign exchange earnings. Available data on marine exports indicate SWIOFP countries earn upwards of US\$ 400 million a year from marine fish exports. Lack of data and illegal or unreported catches may also understate the value of exports. Given the trend in fish prices, it is likely that even without a substantial increase in production, countries would continue to realize gains in the export earnings and fisheries related sales.

Socio-economic benefits: All SWIOFP countries are low income and many have substantial populations living below the poverty line. Fisheries production plays an important role in food security and in some participating countries, a relatively large amount of fisheries production is used for national or local food consumption. In many coastal communities, fish is the primary source of protein. Rising prices for fish products may be detrimental for consumers, particularly those who are poor, however, it is unclear what direct effect the project would have on prices

While fisheries employment is not large, in coastal communities, the direct and indirect employment generated by artisanal fisheries can be important. Project outputs may also improve the artisanal fisheries operations through the identification of niche near shore stocks or gear optimization. The impact of gear optimization for commercial fisheries, however, may be mixed as the adoption of certain exclusion devices or fish aggregating devices may reduce fishing catch.

Fiscal Impact: As a nationally owned resource, fisheries have the potential to generate substantial rents for governments. Currently all SWIOFP countries obtain revenue for national and local governments through charges for access rights, vessel registration or licenses, export royalties, fish levies or landing fees. It is estimated that licensing of marine fisheries operations represents a significant source of untapped revenue. Lack of knowledge about EEZ stocks and limited monitoring, surveillance and compliance capacity often prevent more effective licensing systems. Since implementation of the SADC MCS program, the number of licensed EEZ vessels has increased in some countries. It is likely that the project would contribute to establishment of more efficient revenue schemes based on accurate estimates of commercial catch.

In terms of fiscal obligations, the project is not expected to generate any lasting fiscal obligations on the part of governments. As part of project implementation, participating countries are expected to provide staff time and space for project activities; however, much of this is related to gathering of scientific data that will end with the project. The project will not create new regional management structures and project management structures created for the purpose of project implementation is expected to be incorporated into existing institutions such as the Southwest Indian Ocean Fisheries Commission.

[

## **Annex 10: Safeguard Policy Issues**

The only relevant safeguard policy triggered by SWIOFP is that relating to Projects in International Waterways. This policy requires all “riparians” to be informed and to consent to the Project. As all countries riparian to the Western Indian Ocean within or bordering the Project Study Area are within and designed the Project, de-facto approval is effectively given (and confirmed once each country signs the Credit Agreement to fund the work).

## Annex 11: Project Preparation and Supervision

	Planned	Actual
PCN review		
Initial PID to PIC		
Initial ISDS to PIC		
Appraisal		
Negotiations		
Board/RVP approval		
Planned date of effectiveness		
Planned date of mid-term review		
Planned closing date		

Key institutions responsible for preparation of the project:

Bank staff and consultants who worked on the project included:

Name	Title	Unit
Bill Lane	Senior Environment Specialist	AFTS2
Mercy Sabai	Senior Financial Management Specialist	AFTFM
Melissa Brown	Economist	FAO/CP Consultant
Pawan Patil	Senior Economist	EASRD
David Japp	Fisheries Scientist	FAO/CP Consultant
Donald Mneney	Procurement Specialist	AFTPC
Alberto Ninio	Senior Council	LEGAF

Bank funds expended to date on project preparation:

1. Bank resources:
2. Trust funds:
3. Total:

Estimated Approval and Supervision costs:

1. Remaining costs to approval:
2. Estimated annual supervision cost:

**Annex 12: Documents in the Project File**

**Annex 13: Statement of Loans and Credits**

Project ID	FY	Purpose	Original Amount in US\$ Millions				Cancel.	Undisb.	Difference between expected and actual disbursements	
			IBRD	IDA	SF	GEF			Orig.	Frm. Rev'd
P082618	2005	MZ-Beira Railway SIL (FY05)	0.00	110.00	0.00	0.00	0.00	113.70	0.00	0.00
P069183	2004	MZ Energy Reform and Access Project	0.00	40.26	0.00	3.09	0.00	44.99	1.86	0.00
P001807	2004	MZ-Decentralized Planning and Fin. Proj	0.00	0.00	0.00	0.00	0.00	39.94	12.31	0.00
P078053	2003	HIV/AIDS Response Project	0.00	0.00	0.00	0.00	0.00	56.70	-5.90	0.00
P072080	2003	PUBLIC SECTOR REFORM	0.00	0.00	0.00	0.00	0.00	27.73	17.97	0.00
P069824	2002	MZ-Higher Education SIM (FY02)	0.00	60.00	0.00	0.00	0.00	46.40	1.81	0.00
P001785	2002	MZ-ROADS & BRIDGES MMP	0.00	162.00	0.00	0.00	0.00	143.73	69.19	0.00
P073479	2002	MZ - Communication Sector Reform	0.00	14.90	0.00	0.00	0.00	11.01	4.60	0.00
P001806	2002	MZ-MUNICIPAL DEVELOPMENT PROJECT	0.00	33.60	0.00	0.00	0.00	25.85	14.99	0.00
P001808	2001	Mineral Resources Project (NRMCP)	0.00	18.00	0.00	0.00	0.00	6.81	0.71	0.00
P070305	2000	Coastal & Marine Biodiversity Mgmt	0.00	5.60	0.00	0.00	0.00	4.78	4.06	2.22
P049874	2000	ENTERPRISE DEVELOPMENT	0.00	26.00	0.00	0.00	0.00	10.60	9.42	0.00
P042039	2000	MZ RAILWAY & PORT RESTR	0.00	100.00	0.00	0.00	0.00	45.94	39.88	18.49
P035919	2000	MZ-GEF Coastal & Marine SIL (FY00)	0.00	0.00	0.00	4.11	0.00	2.70	4.10	3.94
P001799	1999	AGRIC SECTOR PEP	0.00	30.00	0.00	0.00	0.00	9.88	9.15	8.98
P052240	1999	NATIONAL WATER II	0.00	75.00	0.00	0.00	0.00	72.07	47.92	-2.23
P001786	1999	MZ-Edu Sec Strtgy Prgm ESSP TAL	0.00	71.00	0.00	0.00	0.00	29.48	26.08	-0.68

	(FY99)									
P039015	1998	NATIONAL WATER I	0.00	36.00	0.00	0.00	0.00	13.00	11.30	0.00
		Total:	0.00		0.00	7.20	0.00	705.31		30.72
				782.36					269.45	

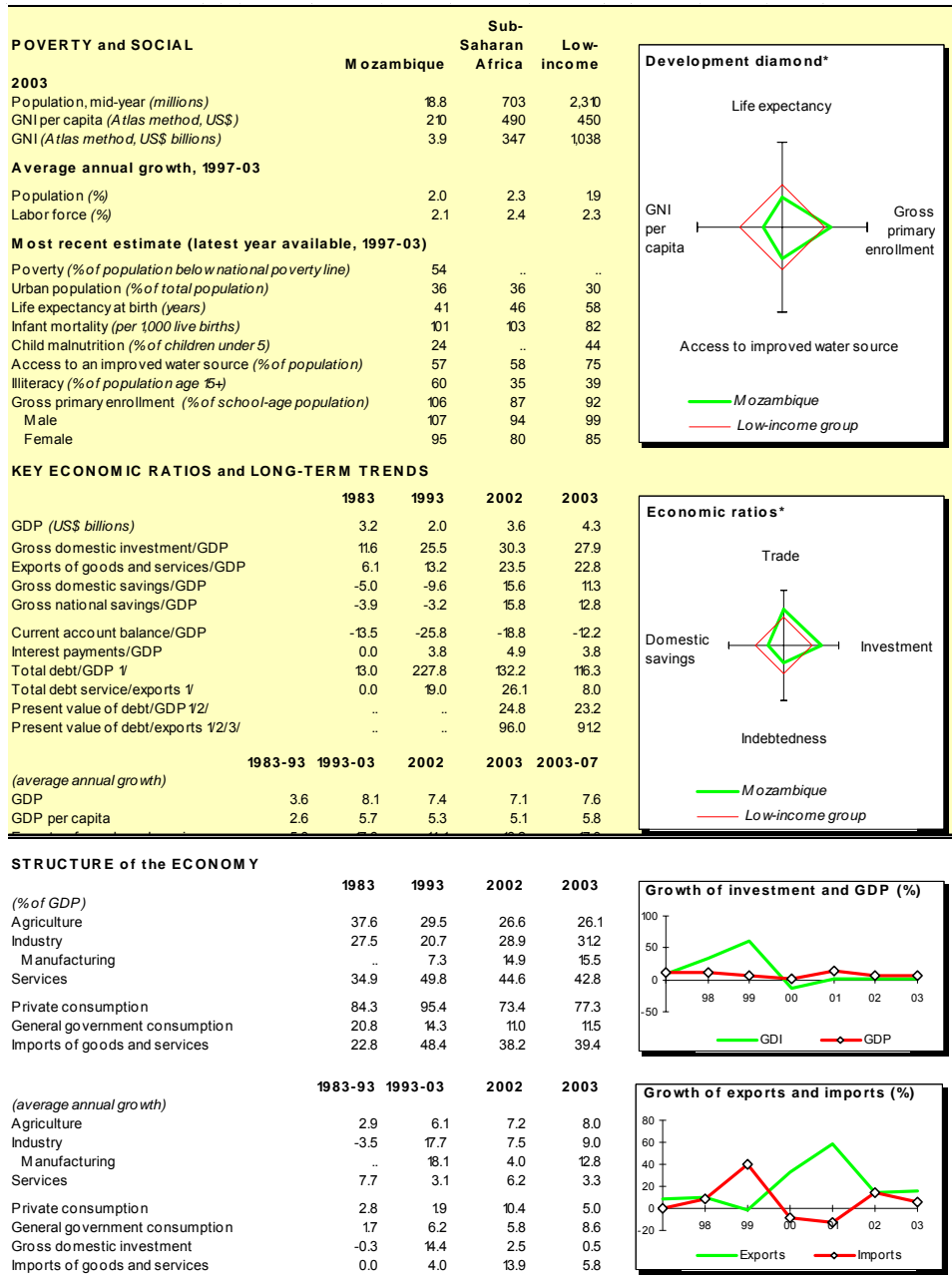
AFRICA  
STATEMENT OF IFC's  
Held and Disbursed Portfolio  
In Millions of US Dollars

FY Approval	Company	Committed				Disbursed			
		IFC				IFC			
		Loan	Equity	Quasi	Partic.	Loan	Equity	Quasi	Partic.
1998	BIM-INV	0.00	0.30	0.00	0.00	0.00	0.30	0.00	0.00
2000/03	BMF	0.00	0.20	0.00	0.00	0.00	0.20	0.00	0.00
2004	ENH	0.00	18.50	0.00	0.00	0.00	0.00	0.00	0.00
1997/01	MOZAL	12.52	0.00	0.00	0.00	12.52	0.00	0.00	0.00
1999	Maragra Sugar	10.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2000	SEF Ausmoz	0.72	0.00	0.00	0.00	0.72	0.00	0.00	0.00
1997	SEF CPZ	1.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00
1997	SEF CTOX	0.73	0.00	0.00	0.00	0.73	0.00	0.00	0.00
2000	SEF Cabo Caju	0.58	0.00	0.00	0.00	0.51	0.00	0.00	0.00
2001	SEF Grand Prix	0.59	0.00	0.00	0.00	0.40	0.00	0.00	0.00
2000/04	SEF Merc	1.20	0.00	0.00	0.00	0.66	0.00	0.00	0.00
	Total portfolio:			0.00	0.00		0.50	0.00	0.00
		27.64	19.00			16.54			

FY Approval	Company	Approvals Pending Commitment				
		Loan	Equity	Quasi	Partic.	
	Total pending commitment:		0.00	0.00	0.00	0.00

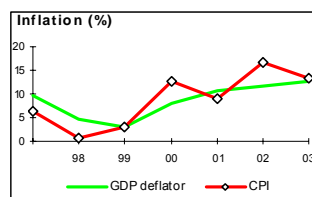


## Annex 14: Country at a Glance



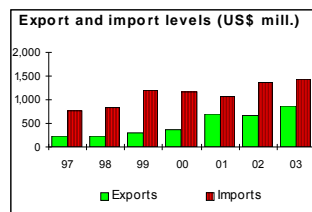
## PRICES and GOVERNMENT FINANCE

	1983	1993	2002	2003
<b>Domestic prices</b>				
<i>(% change)</i>				
Consumer prices	28.2	42.3	16.8	13.5
Implicit GDP deflator	13.0	51.4	11.5	12.6
<b>Government finance</b>				
<i>(% of GDP, includes current grants)</i>				
Current revenue	18.0	18.5	18.0	18.4
Current budget balance	-2.1	3.6	2.2	2.5
Overall surplus/deficit after current grants	-17.8	-11.0	-15.8	-11.4
Overall surplus/deficit after all grants	-16.0	-3.6	-7.9	-4.9



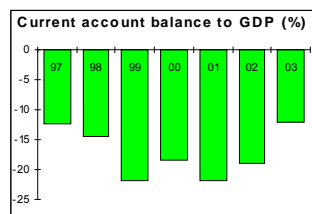
## TRADE

	1983	1993	2002	2003
<i>(US\$ millions)</i>				
Total exports (fob)	132	132	679	880
Cashew nuts and raw cashew	16	20	17	17
Prawn	31	69	64	64
Aluminum	..	..	361	519
Manufactures	..	7	13	15
Total imports (cif)	..	830	1351	1445
Export price index (1995=100)	96	90	74	78
Import price index (1995=100)	99	89	82	83
Terms of trade (1995=100) 1/	97	101	90	94



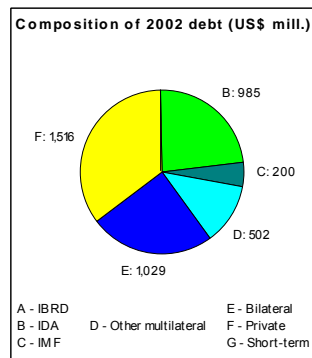
## BALANCE of PAYMENTS

	1983	1993	2002	2003
<i>(US\$ millions)</i>				
Exports of goods and services	222	312	1058	1230
Imports of goods and services	694	958	1745	1820
Resource balance	-472	-646	-687	-590
Net income	-33	-179	-189	-213
Current account balance before grants	-437	-511	-678	-527
Financing items (net)	393	465	772	699
Changes in net reserves	43	46	-94	-172
<b>Memo:</b>				
Reserves including gold (US\$ millions)	15	187	825	1007
Conversion rate (DEC, local/US\$)	40.2	3,951	23,678	23,782



## EXTERNAL DEBT and RESOURCE FLOWS

	1983	1993	2002	2003
<i>(US\$ millions)</i>				
Total debt outstanding and disbursed 2/	422	4,54	4,756	5,024
IBRD	0	0	0	0
IDA	0	512	985	1,232
Total debt service 2/	0	71	286	102
IBRD	0	0	0	0
IDA	0	3	7	9
Composition of net resource flows 2/				
Official grants	90	503	420	536
Official creditors	202	134	..	179
Private creditors	0	0	0	0
Foreign direct investment	0	32	380	342
World Bank program				
Commitments	0	123	0	81
Disbursements	0	93	149	156
Principal repayments	0	0	3	2
Net flows	0	93	146	154
Interest payments	0	3	4	6
Net transfers	0	90	142	147



## Annex 15: Incremental Cost Analysis

### Background

The WIO large marine ecosystems are strategically important as sources of local community livelihoods, biodiversity, ecological services, fisheries and other economic activities. A number of national and international initiatives are underway to improve the sustainable use of WIO resources. These activities form a set of baseline activities that can be characterized as generally beneficial to the health of the LMEs of the SWIO and the natural resources therein, but are presently insufficient to achieve long-term sustainability of the overall system. The incremental cost analysis presented in this annex provides greater detail on baseline activities currently underway in the SWIO and the incremental costs associated with the GEF financed program of LME management proposed by the UNDP sponsored ASCLMEs Project and the World Bank sponsored SWIOFP.

### Baseline Scenario

The baseline scenario represents an assessment of the current national and international investment in areas complementary to the components of the ASCLMEs Project and SWIOFP. It has been calculated for both the ASCLMEs project and SWIOFP as the two projects are closely linked and build upon the same baseline activities. Total baseline costs are estimated at US\$ 193 million (of which US\$ 110 million is associated with SWIOFP activities) and are based on assessment of ongoing and planned national and international efforts in marine and coastal research, monitoring, and management. This includes support to relevant activities within Government ministries and departments, externally funded donor projects, and participation in regional initiatives. Only expenditures related to the activities identified in the GEF alternative are included in the baseline assessment, although some context is provided on the overall support to marine and environmental management within the region. Efforts have been made to gather as much data as possible, however, given the large number of countries involved, there are inevitable data gaps. See tables 3 and 4 below for a detailed breakdown of baseline activities, costs and sources of financing.

### *Baseline Activities and Overall Ecosystem Sustainability*

In the absence of GEF funding, the nine countries participating in the ASCLMEs Project would continue to pursue a set of largely national and limited regional activities related to monitoring and managing the marine resources of the SWIO. These include a number of national and international initiatives in managing specific aspects of the coastal and marine environment (particularly in creation of MPAs, MMAs or in regulating fishing effort), and improving knowledge of the marine ecosystem through targeted research activities. While these baseline activities certainly represent a move towards better ecosystem management, they are not yet sufficient to achieve long-term sustainability. Currently there is only a partial picture of large scale processes and dynamics of LME systems and support to regional coordination is still at relatively low levels. Given the high level of poverty that exists in many of the countries that are the subject of these two projects, and the consequent lack of capacity to take a broader, eco-systemic approach to the resources of the two LMEs, there is understandably little incentive for country contributions to a regional approach to the LMEs, an approach necessary to achieve global benefits in the areas of fisheries, biodiversity, and climate change.

### *Improving Knowledge of the SWIO Large Marine Ecosystems*

The SWIO region has been the focus of a number of oceanographic campaigns and there is relatively good understanding of certain aspects of physical oceanography, specific coastal systems (coral reefs, mangroves) and species of conservation concern (marine mammals, turtles, sharks). Oceanographic

research and ecosystem assessments have been undertaken by national marine research bodies, NGOs and a variety of donor funded projects (projects sponsored EU, World Bank, AfDB, WCS, WWF). Lack of ship time and specialized equipment limit the amount of data collection but the baseline activities include studies on coral reef systems (Seychelles, Mauritius, Reunion, Madagascar, Tanzania); marine mammal populations, particularly the dugong (Madagascar, South Africa, Mozambique); algal biomass on reefs (Reunion); collection of data on sea mounts, hydrography and bathymetry (Madagascar, South Africa); and biodiversity assessments (all).

In the fisheries sector, a number of national, commercial and international bodies are involved in collection of fisheries related data within the SWIO. All nine countries support fisheries departments and fisheries related scientific activities with baseline activities sponsored by national governments generally confined to near shore and artisanal fisheries. Most studies on offshore fisheries stocks, distribution and behavior is undertaken with the support of external financing. Because of their value, pelagic fish species, particularly tuna, have been studied more intensively and their dynamics and trophic relations are generally well known. Tuna related studies includes the Tuna Tagging Program in the WIO, OSIRIS (tuna management), and high seas pelagic ecosystems studies. Demersal fish species are also the focus of a limited number of studies including CAPPES project (France/Reunion) and other (Madagascar, Tanzania). Shallow and deep water crustacean studies are taking place primarily in South Africa and Mozambique. Baseline activities related to fisheries data management are limited, an EU sponsored regional fisheries data system has begun to integrate some data, although it is not comprehensive of species or across the region. There are also independent surveys of biodiversity such as the South African funded ACEP.

#### *Regional Management of ASCLMEs Project Ecosystem*

While there is no single institution dedicated solely to management of the ASCLMEs, several regional institutions have varying mandates to cover all or part of them. These include NEPAD, the Indian Ocean Tuna Commission, the Indian Ocean Commission, the new Southwest Indian Ocean Fisheries Commission, the Nairobi Convention, and SADC. A large regional coastal zone management project is due to begin implementation under the sponsorship of the Indian Ocean Commission and COMESA. Components related to ecosystem management include development of institutional frameworks for management of coastal zones and Marine Protected Areas (MPA's), and a series of ICZM pilot projects in WIO countries.

#### *National Management of the ASCLMEs Ecosystem*

The policy framework for national ecosystem management is in place and all nine countries have national environmental plans and most countries have fisheries master plans. However there is a need to readjust the framework to meet the WSSD marine targets. Several countries have instituted near-shore governance mechanisms or institutional structures to manage marine and coastal resources. These have often taken the form of integrated coastal zone management projects (Mozambique, Tanzania, Kenya, and South Africa). The ICZM projects also include an element of community and participatory management including information sharing, awareness raising and community monitoring activities.

Monitoring of the entire ecosystem (coastal, riparian, shallow and deep water) within national boundaries is not common and many countries face difficulty monitoring commercial marine resources. Many fisheries departments engage in limited MCS activity within the EEZ, but are limited by resource constraints. A few donor financed MCS projects are underway to increase the capacity of national governments to monitor their national waters (Madagascar, Tanzania, and Seychelles).

## The GEF Alternative<sup>11</sup>

The GEF alternative is defined as the set of activities related to an LME approach to management of the SWIO. For the purposes of this incremental cost analysis the GEF Alternative includes the two proposed GEF projects in LME management, ASCLMEs Project and SWIOFP and their co-financing activities<sup>12</sup>.

The overall Global Environmental Objective of the ASCLMEs Program is to maintain the long-term sustainability of the living resources of the Western Indian Ocean. This goal is being pursued by a set of related GEF interventions (the UNEP sponsored WIO-LaB, the World Bank sponsored SWIOFP, and the UNDP sponsored ASCLMEs Project as well as nationally and internationally supported projects in marine and ecosystem management that are closely aligned to SWIOFP and the ASCLMEs Project objectives.

The Global Project Objective of SWIOFP is to promote the environmentally and socially sustainable use of fish resources through adoption of an ecosystem approach to management in the Agulhas and Somali LMEs that recognizes the importance of preserving of biodiversity. SWIOFP will accomplish this objective by identifying and filling gaps in existing data describing commercially exploited or exploitable fish stocks, developing a regionally harmonized, nationally implemented policy of ecosystem based management of sensitive fish species, and leveraging awareness of the importance of including biodiversity conservation in national and regional management plans. The expected outputs of the project are establishment of baseline data and information on fish, identification of fisheries and regional governance issues and establishment of institutional mechanisms for both national and regional ecosystem management of these issues.

Work undertaken through the project will result in significant inputs to the development of an ecosystem based Transboundary Diagnostic Analysis (TDA) and Strategic Action Program (SAP) for management of the natural resources of the Agulhas and Somali Currents LMEs. Formulation of a final TDA and SAP will be undertaken by UNDP as part of the overall GEF supported ASCLMEs Project. The principle contribution of the SWIOFP to the TDA and SAP will be differentiation between major environmental and anthropogenic factors that impact migratory and shared fish resources, the establishment of a baseline for key fish species, estimates of commercial fishing pressure and the evaluation of the impact of fisheries on marine resources as a whole.

GEF funds will be used to finance the incremental costs associated with regional and sub-regional activities designed to promote sustainable management of shared resources in the Agulhas and Somali LMEs. More specifically the GEF will finance the incremental costs of:

- assisting countries to better understand fisheries related issues in their international waters and work collaboratively to address them;
- building capacity of existing institutions, or through new institutional arrangements, to utilize a more comprehensive approach for managing transboundary fisheries
- implementing sustainable measures that address priority transboundary fisheries issues

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<sup>11</sup> A joint incremental cost analysis was undertaken for both the SWIOFP and the ASCLMEs Project, however, for ease and clarity of presentation, only the SWIOFP element is presented here.

<sup>12</sup> Using this definition of the GEF alternative, the GEF financed WIO-LAB project should also be included in the incremental cost analysis, however because it has already been approved and undertaken an incremental cost analysis of its own, it is not included here.

- Build a regional consensus on inclusion of biodiversity preservation in offshore fisheries management of shared stocks. Ensure sustainability of this by leveraging biodiversity preservation as a permanent agenda item of the SWIOFC
- Support studies targeted at minimizing by-catch and fisheries impacts on non-targeted, non-fish, species such as sea birds, marine mammals, sea turtles, etc.
- Generally, all measures need to help participating countries achieve agreed WSSD marine targets.

### Costing of the GEF Alternative

The baseline for SWIOFP has been estimated at US\$110.7 million and the GEF Alternative is costed at US\$145.8 million. The total incremental cost for the project is US\$ 35.1 million of which GEF would fund incremental costs, amounting to US\$ 12 million (\$12.725 million including PDF-A and PDF-Bs). Incremental costs associated with OP8 and OP2 are US\$ 9 million and US\$ 3 million, respectively. Co-financing is estimated at US\$20.1 million constituting funding appropriated by Norway (donation of research vessel time); Sweden, through its support to the Southwest Indian Ocean Fisheries Commission; South Africa (research vessel time and support to the Oceanographic Research Institute and the African Coelacanth Ecosystem Program); France (in kind contribution through French GEF funds); ACEP and ORI (multiple donors in addition to South Africa); and Government contributions (all countries). GEF funds have been committed for activities demonstrating clear global benefits and are described in more detail in the incremental cost matrix (Table 3). The economic and financial analyses done for the project also clearly identify the project benefits (see Annex 9).

**Table 1. Breakdown of GEF Alternative by component**

Component	Baseline Cost (US\$)	Incremental			Total GEF Incremental (US\$)	Total GEF Alternative (Baseline + Incremental)
		GEF Financing (OP8+OP2)	Gov. Contribution	Other Financing		
1: Data and Information Technology	2.28	2.4	0.86	1.36	4.61	6.89
2: Assessment and Sustainable Use of Crustaceans	14.1	3	0.46	4.27	7.73	21.83
3: Assessment and Sustainable Use of Demersal Fish	14.52	3	0.48	4.62	8.1	22.62
4: Assessment and Sustainable Use of Pelagic Fish	39.23	1	0.5	2.3	3.8	43.03
5: Monitoring of fishing effort	29.79	1	0.1	3.07	4.17	33.96
6: Mainstreaming biodiversity in national and regional fisheries management	5.25	0.5**	0.1	1.65	2.25	7.5
7: Strengthening Regional Project Management	5.51	1.1	0.1	3.25	4.45	9.96
<b>Total</b>	<b>110.68</b>	<b>12.0</b>	<b>2.60</b>	<b>20.51</b>	<b>35.11</b>	<b>145.79</b>

(\*\* US\$ 3 million has been earmarked for funding under the biodiversity focal area. The total GEF costs for Biodiversity related activities are spread under components 1,2 ,3 & 4 and are estimated at US\$ 2.5 million. Therefore the total GEF incremental cost for Biodiversity adds upto US\$ 3 million (2.5+.0.5))

**Table 2: Summary of financing of the GEF Alternative for SWIOFP**

Financing		Amount (in US\$ millions)
Co-Financing (in-kind and cash)	FAO	0.25
	Norway (research vessel)	3.0
	South Africa, Seychelles, Mauritius, Tanzania (research vessels)	4.0
	France-GEF	1.0
	Other Bi-lateral financing *	12.1
	Co-Financing Sub-total	20.51
Government Contributions		2.6
GEF Financing		12.0
	Total with Incremental Cost (including PDF of 0.725)	35.675

- The SWIOFP expects to obtain other bilateral financing for the project, discussion with donors are still at preliminary stages but could include the EU or DfID. Some figures have been rounded off for ease in reference

### Justification for change in GEF Contribution to SWIOFP Finance Plan

SWIOFP was estimated to have an \$8-\$9 million contribution from the GEF, at pipeline entry. This estimate came out of the PDF-A meeting held in December, 2001. At that time, SWIOFP consisted of only 6 countries (Seychelles and Mauritius were only observers at this point) and the Project area did not extend further than the eastern coast of Madagascar. No technical work had been done other than to obtain endorsement of the first PDF-B grant request by the 6 participating countries. For a variety of reasons, preparation of a technical program did not start until late 2003, resulting in a science plan being drafted and presented at a plenary workshop in February 2004. It was only at this point that an estimate of actual/reasonable Project cost was possible. And SWIOFP had grown to 8 countries by this point, as Seychelles and Mauritius both asked to become full Project participants. This almost doubled the study area, but was essential if a realistic approach was to be taken in assessing and managing straddling and migratory fish stocks.

Once the SWIOFP countries had a chance to work as a complete unit and design a science plan, it became obvious that the amount proposed back in 2001 was not realistic and at least \$12 million GEF funding was needed and justified within a Project that had total cost (including contingencies) of about \$35 million. The biodiversity dimension of the project was always strong, as by-catch minimization and by-catch use, fishing impacts on non-associated species such as sea birds and marine mammals, and over-exploitation of some sensitive species of fish (fishing pressure on some sharks, tuna and bill-fish species, and slow growing demersal fish has long been of concern at the national level at the national level. SWIOFP represents the first opportunity that all countries of the SWIO have had to address these biodiversity issues in concert. The justification for funding under the biodiversity focal area (instead of just the IW focal area) has been strengthened by including all biodiversity-related issues under Component 6 to better differentiate and respond to the different focal area priorities and Monitoring and Evaluation criteria. Thus the project was readjusted to seek funding under both the International Waters (OP#8) and the Biodiversity focal area (OP#2).

### SWIOFP Incremental Activities by Component

#### **SWIOFP Component 1: Data and Information Technology**

Total GEF Alternative: US\$ 6.89 million out of which GEF financing US\$ 2.4 million

GEF funds will finance the incremental costs associated with consolidating and evaluating data on the regional fisheries resources and the establishment of regional fisheries database. GEF funds will finance a comprehensive review and evaluation of existing datasets culminating in a gap analysis that will direct other project investments. GEF funds will also finance sourcing of data from various entities, including repatriation of some data from private and national bodies; establishment of a regional database and training for data handling.

*Key GEF outputs:* (i) New data on transboundary species and regional oceanographic characteristics, (ii) establishment of permanent data depository for use in long term ecosystem monitoring, and (iii) sharing of data through establishment of regionally based IT infrastructure accessible to SWIO countries and stakeholders.

1.1 GEF OP2 funding will specifically lead to a Database will include fields for existing data describing by-catch (amount and species diversity).

### **SWIOFP Component 2: Assessment and Sustainable Use of Crustaceans**

Total GEF Alternative: US\$21.83 million out of which GEF financing is US\$ 3.0 million

The GEF alternative will build on on-going studies on crustacean species, focusing on establishing the distribution, stock discrimination and baselines for transboundary stocks. The component will also assess ecosystem impact of prawn by-catch and investigate options of gear optimization in shallow water lobster fisheries. GEF funds will finance technical assistance, wet leasing of ships time, aerial surveys, trawl gear, logistical expenses associated with ship cruises, remote sensing, trainings, workshops, pilot studies, and data analysis.

*Key GEF outputs:* (i) Data establishing transboundary migration patterns and regional species baselines; (ii) increased understanding of ecosystem impacts of crustacean fisheries, particularly bycatch and discards; (iii) testing of new technology to reduce negative ecosystem impacts; (iv) improved capacity at national level in ecosystem based fisheries assessment; and (v) collection of regional data on stock characteristics to underpin decision making on regional management.

1.2 GEF OP2 funding will specifically lead to: identification of species most impacted by the commercial fishery, possible impact of the gear used on species diversity, effectiveness of existing “excluding devices” in the fishing gear, identification of opportunities for modifying fishing methods to reduce by-catch and possible use of the by-catch.

### **SWIOFP Component 3: Assessment and Sustainable Use of Demersal Fish**

Total GEF Alternative: US\$22.62 million out of which GEF financing is US\$ 3.0 million

The GEF alternative will build on baseline studies activities, focusing on establishing the distribution, stock discrimination and baselines for trans-boundary demersal fish stocks. The component will also assess ecosystem impact of by catch and determine the potential of new fisheries. GEF funds will finance technical assistance, wet leasing of ships time, aerial surveys, trawl gear, logistical expenses associated with ship cruises, remote sensing, trainings, workshops, pilot studies, and data analysis.

*Key GEF outputs:* (i) Data establishing transboundary migration patterns and regional species baselines to underpin decision making on regional management; (ii) increased understanding of ecosystem impacts of demersal fisheries; (iii) testing of new technology to reduce negative ecosystem impacts, (iv) improved capacity at national level in ecosystem based fisheries assessment.

1.3 GEF OP2 funding will specifically lead to: identification of species most impacted by the commercial fishery, possible impact of the gear used on species diversity, effectiveness of existing “excluding devices” in the fishing gear, identification of opportunities for modifying fishing methods to reduce by-catch and possible use of the by-catch, and genetically differentiating stocks of a similar species that are separated by significant distances (and if similar, to develop an understanding of the mechanisms and importance of genetic mixing between populations)..



#### **SWIOFP Component 4: Assessment and Sustainable Use of Pelagic Fish**

Total GEF Alternative: US\$ 43.03 million out of which GEF financing is US\$ 1.0 million

The GEF alternative will build on on-going studies on pelagic fish species, focusing on establishing the distribution, stock discrimination and baselines for certain transboundary stocks. The project would focus on stock dynamics of small, super-small and mesopelagic species and to a lesser extent, stock dynamics some of the larger pelagics (including sharks). The project would closely coordinate with ongoing studies on tuna to avoid duplication. The project will also study optimization of fisheries including development of Fish Aggregating Devices. GEF funds will finance wet leasing of ships time, technical assistance, aerial surveys, ships gear, logistical expenses associated with ship cruises and data collection, remote sensing, trainings, workshops, pilot studies on gear optimization, and data analysis.

*Key GEF outputs:* (i) Greater understanding of stock dynamics of non-tuna large pelagic species (swordfish, bigeye) and other small and super small pelagics; (ii) Data establishing transboundary migration patterns and regional species for use in TDA and SAP; (iii) development of FADs and other technology improvements to reduce ecosystem impact of pelagic fisheries; (iv) improved capacity for ecosystem based fisheries assessment at national level.

1.4 GEF OP2 funding will specifically lead to: identification of species most impacted by the existing commercial fishery, species that could be very sensitive to new or expanded fishing pressure, possible impact of the gear used on species diversity, effectiveness of existing “excluding devices” in the fishing gear, identification of opportunities for modifying fishing methods to reduce by-catch and possible use of the by-catch.

#### **SWIOFP Component 5: Monitoring of fishing effort and catch, existing value, and exploitation conflicts**

Total GEF Alternative: US\$ 33.96 million out of which GEF financing is US\$ 1.0 million.

SWIOFP will improve the long term sustainability of marine resources by increasing the capacity of national fisheries management agencies to monitor fishing pressure within their waters. GEF will finance collection of sea observer monitoring data, establishment of discharge monitoring program, aerial surveys, establishment of land based monitoring and data verification systems, data collection to monitor fishing effort in select areas of the SWIO, linkage of communication infrastructure and development of coordination mechanisms and verification systems to implement a regional Vessel Monitoring System. It will also finance studies on: bioeconomics and marketing, conflict resolution, and issues related to economy and livelihoods.

*Key GEF outputs:* (i) improved national and regional capacity for marine resource monitoring; (ii) establishment of monitoring system for transboundary resources; (iii) greater understanding of economics of marine resources exploitation; (iv) identification of conflicts and other social issues related to fisheries operations.

#### **SWIOFP Component 6: Mainstreaming biodiversity in national and regional fisheries management**

Total GEF Alternative: US\$7.5 million, out of which GEF financing US\$ 0.5

Although many non-commercial species (whales, dolphins, sharks, turtles, seabirds) are the focus of conservation efforts, there are gaps in knowledge regarding the impact of certain fisheries activities on specific populations and habitats. The SWIOFP will provide funds to study the effects of fisheries on non-commercial marine resources and will deepen existing knowledge on anthropogenic threats to marine resources. GEF funds will be used to establish a competitive fund that provides grant funds for studies on

the effects of fishing effort on other marine resources. GEF funds will also finance baseline assessments of fisheries interactions with other marine species, GIS mapping of key marine species, assessments of alternative economic potential of non-commercial species and identification of bio-indicator species.

*Key GEF outputs:* (i) Assessment of potential cascading effects in the ecosystem induced by fisheries activities for use in national and regional fisheries management strategies; (ii) identification of and collection of data on bio-indicator species; (iii) mapping of non-consumptive resources within region to value non-consumptive potential.

The outputs for Component 6 will be largely contributed to OP2:

- Biodiversity map; and
- Action plan detailing issues and actions related to fishery exploitation impacts on non-target species and how nations of the SWIO will manage commercial fishing impacts (production systems) on biodiversity (establishing legislation and enforcing that legislation on fishing fleet from within and outside the African region,;
- Establish an ongoing monitoring program that includes Monitoring, Control and Surveillance of Action Plan implementation and that will allow comparison of the biodiversity, ecosystem health and status of exploited fisheries against the baseline established by SWIOFP.

### **SWIOF Component 7: Strengthening Regional Fisheries Management**

Total GEF Alternative: US\$9.96 million out of which GEF financing is US\$1.1 million

The GEF alternative will finance development of a regional fisheries management framework and support to regional and national fisheries management bodies. GEF funds will be used for evaluation of national fisheries regulations and identification of areas where harmonization is needed; establishment of working relationship and technical support between SWIOFP and Southwest Indian Ocean Fisheries Commission; and equipment, training and staff costs to build capacity of regional and national fisheries management bodies. Support to national fisheries bodies would include establishment of specialized laboratories, technical assistance and office equipment.

*Key GEF outputs:* (i) Strengthened national and regional fisheries management institutions; (ii) adoption of ecosystems approach to regional fisheries management; (iii) adoption of an innovative, integrated approach to LMEs of SWIO (through overall ASCLMEs program).

**Table 3: Incremental Cost Matrix**

SWIOFP Component	Cost Category	US\$ Million	Domestic Benefit	Global Benefit
<b>SWIOFP</b>				
Component 1: Data and Information Technology	Baseline	2.3	Most countries have a national fisheries database – collaboration and consolidation on a regional basis is poor. Data in present form not amenable to transboundary stock assessments.	Data on environment poor, particularly biological data. Bathymetric and oceanographic data also incomplete. Global Benefits of data collection limited by poor access to and lack of understanding about what gaps exist in data.
	GEF Alternative	6.9	Improved coherence of data at the national level through aggregation and repatriation of data from various fisheries related entities; new data integrated into database accessible to national and regional fisheries management. Approach to issue of by-catch and	New data on transboundary species and regional oceanographic characteristics; regional data atlas featuring both new and historical data and identifying data gaps; sharing of data through establishment of regionally based IT infrastructure accessible to SWIO countries and stakeholders.

SWIOFP Component	Cost Category	US\$ Million	Domestic Benefit	Global Benefit
			fisheries impacts on other marine life fragmented and ineffective, particularly for shared stocks. Project regional database will, for the first time, present the total picture and nature of the problem. Will also allow M&E comparisons of interventions to minimize these issues against a baseline	Present a scientifically valid tool for measuring regional impact of fisheries exploitation on "non-target" species and how effective new management measures based on ecosystem and biodiversity-friendly management can be against a baseline.
	Incremental Cost	4.6	Total GEF= US\$ 2.40 million; Govt. Contributions: US\$ 0.9 million; Co-financing: US\$ 1.35 million	
Component 2: Assessment and sustainable use of crustaceans	Baseline	14.1	High levels of commercial exploitation of crustacean fisheries, particularly shallow water prawns; detailed knowledge of status and levels of sustainable catch poorly understood.	No regional management of crustacean fisheries, high level of discard waste in prawn trawl - ecosystem effects unknown; size and transboundary status of deep water crustacean species unknown.
	GEF Alternative (OP8)	21.8	Greater understanding of shallow and deep water crustacean dynamics within exclusive economic zones. Management of stocks not segregated by national borders.  Incorporation of biodiversity preservation in commercial fishing management at the national and regional level in 6.4 million km <sup>2</sup>	Data collected will lead to increased understanding of ecosystem impacts of crustacean fisheries, particularly bycatch and discards. Data will establish transboundary migration patterns and regional species baselines. Collection of regional data on stock characteristics to underpin decision making on regional management
	Incremental Cost	7.7	Total GEF= US\$ 3.0 million; Govt. Contributions: US\$ 0.5 million; Co-financing: US\$ 4.3 million	
Component 3: Assessment and sustainable use of demersal fish	Baseline	14.5	Demersal species form the basis of many commercial and artisanal fisheries but distribution and abundance of stocks undescribed, stock potential not fully realized	Many demersal species are transboundary but knowledge of distribution throughout SWIO is incomplete; few species subject to national or regional management and ecological relationship between species is not well understood.
	GEF Alternative (OP8) GEF Alternative (OP2)	22.6	Possible identification of new stocks for harvest or optimization of potential known stocks; better understanding of demersal stocks within exclusive economic zones.  Incorporation of biodiversity preservation in commercial fishing management at the national and regional level in 6.4 million km <sup>2</sup>	Data collected will establish species baselines and provide information on dynamics, biology and genetic characteristics for a variety of species. Collection of regional data on stock characteristics to underpin decision making on regional management, .. particularly for species that are presently overfished regionally/globally, or that would be subject to overfishing because of life-histories.
	Incremental Cost	8.1	Total GEF= :US\$ 3.0 million; Govt. Contributions: US\$ 0.5 million; Co-financing: US\$ 4.6 million	
Component 4: Assessment and sustainable use of pelagic fish	Baseline	39.2	High value commercial large pelagic species subject to various data collection efforts including the Tuna Tagging Program.	Large pelagics are almost exclusively transboundary, and although the focus of various data collection efforts, detailed biological

SWIOFP Component	Cost Category	US\$ Million	Domestic Benefit	Global Benefit
			Smaller or less valued commercial species receive less emphasis and do not have management priority.	baselines at the regional level are still lacking; distribution and abundance of lower valued species not well understood. Small, super small and mesopelagic stocks less well understood.
	GEF Alternative (OP8) GEF Alternative (OP2)	43.0	Increased efficiency due to technological improvements for local fishers through gear optimization; improved understanding of large pelagic stocks within national EEZs. Regional management plan for regionally and globally over-fished species such as large sharks, tuna, and bill-fish	Reductions in by catch and discards due to gear improvements; greater understanding of stock dynamics of non-tuna large pelagic species (swordfish, bigeye) and other small and super small pelagics. Collection of regional data on stock characteristics to underpin decision making on regional management., particularly for species that are presently overfished regionally/globally, or that would be subject to overfishing because of life-histories., .
	Incremental Cost	3.8	Total GEF=: US\$ 1.0 million; Govt. Contributions: US\$ 0.5 million; Co-financing: US\$ 2.3 million	
Component 5: Monitoring of fishing effort and catch	Baseline	29.8	Limited capacity and effort put into monitoring fishing pressure in national EEZs.	Limited monitoring of fishing pressure across region due to large area of SWIO and multiplicity of different fishing operations.
	GEF Alternative	34.0	Better monitoring of fishing pressure in EEZs through observer data collection; national monitoring procedures improved Vessel monitoring systems improve fleet regulation and identification.	Data on distribution of existing fishing activities across region; establishment of regional monitoring procedures.
	Incremental Cost	4.2	GEF: US\$ 1..0 million; Govt. Contribution: US\$ 0.1 million; Co-financing: US\$ 3.1 million	
Component 6: Mainstreaming biodiversity in national and regional fisheries management	Baseline	5.3	National management initiatives on coastal ecosystem management but little emphasis on fisheries related impacts in the offshore environment.	Fishing impact (incidental mortality) on other marine fauna (birds, dolphins, whales, turtles) not measured.
	GEF Alternative (OP2)	7.5	GIS Mapping of non-consumptive resources within national EEZs, estimation of eco-tourism potential.	Assessment of potential cascading effects in the ecosystem induced by fisheries activities, mapping of non-consumptive resources within region to value non-consumptive potential.
	Incremental Cost	2.2	Total GEF= US\$ 0.5 million; Govt. Contributions: US\$ 0.1 million; Co-financing: US\$ 1.6 million	
Component 7: Project Management	Baseline	5.5	National management of marine resources through government management agencies and regional institutions.	Some baseline activity in regional and national management of shared resources through participation in regional bodies (NEPAD, Nairobi Convention, etc.) but coordination mechanisms not strong.
	GEF Alternative	10.0	Improved capacity for national management.	Increased collaboration with other regional marine ecosystem initiatives; implementation of

SWIOFP Component	Cost Category	US\$ Million	Domestic Benefit	Global Benefit
				ASCLMEs and SWIOFPP activities, integration and or consolidation with regional fisheries management organizations.
	Incremental Cost	4.5	GEF: US\$ 1.1 million; Govt. Contributions: US\$ 0.1 million ; Co-Financing : US\$ 3.25 million	
<b>Total Baseline</b>		110.7		
<b>Total GEF Alternative</b>		145.8		
<b>Total Incremental Cost</b>		35.1	GEF: US\$ 12.0 million (OP8 Share: \$9 .0 million and OP2 Share: \$3.0 million), Govt. Contributions: US\$ 2.6 million; Co-Financing : US\$ 20.51 million	

**Table 4: Baseline Activities by Country\***

Country	Source of funds	Project/Agency	Baseline Total (US\$ ' 000s)	Year
<b>Kenya</b>	Govt.	Kenya Marine and Fisheries Research Institute	7,500	2004-2007
	Govt.	Kenya Fisheries Dept. (MOLFD)	2,848	2004-2007
	IUCN	Jakarta Mandate Project	350	2002 – 2005
	USAID	Marine Program/Coast Development Authority	814	2004-2005
<b>Madagascar</b>	AFD (France)	Management of Shrimp resources Project	586	2002-2007
	Af.DB	Artisanal Fisheries support	126	2002-2007
	Af.DB	Stock evaluation	150	2002-2007
	ICBG	Centre National de la Recherche Océanographique	79	2003-2005
	Donor	Centre National de Recherches Sur l'Environnement	170	2000-2004
	European Union	MCS Project for Madagascar Fisheries Dept.	1,200	1999-2007
	Govt.	Fisheries budget, fisheries projects, staffing	668	2004-2007
	WCS/ Am.	Cetacean Conservation and Resarch Program	100	current
	Museum of Nat.History	(CCRP)/ Marine Program		
	AFD/IRD (France)	National Shrimp Research	68	2002-2004
<b>Mauritius</b>	IFAD	Rural Diversification Project	1,400	2000-2005
	Japan	Fisheries Training and Extension	6,500	2003-2004
	NORAD	Fisheries Research Institute	258	2002-2008
<b>Mozambique</b>	CDE - EU	Fisheries Research Institute	57	2002-2008
	IFAD	Fisheries Research Institute	42	2002-2008
	World Bank	Coastal and Marine Biodiveristy Project	260	2004
	France	Fisheries Research Institute	23	2002-2008
	Portugal	Fisheries Research Institute	3	2002-2008
	SADC/EU	Fisheries Ministry	2,000	2001-2006
	JICA	School of Fishery	3,985	
	Spain	School of Fishery	81	2002-2004
	EU	Fisheries Ministry	641	2003-2004
	Government	Fisheries Research Institute	301	2004
<b>Regional</b>	COI/COMESA	Sustainable Management of Coastal Zones of the Countries of the Indian Ocean	26,000	2005-?
	EU	Fisheries Data System	358	cuurent
	EU/IOTC	Tuna Tagging Program	677	current
	France	Monitoring of whales, dolphins and dugong	260	2004-2008
	SIDA	Coral Reef Degradation in the Indian Ocean (CORDIO)	1,056	2004-2008
	France/EU	OSIRIS	2,535	2004-2006
	EU, COI, IOTC	IOTC budget	18,200	
	France	THETIS	2,340	2005-2008

Country	Source of funds	Project/Agency	Baseline Total (US\$ ' 000s)	Year
	France	CEDTM (Centre d'Etude et de Découverte de Tortues Marines)	874	2004-2007
	France	ECOMAR	156	
	France (IRD, IFREMER)	CAPPES	228	2004-2006
<b><u>Seychelles</u></b>	France/EU	Pelagic ecosystems	358	?
	Donor	Reef fish study	100	2002-2006
	France, Belgium, Univ. of Hawaii	FADs As Instruments for Observation (FADIO)	1,430	2002-2006
	Gov. maybe donor	Forestry Coastal Rehabilitation	37	2004
	Seychelles Fishing Authority	Artisanal and Industrial Fisheries Research	1,600	2004
	Donor	SCMRT-MPA	165	2005
	Donor	SCMRT-MPA	233	2005
	UNESCO	Beach Monitoring Programme	3	
	USA	Mooring buoys/marine park	6	
<b><u>Somalia</u></b>	UNDP	Fisheries feasibility assessment	-	2004
<b><u>South Africa</u></b>	Donor	Universities (Cape Town, Kwazulu Natal Rhodes, Stellenbosch, Western Cape, Port Elizabeth)	420	2004
	Donor	Survey of Deepwater Crustaceans - MCM	50	2004/2005
	Donors	SANCOR Sea and Coast Program	1,512	2004
	France	IRD researchers	625	2004
	Govt.	Overall Fisheries budget	43,848	2005/2006
	Govt.	Fisheries budget - MCS, Marine patrol	16,065	2005/2006
	Govt.	Fisheries Budget - Research	13,406	2005/2006
	Govt.	CSIR Coast Program	1,344	2004
	NORAD	NORSA Bilateral assistance to MCM	1,680	2006-2010
<b><u>Tanzania</u></b>	Donor (?)	Regional Fisheries Arrangement	805	2006
	Govt.	Tanzania Fisheries Research Institute (TAFIRI)	1	2005
	Govt/IDA	MACEMP (Marine and Coastal Env. Management Program)	47,130	2005-2010
	DfID	Fisheries Management for Sciences Programme - FADs and Participatory Fisheries Stock Assessment	160	2004-2005
		Total (ASCLMEs Project and SWIOFP)	193,469	

\* Note: The Baseline was calculated for both ASCLMEs Project and SWIOFP, the baseline costs associated with SWIOFP activities are approximately US\$110.7 million and approximately US\$ 82 million for ASCLMEs Project.

**STAP REVIEW**

**SOUTHWEST INDIAN OCEAN FISHERIES PROJECT (SWIOFP)**

**Draft Report**

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**June 10<sup>th</sup>, 2005**

## STAP Review

### 1.0 Introduction

GEF's overall global environmental objective is to address environmental problems that have global consequences regardless of how they have been created. So, the GEF's mission is to assist developing countries and transition economies, with implementing projects that lead to global environmental benefits in four areas: climate change, biodiversity conservation, protection of international waters and protection of the Ozone layer. In order to achieve its goals, GEF has created some 15 operational program (OP) with specific objectives. The SWIOFP proposal deals with GEF areas of concern namely OP8, which focus on Water body-based operational program (international waters) respectively. This window provides the needed support for those activities, which will go on to bring about the desired change in the activity areas for achieving a sustainable development path. The OP8 window's long term objective is *to undertake a series of projects that involve helping groups of countries to work collaboratively in achieving changes in sectoral policies and activities so that Tran boundary environmental concerns degrading specific water bodies can be resolved*. In reviewing the proposed activities in this GEF relevant area, STAP has a set criteria for evaluation of proposals<sup>i</sup>, which are meant to ensure that the implementation of such proposed projects won't bring about adverse impacts to the environment or contribute to degradation instead of positive enhancement of the environment in terms of Biodiversity degradation and marine fishery devastation in international waters. This review report is presented in three main sections namely; general observations, comments following specific TOR concerns categories and finally conclusions.

### 2.0 General Observations and comments

#### 2.1 Project Approach

The proposed SWIOFP document brings out an innovative challenge to management of Tran boundary resources particularly in the way the three GEF implementing institutions namely the World Bank, UNEP and UNDP come together each in its own focus to work in the same LME. The document highlights several benefits for do so being among others to explore synergies among the institutions and utilise the various expertise and experiences of these institutions but also to facilitate continuity of activities within the ASLME with one activity feeding into the other. However, there are also risks to be borne by such a bold approach as will be elaborated later on. The attempt to involve a total of eight (8) developing countries to come together in terms of managing the common resource for their individual and global benefit in terms of sustainable resource utilisation and management is impressive and quite a daunting task indeed, particularly considering the resource constraints and a myriad of problems (social economic, political unrest and instability in some of these countries, and even threats to both terrestrial and marine environmental integrity due to various reasons). However, there is no short cut to achieving trans-boundary resources sustainability without bringing



together the countries involved. This is a challenge, which has to be met for the sake of sustainability of human kind on earth.

## **2.1 Presentation**

Reading through the document one finds two regions being discussed interchangeably i.e. WIO and SWIO to the extent that it becomes difficult to distinguish whether the document differentiates them or takes them to be synonymous (e.g. A. 1. (b) Paragraph 2 on page 7). It is true that most of the countries in WIO are also in SWIO, something that complicates matters in terms of Tran boundary resources analysis in this region, however, there is a need to clarify and distinguish the two geographical regions so that it becomes clear when we mean one or the other.

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## **2.2 SWIOFP Global Objectives and Key Indicators**

The Global Environmental Objective of SWIOFP is to promote the environmentally sustainable use of fish resources and adoption of an ecosystem approach to fisheries management in the Agulhas and Somali LMEs. The Project will be measured by the following performance indicators:

- Production and adoption of joint TDAs and a SAP by all nine countries participating in project in a harmonized process with the WIO-LaB and ASCLMEs Projects
- Production and adoption of a at least one sub-regional management plan (including policy, institutional and legal framework) governing ecosystem-based management of a specific transboundary fisheries for each of the three species categories of the project (crustacean, demersal, pelagic)
- Adoption by all SWIOFP countries of a monitoring and evaluation framework (including agreed upon environmental status and stress reduction indicators) that defines ecosystem health within the framework of a regional management institution (possibly the SWIOFC Commission) legally mandated to undertake this function

## **2.3 SWIOFP Development Objectives and Key Indicators**

The SWIOFP has three specific Development Objectives: (i) To identify and study exploitable offshore fish stocks within the SWIO, and more specifically to become able to differentiate between environmental and anthropogenic impacts on shared fisheries; (ii) To develop institutional and human capacity through training and career building. (iii) To develop a regional fisheries management structure and associated harmonized legislation in collaboration with the SWIOFC Project will be measured by the following performance indicators:

- Adoption of at least one national or multi-national management plan for a specific demersal, pelagic or crustacean fishery by each country participating in the project

- Regional fisheries database fully operational and inclusive of new and historic data
- Production of baseline assessment (accompanied by database) that defines current status of relevant crustacean, demersal and pelagic fisheries in each of the participating SWIOFP countries
- Production of individual country fisheries TDAs and a SAP for the eight countries benefiting directly from SWIOFP (all except Réunion/France)

In general, the proposed project has made great effort to address the objectives, which it has set out to achieve. It is well thought through and considers most of STAP concerns from conception to implementation

## **2.4 Eligibility**

All of the 8 countries participating in this project are signatories to the Law of the Sea (UNCLOS), which includes comprehensive coverage of important issues. The treaty covers issues pertaining to:

- Limits of maritime zones (territorial seas, contiguous zone, exclusive economic zone, continental shelf)
- ♦ Rights of navigation, including through straits used for international navigation
- Peace and security on the oceans and seas Conservation and management of living marine resources
- Protection and preservation of the marine environment
- Scientific research
- Activities on the seabed beyond the limits of national jurisdictions

These aspects within the UNCLOS are all relevant to the present project and therefore being signatories to this treaty, the participating countries legitimize their involvement into the project and make it easier to manage the collaboration.

## **2.5 Incremental Cost Analysis**

The GEF operational strategy explicitly recognizes the importance of removing barriers to the developments that incorporates global environmental benefits. The Global Environmental Objective of SWIOFP is to promote the environmentally sustainable use of fish resources and adoption of an ecosystem approach to fisheries management in the Agulhas and Somali LMEs for both the territorial and Trans-boundary resources. Furthermore since this project proposal deals with international waters, improved management of Trans-boundary species is seen to potentially bring about the achievement of this objective. Incremental costs are determined for components 1 to 7 of the project, which deal explicitly with GEFs Operational Program (OP) 8. The GEF incremental cost finance is targeted to assist countries to better understand fisheries related issues in their international water and work collaboratively to address them, build

capacity of existing institutions or introduce new arrangements and to implement sustainable measures that address priority Tran boundary fisheries issues.

Baseline of SWIOFP is estimated at US\$ 110.7 million while the GEF alternative, which includes ASCLMEs and SWIOFP, is costed at US\$ 145.8 million. The total incremental cost for the project is estimated at US\$ 35.1 million of which GEF will fund 42.7% (US \$ 15 million) and the rest to be met by co-financing from recipient and donor countries in terms of equipment, facilities and staff (mainly vessel time) from Norway, Sweden, FAO, France and South Africa and also government contributions from all 8 participating countries (See table 5). This is a commendable arrangement, which promotes collaboration, ownership and facilitates sustainability.

In table 4 of the project brief, breakdown of GEF alternative by component is given (see below).

**Table 4. Breakdown of GEF Alternative by component**

Component	Baseline Cost (US\$)	Incremental				Total GEF Alternative (Baseline + Incremental)
		GEF Financing	Gov. Contribution	Other Financing	Total GEF Incremental (US\$)	
1: Data and Information Technology	2.28	2.9	0.86	0.85	4.61	6.89
2: Assessment and Sustainable Use of Crustaceans	14.1	4	0.46	3.27	7.73	21.83
3: Assessment and Sustainable Use of Demersal Fish	14.52	4	0.48	3.62	8.1	22.62
4: Assessment and Sustainable Use of Pelagic Fish	39.23	1	0.5	2.3	3.8	43.03
5: Monitoring of fishing effort	29.79	1	0.1	3.07	4.17	33.96
6: Interaction between Fisheries and non-consumptive resources	5.25	0.5	0.1	1.65	2.25	7.5
7: Strengthening Regional Project Management	5.51	1.6	0.1	2.75	4.45	9.96

Component	Baseline Cost (US\$)	Incremental				Total GEF Alternative (Baseline + Incremental)
		GEF Financing	Gov. Contribution	Other Financing	Total GEF Incremental (US\$)	
Total	110.68	15.0	2.60	17.51	35.11	145.79

All the incremental costs to be covered by GEF are well justified in that all activities assigned to this money are trans-boundary in character. However, SWIOFP component 5: monitoring of fishing effort and catch is closely related to OP 8 of MACEMP<sup>13</sup>. In MACEMP a total of US\$ 5.13 million incremental cost was allocated from GEF for improving information regarding international fish stocks in Tanzania among others. A closer working relationship needs to be investigated in order to maximize the synergy from these two projects.

### 3.0 Specific STAP concerns

#### 3.1 Scientific and technical soundness of the project

- The project acknowledges the paucity of data in this area and hence it is essentially designed to provide a baseline for the first 18 months and proceed forth to monitor the changes during implementation of the measures instituted by the project. Therefore the project is essentially designed to generate more information for the management of trans-boundary fishery resources.
- The data collection process is shown to be scientifically sound through the use of experts in the field following well established procedures of scientific information of this kind with the aid of well equipped research vessels to be provided by various institutions within and outside the region (Norway, Sweden, South, France among others).
- The project fully determines the kind of sectoral changes needed to achieve the goals of the OP8? [Yes, institutional both at national and regional levels](#)
- The inter-comparability of data has been addressed. A workshop consisting of all SWIOFP countries will be held at which a conceptual, harmonized, data gap analyses (by type of fishery, i.e. demersal, pelagic, invertebrate) will be undertaken leading to synthesis of a year-by-year data collection program.
- Analysis of the interlink ages between water-related environmental issues and root causes behind different environmental problems.

This has come out clearly as stated in the development objectives. Annex 18matrix of threats, root causes and solutions provides a clear interlink between water related environmental issues and their root causes. Moreover, it is proposed that competitive grants will be given out to local institutions and experts to study the various components of the research programme of the project. This then may come out with the required information for root causes of the different environmental problems. This is a good approach and will further facilitate capacity building in terms of providing opportunities for local experts to deal with these type of problems and increase their capability in managing the trans-boundary fisheries resources.

<sup>13</sup> MACEMP Project Appraisal Document, November 2004. World Bank, Tanzania Country Office.

- The project determines the type of measures needed to ensure that the ecological carrying capacity is not exceeded. The project brief proposes studies to identify problems and their linkages and therefore provide basis for decision-making. This provides part of the solution. Since it works in conjunction with other projects ASCLMEs and WIO-LaB, they may accommodate the other measures .
- The scope of the project is more than adequate. The project covers 8 developing countries within this region all of which have participated in the initial consultations and no country within this area has been left out.

### **3.2 Question related to the use of technology:**

- To what extent will technological innovations be used to support the project?  
Technological aspects are found in the assessment of stock in the SWIO mainly research vessels with the necessary gadgets for fish stock assessment. However, the project envisages developing and testing a better way of harvesting in order to minimise by-catch and damage to seabed. This is a welcome step aimed at facilitating economic activity while safeguarding the environment in which the resource is found for sustainability's sake.

### **3.3 Institutional and Implementation Arrangement**

- The role of existing scientific institutions in the development and sustainability of regional mechanism is of paramount importance. Institutional arrangements have been considered and are at the root of capacity building for them to implement the project. The project aims to a large extent to utilising country institutions and experts for carrying out most of the activities of the project. That is why consideration for identifying local expertise for capacity building purposes and sustainability of the project activities has been given priority which is important for sustainability of the activities.
- Implementation of the project is done collaboratively with other two projects of ASCLMEs and WIO-LaB. It is proposed that some of the outputs from ASCLMEs and WIO-LaB will feed into the SWIOFP. This is a good thing if all works well since it has benefits in terms of maximising use of related activities in the region effectively and also maximise the synergies among implementing agencies for a common interest ecosystem approach outcome. There is however, a high risk of delay and even failure in those components dependent on these inputs, if plans are not implemented timely and as expected by the other projects. Sequencing of activities from ASCLMEs to SWIOFP for instance may jeopardise the success of the latter in terms of timely delivery and inadequacy of data from the former.
- SWIOFC is an institution in its initial days for coordinating activities in this region and is deemed appropriate to carry over the activities of the temporary SWIOFP institutional setting at the regional level. This provides a good opportunity for continuity of this important task.
- Issues of conflict have been addressed in terms of risks, however, boundary conflicts have not been explicitly discussed. Is it because the planning phase was participatory? It might also be assumed that the Law of the Sea framework will take care of that.

### **3.4 Identification of the global environmental benefits**

- GEF funds have been committed for activities demonstrating clear global benefits and are described in more detail in the incremental cost matrix (Table 6). The economic and financial analyses done for the project also clearly identify the project benefits (see Annex 9). The benefits include new data on Tran boundary species and regional oceanographic characteristics; regional data atlas featuring both new and

historical data and identifying data gaps; sharing of data through establishment of regionally based IT infrastructure accessible to SWIO countries and stakeholders. Additionally, data on biological, bathymetric and oceanographic. Data collected will lead to increased understanding of ecosystem impacts of crustacean fisheries, particularly by catch and discards. Data will establish Tran boundary migration patterns and regional species baselines. Collection of regional data on stock characteristics to underpin decision making on regional management. Reductions in by catch and discard due to gear improvements; greater understanding of stock dynamics of non-tuna large pelagic species (swordfish, bigeye) and other small and super small pelagic. Collection of regional data on stock characteristics to underpin decision making on regional management. This information will facilitate in decision making planning and management for sustainable utilization of trans-boundary fishery resources which will result into benefits to countries involved in the WIO but also fishing nations in terms of a sustainable source of fisheries resources. These are adequate benefits to invest for.

- Are any negative environmental effects anticipated?  
SWIOFP does not pose any negative environmental effect by its implementation since this is not a consumptive activity. The envisaged interaction with the natural environment and ecology of the study area is not expected to bring about damage to the environment.

### **3.5 How does the project fit within the context of the goals of GEF**

- The project fits well within the overall strategic thrust of the GEF- funded IW activities to meet the incremental costs of: (a) assisting groups of countries to better understand the environmental impacts of their laws and work collaboratively to address them; (b) build the capacity of existing institutions; and (c) implement measures that address the priority Trans-boundary environmental concerns. The project sets forth to collect data and establish a depository for the region to monitor the Tran boundary environment and its resources. To do this, it proposes capacity building both human and institutional which would facilitate the implementation of these objectives on a sustainable way.

### **3.6 Regional context**

Well covered.

### **3.7 Replicability of the project**

- This aspect has been addressed by the project. Replicability seems to apply to sub-regional projects in terms of capacity building, mainstreaming ecosystem-based management and promotion of regionalisation of shared fisheries resources.
- Another area to consider will be the scope of replicability in terms of implementation approaches in other international water bodies i.e. the three GEF implementing agencies collaborating to implement GEF projects in one area or region. If this works, it has multiple dividends in terms of pooling together various expertise and experiences together to address common issues in the ecosystem based trans-boundary resources management.

### **3.8 Sustainability of the project**

- Financial resources are envisaged to come from a revenue-generating scheme based on the use of EEZ marine resources in an environmentally and socially sustainable way. This will provide for the permanent funding of resource management and scientific

assessment of the trans-boundary fisheries resources. However, allocation of this money to these activities is left in the hands of national governments of developing countries who have many priority problems to deal with at one time and the EEZ revenue is just another source of revenue for the treasury. There exists a risk therefore that given a myriad of priorities; the anticipated allocation of adequate funds for the management and scientific assessment of trans-boundary resources may not be forthcoming. There is a need to create a mechanism, which will ensure this money is allocated to the activities.

- Institutionally, the SWIOFC is envisaged to carry out activities of the projects regional institutional setting after the project period. This then facilitates the regional coordination beyond the SWIOFP project life.

### 3.9 Secondary issues

- Most IW projects have outspoken linkages with the biodiversity focal area, and to land degradation. [This is done through working with 2 other GEF projects namely ASCLMEs project and WIO-LaB](#)
- Related conventions and agreements in other areas increase the complexity. These initiatives provide a new opportunity for cooperating nations to link many different programs and instruments into regional comprehensive approaches to address IWs. Relevant conventions have been considered and taken into account in the project. Table 10 of annex 17 provides SWIOFP country profiles with respect to international agreements, adhesions and membership. These include, UNCLOS, Nairobi convention (UNEP), FAO Code declaration among others.
- Membership to different groupings and organisations is also given. What is needed is the discussion of possible threats in belonging to multiple groupings and the possible complications of differences in groups participating countries belong to i.e. what is the implication of varying membership?
- The proposed activity by SWIOFP is consistent with existing national plans. Table/ Figure 2: of the project brief (page 35) on Linkages between SWIOFP and National Development Plans, provides various initiatives, policies, strategies and regulations supporting the activity of SWIOFP.

### 3.10 Degree of involvement of Stakeholders in the project

- Because of the area-wide interventions, community involvement and stakeholder participation are especially important in OP 9. However, SWIOFP is mainly a scientific operation and targets a resource not generally utilized by local communities or stakeholders. It targets a resource that is generally exploited by distant fishing fleets charged a resource rental by the various countries to access the resource. As such, community involvement is not a major part of the Project. However, communities do feature in the design of the project as consumers of results of the project and may also benefit from the outcomes of the project. Therefore, it ought to be mentioned in which way they will benefit and how the anticipated results will be conveyed to them.

### 3.11 Capacity building aspects

- Capacity building is an important component in international waters projects. Institution building plays a crucial role, and specific capacity-strengthening measures are required to assist countries in finding the appropriate institutional and organizational matters.
- SWIOFP (and the other sister projects under the ASLME) are unusual in that the objective of the operation is to collect sufficient information to make a TDA/SAP possible, and then formulate these documents as a ASLME Program output. The

capacity building requirements needed to undertake the data collection and TDA/SAP analyses for the project has been considered but not addressed. Under the risk analysis capacity building was seen as a substantial risk and that it has to be addressed. The project is designed to engage in both research and capacity building for regional fisheries management. Development objective (ii) aims to develop institutional and human capacity through training and career building. In component 5, capacity building is one of the inputs (input iv). The first phase of the project which about 18 months capacity building will be initiated. However, this issue may be further addressed by providing the necessary details such as what type of capacity building (short courses, degree courses etc); at what level and how it is going to be implemented. If this information is not available at present, then it ought to be mentioned that, **capacity needs assessment** will be undertaken to identify what type of capacity is needed.

### **3.12 Assessment of the innovativeness of the project.**

- The project implementation is very innovative and challenging indeed. Need synchronization and sequencing of activities so that outputs from one initiative by one implementing agency will feed into the other agency's programme timely. Safeguards need to be drawn in case the planned implementation does not materialise as expected in terms of timing and adequacy.

### **3.13 Conclusion**

- The SWIOFP Brief has addressed most of the review of questions satisfactorily according to GEF's operational programme 8 and strategy and global environmental objectives as provided by the GEF TOR. The project however, needs to address the few comments and suggestions made in the review.

## **RESPONSE TO STAP REVIEW**

**Issue 1:** one finds two regions being discussed interchangeably i.e. WIO and SWIO to the extent that it becomes difficult to distinguish whether the document differentiates them or takes them to be synonymous (e.g. A. 1. (b) Paragraph 2 on page 7). It is true that most of the countries in WIO are also in SWIO, something that complicates matters in terms of Tran boundary resources analysis in this region; however, there is a need to clarify and distinguish the two geographical regions so that it becomes clear when we mean one or the other.

**Response:** The point is valid. As SWIOFP is addressing only a part of the West Indian Ocean, we will define the geographic study area (the 6.4 million km<sup>2</sup> in which data collection will occur) in the summary of abbreviations and ensure that use of the term "Southwest Indian Ocean" in the Project Brief only refers only to the Project study area.

Issue 2: All the incremental costs to be covered by GEF are well justified in that all activities assigned to this money are trans-boundary in character. However, SWIOFP component 5:



monitoring of fishing effort and catch is closely related to OP 8 of MACEMP<sup>14</sup>. In MACEMP a total of US\$ 5.13 million incremental cost was allocated from GEF for improving information regarding international fish stocks in Tanzania among others. A closer working relationship needs to be investigated in order to maximize the synergy from these two projects.

**Response: The assessment of regional fishing pressure included under Component 5 of SWIOFP has a different objective than the Monitoring, Control and Surveillance activities funded in Tanzanian waters under MACEMP. SWIOFP is attempting to estimate total fishing pressure over the entire “study area” on a seasonal basis. MACEMP is funding a “control” activity designed to ensure compliance with access rights agreements in place between the United Republic and distant fishing fleets that have purchased access rights. While SWIOFP information might be used for control purposes, the fishing pressure survey is really meant to provide regional information about total pressure on large pelagic stocks to allow better decisions to be made about license agreements and sustainable exploitation on an offshore fisheries resource.**

Issue 3: Issues of conflict have been addressed in terms of risks; however, boundary conflicts have not been explicitly discussed. Is it because the planning phase was participatory? It might also be assumed that the Law of the Sea framework will take care of that.

**Response: There are certainly risks of boundary conflicts. However, these risks will be mitigated by development of a Memorandum of Understanding (currently being drafted by the Government of South Africa for circulation and adoption by all other SWIOFP countries) that covers direct risk to implementation of the Project. This will include rights of access by Project vessels and aircraft, staff (government and consultant) working on SWIOFP activities, ownership of data, and other possible sources of conflict between countries. Risk of conflict at a larger level that is independent of SWIOFP is a risk over which the Project has no control. However, as SWIOFP is a scientific activity and serious conflict at the political level does not appear great at the moment, we believe this risk is manageable.**

Issue 4: There exists a risk therefore that given a myriad of priorities; the anticipated allocation of adequate funds for the management and scientific assessment of trans-boundary resources may not be forthcoming. There is a need to create a mechanism, which will ensure this money is allocated to the activities.

**Response: This is a very important and valid concern. One of the objectives of this science-based project is to be able to better define the value of the offshore fishery resource. Once that is available, it becomes possible to determine an amount of money that would be appropriate to spend on managing the resource to ensure sustainability. The follow-on phase of SWIOFP would look at and promote mechanisms (such as the Fisheries Levee Retention Schemes in place or proposed in a number of SWIOFP countries) to ensure management at the regional and national levels are adequately funded.**

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<sup>14</sup> MACEMP Project Appraisal Document, November 2004. World Bank, Tanzania Country Office.

Issue 5: However, communities do feature in the design of the project as consumers of results of the project and may also benefit from the outcomes of the project. Therefore, it ought to be mentioned in which way they will benefit and how the anticipated results will be conveyed to them.

**Response: The main stakeholder assessment for the ASCLMEs Program is the responsibility of ASCLMEs (UNDP was assigned assessment of ecological characteristics of the 200 mile EEZ's and coastal areas of all countries participating in the Program). As such, stakeholder assessment has much more relevance to ASCLMEs than directly to SWIOFP. However, the point raised is valid and due consideration will be given to include additional explanations of how investment in fisheries and fisheries management in the 200 mile EEZ's of participating countries could benefit citizens of these countries.**

Issue 5: The capacity building requirements needed to undertake the data collection and TDA/SAP analyses for the project has been considered but not addressed. Under the risk analysis capacity building was seen as a substantial risk and that it has to be addressed. The project is designed to engage in both research and capacity building for regional fisheries management. Development objective (ii) aims to develop institutional and human capacity through training and career building. In component 5, capacity building is one of the inputs (input iv). The first phase of the project which about 18 months capacity building will be initiated. However, this issue may be further addressed by providing the necessary details such as what type of capacity building (short courses, degree courses etc), at what level and how it is going to be implemented. If this information is not available at present, then it ought to be mentioned that, capacity needs assessment will be undertaken to identify what type of capacity is needed.

**Response: Necessary reference will be made in the Project Brief to a detailed capacity assessment consultancy to develop a regional training needs assessment to be undertaken during the first year of the Project.**

Issue 6: The project implementation is very innovative and challenging indeed. Need synchronization and sequencing of activities so that outputs from one initiative by one implementing agency will feed into the other agency's program timely. Safeguards need to be drawn in case the planned implementation does not materialize as expected in terms of timing and adequacy.

**Response: It is very hard to plan and make contingencies in advance for "unexpected" problems. The ASCLME provides several opportunities for fixing problems "on the fly". These include a Program Coordination Committee comprised of the ASCLMEs Steering Committee and the Managers of each Project SWIOFP National Management Unit. We have also budgeted for harmonization meetings at the operational and management levels within the ASCLMEs and SWIOFP. Finally, many of the managers and scientists participating in ASCLMEs, SWIOFP and WIO-LaB are the same people. While no system is fool proof, we have tried to build funds into the ASCLME to allow Project and component leaders to deal with unexpected problems as they occur.**

## **Annex 17: Project Partnerships and Stakeholder Participation**

### **Program Partnerships-: ASCLMEs and SWIOFP Interactions**

The project design of both SWIOFP and ASCLMEs project have been designed to be complementary, it is envisioned that data and activities generated from one project will feeds into and impact the program of the other. The ASCLMEs Program is an experiment to see if all three GEF Implementing Agencies can work together to design a seamless implementation structure. There are obvious benefits that accrue from bringing the unique skills of all GEF Implementing Agencies to bear on preparation and supervision of a regional operation. However, it is important that this technical benefit is not achieved at too high a fiscal cost. The following are the most significant elements of a harmonized implementation structure agreed to by both the ASCLMEs and SWIOFP preparation teams:

Shared Staffing. The Regional Management Office of SWIOFP will house the Ship Coordination Specialist. This expert will be an ASCLMEs Program officer and the funding to support and house the position will be undertaken by the two Projects. For the first 2 years, ASCLMEs will pay salary and operational costs (travel and per diem). SWIOFP.

The Regional Management Office of ASCLMEs will house the joint Information Systems Officer. The ASCLMEs project will pay salary and operational cost for the last 3 years of the ASLME Program. Office space and office support to this specialist will be under SWIOFP.

The Regional Management Office of ASCLMEs will house the joint Information Systems Officer. For the first two years of the Program, ASCLMEs will pay salary and operational costs (travel and per diem). Office space and office support to this specialist will be under ASCLMEs.

Joint Planning. The detailed Program Annual Work Program meetings for ASCLMEs and SWIOFP will be undertaken together. The responsibility for identifying the location and local costs (excluding travel and per diem of staff attending, which will be covered by the separate projects) of holding the annual workplan meeting will alternate between SWIOFP and ASCLMEs.

There will be a “common” ASLME Program Coordination Committee whose membership will include the National SWIOFP Manager of each SWIOFP country and the Regional Executive Secretary and the senior member of the ASCLMEs Steering Committee from each ASCLMEs country and its regional coordinator. This group will meet immediately before and in conjunction with the joint Program Annual Work Program meeting. This will be a technical meeting and deal with coordination issues. Chairmanship of the meeting will alternate between the two regional project managers.

### **SWIOFP Partnerships**

The SWIOFP will be implemented by the nine participating countries in partnership with a number of different institutions and countries. These include Norway, South Africa, France, ACEP and ORI, two South African based NGOs that receive both South African Government and local donations, and FAO support through the emerging Southwest Indian Ocean Fisheries Commission.

France: France has worked extensively on fisheries issues in the SWIO due to its territory in the region (La Reunion) as well as its work with other island nations. France will provide technical assistance to the

project in the form of staff time and expert consultation from the Institute de la Recherche et Developpement (IRD) and Institut Français de Recherche pour l'Exploitation de la Mer (IFREMER). In kind resources will also be provided to SWIOFP through an associated France-GEF project focused on pelagic fisheries assessment and gear optimization in the SWIO.

Norway: Norway will provide ships time to the project through the Fridtjof Nansen Program, which provides high quality research vessel time, for two years of the project. The ships time will be split between the ASCLMEs and SWIOFP.

South Africa/ACEP/ORI: In addition to its contribution of staff time, South Africa will also make available ships time from the Algoa and Africana for use in SWIOFP identified ships cruises. The South African Government is also a contributor to two NGOs who will also partner with SWIOFP, the African Coelacanth Environment Program (ACEP) and the Oceanographic Research Institute (ORI). ACEP focuses on a number of different issues including oceanography, coelacanth studies, marine ecology, and conservation and management issues. It will coordinate its own scientific ships cruises with SWIOFP, possibly taking on joint activities where possible, and will provide in kind technical assistance to the project.

FAO. Under its mandate to facilitate establishment of regional bodies for the management and development of coastal fisheries, FAO has been closely involved with the creation of the Southwest Indian Ocean Fisheries Commission. FAO has participated as an observer in SWIOFP plenaries during project preparation and representatives of SWIOFP have played a similar role during the sessions of the SWIOFC. During the project, FAO will provide in kind technical assistance and coordination with the project; it is also expected that many of the regional fisheries management activities will take place under the institutional umbrella of the SWIOFC.

#### **SWIOFP linkages to Regional Institutions**

A number of regional institutions have a mandate including all or part of the Agulhas and Somali LMEs. SWIOFP has been designed so that it is closely aligned to the priorities identified in marine resource management and will be an important instrument for operationalizing many of the strategies developed by regional institutions such as the NEPAD, the IOC and SADC.

**Table 8: Regional Institutions Covering Agulhas and Somali LME Systems**

<i>Institutions</i>	<i>Member Countries</i>	<i>Function/Mandate</i>
The Nairobi Convention	All participating countries of the project and program	To protect and manage the marine environment and coastal areas of the Eastern African region. Will be assuming a major role in the implementation of the UNEP-GEF WIO-LaB project.
New Partnership for African Develop. (NEPAD)	All participating countries of the project and program	Development of a common and integrated regional platform for the management of marine and coastal resources as a model in Africa.
South African Dev. Community (SADC)	Mozambique, South Africa, Seychelles, Tanzania	Marine Fisheries and Resources Program aims at the development of marine fisheries in the SADC region. SADC supports a fisheries monitoring program in several member countries.
Indian Ocean Commission	Comoros, Madagascar, Mauritius, Seychelles	Improve living standards in the participating countries. Promote cooperation in diplomacy, economy, trade, agriculture, fishing, and the

<i>Institutions</i>	<i>Member Countries</i>	<i>Function/Mandate</i>
(IOC)		conservation of resources and ecosystems, culture, science and education.
Indian Ocean Tuna Commission (IOTC)	Australia, China, Comoros, Eritrea, European Community, France, India, Islamic Republic of Iran, Japan, Kenya, Republic of Korea, Sultanate of Oman , Madagascar, Malaysia, Mauritius, Pakistan, Philippines, Seychelles, Sri Lanka, Sudan, Thailand, United Kingdom and Vanuatu.	The IOTC is an intergovernmental organization mandated to manage tuna and tuna-like species in the Indian Ocean and adjacent seas. Its objective is to promote cooperation among its Members with a view to ensuring, through appropriate management, the conservation and optimum utilization of stocks and encouraging sustainable development of fisheries based on such stocks. .
Southwest Indian Ocean Fisheries Commission <sup>15</sup> (SWIOFC)	Commission recently formed. Mandate developed and agreed upon. First meeting held and operations recently begun. Steering Committee comprised of Seychelles, France, E.C., Australia and New Zealand. Membership is open to any country within or bordering the SWIO, from Somalia to South Africa.	Functions proposed include measures intended to: Ensure long-term conservation of fisheries resources through application of an ecosystem approach; prevent or eliminate over-fishing and excess fishing capacity; apply a precautionary approach consistent with the FAO Code of Conduct and the 1995 Agreement; maintain fish stocks at levels that are capable of producing maximum sustainable yield, and rebuild stocks to those levels; ensure that fisheries practices and management approaches take due account of need to minimize harmful impact on the marine environment; protection of biodiversity; and give full recognition to the special requirements of developing States in the region.
Africa Coelacanth Ecosystem Project (ACEP)	A program with regional scope, encompassing all participating countries of the project and ASLME program. Receives a majority of its funding through the South African South African Department of Environmental Affairs and Tourism and the Department of Science and Technology, as well as in-kind support from participating countries.	Focus is on coelacanth studies, and the marine environment they inhabit. Supports environmental education, public awareness, and training of scientists.
World Conservation Union: (IUCN)	Partnership program for implementing the Jakarta Mandate in the Western Indian Ocean. Included are South Africa, Mozambique Madagascar, Seychelles,	Five main themes, linked to the objectives of the Nairobi Convention. Included are ICAM, sustainable use of living resources, MPAs, sustainable mariculture and alien species. Notable is the development of a regional fisheries information system: <a href="http://www.wiofish.org">www.wiofish.org</a> .

<sup>15</sup> The SWIOFC is under active development but has not yet been formalized through ratification by what will be the Member States of the Commission.

<i>Institutions</i>	<i>Member Countries</i>	<i>Function/Mandate</i>
	Kenya and Tanzania.	

### **National Stakeholder Participation**

In addition to regional institutions, SWIOFP has a number of stakeholders in the nine countries participating in the project. These include fisheries related ministries, research institutes, and associations; fisheries operators or processors; Government research institutes or NGOs supporting research on oceanography, marine ecology, and biodiversity; and various levels of national government, communities, and NGOs involved in coastal and marine management. While SWIOFP will focus primarily on generating knowledge and building capacity for regional fisheries management – and thus will not have a large number of beneficiaries who participate actively in the project – it will nonetheless have a strong element of stakeholder participation. National fisheries ministries and research institutes will have a direct role in project implementation or supervision, while many other stakeholders will play a role in implementation.

The SWIOFP is designed to build on the existing state of knowledge and will require extensive consultation with other stakeholders to design a program of research to be undertaken in the second and third years of the project. In addition, the process of developing the TDA and SAP will require consultation and consensus building in order to generate a feasible SAP. Mechanisms for stakeholder participation in SWIOFP include:

Participation in implementation of specific components or sub-components: Nearly all SWIOFP components will require some partnership with national stakeholders for their implementation. This includes the use of commercial fisheries operators for scientific surveys, provision and identification of key data for the proposed regional database, implementation of research studies on fisheries impacts on non-consumptive resources and the monitoring of fishing effort.

Participation in design of specific project activities: The design of SWIOFP’s scientific activities will be refined in the first year through a gap analysis which will draw on the expertise and information contained by a wide range of stakeholders.

Review of project outputs and development of a regional approach to scientific assessment and harmonized management of shared fish stocks: National stakeholders will also play a role in evaluating project outputs and, as the project nears completion, and will play a key role in providing fisheries-related information into the TDAs and SAPs for the two WIO LMES, which should reflect national consensus.

The National Executive Secretary for each country will have the primary responsibility for arranging the specific means of ensuring stakeholder participation through mechanisms such as annual planning and review exercises, memorandum of understandings, and participation in implementation. While each country will develop their own project management structure, it is expected that national executive secretariats would be supported by a national steering committees that would draw on various stakeholder groups for its membership.

**Table 9: Stakeholder Groups, Participation and Linkage to SWIOFP**

Country	Fisheries management	Fisheries research	Fisheries Industry	Oceanographic research	Marine ecology, biodiversity research	Coastal and marine management
<b>Comoros</b>	<ul style="list-style-type: none"> <li>Ministère de la Pêche, Service Pêche</li> </ul>	<ul style="list-style-type: none"> <li>Direction Nationale des Ressources Halieutiques</li> </ul>	<ul style="list-style-type: none"> <li>Fisheries associations</li> <li>Commercial fisheries operations</li> </ul>		<ul style="list-style-type: none"> <li>Direction Generale de l'Environnement</li> <li>Parc marin de Mohéli</li> </ul>	<ul style="list-style-type: none"> <li>Direction Generale de l'Environnement</li> <li>Parc marin de Mohéli</li> </ul>
<b>Kenya</b>	<ul style="list-style-type: none"> <li>Ministry of Livestock and Fisheries - Fisheries Department</li> </ul>	<ul style="list-style-type: none"> <li>Kenya Marine Fisheries Research Institute (KMFRI)</li> </ul>	<ul style="list-style-type: none"> <li>Fisheries associations</li> <li>Commercial fisheries operations</li> </ul>	<ul style="list-style-type: none"> <li>KMFRI</li> </ul>	<ul style="list-style-type: none"> <li>KMFRI</li> <li>Wildlife Conservation Society (WCS)</li> <li>IUCN East Africa Regional Office (IUCN-EARO)</li> <li>Kenya Sea turtle Conservation Committee (KESCOM)</li> </ul>	<ul style="list-style-type: none"> <li>Coastal district governments</li> <li>Kenya Wildlife Service</li> <li>Ministry of Environment</li> <li>WCS</li> <li>IUCN-EARO</li> </ul>
<b>Madagascar</b>	<ul style="list-style-type: none"> <li>SEPRH Surveillance Centre</li> </ul>	<ul style="list-style-type: none"> <li>PNRC (shrimp only)</li> <li>MPRH projects (OFCbF)</li> </ul>	<ul style="list-style-type: none"> <li>Société Malgache de Pêche (SOMAPECHE)</li> <li>Pêcherie de Nosy Be</li> <li>Commercial fisheries operations</li> </ul>	<ul style="list-style-type: none"> <li>IHSM (NODC)</li> <li>Centre National de Recherche Océanographique (CNRO)</li> <li>WCS</li> </ul>	<ul style="list-style-type: none"> <li>Centre National de Recherches sur l'Environnement (CNRE)</li> <li>IHSM</li> <li>WCS</li> <li>Institut Malgache de recherches appliquées</li> <li>Centre d'information et de documentation scientifique,</li> </ul>	<ul style="list-style-type: none"> <li>L'Office National pour l'Environnement à Madagascar</li> <li>Local and regional governments</li> </ul>
<b>Mauritius</b>	<ul style="list-style-type: none"> <li>Ministry of Fisheries</li> <li>Rodrigues Regional Assembly</li> </ul>	<ul style="list-style-type: none"> <li>Albion Fisheries Research Centre</li> <li>Ministry of Fisheries, Research and Training Unit</li> <li>Shoals Rodrigues</li> </ul>	<ul style="list-style-type: none"> <li>Fisheries associations</li> <li>Commercial fisheries operations</li> </ul>	<ul style="list-style-type: none"> <li>Mauritius Oceanographic Institute</li> </ul>	<ul style="list-style-type: none"> <li>Ministry of Environment</li> <li>Mauritius Marine Conservation Society</li> <li>Shoals Rodrigues</li> </ul>	<ul style="list-style-type: none"> <li>Ministry of Environment</li> <li>Local Government</li> <li>Rodrigues Regional Assembly</li> </ul>
<b>Mozambique</b>	<ul style="list-style-type: none"> <li>Ministerio da Pesca</li> <li>NDFA</li> <li>Instituto de Desenvolvimento da Pesca de Pequena Escala (IDPPE)</li> </ul>	<ul style="list-style-type: none"> <li>Instituto Nacional De Investigação Pesqueira (IIP)</li> <li>Instituto de Investigação das Pescas e do Mar (IPIMAR - Portugal)</li> </ul>	<ul style="list-style-type: none"> <li>Fisheries associations</li> <li>Commercial fisheries operations</li> </ul>	<ul style="list-style-type: none"> <li>IIP</li> <li>IPIMAR</li> </ul>	<ul style="list-style-type: none"> <li>Universities</li> <li>MICOA,</li> <li>SOFMAR (pollution)</li> <li>University of Eduardo Mondale</li> </ul>	<ul style="list-style-type: none"> <li>Ministry of Environment</li> <li>Local and Regional Government</li> </ul>
<b>Reunion</b>	<ul style="list-style-type: none"> <li>Reunion Regional Council</li> </ul>	<ul style="list-style-type: none"> <li>IFREMER</li> <li>Institut de la Recherche et Développement (IRD)</li> </ul>	<ul style="list-style-type: none"> <li>Fisheries associations</li> <li>Commercial fisheries operations</li> </ul>	<ul style="list-style-type: none"> <li>IRD</li> <li>University of La Reunion (ECOMAR)</li> </ul>	<ul style="list-style-type: none"> <li>Agence pour la Recherche et la Valorisation Marines (ARVAM)</li> <li>University of La Reunion (ECOMAR)</li> <li>MEGAPTERA</li> <li>Centre d'Etude et de Découverte des Tortues Marines (CEDTM)</li> </ul>	<ul style="list-style-type: none"> <li>Reunion Regional Council</li> </ul>
<b>Seychelles</b>	<ul style="list-style-type: none"> <li>Seychelles Fishing Authority (SFA)</li> </ul>	<ul style="list-style-type: none"> <li>SFA + MPA (protected areas)</li> <li>Seychelles Centre for</li> </ul>	<ul style="list-style-type: none"> <li>Fisheries associations</li> <li>Commercial</li> </ul>	<ul style="list-style-type: none"> <li>SFA</li> <li>SCMRT</li> <li>Seychelles</li> </ul>	<ul style="list-style-type: none"> <li>SCMRT</li> <li>Ministry of Environment and Natural Resources</li> </ul>	<ul style="list-style-type: none"> <li>Ministry of Environment and Natural Resources</li> <li>Local Government</li> </ul>

**Table 9: Stakeholder Groups, Participation and Linkage to SWIOFP**

Country	Fisheries management	Fisheries research	Fisheries Industry	Oceanographic research	Marine ecology, biodiversity research	Coastal and marine management
		Marine Research and Technology (SCMRT)	fisheries operations	Coastguard Hydrographic Division	<ul style="list-style-type: none"> <li>Marine Conservation Society Seychelles</li> <li>Seychelles Islands Foundation</li> <li>Global Vision International</li> </ul>	
<b>South Africa</b>	<ul style="list-style-type: none"> <li>Dept. of Environmental Affairs and Tourism - Marine and Coastal Management (MCM)</li> </ul>	<ul style="list-style-type: none"> <li>MCM</li> <li>Oceanographic Research Institute (ORI)</li> <li>Universities</li> </ul>	<ul style="list-style-type: none"> <li>Fisheries associations</li> <li>Commercial fisheries operations</li> </ul>	<ul style="list-style-type: none"> <li>MCM</li> <li>ORI</li> <li>African Coelacanth Environment Program (ACEP)</li> </ul>	<ul style="list-style-type: none"> <li>Universities (Cape Town, Rhodes, KZN)</li> <li>South Africa Institute for Aquatic Biodiversity (SAIAB)</li> <li>ACEP</li> <li>South African Museum</li> <li>Iziko - Museums of Cape Town</li> </ul>	<ul style="list-style-type: none"> <li>Dept. of Environmental Affairs and Tourism - Marine and Coastal Management (MCM)</li> <li>Regional and local government</li> </ul>
<b>Tanzania</b>	<ul style="list-style-type: none"> <li>Ministry of Natural Resources and Tourism - Fisheries Department</li> <li>Kunduchi Fisheries Training Institute</li> <li>Mbegani Fisheries Development Centre</li> </ul>	<ul style="list-style-type: none"> <li>Tanzania Fisheries Research Institute (TAFIRI)</li> <li>Institute of Marine Sciences, Univeristy of Dar es Salaam</li> <li>Institute of Marine Sciences, Zanzibar</li> </ul>	<ul style="list-style-type: none"> <li>Fisheries associations</li> <li>Commercial fisheries operations</li> </ul>	<ul style="list-style-type: none"> <li>IMS, Univeristy of Dar es Salaam</li> <li>IMS, Zanzibar</li> <li>TAFIRI</li> </ul>	<ul style="list-style-type: none"> <li>IMS (Zanzibar)</li> <li>Faculty of Aquatic Sciences and Technology (FAST)</li> <li>Tanzania Wildlife Conservation Society</li> <li>TAFIRI</li> <li>IUCN – East Africa Regional Office (IUCN-EARO)</li> <li>World Wildlife Fund (WWF)</li> </ul>	<ul style="list-style-type: none"> <li>Ministry of Natural Resources and Tourism - Fisheries Department</li> <li>Coastal district and regional governments</li> </ul>
<b>SWIOFP Linkages</b>	<ul style="list-style-type: none"> <li>Fisheries Ministry/Dept. in each country will participate in SWIOFP steering group and have supervisory role over project implementation</li> <li>National focal points for SWIOFP to engage in awareness building and coordination with other fisheries management institutions in disseminating research findings and developing consensus on national inputs into regional TDA and SAP</li> </ul>	<ul style="list-style-type: none"> <li>National fisheries research bodies will be primary implementing agency for SWIOFP</li> <li>National focal points and component managers to gather data, consult and partner with other stakeholders in gap analysis and regional database creation as well as in designing stock assessments in Components 2, 3 and 4.</li> <li>Findings of research to be disseminated to stakeholders and will engage in consultation in developing TDA and SAP</li> </ul>	<ul style="list-style-type: none"> <li>National focal points and component managers to solicit private sector for feedback in developing design for stock assessments in Components 2, 3, and 4</li> <li>Commercial vessels to be used for most of SWIOFP ships cruises</li> <li>Commercial operators to be participants in testing gear optimization in Component 2,3,4</li> </ul>	<ul style="list-style-type: none"> <li>SWIOFP to draw on oceanographic data to inform fisheries assessments, primary linkage will be through ASCLMEsP</li> </ul>	<ul style="list-style-type: none"> <li>SWIOFP Component 6 - fisheries impact on non-consumptive resources complementary to work of many marine biodiversity and ecology research initiatives and will fund research grants to some stakeholders. Results to be used as input into national and regional management plans</li> <li>Results of stock assessments and gear optimization to be disseminated and feedback used in development of TDA and SAP</li> </ul>	<ul style="list-style-type: none"> <li>In developing TDA and SAP inputs will have extensive consultations at national level with coastal and marine management institutions and stakeholders</li> </ul>



**Table 10: SWIOFP Country Profiles – International agreements, adhesions and memberships**

Convention / membership	Somalia	Kenya	Tanzania	Mozambique	South Africa	Madagascar	Comoros	Seychelles	Mauritius	France	EU
UNCLOS	?	X	X	X	X	X	X	X	X	X	X
Nairobi (UNEP)	X	X	X	X	Soon		X	X	X	X	X
FAO Code declaration	X	X	X	X	X	X		No	X	X	X
Straddling stocks		Not yet		?	75%	No		X	No	?	
FAO Compliance		?	X	?	75%	X		X	No	?	X
SWIOFC		No		X	X	X	COI BLOCK OF 'TUNA COUNTRIES'				
IOTC		No	?		No	X		X	X	X	
WIOTO		No		X	No		X	X	X		
COI	No	No	No	No	No	X	X	X	X	X	X
EAC		X	X	?	No			X			
SADC	No	No	No	X	X	Soon	No	X	X	No	No

**Annex 18: Matrix of Threats, Root Causes and Solutions**

	<b>Root Causes</b>	<b>Management Issues/ Key Barriers</b>	<b>Solutions: Interventions from project Barrier Removal Activities</b>
<b>Environmental Impact:</b>			
<i>Degradation of the marine environment of the Western Indian Ocean LMEs</i>	<p>LME show evidence of anthropogenic and environmentally induced changes in marine environment – reductions in certain fish stocks and important biodiversity, changes in near shore water quality, and degradation of marine habitats. Marine environment under stress due to:</p> <ul style="list-style-type: none"> <li>• Increased population and rapidly developing coastal cities, commercial ports and industrial centers</li> <li>• Increased fishing pressure and other off shore economic activity</li> <li>• Environmental variability</li> </ul>	<ul style="list-style-type: none"> <li>• Incomplete knowledge of type and scale of threats facing marine environment</li> <li>• Regional management of resources emerging but not yet fully functional due to institutional issues, legal framework, coordination problems, and lack of capacity</li> <li>• Numerous but uncoordinated management efforts to address different aspects of the marine environment</li> </ul>	<ul style="list-style-type: none"> <li>• Improved knowledge of status of marine resources and identification of key threats</li> <li>• Development of more effective regional coordination and management mechanisms</li> <li>• Improve national capacity to manage regional resources</li> <li>• Adoption of ecosystem approach to management of marine resources</li> <li>• Improve public awareness and participation in management of marine environment</li> </ul>
<b>Threats:</b>			
<i>Overexploitation of fisheries resources</i>	<ul style="list-style-type: none"> <li>• Strong incentive to fully exploit fisheries resources as they provide significant source of revenue, employment and food to SWIO countries</li> <li>• Commercial fisheries not constrained by sustainable catch limits in some countries</li> <li>• Valuable offshore fisheries are harvested predominantly by distant-water fishing fleets from Europe and eastern Asia and the proportion of unreported catches is largely unknown.</li> <li>• As fish stocks elsewhere in the world are diminishing, more fleet operators are certain to turn their attention to the commercial fish stocks along the east African coast until these stocks have</li> </ul>	<ul style="list-style-type: none"> <li>• Inadequate information about the species composition, distribution, behavior and migration patterns of non-commercial and commercial fish stocks in the SWIO.</li> <li>• Inadequate information on the extent to which commercial marine resources are fully exploited within the EEZs of SWIO countries</li> <li>• Lack of appropriate regulations and enforcement power to establish sustainable yields in commercial fisheries</li> <li>• Management and research are not always integrated – management decisions sometimes not underpinned by scientific findings</li> <li>• Short term or species specific perspective used in managing fisheries resources – lack of ecosystem approach</li> <li>• Regional management structures are</li> </ul>	<ul style="list-style-type: none"> <li>• Improve knowledge base of WIO LMEs by establishing baseline indicators and stock dynamics for key fisheries.</li> <li>• Improve capacity for national management of fisheries resources by linking management and science, improving national monitoring capacity, and building up human resource capacity</li> <li>• Improve capacity for regional management by identifying institutional and legal framework for effective coordination</li> <li>• Promote adoption of ecosystem approach to fisheries management</li> </ul>

	<b>Root Causes</b>	<b>Management Issues/ Key Barriers</b>	<b>Solutions: Interventions from project Barrier Removal Activities</b>
	<p>been exhausted and catches are no longer economically viable.</p> <ul style="list-style-type: none"> <li>• Incentives to manage transboundary stocks within national waters low without reciprocal and coordinated actions by other countries</li> <li>• Regional fisheries management structures emerging but not yet fully functional</li> </ul>	<p>beginning to emerge but not yet fully functional</p> <ul style="list-style-type: none"> <li>• Transactions costs to regional management are high and resources to engage in management activities are limited</li> <li>• Low levels of socio-economic development that prevent adoption of more sustainable fisheries exploitation practices</li> </ul>	
<i>Unnecessarily high by-catch and incidental mortality of marine fauna in commercial fisheries operations</i>	<ul style="list-style-type: none"> <li>• Commercial fisheries rely on gear technology and fishing practices that result in excessive levels of by catch and incidental mortality.</li> <li>• Fisheries operators have little incentive to reduce by catch or incidental mortality, particularly as efforts to do so may reduce overall fisheries catch</li> </ul>	<ul style="list-style-type: none"> <li>• Inadequate information about the extent of by-catch or mortality of various species</li> <li>• Regulations protecting threatened species or areas under pressure are limited</li> <li>• Monitoring capacity low and regulatory enforcement power weak</li> <li>• Availability of appropriate technology such as excluding devices</li> </ul>	<ul style="list-style-type: none"> <li>• Gear design and improved technology dissemination</li> <li>• Awareness raising and identification of mitigation strategies for species under threat</li> <li>• Development of baseline for key species under threat</li> <li>• Adoption of ecosystem approach in fisheries management</li> </ul>
<i>Human induced habitat destruction and alteration of the marine environment</i>	<ul style="list-style-type: none"> <li>• Decreased water quality as a result of pollution generated by runoff from agricultural lands and discharge of sewage, industrial effluents and other harmful substances into waterbodies.</li> <li>• Reduced flow of freshwater into rivers and estuaries due to increased demand for freshwater resources for human settlements.</li> <li>• Changes in the physical structure of coastal and marine areas affecting rates of siltation, filtering capacity, species reproduction, and nutrient availability caused by deforestation, encroachment by human settlement and other economic activity such as fish trawlers, tourism, salt production, or coral mining.</li> </ul>	<ul style="list-style-type: none"> <li>• Information on biodiversity in the ASCLMEs including habitats, threats and monitoring, connectivity, taxonomic research and spatial species data are also incomplete.</li> <li>• Lack of planning and poor integration of various public institutions with mandates covering use or management of marine and coastal environment.</li> <li>• Unplanned urbanization and lack of appropriate infrastructure</li> <li>• Poor implementation of or lack of appropriate regulatory tools to better manage marine and coastal environment.</li> <li>• Lack of awareness or low level of public involvement in management</li> <li>• Low levels of socio-economic development that prevent coastal communities from adopting more sustainable economic or settlement practices</li> <li>• Lack of cooperation at the regional level to</li> </ul>	<ul style="list-style-type: none"> <li>• Improve knowledge base on the determinants of habitat degradation in the SWIO and the scale of the problem</li> <li>• Awareness raising and identification of strategies to reduce stress on important marine and coastal habitats</li> <li>• Adoption management and coordination mechanisms to reduce pollution across national boundaries</li> <li>• Coordination across regions</li> </ul>

	<b>Root Causes</b>	<b>Management Issues/ Key Barriers</b>	<b>Solutions: Interventions from project Barrier Removal Activities</b>
		address human causes of habitat degradation that affect the regional environment.	
<i>Adverse consequences related to poor understanding of environmental variability within LMEs</i>	<ul style="list-style-type: none"> <li>• High level of environmental variability and complexity in Agulhas and Somali LMEs result in environmental interactions and perturbations that affect living resources and marine habitats. Inability to differentiate between anthropogenic and environmental impacts can result in poor decision making and ineffective targeting of management efforts.</li> <li>• Negative impacts of environmental induced changes to ecosystem from climate change (sea level changes, increased ocean temperature, alteration of salinity levels, coral bleaching events)</li> </ul>	<ul style="list-style-type: none"> <li>• Incomplete information about environmental variability within the ASCLMEs - key data gaps still exist in areas of oceanographic dynamics. Remote sensing, size fractionation of chlorophyll a, primary production, food webs, bathymetry, geology and sedimentology, and geophysical characteristics of the WIO LMEs.</li> <li>• Inadequate differentiation between environmental and anthropogenic impact on the marine environment within framework of regional management initiatives</li> <li>• Partial understanding of climate change and its impact on ASCLMEs</li> </ul>	<ul style="list-style-type: none"> <li>• Improve understanding of environmental variability in ASCLMEs</li> <li>• Distinguish between anthropogenic and environmental impacts on ecosystem health in regional management efforts</li> <li>• Raise awareness and publicize link between climate change related threats to marine environment</li> </ul>

**Annex 19: Maps**  
**AFRICA: 3A-GEF SW IO Fisheries SIL (FY06)**

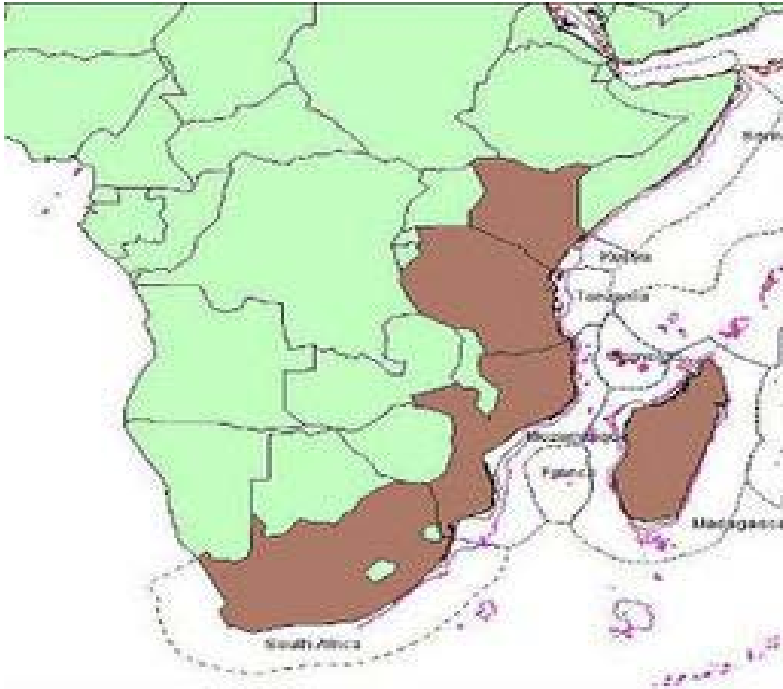


Figure 1: Map of SWIOFP Countries showing political boundaries and 200' Exclusive Economic Zones

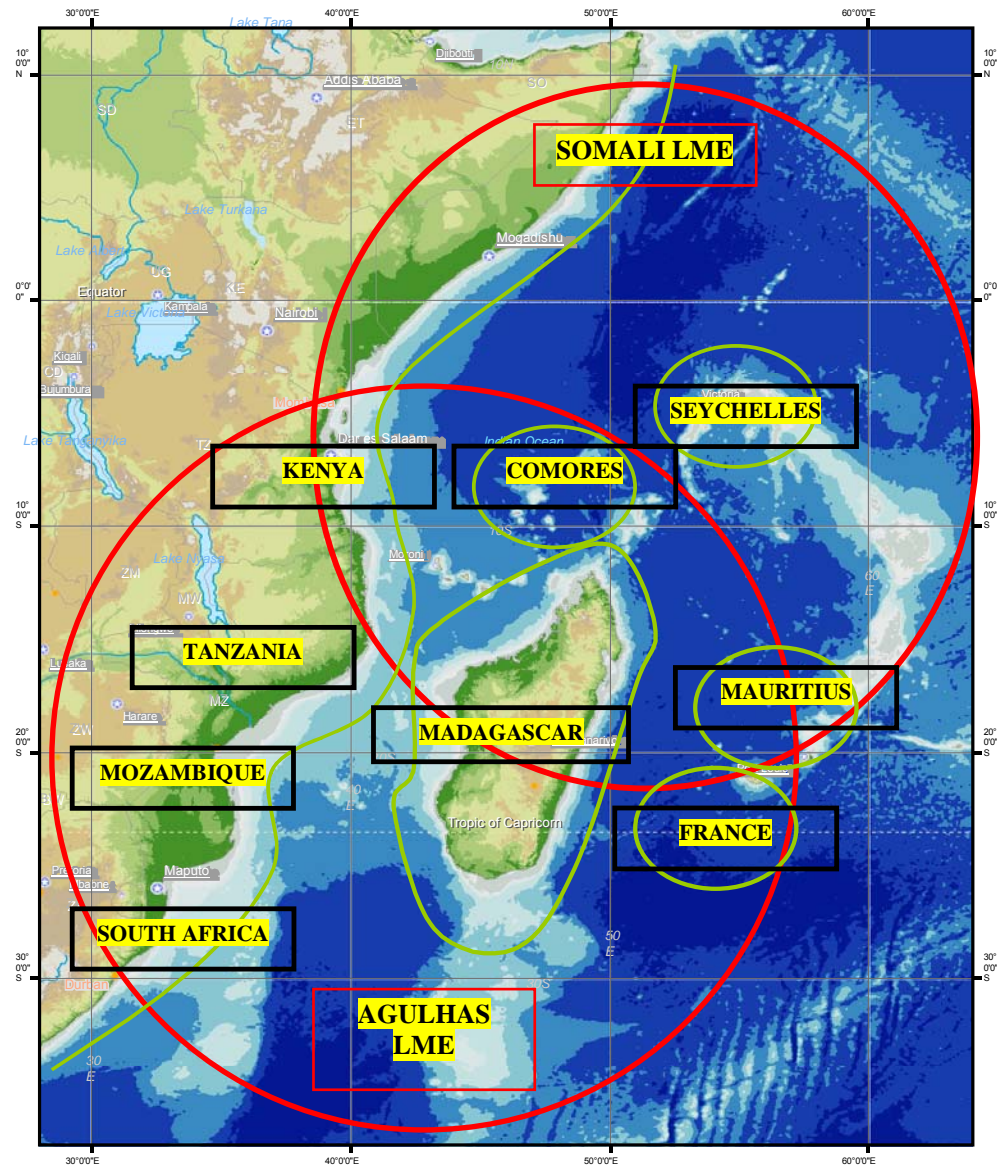


Figure 2. Bathymetry of the West Indian Ocean LME showing continental shelves and LME sub-areas (Agulhas and Somali) relative to coastal states

<sup>i</sup> See TOR in appendix 1