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United Nations Development Programme

United Nations Office for Project Services

and

Intergovernmental Oceanographic Commission (UNESCO)

PIMS 2193 - Sustainable Management of the Shared Living Marine Resources of the Caribbean Large Marine Ecosystem (CLME) and Adjacent Regions

The focus of the GEF intervention will be on assisting the Caribbean countries to improve the management of their shared living marine resources, most of which are considered to be fully or over exploited, through an ecosystem level approach. A preliminary Transboundary Diagnostic Analysis (TDA) identified three priority transboundary problems that affect the Caribbean Large Marine Ecosystem (CLME): unsustainable exploitation of fish and other living resources, habitat degradation and community modification, and pollution. The final TDA will serve as the science basis for development of an agreed program of interventions including fishery reforms, conservation measures and pollution control. A Strategic Action Programme (SAP) with a shared vision for the CLME will be developed, and required priority interventions, reforms and investments agreed to. The proposed project will facilitate the strengthening of fishery governance in the Caribbean at the regional, sub-regional and national levels by working with existing structures, strengthening horizontal and vertical linkages both politically and technically. To assist this process, the project with create an integrated information management system bringing together congruent fisheries, biological, pollution and socio-economic data and information as powerful management tool. Similarly, a monitoring and evaluation framework and a Regional Monitoring Environmental Programme will be developed. Pilot projects on specific transboundary fisheries (spiny lobster and reef fisheries) will trial governance models at the local, national and sub-regional levels and provide additional knowledge on means of applying ecosystem based approaches to fisheries management and determining the fisheries' socio-economic importance and sensitivities.

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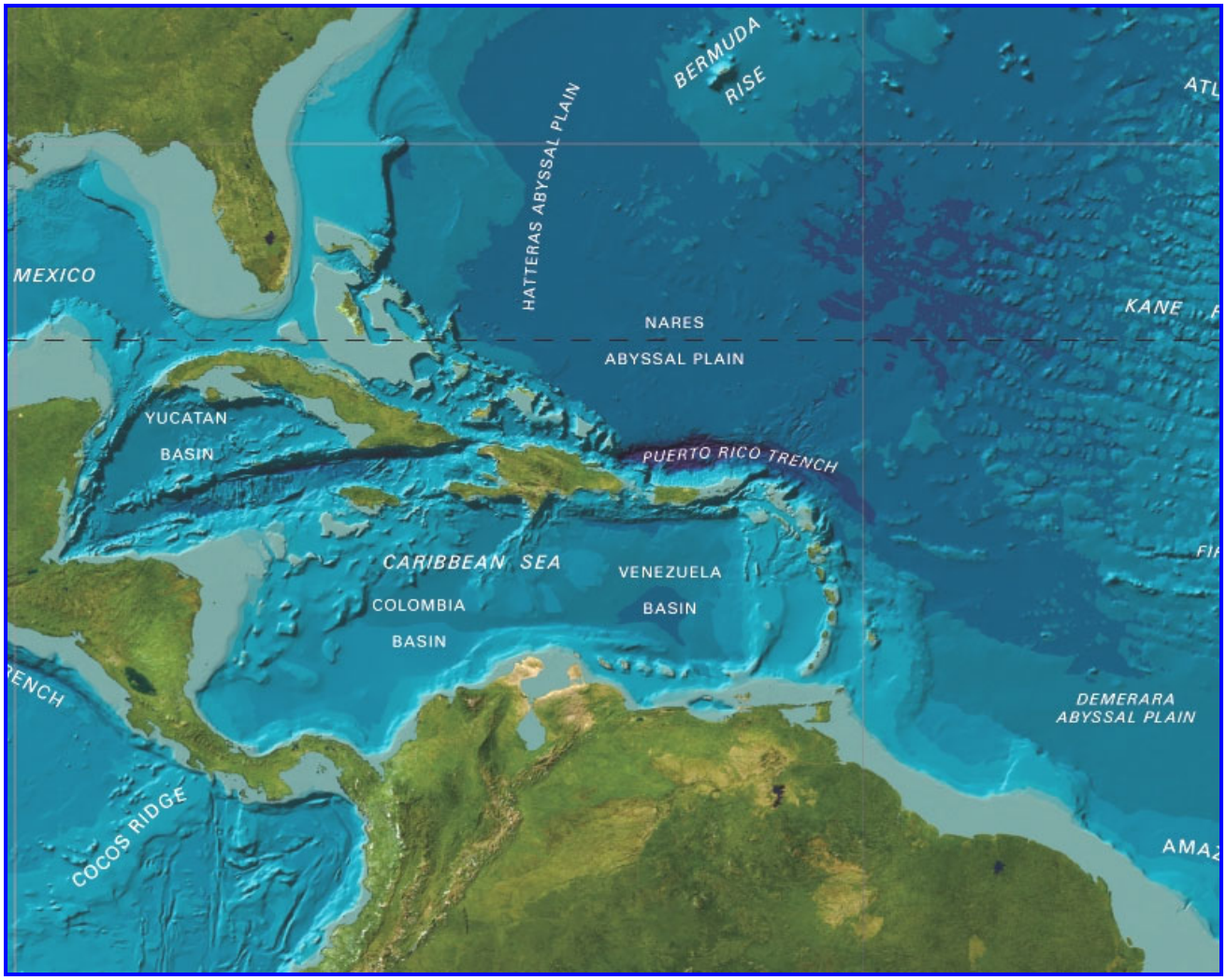
Acronyms

ACS	Association of Caribbean States
APR	Annual Project report
AWP	Annual Work Plan
CARICOM	The Caribbean Community
CBD	Convention on Biodiversity
CBO	Community-based Organizations
CCA	Causal Chain Analysis
CEP	Caribbean Environment Program
CERMES	Centre for Resource Management and Environmental Studies University of West Indies
CITES	Convention on International Trade in Endangered Species
CLD	Causal Loop Diagram
CO	Country Office
CoML	Census of Marine Life
CRFM	Caribbean Regional fisheries Mechanism
CTA	Chief Technical Advisor
EEZ	Economic Exclusion Zone
ESI	Environmental Status Indicator
EU	European Union
FAO	Fisheries and Agriculture Organization
PoP	Friends of the Project
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GESAMP	Group of Experts on the Scientific Aspects of Marine Environmental Protection
GIWA	Global International Waters Assessment
IA	Implementing Agency
ICCAT	International Commission for the Conservation of Atlantic Tuna
ICZM	Integrated Coastal Zone Management
IMS	Information Management System
IOC	Intergovernmental Oceanographic Commission of UNESCO
IOCARIBE	IOC (UNESCO) Sub-Commission for the Caribbean and Adjacent Regions
IPCC	Inter-government Panel on Climate Change
IUCN	International Union for the Conservation of Nature and Natural Resources
IUU	Illegal, unreported and unregulated fishing
IW	International Waters
LMR	Living Marine Resources
LRP	Limit Catch Reference Point
M&E	Monitoring and Evaluation
MCS	Monitoring, Control and Surveillance
MPA	Marine Protected Area
NAPs	National Action Plans
NFP	National Focal Point
NGO	Non Governmental Organization
NOAA	National Oceanic and Atmospheric Administration
OECS	Organization of Eastern Caribbean States
OLDEPESCA	Latin American Organization for Fishery Development
OSPESCA	Organization for the Fishing and Aquaculture Sector of the Central American Isthmus
PCU	Project Coordination Unit
PDF-B	Project Development Funds - B

PIR	Project Implementation Review
POPs	Persistent Organic Pollutants
RC	Regional Coordinator
RCU	Regional coordinating Unit
RT	Results Template
REMP	Regional Environmental Monitoring Programme
RFMO	Regional Fisheries Management Organization
SAP	Strategic Action Programme
SHA	Stakeholder Analysis
SIDS	Small Island Developing States
STAG	Stakeholder Advisory Group
TDA	Transboundary Diagnostic Analysis
TNC	The Nature Conservancy
TRP	Target atch Reference Point
TTT	Technical Task Team
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNESCO	United Nations Educational Scientific and Cultural Organisation
WECAF	West Central Atlantic Fishery Commission
WSSD	World Summit on Sustainable Development
WWF	Global Conservation Organization/World Wildlife Fund for Nature

CARIBBEAN SEA AND ADJACENT REGIONS

Map 1



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Map 2

Courtesy of the University of Texas Libraries, The University of Texas at Austin

SECTION I: Elaboration of the Narrative

PART I: Situation Analysis

CONTEXT AND GLOBAL CONTEXT

1 Many living marine resources in the Caribbean Region are in crisis. Most of the fishery resources are coastal and intensively exploited by large numbers of small-scale fishers. The majority of the human population in the Caribbean region lives in coastal communities and there is high dependence on living marine resources for employment and food. There is also high demand for seafood in the tourism industry, a mainstay of the economy in many of the region's countries. Some species, such as lobster and conch, are in high demand for export. These pressures have led to widespread depletion of these resources, a situation that must be reversed in accordance with the targets identified at the World Summit on Sustainable Development (WSSD) in 2002.

2 This depletion has led to increased dependence and fishing pressure on offshore resources, which are already considered to be fully or overexploited. Living resources such as coral reefs that are not exploited, but extremely important for tourism economies and coastal defense against sea level rise are also severely degraded by human activity and require urgent attention for restoration. Furthermore, the living marine resources of the Caribbean LME and its adjacent region, the Guianas-Brazil Shelf, are often shared between countries of the region. This suggests that ecosystem management and the recovery of depleted fish stocks will require cooperation at various geopolitical scales, but there are at present inadequate institutional, legal and policy frameworks or mechanisms for managing shared living marine resources across the region.

3 There is a lack of capacity at the national level and additionally, information is poor and fragmented, particularly with relation to the transboundary distribution, dispersals and migrations of these organisms and the impact of changes in productivity and climate. In cases where information is available, it is oftentimes not easily or readily accessible for region-wide decision-making. This lack of knowledge represents a major barrier to the sustainable ecosystem management of these shared marine resources where long-term programs to collect and integrate biogeophysical, social and economic data is critical in order to understand better the workings of the marine ecosystems and the effectiveness of management decisions. When coupled with the lack of an effective mechanism for shared living marine resource governance, the region faces major challenges that must be addressed if the goal of ecosystem management of transboundary resources and achievement of the WSSD targets is to be realized.

4 National governments within the Caribbean Region have acknowledged that the current state of the Caribbean Sea require immediate attention and action. To address these concerns, the countries of the region have undertaken a number of initiatives and have collectively been successful in obtaining financial assistance from the Global Environment Facility (GEF) under its International Waters focal area for the Caribbean Large Marine Ecosystem (CLME) Project.

5 The focus of the GEF intervention will be on assisting the Caribbean countries to improve the management of their shared living marine resources and to address the problems through the concept of ecosystem based management, assessing the problems and threats through the LME modular approach and the GEF IW transboundary diagnostic analysis. On the basis of these, a Strategic Action Programme (SAP) will be developed, to articulate a shared vision for the Caribbean Sea of all twenty-four countries, and agree the required priority interventions, reforms and investments.

Description of the Basin

6 The Wider Caribbean Region extends from the mouth of the Amazon River, Brazil, in the south, through the insular Caribbean, Central America, the Gulf of Mexico and north along the east coast of North America to Cape Hatteras. This area also corresponds to the region covered by the Western Central Atlantic Fishery Commission (WECAFC). Within this area there are three large marine ecosystems (LMEs): The Gulf of Mexico LME, the Caribbean Sea LME, and the North Brazil Current LME. These ecosystems are closely linked, particularly the latter two, as the oceanography of the Caribbean Sea is strongly influenced by the highly productive upstream North Brazil Shelf LME. The Gulf of Mexico LME is most influenced by inputs from the Mississippi and other North American rivers.

7 The boundaries of the CLME Project encompass the Caribbean Sea LME and the North Brazil Shelf LME and include 26 countries and 19 dependent territories of France, the Netherlands, United Kingdom and United States. These countries range from among the largest (e.g. Brazil, USA) to among the smallest (e.g. Barbados, St. Kitts and Nevis), and from the most developed to the least developed. Consequently, there is an extremely wide range in their capacities for living marine resource management. Throughout the region, the majority of the population inhabits the coastal zone, and there is a very high dependence on marine resources for livelihoods from fishing and tourism, particularly among the small island developing states (SIDS), of which there are 16. In addition 18 of the 19 dependent territories are SIDS. The region is characterized by a diversity of national and regional governance and institution arrangements, stemming primarily from the governance structures established by the countries that colonized the region.

Physical and geographical characteristics

8 The Caribbean Sea is a semi-enclosed ocean basin bounded by the Lesser Antilles to the east and southeast, the Greater Antilles (Cuba, Hispaniola, and Puerto Rico) to the north, and by Central America to the west and southwest. It is located within the tropics and covers 1 943 000 km2. The Wider Caribbean, which includes the Gulf of Mexico, the Caribbean Sea and the adjacent parts of the Atlantic Ocean encompasses an area of 2 515 900 km2 and is the second largest sea in the world. (Bjorn 1997, Sheppard 2000, IUCN 2003). It is noted for its many islands, including the Leeward and Windward Islands situated on its eastern boundary, Cuba, Hispaniola, Puerto Rico, Jamaica and the Cayman Islands. There is little seasonal variation in surface water temperatures. Temperatures range from 25.5 degrees Celsius in the winter to 28 degrees Celsius in the summer.

9 The adjacent region of the North Brazil Shelf Large Marine Ecosystem is characterized by its tropical climate. It extends in the Atlantic Ocean from the boundary with the Caribbean Sea to the Paraiba River estuary in Brazil. The LME owes its unity to the North Brazil Current, which flows parallel to Brazil's coast and is an extension of the South Equatorial Current coming from the East. The LME is characterized by a wide shelf, and features macrotides and upwellings along the shelf edge. It has moderately diverse food webs and high production due in part to the high levels of nutrients coming from the Amazon and Tocantins rivers, as well as from the smaller rivers of the Amapa and western Para coastal plains.

10 The region was formed during the Jurassic period. With the division of the mega-continent Pangaea 180 million years ago, came the separation of the lands that would become North and South America. As well as the subduction of the Cocos and Nazca plates, the continuous collision of continental plates produced continental and submarine mountain ranges including the rise of Central America, which formed a biogeographical bridge, allowing the migration of floral and faunal species between North and South America – an important factor in the high biodiversity in the region (Windevoxhel 2003).

11 The Caribbean Sea averages depths of 2 200 m, with the deepest part, known as the Cayman trench, plunging to 7 100 m. The drainage basin of the Wider Caribbean covers 7.5 million km2 and encompasses eight major river systems, from the Mississippi to the Orinoco (Hinrichsen 1998).

12 The Caribbean Current transports water northwestwards through the Caribbean Sea and into the Gulf of Mexico, via the Yucatan Channel. The source of the Caribbean Current is the equatorial Atlantic Ocean via the North Equatorial, North Brazil, and Guyana currents. Water flows into the Caribbean Sea mostly through the Grenada, Saint Vincent, and Saint Lucia passages in the southeast continuing westward as the Caribbean Current – the main surface circulation in the Caribbean Sea. The strongest flow in the Caribbean Sea is found in the southern third of the Sea and belongs to the Caribbean Current (Gyory et al. 2004). In this area, surface velocities can reach 0.7 m/s along the coasts of Venezuela and the Netherlands Antilles. There are also strong (0.6 m/s) currents along the Panama and Colombian coasts, but there is little flow over the Central American Rise, since most of the northwestward flow is channeled to the southwest of Jamaica. The flow turns sharply westward as it crosses the Cayman Basin and enters the Gulf of Mexico as a narrow boundary current, called the Yucatan Current, which hugs the Yucatan Peninsula (Gyory et al. 2004). This current flows into the Gulf of Mexico through the Yucatan Channel.

13 The winds in the Caribbean Sea region generate a circulation cell where deep waters upwell along the north coast of South America and surface waters (enriched by upwelling and by discharges from the Orinoco River) are advected northwards into the region, especially during the rainy season. In agreement with Sheppard (2000), satellite images in the visible spectrum clearly show the meridianal spreading of green water in the eastern Caribbean. Tidal currents are the dominant component of the off shore currents superimposed on the mean circulation. Tides throughout the northeast Caribbean Sea exhibit complex behaviour. Caribbean waters are well stratified, with water at different depths moving in different directions. The structure and composition of the Caribbean's surface water follows a well-defined seasonal pattern (Sheppard 2000).

14 In the Caribbean Sea region, mangrove, sea-grasses and coral reefs are closely associated; they exist in a dynamic equilibrium influenced by coastal activities. Three main rock types dominate the coastline; limestone, igneous rock and eolianite or beach rock. In addition there are unconsolidated deposits such as beaches, alluvial fans, alluvial plains and dunes (Sheppard 2000).

15 The region is highly susceptible to natural disasters. Most of the islands and the Central American countries lie within the hurricane belt and are vulnerable to frequent damage from strong winds and storm surges. Recent major natural disasters include hurricanes Gilbert (1988) and Hugo (1989), the eruptions of the Soufriere Hills Volcano in Montserrat (1997) and the Piparo Mud Volcano in Trinidad (1997), as well as drought conditions in Cuba and Jamaica during 1997-98, attributed to the El Niño phenomenon. More recently Hurricane Georges devastated large areas, as did Hurricanes Mitch and Ivan (2004). In the case of Ivan, damages were extensive to both natural and infrastructural assets, with estimates reported by Grenada of US$815 million, the Cayman Islands US$1.85 billion, Jamaica US$360 million and Cuba US$1.2 billion[1]. Although the intense category 5 hurricanes Katrina and Rita did not make landfall in the Caribbean, in 2005, Hurricane Wilma devastated the Yucatan peninsula and has the distinction of being the most intense hurricane on record in the Atlantic.

Ecological status

16 The marine and coastal systems of the region support a complex interaction of distinct ecosystems, with an enormous biodiversity, and are among the most productive in the world. As mentioned above, several of the world's largest and most productive estuaries (Amazon and Orinoco) are found in the region. The coast of Belize has the second largest barrier reef in the world extending some 250 kilometers and covering approximately 22,800 km2. The region's coastal zone is significant, encompassing entire countries for many of the island nations.

Productivity

17 There is considerable spatial and seasonal heterogeneity in productivity throughout the region. Areas of high productivity include the plumes of continental rivers, localized upwelling areas and near shore habitats (e.g. reefs, mangrove stands and seagrass beds).

18 The North Brazil Shelf LME is considered a Class I, highly productive (>300 gC/m2-yr), ecosystem based on SeaWiFS global primary productivity estimates. The LME is the most productive region of the Brazilian shelf. It has a high number of species of amphibians, birds and reptile species. Brazil's coral fauna is notable for having low species diversity yet a high degree of endemism. The Amazon River and its extensive plume are the main source of nutrients for the LME. Studies of the primary productivity of this region have so far been scant. There are no integrated estimates of productivity in the water column.

19 In contrast to the North Brazil Shelf, the Caribbean Sea LME is considered a Class III, low (<150 gC/m2-yr) productivity ecosystem, according to SeaWiFS global primary productivity estimates, although upwelling along the northern coast of Venezuela

[1] http://en.wikipedia.org/wiki/Hurricane_Ivan

contributes to relatively high productivity in that area. Other factors contributing to the greater productivity of South America's northern coast are the nutrient input from rivers and estuaries. The remaining area of the LME is mostly comprised of clear, nutrient-poor waters.

20 The trophic connection between the productive areas in the Project area and other, less productive systems (e.g., offshore planktonic or pelagic systems), is poorly understood for this region. Likewise, food chain linkages between resources with differing scales of distribution and migration, such as flyingfish and large pelagics, both of which are exploited, are not considered in management. However, these linkages may be critical to preventing the stock depletion that has occurred in many other systems, where the requirements and or impacts of predators have not been considered in the exploitation of prey species.

Fish and Fisheries

21 A wide range of fisheries activities (industrial, artisanal and recreational) coexist in the CLME Project area. Overall landings from the main fisheries rose from around 177 000 tonnes in 1975 to a peak of 1,000,000 tonnes in 1995 before declining to around 800,000 tonnes in 2005. The total landings from all fisheries (see figure 1) shows the decline over the last decade.

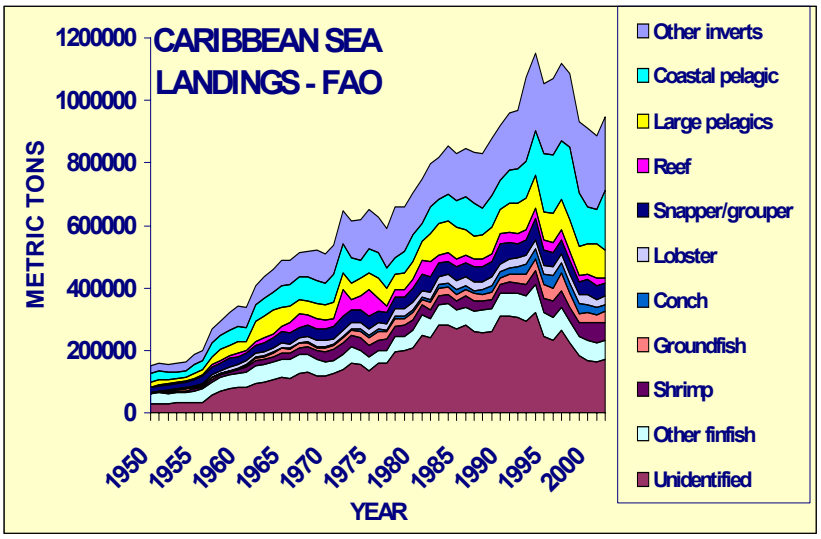


Figure 1: Total Caribbean landings 1951 – 2003, FAO

22 In the reef fish fisheries, declines in overall landings are rarely observed; instead, there are shifts in species composition. For instance a decline in the percentage of snapper and grouper in the catch, the larger, long-lived predators, is an indication of over exploitation; although not in the Caribbean Large Marine Ecosystem, this pattern was evident in Bermuda between 1969 and 1975 where the percentage of snappers and groupers declined from 67% to 38% and also on the north coast of Jamaica between 1981 and 1990 where the

decline was from 26% to 12%. According to an FAO assessment, some 35 per cent of the region's stocks are overexploited.

23 The Guianas-Brazil sub-region has the highest percentage discard, mostly as by-catch of shrimp trawling. Overall, mariculture is less important in all subregions of the Caribbean than in some other tropical regions.

24 The fisheries of the Caribbean Region are based upon a diverse array of resources. The fisheries of greatest importance are for offshore pelagics, reef fishes, lobster, conch, shrimps, continental shelf demersal fishes, deep slope and bank fishes and coastal pelagics. There is a variety of less important fisheries such as for marine mammals, sea turtles, sea urchins, and seaweeds. The management and governance of these fisheries varies greatly and is fragmented with incomplete or absent frameworks at the sub-regional and regional levels and weak vertical and horizontal linkages. The fishery types vary widely in exploitation; vessel and gear used, and approach to their development and management. However, most coastal resources are considered to be overexploited and there is increasing evidence that pelagic predator biomass has been severely depleted (FAO 1998, Mahon 2002, Myers and Worm 2003).

25 The fisheries use a wide variety of gear, and are primarily artisanal, or small-scale, using open, outboard powered vessels 5-12 m in length. The most notable exception are the shrimp and groundfish fisheries of the Brazil-Guianas shelf where trawlers in the 20-30 m size range are used, and the tuna fishery of Venezuela which uses large (>20 m) longliners and purse seiners. In many countries there has been a recent trend towards more modern mid-size vessels in the 12-15 m range, particularly for large pelagics, deep-slope fishes and lobster and conch on offshore banks.

26 The large pelagic species that are assessed and managed by the International Commission for the Conservation of Atlantic Tuna (ICCAT) are the most ‘high-profile’ species with ocean-wide distribution sustaining the largest catches, often by distant water fleets. Few countries of the region presently participate in ICCAT’s activities. The CARICOM Fishery Resources Assessment and Management Programme (CFRAMP, now CRFM) has been working towards the participation of CARICOM countries in ICCAT. A main problem is that many countries of the Caribbean, often SIDS, presently take only a small proportion of the catch of species managed by ICCAT. These countries may, by virtue of the size and productivity of their EEZs, be entitled to a larger share, but lack the technical capacity or the financial resources to participate in ICCAT where their case would be made.

27 Numerous other large migratory pelagic species that are not managed by ICCAT are important to the fisheries of Caribbean countries, e.g. dolphinfish, blackfin tuna, cero and king mackerels, wahoo and bullet tunas. The information base for effective governance and management of these species is virtually non-existent.

28 Recreational fishing, an important but undocumented contributor to tourism economies, is an important link between shared resource management and tourism, as the preferred species are mainly predatory migratory pelagics (e.g. billfishes, wahoo, and dolphinfish). This aspect of shared resource management has received minimal attention in most Caribbean countries (Mahon and McConney 2004).

29 Whereas there is the tendency to think primarily of migratory large pelagic fishes as shared resources, it is important to note that lobster, reef organisms, and small coastal pelagics are also shared resources by virtue of planktonic larval dispersal. In many species, larval dispersal lasts for many weeks or many months (e.g., lobster) and will result in transport across EEZ boundaries. Therefore, even these coastal resources have an important transboundary component to their management. They are the resources that have been most heavily exploited by Caribbean countries and are severely depleted in most areas. Their status has been discussed and documented by WECAFC for several decades (FAO 1999). These early stages are impacted by habitat destruction and pollution as well as overfishing of the spawning stock and both improved knowledge and institutional arrangements are required to implement management.

Pollution and Ecosystem Health

30 Anthropogenic activities are bringing rapid and often irreversible transformation to coastal and marine areas of the CLME. Pollution, mainly from land-based sources, and degradation of nearshore habitats are among the major threats to the region's living marine resources. The CLME is showing signs of environmental stress, particularly in the shallow waters of coral reef systems and in semi-enclosed bays. Coastal water quality has been declining throughout the region, due to a number of factors including rapid population growth in coastal areas, poor land-use practices and increasing discharges of untreated municipal and industrial waste and agricultural pesticides and fertilizers.

31 Throughout the region, pollution by a range of substances and sources including sewage, nutrients, sediments, petroleum hydrocarbons and heavy metals is of increasing concern. The GIWA studies identified a number of pollution hotspots in the region, mainly around the coastal cities. Pollution has significant transboundary implications, as a result of the high potential for transport across EEZs in wind and ocean currents. Not only could this cause degradation of living marine resources in places far from the source, but it could also pose a threat to human and animal health by the introduction of pathogens. Pollution has been implicated in the increasing episodes of fish kills in the region, although this is not conclusive.

32 Coral growth can be limited by high turbidity, exposure to fresh water or air, extreme temperatures, pollution, and excess nutrients and sedimentation. Thus, coral reefs are good indicators of ecosystem health and of the severe damage that is being inflicted on the region's marine environment.

33 Recent studies have revealed a trend of serious and continuing long-term decline in the health of Caribbean coral reefs (Wilkinson 2002, Gardner et al. 2003). About 30 per cent of Caribbean reefs are now considered to be either destroyed or at extreme risk from anthropogenic pressures (Wilkinson 2000). Another 20 per cent or more are expected to be lost over the next 10 - 30 years if significant action is not taken to manage and protect them over and beyond existing measures. There have been unexplained episodes of massive coral bleaching and coral deaths. Coral growth can be limited by high turbidity, exposure to fresh water or air, extreme temperatures, pollution, and excess nutrients. Corals are essential to reef growth and help prevent erosion. Large sections of reefs are smothered by macroalgae. Bleaching may be due to an increase in water temperatures. Bleaching occurs when the coral expels its resident symbiotic algae. Two other diseases affecting coral are

white band disease, which killed 90% of *Acropora palmata* off Buck Island, St. Croix, U.S. Virgin Islands, and black-ring disease. Coral reef degradation is caused by increased sedimentation, anchor damage, excess nutrients, ship groundings, storms, hurricanes, and diver contact. Massive reef fish mortalities occurred in August 1980, following Hurricane Allen. The cause of death was not determined. The mass mortality of the sea urchin *Diadema spp.* in 1983 also remains unexplained.

34 In the adjacent North Brazil Shelf LME, the Amazon's biodiversity and habitats are under threat as a result of illegal logging (deforestation) and mining in the Amazon basin. Artisanal and small-scale gold mining in the Amazon basin uses a mercury-based amalgamation process with negative results for the environment and human health. The mercury released into the air in the form of vapor or lost in the rivers and soil is a pollutant causing concern because of the long-term impact on habitats and human health. The technology used by the artisanal miners remains unchanged although efforts are underway (e.g. GEF-UNDP-UNIDO Global Mercury Project) to introduce low and no-mercury mining technologies.

35 There is increasing boat traffic on the Amazon and coastal pollution. The northern coastline of Brazil and the Guianas has mangrove estuaries that are threatened by human interventions and agricultural production in this area and others makes use of fertilizers and pesticides, which eventually end up in the coastal environment. Land conversion is causing degradation of coastal habitats, including mangroves, estuaries and coral reefs. Mangroves, for example, have been disappearing fast over the past 20 years, and as much as 65 per cent of Mexico's mangroves have already been lost (Suman 1994). Coastal water quality has been declining throughout the region, due to increasing discharges of untreated municipal waste. On the Colombian Caribbean coast for example, 425 thousand M3 of untreated sewage is discharged per day from 26 cities with a combined population of approximately 3 million people. In addition, industry discharges 6t of organic material and 4t of nutrients per day plus other industrial wastes into Cartagena Bay.

Socio-economic situation

36 The physical expanse of the region's coastal zone is significant, encompassing the entire land mass for many of the islands. Additionally, for countries such as the island nations of the Caribbean, Panama and Costa Rica, marine territory represents more than 50 per cent of the total area under national sovereignty. In general, the region's coastal zone is where the majority of it human population live and where most economic activities also take place. In 2001, the population of the Caribbean Sea region (not including the United States) was around 102 million, of which it is estimated that 59 per cent is in Colombia and Venezuela, 27 per cent is in Cuba and Hispaniola, 10 per cent is in Central America and Mexico, and 3 per cent is in the Small Islands. The population in these sub-systems shows different trends in population growth. While in Colombia, Venezuela and Central America the average annual growth rate is close to 2 per cent (1996-2002), in the SIDS it is less than 1 per cent[2]. Resident populations in the Wider Caribbean region swell every year with the influx of

[2] GIWA Caribbean Sea Assessments; Data for Aruba, Cayman Islands, Guadeloupe, Martinique, Montserrat, Netherlands Antilles and Turks and Caicos are not included

some 100 million tourists who primarily target coastal areas.[3] The population distribution also varies considerably throughout the region. In the Insular Caribbean, 28 million of the estimated 35 million people inhabit the two large islands of Cuba and Hispaniola (Breton et al. 2006). A similar contrast in population distribution is noted in the Central American states as compared to the large coastal cities found in Mexico, both on the Caribbean and Gulf coasts.

37 Taking into account the population growth rate for each country in the Caribbean Sea region, it is expected that the number of inhabitants would be close to 123 million in 2020.[4] When the population for Guyana, Suriname, French Guiana, and the regions of Brazil and Florida that comprise the CLME Project are included, this number is expected to increase to approximately 130 million.

38 Almost all the countries in the region are among the world's premier tourism destinations, providing an important source of income for their economies. The population in the Caribbean Sea region swells during the tourist season by the influx of millions of tourists, mostly in beach destinations. In 2004, for example, the Mexican state of Quintana Roo received 10.8 million tourists with over 35 per cent of those arriving by cruise ships[5].

39 In the insular Caribbean sub-region tourism is one of the principal industries and the fastest growing economic sector in the sub-region (CARICOM Secretariat 2003). According to the Caribbean Tourism Association, 2004 saw close to 10 million tourist arrivals and a similar number of cruise ship passenger visits in 12 of the Caribbean SIDS. This represents an increase of up to 13.4% (Cuba) and 106% (Dominica), respectively, over the previous year. There is a high dependence of the economies of some of the countries on tourism, which contributes an average of 35% of GDP and accounts for 20% to 86% of earnings as a proportion of total exports (Commonwealth Secretariat 2000). In countries such as Antigua and Barbuda, US Virgin Islands, the Bahamas, tourism contributes over 50% to GDP, reaching as high as 72% and 85% in Antigua and Barbuda, and the US Virgin islands, respectively. Estimates from 2003 indicate that approximately 1,857,000 persons were employed throughout the region in the service sector (CARSEA 2003). Tourism and its related activities provide employment for approximately 50% of the Bahamas workforce. Many rural coastal areas are experiencing a gradual shift from dependence on local fisheries and agriculture towards the provision of tourism services and related activities.

40 At the same time, tourism investments also lead to important land use changes in coastal areas. The accelerated tourism development of recent years impacts negatively on habitat conservation, primarily due to weak regulations and inappropriate land use planning. Given that tourism is concentrated on marine and coastal areas, the concentration of tourism infrastructure and activities cause major environmental impacts. (UNEP/CEP, 2001) Degradation and loss of natural coastal habitats such as wetlands, marshes, mangroves, sea grass beds and sand dunes have great impact on potential future use of the coast by local inhabitants and also on transboundary migratory organisms that depend on these habitats at various times during their life cycle. Estimates of economic losses from coral reef

[3] Hinrichsen, Don. The Coastal Population Explosion in *The Next 25 Years: Global Issues. Trends and Future Challenges for U.S. National Ocean and Coastal Policy*

[4] GIWA Caribbean Sea Assessments;Data for Aruba, Cayman Islands, Guadeloupe, Martinique, Montserrat, Netherlands Antilles and Turks and Caicos are not included

[5] http://na.nefsc.noaa.gov/lme, accessed April 9, 2007.

degradation in the Caribbean range from 350 million - 870 million USD/yr by 2015, compared to current benefits valued collectively at 3 billion - 4 billion USD/yr (Burke and Maidens 2004). The continued loss and degradation of the sub-region's coastal habitats will therefore impose serious economic consequences for not only the tourism industry, but the economy of the entire region.

41 Dependence on preferential trading arrangements, tourism and overseas development assistance has made most States vulnerable to external developments. The region has benefited from preferential trade schemes adopted by the United States, Canada and the European Union. In the case of the European Union, the Lomé Convention has provided free access to the European market for some products, as well as financial and technical assistance. Some Caribbean countries have had easier access to European Union markets than lower-cost competitors elsewhere in the region, although challenges to this preferential status are frequent. However, many preferential trade schemes have been phased out, including for the sugar industry, with significant economic impacts in many SIDs; St Kitts actually decided to phase out the sugar industry entirely in 2005.

42 Transportation of goods and tourists by marine transportation and the resulting high traffic of vessels using the region's shipping lanes is also a key economic activity. The 80 km long Panama Canal remains the principal global focus of maritime trade in the region, handling some 14 thousand vessels each year. This represents approximately five per cent of total world trade[6]. Expanding ports and maritime trade are often accompanied by intensified transportation corridors in coastal ocean areas, as is happening off Brazil. The transshipment of goods through the Caribbean to global destinations is of concern to the countries due to the environmental risks in the event of accidents involving the spillage of nuclear wastes, hydrocarbons or other toxic material. This would have significant ecological and socio-economic consequences to the countries in the region.

43 As previously mentioned, there is a high dependence on living marine resources for food, employment and income from fishing and tourism, particularly among the SIDS. Although its contribution to GDP is relatively low, marine fisheries production is a significant source of food, employment, and foreign exchange earnings in the Insular Caribbean countries (FAO 2007). The number of people actively involved in fisheries was estimated by CARSEA (2003) to be approximately 505,000 in the 1990s, a doubling of the numbers involved during the 1980s.

44 Agriculture is a significant export earner and means of livelihood in several countries, particularly for the Greater Antilles and the continental countries. Sugar and bananas are the most important agricultural products. In most of the continental countries and in the case of Trinidad and Tobago, the importance of the manufacturing and mining (including petroleum) sector is significant.

45 Over the past decade, the Caribbean countries have undertaken a number of economic reforms, with mixed results. For most countries, growth rates were positive during the 1990s, with most economies rebounding in 1996 and 1997 due to the improved performance of exports in general, and tourism and free trade zones in particular. However, economic growth has failed to keep pace with population growth in many of the countries and widespread poverty still exists, with some 38 per cent of the population in the

[6] http://www.pancanal.com , accessed April 10, 2007

Caribbean region classified as poor. With the urban population forecast to rise from 62 per cent in 1995 to 69 per cent by 2010 (United Nations Population Division 1997), urban poverty among the countries in the CLME Project area is of increasing concern.

PRIORITY TRANSBOUNDARY ISSUES

46 Three perceived transboundary areas of concerns have been identified during the preliminary TDA within each of the three sub-regions of the CLME Project:

- Unsustainable exploitation of fish and other living resources;
- Habitat degradation and community modification; and,
- Pollution

47 The impact of climate change on the member countries in the region, particularly the SIDS and countries with low-lying, flood-prone areas, was also identified as a significant area of concern. However, given the linkages of climate change and sea level rise in the other priority areas identified above, climate change is not discussed separately, but is treated as a cross-cutting issue within each of these areas of concern.

Unsustainable exploitation of fish and other living resources

48 Throughout the Caribbean LME and adjacent Guianas-Brazil region, the importance of fish and fisheries as a contributor to employment, income and food security has been recognized. In the Insular Caribbean, Central-South America and Guianas-Brazil subregions, the majority of the fishery resources are coastal and intensively exploited by large numbers of small-scale fishers using a variety of fishing gears and landing their catch at numerous sites scattered around the region. The region's highly migratory tuna and billfish resources are exploited by countries from within the region, as well as by foreign nations. Shrimp is of considerable importance in the Guianas-Brazil subregion and in Venezuela, Honduras and Nicaragua. The lobster fishery is by far the most lucrative and is harvested using a variety of fishing methods throughout the region but particularly in the Central-South America and Insular Caribbean subregions. In the Insular Caribbean, the fishing of large pelagics is a major tourist and recreational activity although reporting data on this fishery is lacking.

49 While the degree of exploitation varies by species and among countries, assessments have revealed generally high exploitation levels that have resulted in declining catches, particularly in inshore areas throughout all three of the sub-regions, as well as in a number of threatened species. The general consensus is that most coastal fisheries resources are fully or overexploited and there is increasing evidence that pelagic predator biomass has been depleted (Mahon 2002). Several species of sea turtles are threatened or endangered in many areas as a result of overexploitation.

50 In addition to large pelagics, four major transboundary fisheries have been recognised:

- Flying fish;
- Shrimp and ground fish of the Brazil –Guinea shelf;
- Spiny lobster; and
- Reef-fish

51 In the southern Lesser Antilles, the fourwing flyingfish (*Hirundichthys affinis*) is the single most important small pelagic. It is fished by seven countries: Trinidad and Tobago, Grenada, St. Vincent and the Grenadines, Barbados, St. Lucia, Dominica and France (Martinique). The total landings for these countries are about 3000-4000 mt making a relatively small fishery (Ferreira 2002). However, over 1700 boats are engaged in this fishery which is pursued from a variety of small to medium scale vessels from numerous often rural landing sites in the participating countries. Consequently, there is a high social and economic dependence on this fishery. There is also considerable value added from the onshore processing, distribution and sale of the catch. In Barbados the landed value of the catch between 1999 and 2003 was about US$ 1.8 M a year with the added value being a further US$ 13.8 M a year for a total value of US$ 15.6 M.

52 There was an increasing trend in landings through the 1980's owing to the rapid expansion of the fleet and area fished. During this period the fishing fleet in Barbados expanded rapidly and total landings of flyingfish more than doubled. This led to concern that the resource may become overfished and to increased attention to acquiring the information needed for management

53 A substantial body of information has been acquired on flyingfish fisheries over the past three decades. The Eastern Caribbean Flyingfish Project that culminated in a workshop in 1992 provides a synthesis of the information up to that point (Oxenford et al 1993). At that workshop key conclusions regarding the biology of flyingfish were that it is essentially an annual species, and that there is mixing of adults throughout the eastern Caribbean. Therefore, the resource should be managed as a single stock.

54 The shrimp resources in the Guianas–Brazil sub-region support one of the most important export oriented shrimp fisheries in the world. The groundfish resources in the Guianas-Brazil region are important for commercial and social reasons. Commercially, there is a strong domestic market demand for affordable and accessible fish protein together with a source of valuable foreign exchange when exported, with social reasons including the reliance of many rural fishers on artisanal fishing as a means of livelihood. Recent work on the brown shrimp and pink-spotted shrimp show a consistent decrease in biomass in recent years, with the decline being attributed to such factors as fishing mortality, increasing fishing close to shore where immature shrimp are caught, and environmental factors possibly linked to rainfall and river outflow. However, there is still need to improve on the quality of data/information as it relates to the fishing capacity, including processing infrastructure, operating in the Guianas–Brazil shrimp fishery and on the intensity and effects of near shore fishing by shrimp trawlers. In like manner, there is need to determine the possible links between recruitment and environment and its likely effects on the fishery. Also, more bio-economic assessments are required as previous work had shown that the current levels of exploitation were above the economic minimum, suggesting that potential revenue was being dissipated.

55 The results of assessments of a limited number of groundfish species indicate high levels of exploitation with most stocks being fully exploited and frequently overexploited. Despite a desire for sustainable utilization, management has been seriously hindered by a lack of comprehensive and reliable information on many important species (FAO/WECAFC, 2001). For example, even though the red snapper fishery, which started in 1940, is one of the most important fisheries in the region between eastern Venezuela and northern Brazil,

not much is known about the stock structure and fishing effort being applied. The identification of the structure and fishing effort would contribute significantly to more effective management (Charuau, et al. 2001).

56 The Caribbean spiny lobster inhabits tropical and subtropical waters of the Atlantic Ocean, Caribbean Sea, and Gulf of Mexico, in a range that goes from Bermuda and North Carolina in the United States, to Rio de Janeiro in Brazil. Lobsterfisheries is one of the most economically valuable fisheries resources in the Western Central Atlantic Fishery Commission (WECAFC) region and the most important in the Caribbean.

57 Lobsters are caught by both small-scale fishers and an industrial fleet, thereby creating many different fishing groups working in different areas and targeting different components of the lobster population. The fishery is one of sequential exploitation in which resource users need to move to new grounds, as the original ones become unprofitable (Grima and Berkes 1989). However, with declining adult stocks, fishermen are using small scale traps and diving to fish increasingly on the juvenile pre-recruitment stages to avoid moving to new grounds farther offshore or diving deeper. Meanwhile, industrial traps and divers target the spawning adults or those which normally inhabit deeper waters, often catching many berried females and larger animals.

58 There has been considerable effort in the region to assess and address the problems of the lobster fishery by organizations at different jurisdictional levels and at different stages in the policy cycle. Lack of monitoring, control and surveillance (MCS) is a common problem amongst the countries in the region, resulting in increased fishing effort and large-scale IUU fishing. The large-scale illegal sized lobster catch, which can contribute between 25-50% of the total catch in some countries, are not reported to the national fisheries agencies and can lead to significant bias in estimates of the biomass and the age structure of the stocks.

59 Reef fisheries are generally “open access” fisheries, with few regulations (either insufficient/or just poorly enforced) to protect the resources from over-extraction. Overfishing not only affects the size of harvestable stocks, but can lead to major shifts, direct and indirect, in community structure, both of fish species and reef communities as a whole (Roberts, 1995.) Larger individuals (which also have greater reproduction output) are targeted which affects the viability of a population. In addition to changes in the abundance, composition and distribution of targeted reef fish populations, noticeable changes in the structure of coral reefs have also been documented where, for example, over extraction of predatory fishes may result in the increase of other less commercially valuable species. As well, the accelerated bioerosion of corals can occur as the invertebrate fauna is no longer controlled by their natural predators, and overfishing of herbivorous fish results in overgrowth of coral reefs by algae. Overfishing can also lead to losses in biodiversity, and affect the abundance of species with critical roles in the ecosystem. This may also lower the resilience of the reef to other threats such as pollution and the ability to recover after natural disturbances such as tropical storms. Various fishing methods can also cause mechanical damage as well as being unsustainable and wasteful.

60 The impacts, consequences and causes pertaining to the unsustainable exploitation of fish and other living marine resources for each of the three subregions are illustrated in summary form in Part VIII of this document. Reduced abundance of fish stocks, habitat degradation and threats to biodiversity are among the impacts shared throughout the region.

In the Guianas-Brazil and Central-South American subregions, excessive by-catch of demersals from shrimp harvesting is a notable additional impact. The socio-economic consequences of loss of employment and income, loss of sustainable livelihood in coastal communities and a decrease in food security are shared by all countries within the CLME Project area. A preliminary analysis of the causes responsible for over-exploitation of living marine resources identified a range of factors. These included a lack of alternative sources of employment, the pressures from tourism sector and export demands, the lucrative nature of the lobster fishery, cultural norms, lack of adequate management tools, and weak governance mechanisms.

Habitat and community modification

61 Although most impacts related to habitat loss appear to be localized, the consequences arising from the destruction of coastal and nearshore ecosystems may result in system-wide changes in the trophic structure. Additionally, loss of areas for spawning and the protection of juveniles serve to exacerbate declines in stock abundance due to overfishing. Similarly, inadequately planned coastal development can reduce the regional value of tourism and have negative spin-off effects in the global tourism marketplace.

62 Coral reefs, mangroves, and seagrass beds are closely linked by complex ecological interactions between them, and degradation of one or more of these ecosystems will adversely affect the functioning of the others. Physical destruction and removal, sedimentation, over-extraction of living resources, biological and introduction of exotic species and disease arising from a range of anthropogenic activities and natural phenomena contribute to degradation and loss of these essential coastal habitats and modification of their floral and faunal communities.

63 In the low productivity Caribbean Sea 'desert', the highly productive coral reefs, mangroves, and seagrass beds are among the few 'oases', that are responsible for nutrient cycling, and carbon and nitrogen fixation in this nutrient-poor environment. Coastal habitats have important transboundary significance in that they harbour high genetic and biological diversity and serve as feeding and nursery grounds for fish and invertebrate species with transboundary distribution either as larvae or adults. Among these are lobsters, conch, turtles, and manatee. The transboundary importance of the sub-region's mangrove forests extends beyond the borders of the Caribbean Sea LME. These forests serve as over-wintering habitat for a number of species of neo-tropical migrant birds, whose populations could be threatened if these important habitats cease to exist. Since oceans are the ultimate sink and the fate of coastal waters is strongly tied to the condition of coastal lands, rivers and estuaries, successful conservation requires addressing not only the use of the marine environment, but land use as well, far up into the watersheds.

64 In the insular Caribbean sub-region, mangrove wetlands, seagrass meadows, coral reefs and other coastal systems play an important ecological role in the Caribbean islands. Including harbouring high genetic and biological diversity, providing nursery grounds for the juveniles of many commercially important fish species, nutrient cycling, as well as providing coastal protection and stabilization against storm surges and erosion. Owing to their small physical size, geographic isolation and fragility of island ecosystems, their biological diversity is among the most threatened in the world. Damage to coastal habitats may be potentially devastating for the Insular Caribbean countries, in view of the projected

global increase in the frequency and magnitude of extreme climate-related events such as storms and hurricanes (IPCC 2001).

65 In the Guinea-Brazil sub-region human activities along the coastlands have led to severe habitat modification. Mangroves, which dominate a major part of the shoreline, have been seriously depleted in some areas. For example, in Guyana, mangrove swamps have been drained and replaced by a complex coastal protection system, while on the Brazilian coast, there has been significant reduction in the original mangrove area by cutting for charcoal production and timber, evaporation of ponds for salt, and drained and filled for agricultural, industrial or residential uses and development of tourist facilities. In Brazil, erosion also threatens coastal habitats and some coastal lagoons have been cut off from the sea (Heileman. In Press.). In the past, the coral reefs were mined for construction material. Currently, they are exposed to increased sedimentation due to poor land use practices and coastal erosion, chemical pollution from domestic sewage and agricultural pesticides, overfishing, tourism and development of oil and gas terminals. Additionally, there has been some coral bleaching associated with climate variation (Heileman. In press and LME 17: North Brazil Shelf). Trawlers often operate without restriction in the shallower areas of the shelf, over ecologically sensitive areas inhabited by early life stages of shrimp. The environmental impact of such activities is likely to be high, considering the intensity of shrimp trawling operations in these areas. Trawlers also catch significant quantities of finfish as by-catch, of which dumping at sea is still a widespread practice in the region. In Suriname, small-scale fishers have reported the incidence of 'dead waters', in shallow areas, following fishing activity by trawlers. Such mortality could be the result of local oxygen depletion, caused by the re-suspension of anoxic sediment combined with the presence of organic matter dumped from the vessels.

66 In the Central/South American sub-region the interaction of mangrove swamps, seagrass meadows, and coral reefs is being severely impacted by activities carried out in the respective watersheds, especially deforestation and intense agriculture, which produce sediments and contamination by fertilizers and pesticides. These pollutants also affect the aquatic populations. The increase in the liberation of sediments into coastal waters causes significant stress on the coral reefs; it hampers the penetration of light necessary for photosynthesis, threatens the survival of young corals due to the loss of adequate substrate for settlement and in extreme cases leads to the complete asphyxia of the corals. One of the problems faced by the sub-region is coral bleaching, an impact of global warming that is affecting the biodiversity of the Caribbean Sea (Burke and Maidens, 2005). Coral bleaching occurs independently of the extensive use of chemical substances by divers to catch lobsters on the reefs, which also provokes death of the corals. Bottom trawling by shrimp boats, for which no mitigation or preventative measures currently exist, is also a severe problem.

67 The impacts, consequences and causes pertaining to habitat degradation and community modification for each of the three subregions are illustrated in summary form in Part VIII of this document. Loss of ecosystem structure and function, threats to biodiversity and further declines in fisheries productivity are among the impacts shared throughout the region. The socio-economic consequences arising from the loss of natural capital to contribute to economic well-being are shared by all countries within the CLME Project area. Among the most significant are loss of tourism-related benefits, threats to human health, and added

costs associated with the protection of human life and infrastructure as a result of increased climate change impacts.

68 The major underlying causes of habitat degradation and community modification in the Insular Caribbean are diverse with complicated interactions and synergies. Some of the underlying causes are the same as for unsustainable exploitation, for example, destructive fishing methods, rising demand for food, and inadequate legislation and enforcement of sustainable mangrove use. Among the other underlying causes are unsustainable tourism growth and related lack of planning policies. Tourism impacts on coral reefs include both direct and indirect impacts (UNEP/CEP 1997). Activities with direct physical impacts include: snorkelling, diving, reef walking, and boating; fishing and collecting, which can contribute to over-exploitation of reef species and threaten local survival of endangered species. Indirect impacts relate to the development, construction, and operation of tourism infrastructure as a whole (resorts, marinas, ports, airports, etc.). Tourism-related sources of sewage pollution include hotels and resorts and, to a much lesser extent, recreational vessels. Improper land use and poor agricultural practices: Deforestation, especially on hillsides, coastal construction in fragile and sensitive areas, and poor agricultural and aquaculture practices are among some of the underlying causes of degradation of coastal and marine habitats. Land degradation has increased the quantities of sediments entering coastal areas through surface-runoff, modifying these ecosystems by increasing turbidity and sedimentation.

69 Improper land use in coastal watersheds is a major cause of pollution from agrochemicals, pesticides, and other toxic substances arising from poorly planned coastal development (e.g. tourism and urban development, industrialization, maritime transport). Increasing tourism and urbanization is a dominant feature throughout the region, particularly in coastal areas. As a consequence, coastal habitats experience a range of pressures, including outright removal and reclamation, dredging, and pollution. Coastal areas are also the focus of industrial development, which coupled with maritime transport, is an increasing threat to the sub-region's coastal habitats. The bleaching of corals as a result of rising sea surface temperature and physical damage from storms and hurricanes are likely to increase, in light of predicted continued global warming and increases in tropical storms and hurricanes. Threats also arise from invasive species and 18 invasive or exotic species have been reported in the Insular Caribbean (Kairo et al. 2003; Varnham 2006). The threat from invasive species arises from various pathways and sources, with ship ballast water being among the major threat.

Pollution

70 Waste management is considered to be one of the major environmental issues in the CARICOM region (CARICOM Secretariat 2003). Although encouraging progress has been made in some areas, for instance, management of solid and liquid waste, overall progress has been slow, largely because of the high costs of installing and maintaining appropriate waste management systems. Growth in urban population, industrial activity, and tourism continues to outstrip infrastructural capacity to handle waste. Pollution from marine-based sources, such as from ships and marine petroleum exploration and extraction, is also of concern in the region. For example, the Old Bahamas Channel, which is heavily used for shipping, connects the Atlantic Ocean, Gulf of Mexico, the Caribbean Sea and the Pacific.

This channel acts as a conduit for pollutants. Reports have shown that tankers, private vessels and other ships that use this channel, clean their bilges and tanks, and discharge the residual oils into the water, which form tar balls (BEST 2002).

71 Throughout the insular Caribbean sub-region, pollution by a range of materials including sewage, nutrients, sediments, petroleum hydrocarbons, and heavy metals is increasing. Several coastal hotspots have been identified in some of the larger industrialized islands (Siung-Chang 1997). These include heavily contaminated bays such as Havana Bay (Cuba), Santo Domingo (Dominican Republic), Kingston Harbour (Jamaica), and Point Lisas Bay (Trinidad). Other hotspots may be related to direct point or non-point discharges. The pollution has significant transboundary implications, as a result of the high potential for transport across national EEZs in wind and ocean currents. Not only can this cause degradation of living marine resources in places far from the source, but it can also pose threats to human and animal health by the introduction of pathogens.

72 The sub-region is also impacted by extra-regional influences. For instance, the islands, particularly those in the southern Caribbean, are influenced by continental river run-off. The plume of the Orinoco River, as tracked by satellite imagery, seasonally penetrates across the Caribbean Basin, potentially exerting a region-wide influence, particularly in the southern Insular Caribbean. An example of the transboundary impact of this phenomenon are the fish kills in the Windward Islands in 2000, which were linked to bacteria introduced in sediments as a result of flooding in the Orinoco Basin (Hoggarth et al. 2001).

73 Transboundary impacts are likely to be more pronounced during the rainy season. There is increasing concern about the influence of atmosphere/ocean linkages on the marine environment (GESAMP 2001). This influence has been demonstrated in the Caribbean region in the atmospheric transport of dust to the region from North Africa. Data from Barbados, Trinidad and Tobago, and Jamaica suggest that persistent organic pesticides (POPs) originating outside the region reach the Caribbean in air currents (UNEP/GEF 2002). The countries of North Africa in the Sahel region apply large amounts of pesticides, including those banned in the Caribbean and the USA. These pesticides are present in the dust cloud reaching the Caribbean and southern United States from North Africa. Dust may also affect the marine environment through direct fertilization of benthic algae by iron or other nutrients and by broadcasting of bacterial, viral, and fungal spores.

74 In the Guianas – Brazil sub-region, pollution was found to be moderate, but severe in localised hotspots near urban areas. Most of the pollution is concentrated in densely populated and industrialised coastal basins, and not widespread across the region. As a result of the coastal hydrodynamics in this area, the potential for transboundary pollution impacts is significant. River outflow is deflected towards the northwest and influences the coastal environment in an area situated west of each estuary. It has been estimated that 40-50% of the annual Amazon run-off transits along the Guyana coast. In fact, Amazon waters can be detected as far away as the island of Barbados. As a result, most of the coastal area of the Guianas-Brazil region has been described as an ‘attenuated delta of the Amazon’. This implies that contaminants in river effluents, particularly those of the Amazon, could be transported across national boundaries and EEZs (Charlier, 2001 and Heileman. In press). Water quality in the coastal areas are threatened by human activities that give rise to contamination from sewage and other organic material, agrochemicals, industrial effluents, solid wastes and suspended solids (Heileman. In press). Effluents from industries are

released, sometimes untreated, into the water bodies. Contamination by mercury as well as by agro-chemical wastes is the main source of chemical pollution in the Amazon Basin. Gold is exploited in all the countries of the region and mercury from mainly artisanal and small scale gold mining operations is dispersed into the air, with the assumption that the largest part ends up in rivers, transforms into methyl-mercury and other chemical compounds and concentrates along the food chain. Mercury contamination could, on the longer-term, become a hazard for the coastal marine ecosystem and for human health, if suitable measures to limit its use are not implemented. There is also the potential risk of pollution from oil extraction, both in the coastal plain and the sea. Agricultural development is concentrated along the coast and includes intensive cultivation of sugarcane, bananas and other crops. This involves the application of large quantities of fertilisers and pesticides, which eventually end up in the coastal environment. Sugarcane plantations along the coast are also suspected to contribute persistent organic contaminants, which are widely used in pest control (Heileman, In press and LME 17: North Brazil; Shelf.)

75 In the Central/South American sub-region agriculture is very important to many economies in the region, such as Suriname and Guyana, but not much is known about its impact when extended into areas included in the broader marine environment, and the effluents carrying chemicals used in agriculture if they are drained in sufficient concentration to the sea. Not much is known about the effects of mercury from artisanal gold mining on the riverine, estuarine and marine ecosystems, and on the health of the miners and those living in nearby communities. Some of the countries in the Central/South American sub-region (Venezuela, Mexico, and Colombia) are dedicated to offshore extraction of oil and gas. In addition to operational discharges of pollutants from activities related to exploration, production, transportation, and distribution of oil and gas, the offshore oil and gas industry is subject to dangerous environmental conditions, especially storms, huge waves, and strong currents (IOC, 2002), which increase the risk of accidents and spills. The oil industry is doubtlessly one of the greatest environmental threats for the countries of the sub-region.

76 The Panama Canal has significant influence on pollution within the canal and in the Caribbean Sea, although Panama has formal laws that govern the passing of the ships through the canal and the discharge of hydrocarbons from them (Agreement No. 71 of December 16, 2003). Despite the fact that international regulations exist regarding the dumping of hydrocarbons and sewage, these are not adequately implemented and enforced in most of the countries.

77 The impacts, consequences and causes pertaining to pollution for each of the three sub-regions are summarized in Part VIII and include degradation of coastal ecosystems, threats and reduction in productivity to living marine resources, deterioration in human health and potential changes to reef community structure. The socio-economic consequences arising from pollution are also common throughout the region and include loss of economic potential from diminished amenity value and threat to human health. Additionally, the loss of marine food sources due to contamination can lead to significant social and economic disruption. Declining coastal water quality and habitat destruction are linked in a cycle that threatens living marine resources, public health, shore-front properties and coastal tourism.

78 A preliminary analysis of the causes responsible for pollution identified a range of factors. These include poor land use practices in the coastal zone leading to agro-chemical pollution and siltation, lack of cleaner production technologies in industry and poor waste handling.

Poor implementation of existing pollution control legislation and guidelines was identified as a key underlying cause in all three sub-regions as were weak and ineffective regulatory bodies and an absence of sufficient technical and financial resources. In the case of the Insular Caribbean and Central-South America, unsustainable tourism practices were also identified as an underlying cause of pollution. The world market demand for gold and an almost total absence of applying pollution control standards also contribute to the problem of pollution in the region. For additional information on the linkages between the environmental impacts of pollution, socio-economic consequences and causes as presented in Part VIII of this document.

STAKEHOLDER ANALYSIS

79 The stakeholder analysis in Part VII of this document lists the key institutions and stakeholders at the local through to international levels in each of the participating countries. The authors drew on a number of sources including existing stakeholder assessments conducted by the Caribbean Regional Fisheries Mechanism (CRFM) and the Caribbean Natural Resources Institute (CANARI); reports of attendance at major conferences (e.g. WW2BW) and meetings relevant to marine resources in the Caribbean; review of the Caribbean Conservation Association membership, UNESCO's Ocean Portal, and GULFBASE online databases of members. This information was supplemented by background documentation provided by the CLME Project Coordination Unit and CERMES. In addition, the countries were asked to provide information directly about the national stakeholders through a questionnaire and were asked to confirm the priority transboundary issues for their sub-region.

80 Recognizing that the CLME project covers some 23 countries and the need to identify stakeholders that will affect and be affected by the project (academic, resource users, managers, NGOs, Government, community-based Organizations, donors, fishers and fishers' organization) a number of criteria were developed to strategically identify key partners. The criteria included the following:

- National agencies/institutions with a mandate to manage transboundary living marine resources (LMR)
- Umbrella CBO's, NGOs and Fishers organizations at the local and national levels that are currently active and have interest in transboundary LMR. Umbrella institutions provide representation for their constituency
- Academic institutions with a direct interest by way of ongoing activities and/or research in transboundary LMR
- Umbrella private sector institutions with specific interest in transboundary LMR
- Intergovernmental and development agencies with a mandate for transboundary LMR at the regional and international levels
- Inter-sectoral committees with responsibility for transboundary LMR at the national and regional levels and which have broad representation
- Key donors and initiatives with an interest in transboundary LMR and active in the region.

81 Appendix 1 of the Stakeholder Analysis provides a listing of the key stakeholders in each participating country and a brief description of their mandate, roles and responsibilities. Given the number of countries and complexities of the region, and the numerous institutions at the local through to international levels, this listing is by no means exhaustive and only serves as a preliminary identification of key players relevant to the specific CLME project components.

82 Although not a primary focus of this preliminary assessment, it was recognized that sectors such as tourism and those associated with non-living marine resources such as oil development and transport are key players and should be considered in any effort to strategically target key stakeholders.

83 The information in this report provided the basis for the preliminary identification of key stakeholder institutions that should be considered by the CLME project for engagement in a partnership strategy.

84 To determine if the three transboundary areas of concern (unsustainable exploitation of living marine resources, habitat degradation and community modification and pollution) are of priority concern for the countries within the region, the CLME Project Technical Task Team developed a questionnaire for distribution to all countries and key stakeholders within the Project area. Given the number of countries involved, the time-frame for conducting the PDF-B activities and the funding restrictions, CLME-member countries agreed that stakeholder input at the national and sub-national levels would be provided via the National Inter-Ministerial/Sectoral Committee. Representation on these committees was multi-sectoral and included members from government, the private sector and in some instances, civil society. The survey template (Annex 2 of the Stakeholder Analysis) was sent to each National Inter-Ministerial/Sectoral Committee for a consensus national response. To date, 12 countries have provided responses and in all cases have reaffirmed the importance of the three identified areas of concern.

INSTITUTIONAL, SECTORAL AND POLICY CONTEXT

Regional Institutional Arrangements and Legal Considerations

85 Growing concern and interest by the countries of the Wider Caribbean region in the environmental conditions and trends of the Caribbean Sea resulted in the adoption in 1981 of the Caribbean Action Plan. Among its objectives is the provision of assistance to all countries of the region, recognizing the special situation of the smaller islands; coordination of international assistance activities; strengthening existing national and sub-regional institutions; and, technical cooperation in the use of the region's human, financial and natural resources. Following this, in 1983 the countries of the Wider Caribbean region adopted the Cartagena Convention which entered into force in October 1986 for the legal implementation of the Action Plan for the Caribbean Environment Programme (UNEP/CEP 1983). Its area of application comprises the marine environment of the Gulf of Mexico, the Caribbean Sea and the areas of the Atlantic Ocean adjacent thereto, south of 30° N and within 200 nautical miles of the Atlantic Coasts of the United States. The legal structure of the Convention is such that it covers the various aspects of marine pollution for which the Contracting Parties must adopt measures. In addition, the countries are required to take appropriate measures to protect and preserve rare or fragile ecosystems, as well as the

habitat of depleted, threatened or endangered species and to develop technical and other guidelines for planning and environmental impact assessments of important development projects in order to prevent or reduce harmful impacts. The Cartagena Convention has been supplemented by three Protocols in respect of Cooperation in Combating Oil Spills, Specially Protected Areas and Wildlife, and Pollution from Land-Based Sources and Activities.

86 The need for attention to the management of shared marine resources in the wider Caribbean Region is well documented. From the early 1980s it has been a main subject for discussion by WECAFC (e.g. Mahon 1987) and was stressed at its Commission Meeting in 1999. These issues have been discussed and agreement reached on the need for a coordinated regional effort on shared resources at many other fora. There is an extremely wide variation in the level of the countries' capacities for living marine resource management. The region is also characterized by a diversity of national and regional governance and institutional arrangements, stemming primarily from the governance structures established by the countries that once colonized the region.

87 A number of regional and global agreements exist which seek to address the social, economic and governance issues related to shared marine resource management. These include UNCLOS, the UN Fish Stocks Agreement, the FAO Compliance Agreement and Code of Conduct for Responsible Fisheries. The national level implications of several of these are being explored by the countries of the Caribbean region. These implications include (a) the need for capacity building at the national level to take part in international and regional level management of shared resources, and (b) the need for strengthening and expanding the scope of regional institutions to undertake this function.

88 Institutional arrangements for the management of transboundary living marine resources in the Caribbean region have been emerging, de facto, from the ongoing efforts of various institutions. These reflect the fact that the Caribbean does not have any major fish stocks attracting large commercial fleets, revenues from which can be expected to support a fisheries management institution. In other parts of the world, large valuable tuna or clupeid stocks have provided the incentive to establish management regimes to protect indigenous rights and to extract rents from non-indigenous fleets. The emerging approach in the Caribbean is more suited to the large diversity of resources that are already mostly exploited by indigenous fleets so that the issues relate primarily to conservation, optimization and intra-regional equity.

89 In response to the above situation, the emerging arrangements are flexible and involve networking and adaptation of existing institutions. This approach has been endorsed by the countries of the region at two meetings of WECAFC (1999, 2001). The arrangements involve a number of fledgling initiatives for various types of resources. For example, in the case of conch, the Caribbean Fishery Management Council has taken the lead in approaching regional management. However, some countries have difficulty taking part to the extent required for successful management. For shrimp/groundfish and flyingfish, WECAFC ad hoc Working Groups are the lead agencies. The newly established CARICOM Caribbean Regional Fisheries Mechanism (CRFM) has identified large pelagics as a priority topic (Haughton et al. 2004).

90 The regional environmental legislative regime comprises different international conventions that are related to marine and coastal resource management. For the Caribbean region in particular, the United Nations Environment Programme (UNEP) has played a leading role in the establishment of a number of conventions, action plans and protocols. These include:

91 Other international conventions relating to the sustainable management of transboundary living marine resources in the Caribbean Sea region include:

- the Convention on Biological Diversity (CBD)
- the United Nations Framework Convention on Climate Change (UNFCC)
- the International Convention for the Prevention of Pollution from Ships (MARPOL)
- the Convention on Wetlands (the Ramsar Convention)

92 Additional information on these agreements and other multilateral instruments of relevance to the CLME Project area are available in the CLME background document entitled Transboundary Non-Extractable LMRs/Biodiversity Governance and Monitoring & Reporting for the Caribbean LME and Adjacent Regions (2007).

93 The reality of Caribbean ocean governance is a diversity of networks of actors serving various purposes that seldom intersect effectively. Notably absent in most cases are interactions at the critical stage of communicating analysis and advice to shape coordinated decision-making. Most countries also lack capacity, and there is seldom a clear mandate by any national, sub-regional or regional level institution for management policies that address integration among sectors.

National Programming Context

94 At the National level the institutional and legal frameworks are varied and reflect the different inherited values and traditions of the Wider Caribbean countries. A review of the country structures indicate that most have a Fisheries Division or Ministry with functional responsibility for management of the sector, organised to carry out a range of regulatory and service tasks including:

- Sector technical support – providing advice on new practices and methods, training and technical interventions;
- Research – supported by various scientific and laboratory institutions;
- Resource management - licensing, inspection and monitoring and policing; and,
- Aquaculture/Mariculture development

95 In some of the larger states however, these responsibilities are shared by a number of agencies/departments thus complicating policy development and implementation. The involvement of stakeholder groups in national decision making process is not seen to be wide-spread. In Belize it is understood that the fishery cooperative do have considerable representation and opportunities to influence policy making but in general consultation procedures are weak.

96 Inter-sectoral coordination is widespread but more often within the context of integrated coastal zone planning and environmental planning than fisheries. Most if not all the SIDS have ICZM legislation and plans but it is unclear to what degree they are respected, how effective they are in bringing the various sectors together, and what is the involvement of the fishery sector. In the larger states ICZM is a common policy tool and extensive and detailed plans exist. Mexico, for example, has an 'Agreement for the Coordination of the Regional Marine Ecological Zoning Plan for the Gulf of Mexico and Caribbean Sea' which brings together federal and local governments. This interaction is crucial since responsibility for the management of coastal areas and the ocean lies with federal, state, and municipal agencies. At the federal level SEMARNAT is the principal government agency responsible for the environment, and is constituted by five decentralized entities: the National Water Commission (CONAGUA), the National Commission for Protected Areas (CONANP), the Mexican Institute of Water Technology (IMTA), the General Federal Attorney Agency for Environmental Protection (PROFEPA), and the National Institute of Ecology (INE). Other federal agencies with responsibility for the environment (including coastal and marine areas and natural living resources) include the Secretary of Agriculture, Livestock Production, Rural Development, Fisheries and Food (SAGARPA).

97 In some countries natural resource development is closely linked to wider long term sustainable development programmes. Good examples are provided by Guatemala and Honduras. In Guatemala the Ministry of Environment and Natural Resources (MARN) is responsible for formulating and executing policy, which aims to improve the country's competitiveness and orient it toward sustainable development, in compliance with several multilateral commitments, including the 1992 Earth Summit, Alianza Centroamericana para el Desarrollo Sostenible (ALIDES), and the Central American Commission for Environment and Development (CCAD), as well as national strategies regarding development based on a dynamic equilibrium between economic growth, social equality, and environmental quality. A major national strategy is the "Green Guatemala" (Guate Verde) program, which is the environmental component of a four-part national socioeconomic reactivation strategy (entitled "Vamos Guatemala!") that attempts to mainstream environmental sustainability into market economy incentives package and encourage governmental decentralization. In Honduras an Environmental Policy builds upon a National Strategy for Poverty Reduction, the Millennium Development Goals, the Government Plan 2002-2006, and the results of the National Dialogue involving Sectoral Committees. The policy promotes inter alia application of the precautionary principle, integrated land use planning, balanced development, eco-tourism, eco-certification and cleaner production.

98 Almost all the Caribbean states recognise sustainable development or rational use as a key tenant in fisheries policy and planning. The linkage between the ecosystem and fisheries management is however less well recognised and the traditional division between the governance of the environment and fisheries still exists. Some national fisheries bodies do however have wider mandates, as in Belize, where the Ministry of Agriculture and Fisheries has responsibility for facilitation, design and implementation of environmental monitoring programmes in regard to sustaining ecosystem functions and infers some coordinated policy development. This wider mandate makes the introduction of the ecosystem based approach to fisheries management an easier proposition.

99 The traditional fisheries institutional and planning structures in the region do not necessarily reflect the cultural importance of the fisheries or the socio-economic value of the ecosystem, particularly in the smaller states.

BASELINE ANALYSIS

100 Given the transboundary nature of the threats to the LMR that are a mainstay of many of the Caribbean economies, only a project of this scope can develop the necessary response and management measures required. Without the proposed GEF project, the present trend of decline and crisis will continue until resources are depleted (FAO 1998), leading to political/economic conflicts that affect regional stability. Food security and poverty levels will be impacted, especially in SIDS, at marginal socioeconomic levels, and in rural coastal areas with the fewest economic alternatives. Depleted LMRs will also severely impact tourism in several ways including degradation of recreational fisheries and loss of local seafood products. Biodiversity will be threatened as the trend in degradation of LMRs continues. Overfishing and other forms of exploitation in the Caribbean's coastal ecosystems threaten the many intrinsically valuable endemic species of the region. Without a functional and effective regional management framework, countries will be unable to generate adequate responses, and will remain lacking the national and regional level institutional mechanisms, capacity and knowledge base for management of transboundary living marine resources. The potential of international agreements such as UNCLOS, the UN Fish Stocks Agreement and the FAO Code of Conduct for Responsible Fisheries to contribute to improved management and ultimately marine livelihoods will not be realized in the Caribbean region. Global benefits will be demonstrated through more stable fish stocks, increased regional stability and co-operation, improved livelihoods for coastal communities and fishing industry, and enhanced protection for associated biodiversity.

101 Despite the international cooperation indicated by country participation in agreements and organizations and heightened awareness throughout the region that an integrated approach is called for, the knowledge base, legal/policy regimes as well as the technical and institutional capacities that are required to give effect to a range of goals and commitments are severely constrained for most of the countries in the region. Even in those countries with substantial capacity at the national level, the regional institutional network that is required for Caribbean-wide cooperation in fisheries management is lacking for most resource types. Furthermore, although there may be good technical information for some areas of the Caribbean LME and its adjacent regions, there are many gaps that must be identified and filled in the process of implementing management approaches that incorporate ecosystem level processes.

102 A survey of the participating countries to assess the baseline position indicated that in most states the legal and policy framework was in place, but that its implementation and enforcement was weak and that there is a need for better knowledge and information to support management decisions. In the larger states, such as Brazil, transboundary concerns are focused on pollution rather than LMR specifically, reflecting a wider, more general concern for the environment. Brazil recognizes the need for massive investment in municipal waste water treatment and improved monitoring and enforcement of pollution discharges. In the LMR sector, Brazil has allocated over $19 million to the development of

a sustainable fisheries programme and is making large investments in the licensing of fishermen and establishing and maintaining permanent fishery resource management committees. It is also looking at the development of a LMR monitoring programme and conflict resolution between industrial and artisinal fishermen. It is hoped that Brazil and the other larger participating states (Mexico and United States) will take a lead and assist the smaller countries in building capacity.

103 In the smaller states the baseline survey identified LMR as the priority concern. Almost all countries indicated that additional information and knowledge was required, not only scientific but also socio-economic. Some states cited specific transboundary fisheries management issues and potential areas of conflict with neighbouring states. Involvement of stakeholders including NGOs in the governance process and improved regional cooperation were seen as important factors in addressing LMR issues. The reporting on LMR regulatory activities and on-going research projects in the smaller states were patchy and no budgets were given, suggesting possible chronic under-funding. It is clear that there is a substantial gulf between the larger and smaller CLME states which this project will need to bridge in order to achieve any meaningful regional governance.

104 A number of states have major on-going ICZM projects funded in the most part by bi-lateral and multilateral donors. The importance of inter-sectoral coordination and integrated policy development appears to be well understood and well practiced particularly in the SIDS and this is a good sign for the project.

105 There are number of on-going regional projects to which, for both technical and governance aspects, the proposed project will be linked, which include a number of major GEF projects. The Integrating Watershed and Coastal Area Management (IWCAM) for the Small Island Development States of the Caribbean project focuses on improving watershed and coastal zone management practices and is a natural project partner. It is expected to provide valuable information for the TDA and there to be close collaboration in implementation of the pilot projects. Another key partner project if approved would be the GEF Gulf of Mexico LME, which addresses through the TDA/SAP process similar transboundary fisheries management concerns and shares some transboundary fisheries. It is anticipated that there to be significant synergy with this project. There are two other major GEF international waters projects in the region, the Environmental Protection and Marine Transport Pollution Control in the Gulf of Honduras (Belize, Honduras and Guatemala) which may have a bearing on any spiny lobster pilot project located in the sub-region and the UNEP led Regional Programme of Action and Demonstration of Sustainable Alternatives to DDT for Malaria Vector Control in Mexico and Central America. The transboundary impact of DDT on fisheries was not assessed either qualitatively or quantifiably in the existing CLME TDA.

106 There are two other regional initiatives which are particularly relevant for the project. The University of the West Indies (UWI) in Barbados teamed up with a Canadian counterpart and other partners including the Nippon Foundation of Japan, on an ocean research project for over $1 million. The project, *Strengthening Principled Ocean Governance Networks: Transferring Lessons from the Caribbean to the Wider Ocean Governance Community*, will be lead by CERMES thereby ensuring close synergies and linkages with the CLME project.

107 For its part, the Ministerial Council of the Association of Caribbean States (ACS) at its Thirteen Ordinary meeting in January 2008 adopted the Caribbean Sea Commission's Work Programme, entitled "Areas for action towards sustainable management of the Caribbean Sea". The first action area is "Governance", and it was decided that the work programme in this area could be implemented by the CLME Project. Thematic areas covered include: policy, legal framework, institutional and administrative framework, access to information, public participation and dialogue among stakeholders.

108 Other regional projects and initiatives include:

- Two major Japanese global initiatives active in the region aimed at the promotion of sustainable fisheries and investigating conservation measures for vulnerable, aquatic, CITES listed species;
- A initiative by the Government of Sweden through the FAO/WECAFC and OSPESCA which supports a fisheries research programme for responsible fisheries in Central America, focusing mainly on the shrimp and the spiny lobster fisheries; and
- Numerous on-going FAO/ WECAFC efforts through its specific fisheries working groups (Shrimp and Groundfish in the Brazil-Guianas shelf; Caribbean Spiny Lobster Resource; Flying fish in the Eastern Caribbean; and Queen Conch) to which this project will be tightly linked.
- The Caribbean Community Climate Change Centre (CCCCC) which coordinates the Caribbean region's response to climate change. This Centre of Excellence supports efforts and initiatives to address climate variability and change impacts on socio-economic development through the provision of timely forecasts and analyses of potentially hazardous impacts of both natural and man-induced climatic changes on the environment, and the development of special programmes.

109 There are also numerous national initiatives which the project will link with through the sub-regional SAPs. Among these should be mentioned the proposal for *Effective Conservation and Sustainable use of Mangrove Ecosystems in Brazil* that aims to tailor existing protected area management tools to address the specific characteristics of mangrove ecosystems. This project will provide valuable tools for replication in the Caribbean.

PART II: Strategy

110 Many fisheries in the Caribbean, particularly coastal ones that support small-scale fisheries, are overexploited and in crisis. In addition to its effects on livelihoods and poverty, overfishing is resulting in changes to marine ecosystem structure that may be irreversible and affect associated biodiversity. The Caribbean Sea contains one of the largest groupings of SIDS in the world, and their dependence on coastal and marine resources is increasing as a source of protein and to support the tourism industry and prime export products such as lobster. Throughout the region, the majority of the population inhabits the coastal zone, and there is a very high dependence on marine resources for livelihoods.

111 The living marine resources (LMR) of the Caribbean LME are often shared, and ecosystem management and the recovery of depleted fish stocks will require cooperation at various

geopolitical scales. Existing institutional, legal and policy frameworks for managing shared living marine resources across the region are inadequate. Capacities at the national level are weak and information is poor and fragmented, particularly with relation to the transboundary distribution, dispersals and migrations of these organisms and the impact of changes in productivity and climate. In cases where information is available, it is often not easily or readily accessible for region-wide decision-making. This represents a major barrier to the sustainable ecosystem-based management of these shared marine resources where long-term programs to collect and integrate biogeophysical, social and economic data are critical in order to better understand the workings of the marine ecosystems and the effectiveness of management decisions.

112 Given that the CLME does not have dominant large scale fisheries, the project will develop innovative governance/ management approaches suited to the large diversity of medium and artisanal scale fisheries, and focused primarily on conservation, optimization and intra-regional equity. It will enhance capacities at several scales, enabling countries and regional organizations to better engage in regional processes and frameworks, developing models based on resource types and degree of transboundary complexity - both geopolitical and biogeophysical. Critical information gaps, capacity constraints, and fragmented approaches to fisheries management need to be overcome if Caribbean LMR are to be sustainably managed and resource depletion reversed in accordance with the targets identified at the World Summit on Sustainable Development (WSSD) in 2002. Through the activities described below in the Project Objective, Outcomes and Outputs, the project will enable CLME countries to better manage and govern strategic and shared living marine resources and to protect associated biodiversity, by introducing a regional ecosystem-based management approach that will provide for long-term resource sustainability, and improved food and economic security.

INSTITUTIONAL, SECTORAL AND POLICY CONTEXT

113 The Caribbean Large Marine Ecosystem encompasses twenty-five countries and nineteen dependent territories. These countries range from among the largest (e.g. Brazil, USA) to among the smallest (e.g. Barbados, St. Kitts and Nevis) in the world, and from the most developed to the least developed. Consequently, there is an extremely wide range in their capacities for living marine resource management. Throughout the region, the majority of the population inhabits the coastal zone, and there is a very high dependence on marine resources for livelihoods from fishing and tourism, particularly among the small island developing states (SIDS), of which there are 16.

114 The region is characterized by a diversity of national and regional governance and institutional arrangements for addressing the management of living marine resources, stemming primarily from the governance structures established by the countries that colonized the region. Only with external support will it be possible to develop coherent system-wide, ecosystem-based management approaches ensuring sustainable development of the region's strategic marine living resources.

115 A range of anthropogenic impacts threaten the Caribbean Sea, including:

- overexploitation of most coastal and offshore living marine resources,

- destruction of coastal habitats by tourism, industrial and urban development, and
- degradation of the marine environment by pollution from land and ship-based sources.

116 The focus of the GEF intervention will be on assisting the Caribbean countries to improve the management of their shared marine living resources and to address the problems through the concept of ecosystem based management approach, assessing the problems and threats through the LME modular approach and the GEF IW transboundary diagnostic analysis.

117 The living marine resources of the Caribbean LME are often shared between countries and the management and the recovery of depleted fish stocks will require cooperation at various geopolitical scales, but there are at present inadequate institutional, legal and policy frameworks or mechanisms for managing shared living marine resources across the region. There is a lack of capacity at the national level and information is limited and fragmented, particularly with relation to the transboundary distribution, larval dispersals and migrations of these resources. The paucity of knowledge represents a major barrier to sustainable management, even if an adequate mechanism for effective region-wide ecosystem-based management were in place, the establishment of which will be a major project challenge.

118 The Caribbean countries recognize that the living marine resource management problems can only be effectively addressed through adoption of ecosystem based management approaches and application of the FAO Code of Conduct for Responsible Fisheries. This will require a thorough baseline assessment of the system components and changes they are undergoing. The project will achieve this aim by following the standard Large Marine Ecosystem modular assessment approach and the development of an agreed decision and planning framework by applying the GEF TDA/SAP process. The Large Marine Ecosystem approach uses five key modules (productivity, fish and fisheries, pollution and ecosystem health, socio-economic and governance) as the basis of an ecosystem based management approach and has a very strong and robust scientific methodology. It is directly supportive of the TDA and provides the key data and information for the development and application of monitoring and assessment of indicators.

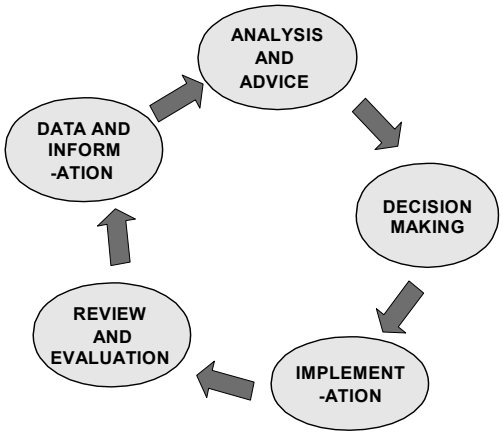


Figure 2. A generic policy cycle.

119 In the Caribbean, weak of governance is consistently identified as one of the root causes of unsustainable exploitation of fisheries (see Part VIII of this document). Policy governance cycles (see fig 2) were identified at regional, sub-regional and national levels and weakness identified, including lack of data and information and institutional capacity to support decision making. Also an absence of a regional governance framework tying together local, national and sub-regional elements through horizontal and vertical linkages was also seen as a weakness which needs to be addressed.

120 The challenge will be to undertake the necessary baseline assessment and forward planning for effective ecosystem based management while at the same time building a strong management and governance framework capable of delivery. The introduction of an ecosystem based management approach and the strengthening of the framework will both take many years to accomplish. Given that they are linked, they will have to be addressed in parallel. An improved data, information baseline will be a major impetus to the countries to strengthen their governance structures, since improved knowledge is a key input to clear and cost effective decision-making. Conversely, without a strong management and governance framework and knowledge of the decisions that need to be supported, assessment efforts and precious funding may be wasted and the political will be lacking. This simple lesson has been learnt in implementation of numerous GEF international waters projects, including LME projects, most recently in implementation of the Benguela Current LME project.

121 During the preparatory phase, a preliminary Transboundary Diagnostic Analysis (TDA) has been developed that will constitute the basis for agreement on transboundary waters priorities and subsequent definition of required reforms and investments within a Strategic Action Programme (SAP) with the objective of meeting WSSD targets for sustainable fisheries and introduction of an ecosystem based management approach. In the full size project the TDA will be reviewed and updated to arrive at a more detailed analysis of the underlying and root causes, socio-economic aspects and stakeholders. There will also be a number of targeted studies to improve knowledge of the key transboundary fisheries.

122 Based upon the scientific, policy and institutional assessment contained in the TDA, the project will work closely with the countries to develop a SAP, which is a negotiated policy document which establishes clear priorities for action to resolve the priority transboundary living marine resource management problems. The SAP activity will include the strengthening of the management and governance framework (see below), development of a public involvement and communications strategy as well as the development of a monitoring and evaluation framework. Inter-ministerial committees established in each country will coordinate SAP development and obtain the necessary political commitments for action on transboundary problems.

123 The SAP development will include the promotion of a LME management and governance framework and the exploration of its viability within regional and subregional organizations such as the ACS, CARICOM, SICA-OSPESCA and the OECS. The interventions will explore the extent to which these organizations can and will adapt to accommodate LMR inputs at advisory and decision-making levels and the appropriate mechanism for achieving full policy cycles regarding LMR governance. In this activity there will be a focus on the role of the ACS and its Caribbean Sea Commission which has the UN General Assembly

mandate to pursue the sustainable development of the Caribbean Sea as a Special Area under the Law of the Sea.

124 The project will explore different approaches based on the conceptual LME Governance Framework. This framework, based on linked policy cycles at multiple levels, from local to international, was developed early in the PDF-B and is documented in CLME reports. The need for the framework became clear when existing approaches capable of accommodating the diversity and complexity of the Caribbean could not be found. The Caribbean Sea's governance involves a diversity of networks of actors serving various purposes that seldom intersect effectively. Notably absent in most cases are interactions at the critical stage of communicating analysis and advice to shape coordinated decision-making. Thus the importance of having a framework that focuses on critical nodes for effective LME governance and on strengthening linkages across multiple levels has become increasingly evident. Most countries also lack capacity, and there is seldom a clear mandate by any national, sub-regional or regional level institution for management policies that address integration among sectors.

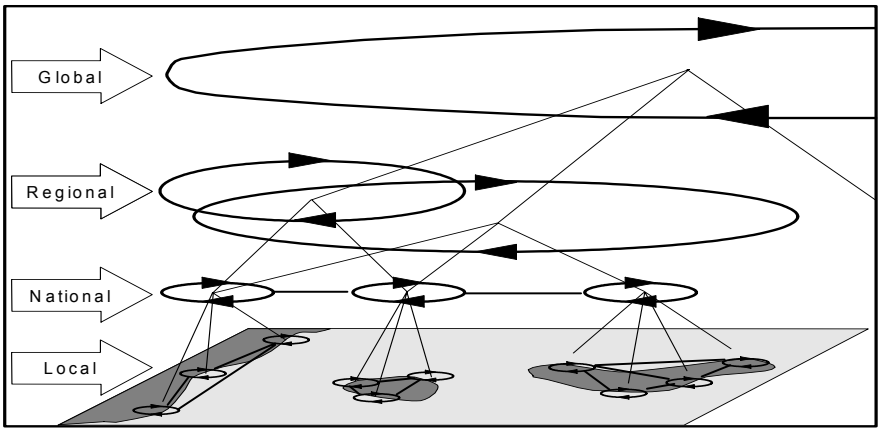


Figure 3: The multi-scale component of the proposed governance framework with vertical and horizontal linkages among the different policy cycles. The multi-level linkages do not necessarily imply a controlling function.

125 The project will also address the management and governance issue and policy cycles within the context of five main transboundary fisheries.

- Large pelagic fishes
- Reef fishes
- Shrimp and Groundfish
- Lobster
- Flyingfish

126 Analysis of the policy cycles and linkages for these fisheries has been undertaken and the weakness in the cycles identified, in terms of gaps in data and information gathering, and analysis and advice and in particular decision-making. Through the preliminary TDA a series of activities have been identified to be executed to improve specific management decisions within each fishery. The complex interaction between the fishery and the

environment will be investigated through two demonstration projects (the lobster fishery of Central America and reef fisheries and biodiversity – see Outcome 4).The countries through regional organizations such as the WECAF have developed sub-regional fisheries management plans and documents guided by the principle of the ecosystem based approach and FAO Code of Conduct for Responsible Fisheries. These documents include detailed recommendations for research, management strategies, institutional strengthening and investments for the key fisheries. However, very little of the planned work has been executed nationally or regionally and the plans remain on paper with little momentum. As part of the SAP development the project will draw upon these plans and meld them into a single document and to be implemented regionally within a new CLME governance framework.

127 The project will be underpinned as part of the SAP development by a robust stakeholder participation strategy that will provide for the active engagement of the private sector and civil society in defining and implementing response measures and solutions.

128 In summary, the proposed GEF project on the Sustainable Management of the Shared Living Marine Resources of the Caribbean Large Marine Ecosystem (CLME) and Adjacent Regions will take the following approach:

1. Preparation and later updating of a Transboundary Diagnostic Analysis (TDA), compilation and sharing of existing information and filling critical data gaps through targeted assessments, and the creation of a new and improved Information Management System.
2. Development of a Strategic Action Programme (SAP) for the Caribbean LME and Adjacent Regions to implement a more comprehensive, ecosystem-based approach to management of living marine resources.
3. The development of a CLME Governance framework for fisheries management, including mechanisms for cross-sectoral involvement and engagement of the private sector and civil society through activities that target regional level policy cycles for LME-wide governance and sub-regional cycles for large pelagic fish, flyingfish, and shrimp and ground fish of the Guianas-Brazil region.
4. Strengthening of linkages between the private sector, advisory institutions and decision making bodies in order to improve the policy cycle at all levels.
5. Development of a Monitoring and Evaluation Framework for SAP implementation and determine execution procedures and responsibilities; and
6. Implementation of two demonstration projects focusing on priority transboundary fisheries to demonstrate different models for strengthening the policy cycle and management framework at the local, national and sub-regional levels and to fill critical data gaps.

PROJECT RATIONALE AND POLICY CONFORMITY

129 The proposed project conforms to both of GEF's strategic objectives for the International Waters focal area.

- Fostering international multi-state cooperation on priority water concerns through the development of the CLME Governance framework for management of living marine resources and the encouragement of inter-sectoral dialogue
- To catalyze transboundary action addressing water concerns through the development of a SAP to address over exploitation of fish stocks and promote the concept of ecosystem based approach to fisheries management.

130 The project will deliver on these Strategic Objectives through innovative governance and management frameworks for key resources that support the economies of the region's countries. No only will the project enable the twenty-three GEF eligible countries and other countries and territories to develop and agree on a SAP, but will also work on specific sub-regional fisheries to assist countries to develop more effective and operational policy cycles in support of ecosystem based management, in keeping with SP 1.

131 The project fully conforms to the first of the GEF-4 global concerns regarding the depletion of coastal and marine fish stocks and associated biological diversity. Within SP1, the Project will address the need for an agreed collective program of action, that will include assessment of fishery stocks, productivity and biodiversity, and set the bases for adoption of ecosystem based management approach and the utilisation of the International Code of Conduct for Responsible Fisheries. Work undertaken on five sub-regional fisheries, including through two pilots, will provide opportunities to develop and fine-tune functional governance approaches that take into account livelihood requirements and management options, which can then be upscaled and translated at the regional level. The project moreover aims to catalyze policy, legal and institutional reforms at both national and regional levels. In achieving these objectives, key partnerships with a range of NGOs, RFMOs and other GEF agencies have been established, that will assist in heightening the project's benefits and ensuring their sustainability. Most critically, the project is designed to engage the fishing industry and stakeholder communities in fisheries management solutions. In so doing, this initiative will enable countries to uphold WSSD Targets for Sustainable Fish Stocks. Through the reef fisheries and biodiversity demonstration project, the best management strategies for reef fisheries both inside and at the margins of marine protected areas (MPAs) and in adjacent areas will be investigated and developed, thus already generating synergies with biodiversity protection and conservation objectives. Finally, it should be noted that the project's scope, and in particular work on the shrimp and groundfish fishery in the Guianas-Brazil region, indicates that through this project GEF will already be delivering benefits to another LME, the North Brazil Shelf.

Situation without the GEF Increment

132 Without the proposed GEF project, the present trend of decline and crisis will continue until resources are depleted (FAO 1998). There has been a shift from exploitation of on-shelf resources, which are mainly national, to offshore, shared resources. This has been partly due to the depletion of on-shelf resources, but also due to demand for additional seafood products. Consequently, there will be increased prominence of transboundary issues in Caribbean fisheries.

133 Biodiversity is threatened as the trend in degradation of living marine resources continues. The Wider Caribbean Region is an area of high marine biodiversity, including many

endemic species. Overfishing and other forms of exploitation in the Caribbean's coastal ecosystems threaten these intrinsically valuable endemic species (Jackson et al., 2001). Without the intervention proposed in this project, the continuing trend of resource depletion will contribute to increasing poverty and ultimately, to political/economic conflicts that impact regional stability. Countries of the region will not achieve food security, particularly regarding protein supply. The impact will be greatest at the lowest socioeconomic levels and in rural coastal areas with the fewest economic alternatives. Depleted living marine resources will also severely impact tourism in several ways as described in the rationale above. Countries will remain lacking the national and regional level institutional mechanisms, capacity and knowledge base for management of transboundary living marine resources. The potential of international agreements such as UNCLOS, the UN Fish Stocks Agreement and the FAO Code of Conduct for Responsible Fisheries to contribute to improved management and ultimately marine livelihoods will not be realized in the Wider Caribbean region. Threats to marine and coastal biodiversity will escalate.

134 Although there is good technical data and information for some areas of the Caribbean LME and its adjacent regions, there are many gaps that must be identified and filled in the process of implementing management approaches that incorporate ecosystem level processes. Furthermore, even for those countries with substantial capacity at the national level, the regional institutional network that is required for Caribbean-wide cooperation in management is lacking for most resource types. Despite the international cooperation indicated by country participation in agreements and organizations and heightened awareness throughout the region that an integrated approach is required for the Caribbean region, the knowledge base, legal/policy regime and technical and institutional capacity that are required to give effect to the variety of agreements and commitments are severely constrained for most of the countries in the region.

Alternative

135 The proposed project for the Sustainable Management of the Shared Marine Resources of the Caribbean Large Marine Ecosystem (CLME) and Adjacent Regions will build on and complement existing projects and initiatives that focus on technical and institutional aspects of sustainable living marine resource use. Most present projects in the Caribbean have a focus that is primarily coastal and several include only sub-areas of the Caribbean LME. The present project will expand this focus to offshore systems and transboundary issues at the scale of the Caribbean LME. With the project, there is the opportunity to develop management strategies, tools and plans for sustainable development and use of key transboundary fisheries and to strengthen and reform management and governance frameworks. Since most living marine resources are shared in some way, these reforms can be expected to lead to improved food security and enhanced livelihoods, particular in the SIDS which are heavily reliant on fisheries and tourism. By encouraging the adoption of the ecosystem based approach there is also the likelihood of preservation and rehabilitation of degraded coastal ecosystems, conserving and protecting marine biodiversity.

PROJECT OBJECTIVES

136 The goal of the project is*: Sustainable provision of goods and services by the shared living marine resources in the Wider Caribbean Region through robust cooperative governance*.

137 The overall objective of the project is:

Sustainable management of the shared living marine resources of the Caribbean LME and adjacent areas through an integrated management approach that will meet the WSSD target for sustainable fisheries

138 The specific objectives of the project are:

1. To identify, analyze and agree upon major issues, root causes and actions required to achieve sustainable management of the shared living marine resources in the Caribbean LME and its adjacent regions;
2. To improve the shared knowledge base for sustainable use and management of transboundary living marine resources;
3. To implement legal, policy and institutional (SAP) reforms to achieve sustainable transboundary living marine resource management;
4. To develop an institutional and procedural approach to LME level monitoring, evaluation and reporting.

PROJECT OUTPUTS/ACTIVITIES

OUTCOME 1: ANALYSIS OF TRANSBOUNDARY ISSUES AND PROBLEMS RELATING TO THE MANAGEMENT OF LMR AND IDENTIFICATION OF NEEDED ACTIONS

139 Early on in implementation of the PDF-B project, it became apparent that development of a detailed TDA at the regional level would not be possible given the available PDF-B resources and timeframe. Therefore TDA finalisation was deferred to the Full Sized Project. In addition, it was concluded, due to the CLME's size, complex mosaic of EEZs and diverse ecosystems, that development of a series of sub-regional TDAs would be more appropriate than a single analysis. Three sub-regions were selected for TDA development: Insular Caribbean, Central/South America and Guianas/Brazil. The preliminary sub-regional TDAs and the synthesised regional developed during the TDA can be found in Part VI of this document. The TDAs were assembled from thematic reports and are based on existing information, and characterise, scope and identify the immediate and underlying/root causes of transboundary issues relating to management of living marine resources from an ecosystem perspective.

140 The initial TDA identified and analysed the priority transboundary problems in three sub-regions (see Part VIII). The analysis included a preliminary causal chain analysis and identification of underlying and root causes as well as a first identification of the information gaps. At the beginning of the project the TDA will be reviewed to include a full analysis of data and information gaps, a complete causal chain analysis, public involvement and communication strategy, institutional mapping, legislative review, a socio-economic review and identification of interventions for inclusion in the SAP. The results of the TDA gap filling activities and the demonstration projects will be incorporated into a final updated

Transboundary Diagnostic Analysis (TDA) to produced in year three. The final TDA will be disseminated widely, both in full and easy access versions and will inform the CLME SAP development at the sub-regional and regional levels.

141 In parallel to the TDA, the project will assist the design and development of a CLME integrated information system which will initially concentrate on data and information generated from the five priority transboundary fisheries and the M&E framework. It is likely to be a distributed system with management at the sub-regional level.

Outputs:

1.1 Revise and update the TDA.
1.2 TDA gap filling activities.
1.3 Development of Information Management System.

142 The review of the TDA will be an early activity to be undertaken in the full size project and will include the following additional elements:

- Detailed Causal Chain Analyses (CCA);
- Public Involvement and Communication Strategy;
- Institutional mapping and legislative review;
- Pre-feasibility studies;
- Socio-economic evaluation;
- Identification of interventions;
- Pre-feasibility studies; and;
- TDA gap filling analysis.

143 The revised TDA, following GEF best practice, will lead to the identification of the priority interventions for inclusion in the SAP needed to address underlying/root causes, including filling of knowledge gaps, legal, policy, and institutional reforms, investments, economic instruments, awareness raising and stakeholder involvement. The TDA will be formulated by a Technical Task Team (TTT). The TDA will inform the development of the SAP, including development of the CLME management and governance framework and to the final design of the demonstration projects. The TDA through the causal chain analysis will identify possible interventions to be included in the Strategic Action Programme. To assist prioritisation during SAP development, the TDA will incorporate a socio-economic evaluation and pre-feasibility studies of key interventions. The TDA will also identify the gaps in the baseline information necessary for the establishment of the SAP monitoring and evaluation framework.

144 From the preliminary TDA the following data/information gaps were identified in application of the ecosystem based management approach to the large pelagic, flyingfish, and shrimp and groundfish fisheries which will be addressed as part of the TDA activities.

145 Large Pelagics

- Establishment of a fisheries data collection programme for large pelagics not under the jurisdiction of the ICCAT (i.e. dolphinfish, blackfin tuna, cero and king mackerels, wahoo and bullet tunas).

- Studies of the trophic linkages within the pelagic system and establishment of initial management plans, including target and limit catch reference points (TRP and LRP) for key species.
- Assessment of the economic importance and impact of recreational fisheries in the region.

Flyingfish

146 The following activities were identified in line with the WECAFC draft management plan for flying fish in the Eastern Caribbean, 2002 (Part 1):

- Improvement of fisheries data collection programme, including catch/effort information, in the Eastern Caribbean taking into account long lining and mixed landings.
- Bioeconomic studies of the fishery to establish the bioeconomic criteria and set reliable management measures for the fourwinged flying fish.
- Assessment of species interaction between flying fish and large pelagic fishes to provide for these in management using EBM principles.
- Assessment of economic risk and social impacts to refine the management for the fourwinged flying fish.

Shrimp and Groundfish

147 The following activities were identified in line with the recommendations of the WECAFC First Regional Conference on the sustainability of fisheries resources in the Brazil-Guianas shelf, Suriname, 2002 (see Part 1).

- In the coastal zone, assessment of the impact of anthropogenic activities on the productivity of the shrimp fisheries and the drafting of coastal development guidelines for their protection.
- Bioeconomic assessment to determine the bioeconomic equilibrium and establish a LRP for the shrimp fisheries - previous work has shown that the current levels of exploitation are above the economic minimum, suggesting that potential revenue is being dissipated.
- An assessment of primary/secondary productivity, trophic chains, species diversity, species interaction of the ground fish fisheries of the Brazil-Guianas shelf and the development of management strategies and tools to address the ecosystem dimension of the fishery.

148 The above activities will be undertaken in close collaboration with WECAFC and its working groups. The results, along with those from the demonstration projects, will be incorporated into a final updated TDA.

149 The identified TDA gap filling activities for the spiny lobster and reef fisheries are incorporated into the demonstration projects described in Outcome 3 and Part VII of this document.

150 The project design recognizes that there has already been a considerable amount of science monitoring, assessment, and research relevant to the goods and services provided by the resources of the Wider Caribbean. Much of the pertinent information is centralized in a few areas or is in forms that makes it difficult to access. Therefore, in parallel to the TDA, the project will assist in the design and development of a CLME information management

system that will build on existing initiatives. The project needs to ensure that this system will be sustainable over the long term. One of the purposes of the information system will be to collate and facilitate the accessibility and dissemination of this widely scattered information, as well as to analyze the information and data produced for monitoring and evaluation of the ecosystem status of the CLME and implementation of the SAP. The design of the system will take account of other regional and sub-regional objectives and will be discussed with and agreed by the participating countries.

151 The design of the information system will be closely linked with the requirements of a Monitoring and Evaluation framework (see Outcome 3). The information system must not only accommodate existing data, but must be designed to accept and make effective use of future, more integrated monitoring data. A key aim is to ensure that data are properly categorized, to ensure that inappropriate comparisons are avoided and that interpretation and assessment are both valid and clearly defensible. It is also important to focus on the purpose of the environmental information system. It is relatively easy to 'cram' data into a database, but this is only a preliminary and mechanical step. What is essential from the outset is to develop an understanding of how the system will be interrogated and how the data will be used. The focus must be on anticipating the needs of users, and on ensuring that information can be extracted in a structured and useful way.

152 The project will be assisted by the Intergovernmental Oceanographic Commission of UNESCO in development of the information management system and the M &E framework.

153 Deliverables:

- Causal Chain Analysis.
- Stakeholder Analysis (Qualitative and Quantitative).
- Public Involvement and Communication Strategy.
- Institutional Mapping and Legal Review.
- Regional Socio-economic review.
- Identification of potential interventions and pre-feasibility studies.
- Updated regional and Sub-regional TDAs.
- Results from TDA gap filling activities.
- IMS design.
- Operational IMS with operating manual.

OUTCOME 2: SAP DEVELOPMENT AND IDENTIFICATION OF LEGAL, POLICY AND INSTITUTIONAL REFORMS AND INVESTMENTS FOR SHARED LMR MANAGEMENT

154 The development of the Strategic Action Programme (SAP) and the promotion of the CLME management and governance framework necessary to implement the SAP is the central project activity. The SAP provides the countries with the mechanism for reaching country-driven consensus on priority actions for the management of the LMR of the Caribbean. The SAP process will be managed through the Programme Coordination Unit

(PCU) which will coordinate inputs from CERMES, UNEP and FAO and other key partners in development of the CLME management and governance framework.

155 In order to guide the process and provide for active and engaged participation by stakeholders, a project coordination structure will be established which will comprise the Steering Committee, Partners of the Project Group, and Stakeholder Advisory Group (STAG). This STAG will enable the project to be fully owned by the region by providing inputs input and support to the project developments. Coordination of donor funding for the project will be managed through the Partners of the Project Group made up of partner donor organizations. In the interests of cost-efficiency meetings of these groups will be concurrent as far as possible.

Outputs:

2.1 Strategic Action Programme (SAP) developed.
2.2 Management and Governance Framework for LMR of the CLME improved.
2.3 CLME Monitoring, Evaluation and Reporting Framework established.
2.4 Project information system established and maintained.
2.5 Steering Committee, Stakeholder Advisory Group and Partners of the Project meetings held.

156 A SAP is a negotiated policy document which identifies policy; legal and institutional reforms and investments needed to address the priority transboundary living marine resource management problems and establishes clear priorities for action. The SAP objectives will include the introduction of the ecosystem based management approach in the CLME and the application of the FAO Code of Conduct for Responsible Fisheries. The preparation of a SAP is a cooperative process among key stakeholders in the countries of the region. The PDF-B project document required the production of a preliminary SAP endorsed by 23 countries; however, in practice, this was not feasible or perhaps even appropriate at the early project stage. It was therefore decided to delay SAP development until the Full Size Project. The SAP development process will be informed by the TDA and the interim results of the demonstration projects. Following the principle of subsidiarity and GEF TDA/SAP best practice, the sub-regional TDAs will naturally lead to the development of Sub-Regional SAPs, nested and linked within a framework of a Regional SAP.

157 The SAP will enable the participating states to reach a consensus on a vision, management objectives, targets and interventions to protect and provide for the sustainable use of the shared LMR of the Caribbean. The SAP will include an estimation of the required financial resources and a strategy to mobilize those resources. It will be prepared in accordance with the incremental cost approach. The preparation of the SAP will be carefully designed to ensure that the SAP is action-oriented, financially realistic, locally owned, government supported, sustainable, and responsive to the local conditions, thus ensuring that it is implementable.

158 As part of the SAP development, the project will promote the creation of a management and governance framework based on the conceptual CLME governance framework developed during the PDF-B phase. This framework, based on linked policy cycles at multiple levels, from local to international, was developed for the Caribbean LME and adjacent regions and will utilize the strengths inherent in existing institutions and structures.

159 The promotion and enabling of the CLME management governance framework within this component will target primarily the regional and sub-regional levels and the interlinkages. Models for strengthening of governance at the national and local levels will be addressed through the demonstration projects (component 4).

160 The formation of an effective and robust governance framework will require the interaction and coordination of activities of the various decision-making and technical organizations in the region. Under the SAP component, the following steps will be undertaken to define and put in place the most effective and appropriate regional management structure:

1. An analysis of current management and governance frameworks for all major Caribbean fisheries.
2. Review of relevant existing international fisheries agreements and other agreements and institutions affecting the health and sustainability of the goods and services of the CLME.
3. Elaboration of a regional management and governance framework options paper through extensive consultations within the region and taking into account existing institutions and structures.
4. Selection of preferred framework option and initiation of implementation.
5. Drafting of legal and institutional arrangements documents.
6. Agreement and signing of agreement (if required).

161 The management and governance framework options paper will explore existing structures and mechanisms including the Caribbean Sea Initiative, which is being promoted by the Association of Caribbean States (ACS) by having the Caribbean recognised as special area under UNCLOS. The ACS has established the Caribbean Commission to oversee the sustainable development of the Caribbean and coordination of the efforts of the Caribbean States and regional and international developers to implement initiatives to promote sustainable development including that of living marine resources. The establishment of this Commission provides an opportunity to form a full project cycle that includes all but one coastal state in the region. Another option may be the formation of a tripartite mechanism comprising FAO/WECAFC, IOC/CARIBE and UNEP/Caribbean Environment Programme. The project will assist the countries in the definition and implementation of the preferred framework option.

162 A further study will also be undertaken to identify potential economic instruments which could be introduced to ensure the sustainability of the new management reforms (e.g fees on tourism/fishing, trust funds, government contributions, etc).

163 At the sub-regional level the project will explore the potential of strengthening existing decision-making institutions by the formation of policy cycles capable of providing ecosystem based management of the living marine resources. The project will investigate five priority transboundary fisheries, two of which are subject to demonstration projects (Spiny Lobster and Reef and Biodiversity). However, the remaining three fisheries will be the subject of detailed investigations and governance reviews as part of the TDA gap-filling and sub-regional SAP development.

- **Guianas-Brazil Shelf shrimp and groundfish** subregional policy cycle component, involving six countries will work with CARICOM as a political entity and the

WECAFC Ad Hoc Guiana-Brazil Shelf Shrimp and Groundfish Working Group and the CRFM as technical entities. Technically it will be informed by the past work of these organizations. Its higher level of complexity derives from the interactions of commercial and small-scale fisheries and from the dependence of the resources on vulnerable coastal nursery habitats.

- **The flyingfish** sub-regional policy cycle component involving seven countries will use CARICOM as a political entity and the WECAFC Ad Hoc Flyingfish Working Group and the CRFM as technical entities. Technically it will be informed by the UWI Eastern Caribbean Flyingfish Project and the ongoing FAO Lesser Antilles Pelagic Ecosystem Project (LAPE). It will also address the linkage of local and national policy cycles that are required in support of the sub-regional one.
- **The spiny lobster (south central stock)** demonstration project involving eight countries including six Central American ones, will seek to establish a network of local and national cycles that will be uplinked to SICA-OSPESCA as sub-regional organizations that can provide regional harmonization and decision-making required for effective management. Here again there is the interaction of commercial and small-scale fishing that are export and tourism market driven. In this management framework the issues of coastal nursery habitat destruction and poverty alleviation in coastal communities that rely on the resource for their livelihoods become prominent.
- The policy cycles of **reef fisheries** are the most complex by virtue of the inherent complexity of coral reef ecosystems, but also due to the multi-sectoral, multi-agency aspects of sustainable use of reef resources. Fisheries and tourism, the two main users of reef ecosystem goods and services have conflicting management objectives that must be reconciled. Biodiversity conservation interests are also strong in sustainable use of reef resources, bringing large international NGOs such as TNC, CoML and IUCN into the picture. The balance between conservation and use will involve protected areas as well as management of resource use in areas that are not protected. Both facets require involvement of resource users and conservation interests in local level policy cycles and their interplay with national and regional cycles for harmonization and supporting policy at ecosystem scales.
- The project will support the approach to the development and management of the transboundary **large pelagic fisheries** agreed upon among CLME countries, which focuses on two groups of large pelagics; oceanic and coastal. This builds on the work of FAO and the CRFM with regard to fisheries for pelagic species in CARICOM countries. For coastal large pelagic species contained largely within the CLME there is the need for a regional arrangement or policy cycle. This could be a subsidiary body of the International Commission for the Conservation of Atlantic Tunas (ICCAT) or a separate entity with close collaboration if ICCAT is willing to delegate responsibility for coastal species for which it presently has a mandate. The CLME Project will also assist countries in developing a mechanism for coordination of member country participation in ICCAT, which may include collective representation for certain groups of countries.

164 In addition the project under the SAP component will:

- Promote a cooperative mechanism for involvement of Caribbean countries in the activities of the International Commission for the Conservation of Atlantic Tunas (ICCAT) for certain large pelagic species, and will seek to establish a regional mechanism for the management of other large pelagic species that are of significance to the Caribbean region but which are not currently being addressed by ICCAT.
- Encourage the Caribbean states to ratify and implement relevant international agreements (UNCLOS, UN Fish stocks Agreement, FAO Compliance Agreement, etc) and to support the development of national enabling legislation.
- Strengthen the linkages between the advisory and decision-making bodies including the operationalization of arrangements for implementation of the Precautionary Principle and Code of Conduct for Responsible Fisheries and the ecosystem based management approach and the promotion of partnerships between fisheries administrations and the fishing industry, universities and research institutions to improve data collection and research.

165 The SAP will incorporate a monitoring and evaluation framework based on a suite of GEF IW indicators (process, stress reduction and ecosystem status) and will include reporting and updating procedures for recording SAP implementation.

166 The M&E framework will be designed to monitor and evaluate the implementation of the SAP and overall environmental status and lastly the CLMR management and governance framework and its sustainability and efficiency.

167 A list of potential indicators to be tracked needs to be based on a set of management questions determined by the decision making bodies at the various levels and for each priority transboundary issue. It will be important to establish the baselines against which the indicators are to be measured; this will be one of the most difficult tasks in the TDA/SAP development. The indicators must be measurable and, directly or indirectly, assess progress.

168 A review of existing monitoring programmes will be undertaken in order to identify a suite of ecosystem status indicators (ESI) which can adequately describe the status and track trends of the CLME environment while still being cost effective and technically feasible. The suite of ESI, in the form of an integrated Regional Ecosystem Monitoring Programme (REMP), will track the status and long-term trends in CLME fisheries, biodiversity habitat degradation and pollution. Recognising that a complete and sustainable REMP to track the ecological integrity and sustainability of marine resources in the Wider Caribbean will require years to build, it is recommended that a plan for gradual development should be examined that focuses on the critical transboundary issues. REMP development will be phased to match the institutional capacity and the levels of funding available in the region. The REMP should be capable of producing consistent, comparable results and support the decision making process at the national, sub-regional and regional levels. The preliminary programme will inevitably be modest, focusing on priority transboundary pollutants and key ecosystems and fisheries under threat. The design of the REMP programme will be underwritten by the analysis and gap filling activities done under the TDA and the results from the demonstration projects. An integral part of the REMP design will be a regional awareness and capacity building programme, targeting participating monitoring and advisory bodies.

169 Any system of Governance Framework indicators must be developed from the bottom up, as the accuracy and reliability of the aggregated information being provided to the higher levels will only be as good as the information generated at the lower level cycles. For there to be effective M&E there must be clear designation of reporting responsibilities at each level and vertical linkages between policy cycles must be operational. The demonstration projects will provide inputs regarding the management and governance at the local and national levels that will require their own monitoring and reporting arrangements.

170 In order to ensure informed stakeholder participation in this process, the project will establish an easily accessible web site, with translation into Spanish and English, making publicly available all project documents, contacts, links to partner and affiliated projects and project component activities. The web site will highlight inputs from stakeholders who have access to the internet and will provide a means for the inputs to be reviewed and incorporated as needed and appropriate for the project development. This interactive system will be closely monitored by the project staff to ensure that there are regular responses and inclusion of stakeholder concerns.

171 Deliverables:

- Regional/Sub-regional SAP formulated and endorsed.
- Regional management and governance framework agreed.
- Economic instruments to finance improved management and governance framework identified.
- Governance policy cycles strengthened at the sub-regional level for selected fisheries.
- Mechanism for strengthened involvement of countries in ICCAT activities.
- Regional mechanism for governance of large pelagics outside ICCAT activities.
- Improved ratification and implementation of relevant international agreements and Regional Fisheries Agreements.
- Partnership agreements between fishing authorities, private sector and universities/research institutions to improve fisheries data and knowledge.
- Monitoring and Evaluation Framework for SAP implementation, CLME environmental status and governance established.
- First CLME environmental status report.
- Stakeholder Advisory Group Input Reports
- Partners of the Project Coordination reports
- Website established and maintained
- Inception and Steering Committee Meeting reports

OUTCOME 3: TARGETED PROJECTS DEMONSTRATING THE STRENGTHENING OF THE POLICY CYCLE AND EARLY SAP IMPLEMENTATION

172 The project will implement two demonstration projects targeting specific priority fisheries with the aim of show-casing how the fisheries management policy cycle can by strengthened at the national and local levels and linked vertically to the sub-regional and regional levels. The demonstration fisheries will be:

- Spiny lobster; and

- Reef fisheries and biodiversity

173 The demonstration projects will use best available information, including latest credible science-based assessments, in reviewing and strengthening the management and policy processes at principally the local and national levels. As a first step the components of the existing policy cycles (data and information, analysis and advice, decision making, implementation and review and evaluation) will be analyzed for strengths and weaknesses. In implementing the demonstration projects the principle of learning by doing will be followed. The demonstration project documents are included in Part V of this document

174 The project design will be discussed with the countries and stakeholder group early in the first year of the Full Size Project. It is important that the demonstration projects target potential SAP interventions, particularly with regard to the Code of Conduct for Responsible Fisheries and the development of the ecosystem based management approach, and the interim results feed into the SAP and CLME Governance framework development process.

175 The two demonstration projects will high-light different aspects of the policy cycle at the national and local levels. The Spiny lobster project will demonstrate models for local management and self regulatory structures and operational linkages to the national and sub-regional levels. Successful structures could be replicated throughout the CLME and applied to similar fisheries such as the conch. The Reef fish and Biodiversity will demonstrate the application of the ecosystem based management fisheries approach on one of the most sensitive ecosystems through inter-sectoral cooperation. Summaries of the demonstration projects are given below and full project descriptions are given in PART V of this document.

3.1 Spiny Lobster Demonstration Project

176 The Caribbean spiny lobster inhabits tropical and subtropical waters of the Atlantic Ocean, Caribbean Sea, and Gulf of Mexico, in a range that goes from Bermuda and North Carolina in the United States, to Rio de Janeiro in Brazil. Lobster fishery is one of the most economically valuable fisheries resources in the Western Central Atlantic Fishery Commission (WECAFC) region and the most important in the Caribbean.

177 Lobsters are caught by both small-scale fishers and an industrial fleet, thereby creating many different fishing groups working in different areas and targeting different components of the lobster population. The fishery is one of sequential exploitation in which resource users need to move to new grounds, as the original ones become unprofitable (Grima and Berkes 1989). However, with declining adult stocks, fishermen are using small scale traps and diving to fish increasingly on the juvenile pre-recruitment stages to avoid moving to new grounds farther offshore or diving deeper. Meanwhile, industrial traps and divers target the spawning adults or those which normally inhabit deeper waters, often catching many berried females and larger animals.

178 There has been considerable effort in the region to assess and address the problems of the lobster fishery by organizations at different jurisdictional levels and at different stages in the policy cycle. Lack of monitoring, control and surveillance (MCS) is a common problem amongst the countries in the region, resulting in increased fishing effort and large-scale IUU

fishing. The large-scale illegal sized lobster catch, which can contribute between 25-50% of the total catch in some countries, are not reported to the national fisheries agencies and can lead to significant bias in estimates of the biomass and the age structure of the stocks.

179 Many governments lack information on the state of exploitation due to the lack of local-level information related to the applied effort, and cannot estimate maximum sustainable yield, biomass or correctly set annual catch quotas. Failure of adequate control, combined with the high unit value of the species at the global market, has resulted in many conflicts between fishing groups (e.g. small-scale vs. industrial, trappers vs. divers and national vs. international fleets).

180 The overall objective of the project is to demonstrate best practice and effective management and governance models for the lobster fishery at the local and national levels and to uplink them to a sub-regional management and governance framework. The project will be implemented in the Southern and Central American sub-region of the CLME.

181 Specific project objectives are:

- Identify and test management and governance models at local community levels that can be replicated and upscaled to, and supported at, national levels, capable of developing fishery self-governance and ownership.
- Promote strong governance linkages between at local and national levels, and upward to the sub-regional levels, encouraging communication networks and information transfer.
- Agree a sub-regional Spiny Lobster fishery management plan which has been ground-truthed at the local and national levels.

182 These objectives will be achieved through the following Activities:

Activity 1: Comprehensive review of existing management and governance systems applied sub-regionally, regionally and internationally to determine best practice.

- Identify, engage and analyze the full range of stakeholders in the fish chain in each stage of the cycle at sub-regional and national levels.
- Review the existing information and identify gaps on the lobster fisheries at sub-regional and national levels, including socio-economic data.
- Review of best regional and international practice in lobster fishery management and gear/methods, including juvenile lobster protection and new lobster pot design.

Activity 2: Strengthening Local Community Governance.

- Finalization of project design and site selection.
- Stakeholder analysis and formation of stakeholder groups.
- Development of local fishery management plan and establishment of implementation body.
- Implementation and monitoring of management plan.
- Capacity building at local and national levels.
- Local and national dissemination of results.

Activity 3: Development of sub-regional management plan for the South Central Stock.

- Review of current and potential management tools that affect the sustainability of the fishery and the possibility of harmonizing it at regional scale.
- Management plan prepared taking account of preliminary results of local governance site specific trials.
- Management plan negotiated and agreed by Sub-region.

Activity 4: Adaptive Management and Learning.

- Dissemination of results of pilot sub-regionally and regionally.
- Replication mechanism and programme defined.
- Long-term Monitoring and Evaluation programme developed and incorporated into sub-regional plan.

3.2. Reef Fisheries and Biodiversity Demonstration Project

183 Reef fisheries are generally "open access" fisheries, with few regulations (either insufficient or just poorly enforced) to protect the resources from over-extraction. Overfishing not only affects the size of harvestable stocks, but can lead to major shifts, direct and indirect, in community structure, both of fish species and reef communities as a whole (Roberts, 1995.) Larger individuals (which also have greater reproduction output) are targeted which affects the viability of a population. In addition to changes in the abundance, composition and distribution of targeted reef fish populations, noticeable changes in the structure of coral reefs have also been documented where, for example, over extraction of predatory fishes may result in the increase of other less commercially valuable species. As well, the accelerated bioerosion of corals can occur as the invertebrate fauna is no longer controlled by their natural predators, and overfishing of herbivorous fish results in overgrowth of coral reefs by algae. Overfishing can also lead to losses in biodiversity, and affect the abundance of species with critical roles in the ecosystem. This may also lower the resilience of the reef to other threats such as pollution and the ability to recover after natural disturbances such as tropical storms. Various fishing methods can also cause mechanical damage as well as being unsustainable and wasteful.

184 One management option proposed to combat over-fishing is the establishment of marine reserves, also referred to as fishery replenishment areas and marine wilderness areas. A marine reserve is one type of coastal and marine protected area that constitutes an area closed to consumptive usage, thus offering targeted and non-targeted species a spatial form of protection. They are designed to provide a spatial refuge that affords protection to habitats and species by eliminating fishing, harvesting, and other types of extractive activities. The spatial refuge protects marine populations from harvesting, while more conventional fisheries management methods attempt to provide a numerical refuge which allows a portion of the population to escape harvest. The latter methods incorporate size limits, fishing quotas, gear restrictions, and/or close seasons which can result in compliance and enforcement challenges. These conventional methods have not been effective in addressing overfishing in small-scale fisheries leading to a heavy recent emphasis on protected areas. However, it is now of concern that this focus may leave areas outside protected areas at even higher risk of depletion. Consequently new approaches recognize the need for a balanced approach, incorporating the need for Protected Areas and a community based approach in order to be effective. Financial and other incentives may also encourage sustainable fishing practices, while fines and penalties discourage illegal fishing and other breaches of sustainable practices. Licensing fishers can help limit access to fisheries that are at risk for overfishing. All tools are important and need to be integrated in a comprehensive coastal-watershed integrated management plan that allows for habitat and population sustainable use.

185 The objectives of the Reef Fish and Biodiversity demonstration project are:

- To demonstrate an integrated approach to the sustainable use of reef fisheries and marine biodiversity through the application of the ecosystem based-approach and on the basis of the principles and values of good governance.
- To strengthen or improve the governance of reef fisheries and marine biodiversity management at the local, national, and regional levels through improved regulations and

enforcement in large reef systems with demonstrable cross-cutting multi-sectoral linkages.

- To enhance marine biodiversity conservation through the strengthening of existing marine protected areas to enable them to meet their conservation objectives.
- To facilitate the transfer of best practices and the dissemination of lessons learnt on technical aspects and governance systems.
- To promote the ratification of international agreements relevant to the sustainable use of coastal and marine resources in the CLME.

186 These objectives will be achieved by undertaking the following activities:

Activity 1: Strengthening of existing management frameworks based on the principles of the ecosystem approach (assessment, capacity building, monitoring of effectiveness)

1.1 Assessments and mapping in selected sites

- Update and generate habitat maps and site surveys at under-studied areas of the selected sites required to assess connectivity and determine future management interventions.
- Data analyzed in order to determine habitat quality, based on environmental, biological, land use, and water quality indicators, in order to plan restoration sites, protection sites, and marine reserves.
- Review and enhance existing management plans and define zoning where required, to ensure conservation ("no-take") and "use" areas are strategically selected.
- Develop as needed, or review existing monitoring programs, including identification of MPA effectiveness indicators, and determine initial trends (bio-physical, socioeconomic and governance).

1.2 Integrated ecosystem based management needs assessed and strengthened management frameworks implemented.

- Support implementation of management plans and zoning with broad stakeholder involvement.
- Develop alternative livelihoods where required, in particular with fishing communities (including species recovery programs) to relieve fishing pressure.
- Regional (horizontal linkages) and site specific training activities (including visitors exchanges) on development and implementation of multisectoral, integrated and participatory management plans (including conflict resolution).
- Develop agreements with stakeholders on regulations and actions concerning coastal and marine water quality.
- Regional and site specific training activities on coastal and marine restoration and rehabilitation techniques.

Activity 2: Review and analysis of existing management regulations and enforcement mechanisms at selected sites

2.1 Review of policy cycles, refinement and adoption at selected sites.

- Increase knowledge on legal and policy aspects among all stakeholders, including about relevant international agreements.
- Assess existing management regulations and perform a gap analysis of management policies in each area.

- Improve compliance on existing fishery management regulations that are poorly enforced.
- Carry out national consultations for final adoption of enforcement methods.

2.2 Consultations and negotiation to ensure stakeholder participatory enforcement.
- Bring together different actors to agree on collaborative enforcement methods.
- Implement collaborative enforcement (local/national agencies, users, etc).
- Enhance participatory soft enforcement and monitoring through capacity building at local, national and regional levels.

Activity 3: Public awareness and education outreach enhancement (regulations and enforcement emphasis)
- Develop and implement strategic awareness and education activities to enhance stakeholder knowledge and participation in the areas of regulations and enforcement, targeted at the different stakeholder levels and groups.
- Awareness activities on the economic value and environmental goods and services of coastal and marine resources, with emphasis on marine biodiversity and coral reef ecosystems.

Activity 4: Transfer of best practices and dissemination of lessons learnt (also imbedded as appropriate in the above activities to ensure the demos and other sites benefit from lessons learnt and successful approaches)
- Establish knowledge networks and training opportunities throughout the life of the project between sites (both at the country and the regional level).
- Conduct two regional workshops focusing on enforcement and regulations aspects of the policy cycle for management of marine biodiversity and reef fisheries, to share experiences and promote harmonization and common approaches.

Activity 5: Adaptive Management and Learning
- Monitoring and Evaluation Plan developed providing inputs for robust adaptive management.
- A clearly defined mechanism developed for replication of the restoration programme to other coastal and marine sites and MPAs in the CLME.

OUTCOME 4: COST-EFFECTIVE PROJECT MANAGEMENT ARRANGEMENTS PROVIDED FOR

187 A Project Coordination Unit (PCU) will be established, to be located in the offices of IOCARIBE of IOC (UNESCO) in Cartagena, Colombia. It will be staffed by an internationally recruited Chief Technical Advisor (CTA), a senior project officer and two regionally recruited technical support staff.

Outputs:

4.1. Establish and maintain a Project Coordination Unit

188 Deliverables:

- Project Coordination Unit established

PROJECT INDICATORS, RISKS AND ASSUMPTIONS

189 As noted in the logical framework in Section II, there are a significant number of indicators for this project, as well as noted risks and assumptions.

190 Key indicators of successful project outcomes to be recorded through the M&E framework will include:

- A TDA agreed by the Project Steering Committee.
- Improved data, information and knowledge flow on the five priority transboundary fisheries.
- Through targeted studies, an improved understanding of the environmental interactions and consequently improved inter-sectoral management for the five priority transboundary fisheries.
- Improved regional and subregional governance arrangements for flyingfish, large pelagics, lobster, shrimp and groundfish, and reef fishes.
- An endorsed Strategic Action Programme, representing a firm long-term commitment by the countries to take steps to improve fisheries and management and governance in the CLME and to introduce the ecosystem based management approach.
- A regional and sub-regional management and governance framework capable of oversight of SAP implementation.
- An operational M&E framework capable of tracking the environmental status of the CLME its governance and the implementation of the SAP.
- More active engagement by the Caribbean countries in multi-lateral environmental agreements and regional fisheries agreements.
- Improved local and national governance of the lobster and reef fish fisheries with replication of the policy cycle models developed in the two demonstration projects.
- An increased level of involvement of multiple stakeholder groups throughout the region in fisheries management and governance.
- Development of partnerships between the fisheries authorities, research institutions and the private sector to enhance fisheries governance.

Risks and Assumptions

191 The 23 CLME countries and the numerous CLME organizations/institutions are willing to work together under a single fisheries management and governance framework – Currently there are a number of regional and sub-regional networks which operate independently and there is relatively weak communication; however, the CRFM's recent Common Fisheries Policy initiative is a positive sign – moderate risk.

192 The national fisheries authorities are willing to share data and harmonize management strategies for transboundary fisheries – There may be economic and commercial factors which create barriers to full cooperation, for example, coastal fisheries, such as the lobster, may be viewed as a national resource. However, the benefits of access to improved and harmonized data bases, through the project's Information Management System, should provide an incentive to cooperation. – moderate risk.

193 The countries are able to develop a common vision and management objectives for the SAP – There are significant differences in the participating countries size, geographic configuration, and economic development and therefore the importance and protection

afforded the transboundary fisheries by each country will vary. The project will need to demonstrate the countries' inter-dependence in managing their fisheries – low risk.

194 The M&E framework to track the CLME environmental status and SAP implementation will be sustained - Operationalising the M&E framework will take concerted effort by the participating countries and relevant organizations and will take many years and considerable financial investment to accomplish. The larger, wealthier countries and organizations should be seen to take the lead in financing. It is envisaged that new co-funding will become available during the project's life to support this activity – moderate risk.

195 Parallel commitment on the part of Governments and potential donors to ensure financial sustainability beyond the life of the Project - Strong coordination with governments and other donors who are already involved in, or interested in, the CLME will need to be ensured. The formation of a Partners' of the Project Group and the involvement of UNEP, OSPESCA, FAO and others in the execution of the project will mitigate the risk – moderate risk.

196 Significant difference in participating countries' size, geographic configuration, development and economic level limit achievement of project outcomes - The project has an emphasis on horizontal co-operation and networking among bodies and organizations at the national and regional levels in order to set the bases for region-wide ecosystem management approaches. This will maximize the relative strengths and priorities of different groups of countries, and should actually provide an incentive to support project outcomes. Additionally, the project will encourage South-South cooperation by generating opportunities for countries with greater capacity and experience in management of specific fisheries, to share their expertise with others. - low risk

EXPECTED GLOBAL, NATIONAL AND LOCAL BENEFITS

197 The project will strengthen the CLME countries capacity to govern their shared living marine resources and will introduce ecosystem based management approach to protect and rehabilitate degraded coastal ecosystems, thereby conserving and protecting marine biodiversity. The reforms will enable the countries to exploit their living marine resources in a sustainable manner by setting realistic fisheries targets leading to improved food security and enhanced livelihoods in rural coastal communities. The increased knowledge of transboundary living marine resources and increased institutional capacity to use that knowledge at national, regional and international levels that will result from the proposed project will halt and should even reverse the declining trends of resource depletion and degradation. In some cases these measures could even result in increased fisheries yields and/or economic benefits.

198 The introduction of the ecosystem based management approach will strengthen protection for sensitive ecosystems such as the reefs and mangroves and in turn will provide valuable services. The biodiversity and trophic balance of the reef fisheries will be conserved and their value as a tourism attraction be enhanced.

COUNTRY OWNERSHIP: COUNTRY ELIGIBILITY AND COUNTRY DRIVENNESS

Country Eligibility:

199 All proposed recipient countries (23) are eligible under paragraph 9(b) of the GEF Instrument.

Country Driveness:

200 The countries of the Caribbean have repeatedly indicated the need for attention to shared living marine resource management at the regional and international levels through participation in regional arrangements, and through signing various international treaties and agreements. IOCARIBE Member Countries have endorsed this project at two consecutive Sub-commission meetings (1995 and 1999).

201 In the past two to three decades, the countries of the region have made progress in establishing and enhancing the institutional capacity for collaborative management of their national and shared coastal and marine resources. This process has been complex and multifaceted owing to the geopolitical complexity of the region. Some regional initiatives began in the 1970's. These include the IOC of UNESCO, IOCARIBE program (1975) and the FAO Western Central Atlantic Fishery Commission WECAFC (1976). Others had their genesis in the signing of the Montego Bay Convention (UNCLOS III, United Nations 1983). All were given added momentum by Agenda 21 and other agreements arising from UNCED in 1992. Elaboration of UNCLOS through the United Nations Fish Stocks Agreement (United Nations 1995) and the FAO Compliance Agreement (FAO 1995) has increased the need for urgent action regarding sustainable management of marine resources. All the countries have committed to the implementation of the principles of the FAO Code of Conduct for Responsible Fisheries. Most countries have signed the Convention on International Trade in Endangered Species (CITES) and the Convention on Biological Diversity (CBD) which have considerable implication for the management of living marine resources in the Wider Caribbean Region. More recently, the WSSD targeted 2015 for restoring depleted fish stocks and recognized the importance of an ecosystem approach.

202 In addition to the instruments mentioned above, the countries of the region participate in several regional and international arrangements that are relevant to sustainable living marine resource use in the Caribbean.

203 Most recently, the concern of Caribbean countries for the future of the Caribbean Sea is reflected in the United Nations General Assembly Resolution (55/203, February 2001) "Promoting an integrated management approach to the Caribbean Sea area in the context of sustainable development". This resolution recognizes the dependence of Caribbean countries upon the marine environment as well as the vulnerability of the Caribbean Sea and calls for the countries and international agencies to develop an integrated management approach.

SUSTAINABILITY

204 The following elements of the project will contribute to its sustainability beyond the end of the project:

- Increased awareness and commitment at political and decision-making levels regarding the value of shared resources and the transboundary management issues affecting them,

- The information base, tools, and models for management decision-making will have been substantially increased,
- The project will focus on enhancing existing networks and institutions rather than creating new ones,
- The project will have a major emphasis on capacity building,
- The project duration should contribute to the establishment and sustainability of the proposed processes and mechanisms,
- The project will seek to establish a culture of cooperation and networking among countries in the region,
- Through "strengthening by doing", the project will create successes that serve as examples of how countries can collaborate to manage transboundary living marine resources, and,
- Through mechanisms such as the STAG and the Partners of the Project, active engagement and participation by the private sector will be facilitated.

REPLICABILITY

205 The proposed project has the potential to provide lessons that can be adapted to other regions of the world, particularly those where transboundary resources are exploited by small-scale fisheries, for example in Southeast Asia and West Africa. The project will document these lessons in a form that facilitates their replicability (such as IW Experience Notes), and will actively participate in GEF and other activities that seek to promote replication and share experiences, such as IW:LEARN and the Biennial GEF IW Conferences. The project will also draw on lessons learnt from other GEF IW projects in particular the Benguela Current LME in the development of the SAP Monitoring and Evaluation framework and Regional Environment Monitoring Programme under Output 3.

FINANCIAL PLAN

206 The overall cost of the project is US$56,310,947, including preparatory funds. The GEF project financing for the Full-Size Project is US$7,008,116 and the co-financing from National Governments, private industry, US-NOAA and others will be US$ 47,591,111. The GEF contribution for the Full-Size Project amounts to 15% of the cost of the total cost. A detailed budget can be found in Section III.

Table 1: Co-financing Sources

Name of co-financier (source)	*Classification*	*Type*	*Amount ($)*	*%**
Bahamas	Natl'l Gov't	In-kind	3,465,000	7.28%
Barbados	Natl'l Govt	In-kind	tbd	
Belize	Natl'l Gov't	In-kind	223,800	0.47%
Brazil	Natl'l Gov't	In-kind	2,500,000	5.25%
Colombia	Natl'l Gov't	In-kind	1,660,980	3.49%
DR	Natl'l Gov't	In-kind	252,000	0.53%
Grenada	Natl'l Gov't	In-kind	554,300	1.16%
Guatemala	Natl'l Gov't	In-kind	44,800	0.09%
Haiti	Natl'l Gov't	In-kind	50,000	0.11%
Honduras	Natl'l Gov't	In-kind	33,600	0.07%

Jamaica	Natl'l Gov't	In-kind	349,800	0.74%
Mexico	Natl'l Gov't	In-kind	110,000	0.23%
Panama	Natl'l Gov't	In-kind	3,268,000	6.87%
St. Lucia	Natl'l Gov't	In-kind	381,000	0.80%
Suriname	Natl'l Gov't	In-kind	208,000	0.44%
US NOAA	Government Agency	In-kind	22,600,000	47.49%
Cropper Foundation	NGO	In-kind	1,258,026	2.64%
TNC	NGO	In-kind	1,077,000	2.26%
CoML	NGO	In-kind	2,425,000	5.10%
CRFM	Beneficiary	In-kind	2,829,000	5.94%
OLDEPESCA, OSPESCA	Beneficiaries	In-kind	332600	0.70%
FAO	Multilat Agency	In-kind	1,336,000	2.81%
IOCARIBE	Multilat Agency	In-kind	830,000	1.74%
UNEP	Multilat Agency	In-kind	500,000	1.05%
UNDP	Multilat Agency	In-kind	686,205	1.44%
University of WI (CERMES)	NGO	In-kind	480,000	1.01%
University of Miami, Rosentiel School	NGO	In-kind	136,000	0.29%
PDF-B			213,000	
Total Co-financing			**47,804,111**	100%

Cost-effectiveness

207 The transboundary nature of many resources demands regional, comprehensive responses. In its absence, fragmented national or sub-regional efforts, as have been the case to date, have failed to develop adequate management frameworks to stem and reverse the decline of living marine resources. There are two potential benefits for regional cooperation of ecosystem-based fisheries management. First, the minimisation of the wasteful use of shared stocks (mitigating the economic risk on non-cooperation). Second, the increase of opportunity by managing the harvesting by all countries so that shared stocks are allowed to grow to their fullest economic potential and associated biodiversity will not be impacted. This project will minimise the economic risks of non-cooperation by establishing a framework within which the countries can effectively manage these resources. The project will determine, to the extent possible, the maximum value of this risk of non-cooperation compared with the costs of management and protection.

PART III: MANAGEMENT ARRANGEMENTS

208 The project will be guided by the Steering Committee comprising representatives of the participating states, the GEF implementing and executing agencies, other key international partners and donors (IOC of UNESCO, IOCARIBE, FAO, NOAA, EU, etc.) and stakeholders. The Steering Committee will review and approve all technical documents, review budgets and financial reports and provide general strategic and implementation guidance to the PCU. It will meet once a year and all its decisions will be made on the basis of consensus. In addition to the Steering Committee, at the Sub-Regional level, advisory bodies will be formed, comprising representatives of the countries and the implementing and executing agencies, to review all sub-regional activities, including demonstration projects.

209 National Focal Points (NFP) in each of the participating countries will be encouraged to establish Inter-ministerial committees where these do not yet exist, to review the TDA and

SAP and other important project documents, and ensure policy streamlining. Another important role of the NFP will be to ensure coordination of relevant national projects (government and donor funded) with the UNDP-GEF project.

210 A regional Stakeholder Advisory Group (STAG) will also be established and supported to provide early input to the TDA and SAP. Stakeholders from a wide array of groups with diverse interests and concerns will be recruited to serve on the STAG. They may include representatives from coastal community stakeholders, NGOs, fishing and tourist industries, conservationists, the media, educators, and others. The members will receive training on the UNDP/GEF TDA/SAP approach and the ecosystem based management approach. The STAG will convene prior to Steering Committee Meetings to provide feedback, recommendations, comments and critique on project developments. The inputs from the STAG will be incorporated into the project development, including TDA, SAP design and demonstration projects.

211 The Partners of the Project (PoP) group, comprising participating and other interested donors, will be established at the beginning of the project with the objective of coordinating all affiliated projects and generating leveraged co-funding. The members will include UNDP, IOC, IOCARIBE, FAO, NOAA, IUCN, UNEP, and numerous bilateral donors. This group will meet approximately every 6 months, including via teleconference or other electronic means, and concurrent with annual meeting of the project Steering Committee.

212 If found necessary and appropriate, a Project Advisory Group may be established which will communicate on a regular but ad hoc basis to discuss specific aspects of project implementation. The group would be led by the project Chief Technical Advisor and the PCU would serve as the secretariat. Membership may include UNDP, IOC, IOCARIBE, FAO/WECAF, UNEP, NOAA, IUCN, CERMES, CRFM, TNC, ACS and OSPESCA. The PoP will meet at least every six months, via teleconference or other electronic means if budget limitations so require.

213 The project will be administered from a small Project Coordination Unit (PCU) to be located in the offices of IOCARIBE of IOC (UNESCO) in Cartagena, Colombia. It will be staffed by an internationally recruited Chief Technical Advisor (CTA) with strong project management experience, multidisciplinary skills, fluency in English and Spanish, and preferably with a background in fisheries and/or marine resources management, a senior project officer and two regionally recruited technical support staff. A Stakeholder and Public Involvement Coordinator will be posted at the PCU to oversee public involvement activities including those related to the demonstration projects. Administration support staff, including an office manager, secretary and accountant will be hired locally. The PCU will be provided with the basic equipment necessary for the functioning of the project, including computers, copy machines and other materials as needed and appropriate.

214 For it to operate effectively, the PCU will need to be able to exercise a considerable degree of financial independence, particularly with respect to local contracting and the executing agency is being encouraged to make the necessary administrative arrangements. The PCU will be supported by international and regional consultants selected from agreed rosters. The PCU will assume primary responsibility for implementation of the TDA and the SAP development and will host the project web-site. The PCU will oversee all activities linked to the promotion of the CLME management and governance framework, and will be

advised by the Centre of Resource Management and Environmental Studies (CERMES) of the University of the West Indies. The two fishery demonstration projects which will be executed by a lead organization/project partner either under contract or through an Inter-Agency Agreement. Each demonstration project will be managed through a small Project Implementation Unit, which will report technically to the PCU which will have general oversight over these pilot projects.

215 The success of the project implementation is dependent upon strong project coordination and effective guidance from the Steering Committee. The onus will lie with the PCU which will be responsible for arranging SC meetings, providing materials to members prior to the meeting, and in consultation with the chairman, delineating a clear set of meeting objectives and sub-objectives to be met. The Steering Committee will be responsible for providing institutional guidance to the project, as well as oversight of all activities and outcomes.

216 In order to accord proper acknowledgement to GEF for providing funding, a GEF logo should appear on all relevant GEF project publications, including among others, project hardware and vehicles purchased with GEF funds. Any citation on publications regarding projects funded by GEF should also accord proper acknowledgment to GEF. The UNDP logo should be more prominent – and separated from the GEF logo if possible, as UN visibility is important for security purposes.

PART IV: MONITORING AND EVALUATION PLAN AND BUDGET

217 Project monitoring and evaluation will be conducted in accordance with established UNDP and GEF procedures and will be undertaken by the project team and the UNDP-RCU. The Strategic Results Framework Matrix in Section II, Part 2 provides performance and impact indicators for project implementation along with their corresponding means of verification. These will form the basis on which the project's Monitoring and Evaluation system will be built.

218 The following sections outline the principal components of the Monitoring and Evaluation Plan and indicative cost estimates related to M&E activities. The project's Monitoring and Evaluation Plan will be presented and finalized in the Project's Inception Report, following a collective fine-tuning of indicators, means of verification, and the full definition of project staff M&E responsibilities.

MONITORING AND REPORTING

Project Inception Phase

219 A Project Inception Workshop will be conducted with the full project team, relevant government counterparts, co-financing partners, UNDP-COs and representation from the UNDP-GEF Regional Coordinating Unit, as well as UNDP-GEF HQ as appropriate.

220 A fundamental objective of this Inception Workshop will be to assist the project team to understand and take ownership of the project's goals and objectives, as well as to finalize preparation of the project's first annual work plan on the basis of the project's logframe matrix. This will include reviewing the logframe (indicators, means of verification, assumptions/risks), imparting additional detail as needed, and on the basis of this exercise

finalize the Annual Work Plan (AWP) with precise and measurable performance indicators, and in a manner consistent with the expected outcomes for the project.

221 Additionally, the purpose and objective of the Inception Workshop (IW) will be to: (i) introduce project staff with the UNDP-GEF expanded team which will support the project during its implementation, namely the responsible Regional Coordinating Unit staff with support from COs; (ii) detail the roles, support services and complementary responsibilities of RCU staff vis-à-vis the project team; (iii) provide a detailed overview of UNDP-GEF reporting and monitoring and evaluation (M&E) requirements, with particular emphasis on the Annual Project Implementation Reviews-Annual Project Report (APR-PIRs) and related documentation, Tripartite Review Meetings, as well as mid-term and final evaluations. Equally, the IW will provide an opportunity to inform the project team on UNDP project related budgetary planning, budget reviews, and mandatory budget rephasings.

222 The IW will also provide an opportunity for all parties to understand their roles, functions, and responsibilities within the project's decision-making structures, including reporting and communication lines, and conflict resolution mechanisms. The Terms of Reference for project staff and decision-making structures will be discussed again, as needed in order to clarify for all, each party's responsibilities during the project's implementation phase.

Monitoring responsibilities and events

223 A detailed schedule of project reviews meetings will be developed by the project management, in consultation with project implementation partners and stakeholder representatives and incorporated in the Project Inception Report. Such a schedule will include: (i) tentative time frames for Tripartite Reviews, Steering Committee Meetings, (or relevant advisory and/or coordination mechanisms) and (ii) project related Monitoring and Evaluation activities.

224 *Day to day monitoring* of implementation progress will be the responsibility of the Chief Technical Advisor based on the project's Annual Work Plan and its indicators. The Project Team will inform the UNDP-RCU of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely and remedial fashion.

225 The Project GEF Chief Technical Advisor will fine-tune the progress and performance/impact indicators of the project in consultation with the full project team at the Inception Workshop with support from the UNDP-GEF Regional Coordinating Unit. Specific targets for the first year implementation progress indicators together with their means of verification will be developed at this Workshop. These will be used to assess whether implementation is proceeding at the intended pace and in the right direction and will form part of the Annual Work Plan. The local implementing agencies will also take part in the Inception Workshop in which a common vision of overall project goals will be established. Targets and indicators for subsequent years would be defined annually as part of the internal evaluation and planning processes undertaken by the project team.

226 Measurement of impact indicators related to global benefits will occur according to the schedules defined in the Inception Workshop. The measurement of these will be undertaken through subcontracts or retainers with relevant institutions or through specific studies that are to form part of the projects activities or periodic sampling such as with sedimentation.

227 *Periodic monitoring of* implementation progress will be undertaken by UNDP through quarterly meetings with the CTA, or more frequently as deemed necessary. This will allow parties to take stock and to troubleshoot any problems pertaining to the project in a timely fashion to ensure smooth implementation of project activities.

228 UNDP Country Offices and UNDP-GEF RCU as appropriate, will conduct yearly visits to projects that have field sites, or more often based on an agreed upon scheduled to be detailed in the project's Inception Report / Annual Work Plan to assess first hand project progress. Any other member of the Steering Committee can also accompany, as decided by the SC. A Field Visit Report will be prepared by the project team and circulated no less than one month after the visit to all SC members, and UNDP-GEF.

229 *Annual Monitoring* will occur through two modalities. The Steering Committee, as the highest policy-level meeting of the parties directly involved in the implementation of a project, will meet at least once every year to review project implementation. The first such meeting will be held within the first twelve months of the start of full implementation. The harmonized APR/PIR will be used as one of the basic documents for discussions. The project proponent will highlight policy issues and recommendations for the decision of the SC members, as well as any agreement reached by stakeholders during the APR/PIR/RT preparation on how to resolve operational issues. Separate reviews of each project component may also be conducted if necessary.

230 *Terminal Steering Committee Review.* The terminal Steering Committee meeting is held in the last month of project operations. The CTA is responsible for preparing the Terminal Report and submitting it to the UNDP-GEF Regional Coordinating Unit. It shall be prepared in draft at least two months in advance of the Steering Committee meeting in order to allow review, and will serve as the basis for discussions at the meeting. The terminal Steering Committee meeting will consider the implementation of the project as a whole, paying particular attention to whether the project has achieved its stated objectives and contributed to the broader environmental objective. It decides whether any actions are still necessary, particularly in relation to sustainability of project results, and acts as a vehicle through which lessons learnt can be captured to feed into other projects under implementation or formulation.

231 The Steering Committee review has the authority to suspend disbursement if project performance benchmarks are not met. Benchmarks will be developed at the Inception Workshop, based on delivery rates, and qualitative assessments of achievements of outputs.

Project Monitoring Reporting

232 The Chief Technical Advisor in conjunction with the UNDP-GEF expanded team will be responsible for the preparation and submission of the following reports that form part of the monitoring process. Items (a) through (d) are mandatory and strictly related to monitoring, while (e) through (g) have a broader function, and the frequency and nature is project specific to be defined throughout implementation.

(a) Inception Report (IR)

233 A Project Inception Report will be prepared immediately following the Inception Workshop. It will include a detailed First Year/ Annual Work Plan divided in quarterly time-frames detailing the activities and progress indicators that will guide implementation during the first year of the project. This Work Plan would include the dates of specific field

visits, support missions from the Project Coordinating Unit (PCU) or consultants, as well as time-frames for meetings of the project's decision making structures. The Report will also include the detailed project budget for the first full year of implementation, prepared on the basis of the Annual Work Plan, and including any monitoring and evaluation requirements to effectively measure project performance during the targeted 12 months time-frame.

234 The Inception Report will include a more detailed narrative on the institutional roles, responsibilities, coordinating actions and feedback mechanisms of project related partners. In addition, a section will be included on progress to date on project establishment and start-up activities and an update of any changed external conditions that may effect project implementation.

235 When finalized, the report will be circulated to project counterparts who will be given a period of one calendar month in which to respond with comments or queries. Prior to this circulation of the IR, the UNDP-GEF's Regional Coordinating Unit will review the document.

(b) Annual Project Report – Project Implementation Review and IW Results Template (RT) - *APR/PIR/RT*

236 The APR-PIR and the IW Results Template are an annual monitoring process mandated by the GEF and UNDP. It has become an essential management and monitoring tool for project managers and offers the main vehicle for extracting lessons from ongoing projects. Once the project has been under implementation for a year, an APR –PIR and RT must be completed by the project team with support from UNDP-GEF. The APR/PIR/RT is part of UNDP's central oversight, monitoring and project management. It is a self -assessment report by project management to the RCU as well as forming a key input to the Steering Committee meeting. An APR/PIR/RT will be prepared on an annual basis to reflect progress achieved in meeting the project's Annual Work Plan and assess performance of the project in contributing to intended outcomes through outputs and partnership work.

237 The individual APR-PIRs and RTs are collected, reviewed and analyzed by the UNDP RCU prior to sending them to the focal area clusters at the UNDP/GEF headquarters. The focal area clusters supported by the UNDP/GEF M&E Unit analyze the APRs and RTs by focal area, theme and region for common issues/results and lessons. The focal area APR-PIRs and RTs are then discussed in the GEF Interagency Focal Area Task Forces in or around November each year and consolidated reports by focal area are collated by the GEF Independent M&E Unit based on the Task Force findings.

(c) Quarterly Progress Reports

238 Short reports outlining main updates in project progress and delivery rates will be provided quarterly to the UNDP-GEF regional coordination unit by the project team.

(d) Project Terminal Report

239 During the last three months of the project, the project team will prepare the Project Terminal Report. This comprehensive report will summarize all activities, achievements and outputs of the Project, lessons learnt, objectives met, or not achieved structures and systems implemented, etc. and will be the definitive statement of the Project's activities

during its lifetime. It will also lay out recommendations for any further steps that may need to be taken to ensure sustainability and replicability of the Project's activities.

(e) Periodic Thematic Reports

240 As and when called for by UNDP, UNDP-GEF or the Implementing Partner, the project team will prepare Specific Thematic Reports, focusing on specific issues or areas of activity. The request for a Thematic Report will be provided to the project team in written form by UNDP and will clearly state the issue or activities that need to be reported on. These reports can be used as a form of lessons learnt exercise, specific oversight in key areas, or as troubleshooting exercises to evaluate and overcome obstacles and difficulties encountered. UNDP is requested to minimize its requests for Thematic Reports, and when such are necessary will allow reasonable timeframes for their preparation by the project team.

(f) ***Technical Reports***

241 Technical Reports are detailed documents covering specific areas of analysis or scientific specializations within the overall project. As part of the Inception Report, the project team will prepare a draft Reports List, detailing the technical reports that are expected to be prepared on key areas of activity during the course of the Project, and tentative due dates. Where necessary this Reports List will be revised and updated, and included in subsequent APRs. Technical Reports may also be prepared by external consultants and should be comprehensive, specialized analyses of clearly defined areas of research within the framework of the project and its sites. These technical reports will represent, as appropriate, the project's substantive contribution to specific areas, and will be used in efforts to disseminate relevant information and best practices at local, national and international levels.

(g) ***Project Publications***

242 Project Publications will form a key method of crystallizing and disseminating the results and achievements of the Project. These publications may be scientific or informational texts on the activities and achievements of the Project, in the form of journal articles, multimedia publications, etc. These publications can be based on Technical Reports, depending upon *inter alia* the relevance and scientific worth of these Reports, or may be summaries or compilations of a series of Technical Reports and other research. The project team will determine if any of the Technical Reports merit formal publication, and will also (in consultation with UNDP, the government and other relevant stakeholder groups) plan and produce these Publications in a consistent and recognizable format. Project resources will need to be defined and allocated for these activities as appropriate and in a manner commensurate with the project's budget.

Independent Evaluation

243 The project will be subjected to at least two independent external evaluations as follows:

(a) Mid-term Evaluation

244 An independent Mid-Term Evaluation will be undertaken at the end of the second year of implementation. The Mid-Term Evaluation will determine progress being made towards the achievement of outcomes and will identify course correction if needed. It will focus on the effectiveness, efficiency and timeliness of project implementation; will highlight issues requiring decisions and actions; and will present initial lessons learned about project design, implementation and management. Findings of this review will be incorporated as recommendations for enhanced implementation during the final half of the project's term. The organization, terms of reference and timing of the mid-term evaluation will be decided after consultation between the parties to the project document. The Terms of Reference for this Mid-term evaluation will be prepared by the project team based on guidance from the UNDP-GEF Regional Coordinating Unit.

(b) Final Evaluation

245 An independent Final Evaluation will take place three months prior to the terminal tripartite review meeting, and will focus on the same issues as the mid-term evaluation. The final evaluation will also look at impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. The Final Evaluation should also provide recommendations for follow-up activities. The Terms of Reference for this evaluation will be prepared by the project team based on guidance from the UNDP-GEF Regional Coordinating Unit.

Audit Clause

246 UNOPS will provide the Principal Project Resident Representative with certified periodic financial statements, and with an annual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the established procedures set out in the Programming and Finance manuals. The Audit will be conducted by the legally recognized auditor of UNOPS, or by a commercial auditor engaged by UNOPS.

Learning and Knowledge Sharing

247 Results from the project will be disseminated within and beyond the project intervention zone through a number of existing information sharing networks and forums. In addition:

- The project will participate, as relevant and appropriate, in UNDP/GEF sponsored networks, organized for Senior Personnel working on projects that share common characteristics. UNDP/GEF shall establish a number of networks, such as Integrated Ecosystem Management, eco-tourism, co-management, etc, that will largely function on the basis of an electronic platform.
- The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned.
- The project will participate in and contribute to IW:LEARN, the GEF"s International Waters knowledge sharing programme, including (self-funded) participation in biannual GEF International Waters Conferences (2009, 2011), preparation of IW "Experience Notes" documenting important lessons and good practice, and contributions to various IW:LEARN-mediated regional and thematic knowledge sharing activities, both virtual and in person.

- The project will identify, analyze, and share lessons learned that might be beneficial in the design and implementation of similar future projects. This is an on- going process, and the need to communicate such lessons as one of the project's central contributions is a requirement to be delivered not less frequently than once every 12 months. UNDP/GEF shall provide a format and assist the project team in categorizing, documenting and reporting on lessons learned. To this end a percentage of project resources will need to be allocated for these activities.

Table 2: Indicative Monitoring and Evaluation Work plan and corresponding Budget

Type of M&E activity	Responsible Parties	Budget US$ *Excluding project team Staff time*	Time frame
Inception Workshop	▪ Project Coordinator ▪ UNDP GEF		Within first two months of project start up
Inception Report	▪ Project Team ▪ UNDP GEF	None	Immediately following IW
Measurement of Means of Verification for Project Purpose Indicators	▪ CTA will oversee the hiring of specific studies and institutions, and delegate responsibilities to relevant team members	To be finalized in Inception Phase and Workshop.	Start, mid and end of project
Measurement of Means of Verification for Project Progress and Performance (measured on an annual basis)	▪ Oversight by UNDP-GEF ▪ Project team ▪ Measurements by regional field officers and local IAs	To be determined as part of the Annual Work Plan's preparation.	Annually prior to APR/PIR and to the definition of annual work plans
APR/PIR/RT	▪ Project Team ▪ UNDP-GEF	None	Annually
Steering Committee Meetings	▪ CTA and Project Team ▪ UNDP-GEF	None	Every year, upon receipt of APR
Periodic status reports	▪ Project team	7,000	To be determined by Project team and UNDP
Technical reports	▪ Project team ▪ Hired consultants as needed	7,000	To be determined by Project Team and UNDP-GEF
Mid-term External Evaluation	▪ Project team ▪ UNDP-GEF ▪ External Consultants (i.e. evaluation team)	40,000	At the mid-point of project implementation.
Final External Evaluation	▪ Project team, ▪ UNDP-GEF ▪ External Consultants (i.e. evaluation team)	60,000	At the end of project implementation
Terminal Report	▪ Project team ▪ External Consultant	None	At least one month before the end of the project
Lessons learned	▪ Project team	4,000 (average $1,000	Yearly

	▪ UNDP-GEF Regional Coordinating Unit (suggested formats for documenting best practices, etc)	per year)	
Audit	▪ Project team	28,000 (average $7000 per year)	Yearly
Visits to field sites (UNDP staff travel costs to be charged to IA fees)	▪ UNDP Country Offices as appropriate ▪ UNDP-GEF ▪ Government representatives	10,000 (average one visit per year)	Yearly
TOTAL INDICATIVE COST *Excluding project team staff time and UNDP staff and travel expenses*		US$ 156,000	

PART V: Legal Context

248 UNDP acts in this Project as Implementing Agency of the Global Environment Facility (GEF), and all rights and privileges pertaining to UNDP shall be extended mutatis mutandis to GEF.

249 The UNDP/GEF Executive Director is authorized to effect in writing the following types of revision to this Project Document, provided that he/she has verified the agreement thereto by GEF Unit and is assured that the other signatories to the Project Document have no objection to the proposed changes:

a) Revision of, or addition to, any of the annexes to the Project Document;

b) Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of the inputs already agreed to or by cost increases due to inflation;

c) Mandatory annual revisions which re-phase the delivery of agreed project inputs or increased expert or other costs due to inflation or take into account agency expenditure flexibility; and

d) Inclusion of additional annexes and attachments only as set out here in this Project Document.

SECTION II: STRATEGIC RESULTS FRAMEWORK

Project Strategy	Indicator	Base Line	Target *Unless otherwise stated these are targets for Project completion*	Means of Verification	Assumption
Goal: Sustainable provision of goods and services by the shared living marine resources in the Wider Caribbean Region through robust cooperative governance					
Purpose (Objective): Sustainable management of the shared living marine resources of the Caribbean LME and adjacent areas through an ecosystem-based management approach that will meet the WSSD target for sustainable fisheries.	1. Agreement on and understanding of the transboundary problems of the CLME as they relate to management of living marine resources	• Preliminary agreement of transboundary issues has been reached during the project preparation phase. Pollution was a priority issue for many states but its form and transboundary component has not been established. With regard to LMR it remains a perceived issue. There is no general contaminant monitoring programme place for the CLME. Invasive species is recognized as a priority issue addressed through the GEF Globallast programme. The countries are in agreement regarding the need to address the LMR policy cycles at various level given their commitment to sustainable fisheries, EBM and the WSSD targets.	• The countries agree on the scope and priority of the transboundary issues and develop interventions to address them with the SAP.	• Development of CLME Vision, LMR management and ecosystemic objectives. • Endorsement of TDA • Pre-feasibility studies of key interventions	• The 23 CLME countries and the numerous CLME organizations/institutions are willing to work together under a single fisheries management and governance framework • Baseline regulatory fisheries activities are implemented. • Government commitments to development of sustainable fisheries, EBM approach and WSSD fisheries targets are maintained • No serious events occur to modify current political stability in the region. • Estimates of moderate economic growth and social stability.
	2. Regional and sub-regional governance framework(s) incorporating the key policy cycle components (decision making; implementation; review and evaluation; data and information; analysis and advice)	• The countries meet to discuss LMR issues at various fora and at various levels, with differing national focal points. Stakeholder involvement and inter-sectoral coordination is not structured • Regional and sub-regional LMR governance frameworks are not articulated	• Establish a regional LMR governance framework based on existing fora and organizations, which will link in with frameworks at national and sub-regional levels and give opportunity for stakeholder advocacy. The governance framework (s) will be linked to the necessary technical institutions and there should be	• Structured involvement of key stakeholders at national, sub-regional and regional levels in the decision making process. • The concept of subsidiarity demonstrated between levels • Agreed mandate for new framework • MoUs between existing	

Project Strategy	Indicator	Base Line	Target *Unless otherwise stated these are targets for Project completion*	Means of Verification	Assumption
	are established and operational by end of project.		unbroken information and knowledge flow	organizations and institutions at regional and sub-regional levels	
	3. Decision support framework(s) agreed and applied for key transboundary fisheries and the CLME ecosystem.	• Decision frameworks have been developed for individual fisheries (flying fish) but have not been implemented. There is no general decision framework for the CLME LMR and ecosystem and there is no adaptive management framework.	• Decision frameworks and associated management plans developed for key transboundary fisheries at the regional and sub-regional levels. Output from a Regional Environmental Monitoring Programme and Integrated Information Management System used to support decision frameworks. Decision frameworks to reflect an adaptive management approach with threshold trigger indicator levels	• Management plans agreed with clear targets and interventions • REMP and IMS developed and operationalised in 50% of participating states • Management plans take into account environmental variability, including climate change.	
	4. Regional planning framework (SAP) to address transboundary issues as they relate to LMR developed	• There is currently no comparable framework for the CLME	• A regional SAP to operationalise CLME vision and management objectives and strengthen the LMR governance by end of the project. The SAP will incorporate the associated fisheries management plans and commit the countries to short and medium term interventions • The SAP is supported by bi-lateral and multi-lateral donors as well as the participatory states. • The SAP has mechanisms in place to be monitored and evaluated bi-annually and recast every five years	• SAP document endorsed by the participating states. • M&E framework agreed • Institutional framework agreed for coordination of SAP implementation	

Project Strategy	Indicator	Base Line	Target *Unless otherwise stated these are targets for Project completion*	Means of Verification	Assumption
OUTCOME 1: Analysis of Transboundary Issues relating to the management of LMR and Identification of Needed Actions	1. Detailed analyses of transboundary issues as they relate to living marine resources elaborated	• Provisional agreement only on the perceived problems relating to the transboundary fisheries of the CLME. The knowledge regarding transboundary pollution (PTS, PoPs) is extremely limited. Transboundary issues are usually bi-lateral or sub-regional, rarely regional. Understanding of the transboundary nature of fisheries such as the spiny lobster and conch as the different stocks and larval dispersion is becoming better understood.	• Agreement on the transboundary issues, their scope and priority, supported by strong, verifiable scientific evidence by the end of year two.	• TDA document finalized and endorsed by the countries	The countries are willing to share data and information on fisheries and the environment. Regional agreement on the findings of the TDA and listings of priority interventions Institutional framework established to manage and maintain the IMS.
	2. Agreement on needed interventions at sub-regional and regional levels to address underlying and root causes for the major transboundary issues	• There is no consensus on how to address the transboundary issues and no clear governance framework by which to address them. FAO WECAFC Ad hoc working groups have been established for the spiny lobster and flying fish fisheries, but management plans have not been implemented.	• A listing of priority interventions to be implemented to address transboundary issues and management of transboundary fisheries from an EBM perspective	• Management plans for specific fisheries agreed with timetable and budgets (linked to outcome 3 – Pilot projects)	
	3 Number of agreements on target and limit catch reference points for transboundary fisheries with reference to ecosystem health.	• Limited knowledge of the linkages between catch data, ecosystem integrity, and energy transfer between trophic levels. • The knowledge regarding transboundary pollution (PTS, PoPs) is extremely limited. • Transboundary issues are usually understood and managed at bi-lateral or sub-	• Improved catch data for priority transboundary fisheries. • Assessment of the impact of the Shrimp fishery on the ecosystem of the Brazil – Guianas shelf and mitigation measures agreed	• Endorsed multi-lateral fishery management plans for large pelagics, flying fish, lobster, and shrimp and groundfish fisheries based on EBM approach.	

Project Strategy	Indicator	Base Line	Target *Unless otherwise stated these are targets for Project completion*	Means of Verification	Assumption
		regional, rarely regional, levels			
	4. An integrated Information Management System to track trends in fishery and environmental status as a tool for EBM is developed and operational by the second year of project implementation	• Fisheries catch data compiled by FAO members is fragmented and not quality assured. No system available to enable data to be interrogated and analysed to support a decision support framework. Environmental data is not compiled regionally or sub-regionally and cannot be compared and contrasted with fisheries data.	• Creation of a meta-database of CLME fisheries and environmental data and a database supporting the regional environmental monitoring programme and the decision frameworks. • Agreement on institutional framework for the management and upkeep of database.	• IMS launched and practitioners trained in its use. Countries providing data from implementation of the REMP	
Outcome 2: SAP Development and identification of reforms and investments for management of shared living resources	1. A long-term vision for management of shared MLR of the CLME underpinned by objectives and targets agreed to by participating countries	• There is no existing overarching agreement between the CLME countries on management of the transboundary fisheries. Existing agreements are bilateral, sub-regional or international and on a fishery by fishery basis. Ecosystem-based management approaches are not applied in the region.	• An achievable long-term vision for the development and management of the LMR of the CLME which addresses sustainable management, EBM and meets the WSSDs targets for fisheries.	• Vision incorporated into national fisheries policy and planning documents.	• Long-term political and financial commitment to SAP implementation • National fisheries authorities are willing to harmonize management strategies for transboundary fisheries • Countries are able to endorse SAP through national planning process • The countries and regional organizations are prepared to cooperate within a single framework • The management framework is self financing beyond the life of the project
	2. A planning framework and timetable for implementation of an agreed set of regional and sub-regional interventions (SAP) top address priority LMR issues is supported by participating countries	• No regional plan exists which addresses the issues of management of transboundary LMR taking into account the EBM approach. Single species and fishery plans have been developed but in many cases implementation is weak.	• A SAP that will provide a road-map for regional development and management of transboundary fisheries.	• Signing of a regional SAP. • Financial commitments by the signatory states to SAP implementation. • Reference to SAP in the national fisheries policy and planning and in other related sector plans.	

Project Strategy	Indicator	Base Line	Target *Unless otherwise stated these are targets for Project completion*	Means of Verification	Assumption
	3. Agreed CLME fisheries governance framework with cross-sectoral linkages and vertical linkages to the sub-regional, national and local levels.	• There are numerous regional and sub-regional fora under which address management of the CLME fisheries to a greater or lesser extent (CARICOM, ACS, CFRM, ICCAT, WCAFC, OSPESCA). However their mandates are fragmentary and the inter-relationships are not clear. Involvement of stakeholders is not uniform and is often not structured	• A flexible governance framework based on existing institutions and organizations which will represent all Caribbean states and will provide clear linkages to the sub-regional, national and local levels and provide a mechanism for stakeholder involvement in the decision making process	• A signed agreement on the mandate of the regional governance framework and financial mechanism defined	• National funding is available for execution of the monitoring and evaluation framework, in particular the REMP
	4. M&E framework developed to track implementation of the SAP and the status of the CLME fisheries and environment, based on GEF IW indicators	• There are currently no agreed indicators for tracking trends in the fisheries and environmental status. National monitoring results are often incomparable and do not address transboundary issues. Monitoring programmes have evolved organically and often don't support the decision frameworks adequately.	• To develop and establish a monitoring and evaluation framework to track fisheries and environmental trends and to support agreed decision framework(s). The framework to include a regional environmental monitoring programme (REMP) based on selected environmental status indicators	• Monitoring data produced by the countries and incorporated into the IMS.	
	5. Functional inter-ministerial or inter-sectoral committees in each participating country support the SAP development process and lay the bases for future SAP implementation	• Inter-ministerial or inter-sectoral groups exist in several countries but are largely not focused on fisheries management issues, which still has a strong sectoral focus in almost all countries	• Effective inter-ministerial or inter-sectoral groups are successful in engaging a broad group of stakeholders in support of EBM LMR approaches	• Country reports to the Steering Committee	• A diverse range of stakeholders, including resource users at all levels and the private sector, understand the benefits of EBM approaches and are supportive of any required trade-offs
	6. Project web-site established and maintained	• CERMES and IOCARIBE host summary project web-pages	• A comprehensive, bi-lingual, information and discussion web site up-dated regularly and hosting GIS	• Web-site updated regularly • Number of web-sites hits • Media material	• The local ISP can provide the band-width necessary to support the web-site and IMS

Project Strategy	Indicator	Base Line	Target *Unless otherwise stated these are targets for Project completion*	Means of Verification	Assumption
			elements of the IMS.	incorporated • Linkages from key web-sites and retrievable using Yahoo and Google	• STAG members are fully engaged in the TDA/SAP process and are willing to devote their time to the process • Countries and donors are willing to cooperate in development and support of the SAP • The size of the inception and Steering Committee meetings is limited and that representation will be at the sub-regional level.
	7. A Stakeholder Advisor Group (STAG) created	• No specific stakeholder group exists currently in any of the regional or sub-regional fisheries mandated organizations	• A regional forum at which the a wide range of stakeholders can express their views regarding fisheries management and be heard by heard by the key decision makers	• STAG meeting meetings • STAG representation on SCM • Comments from STAG on TDA and SAP	2. A Stakeholder Advisor Group (STAG) created
	8. Friends of the Project group established	N/A	• An informal group of bilateral and multi-lateral donors supporting implementation of the SAP	• FoP meeting minutes • Attendance of FoP at the SCM • Support of SAP components by FoP members	3. Friends of the Project group established
Outcome 3: Targeted projects aimed at strengthening the policy cycle and early implementation of the SAP	1. Agreement on pilot sites for the spiny lobster and reef fishery which will enable a range of governance models/management techniques to be tested under differing social, economic and environmental baseline conditions	• The CLME spiny lobster fisheries are subject to varying levels of governance at the national level. Size restrictions and close seasons are imposed and implemented through the suppliers rather than the local fishermen. Some self-governance pilot projects have been implemented at the local level but they are the exception rathet than the rule. At the sub-	• Establish a set of governance models and replicability plans for the Spiny Lobster and Reef fisheries at the national and local levels which can be replicated throughout the region. The spiny lobster model will be based on the sub-regional management plan developed based on local self-governance site-specific trials	• Agreed fisheries management plans with clearly defined roles and responsibilities at the national and local levels and fishery targets. • Meeting minutes of fishery management bodies • Dissemination of results at sub-regional and regional	• Full national and local participation and support to demonstration projects • Acceptance by the national authorities of the mandates of the local management bodies • Strong support from and collaboration with regional and sub-regional fisheries management bodies

Project Strategy	Indicator	Base Line	Target *Unless otherwise stated these are targets for Project completion*	Means of Verification	Assumption
		regional level WECAFC has held a series of meetings to discuss transboundary implications of stock management and established an Ad hoc working group. • The reef fisheries associated with Marine Protected Areas are highly protected by legislation and fishing is excluded. The management of MPAs for multiple use and where fishing is allowed under strict management control is uncommon. Ownership and governance by the local communities in conjunction with the national authorities has not yet been trialed in the region.	and which includes the creation of fishery councils. • Full register of lobster fishermen and merchants and knowledge of markets • Agreements formulated between fishermen councils and merchants to ensure sustainable spiny lobster fishery • Models for reef fishery governance based on an ecosystem approach and incorporating the concept of fish refuges developed and ground-truthed at three sites with the aim to increase area of reef under marine management area status by 50% (Seaflower MPA, Pedro Bank and N.W. Hispaniola)	fora.	
	2. Increased self governance and stakeholder involvement in decision making process in management of lobster fisheries and of multiple-use MPAs	• Stakeholder involvement at the local level is uncommon, although the need to bring them into the decision making process is universally recognized.	• To establish a degree self governance in the Spiny lobster and Reef fishery pilots which will ensure a sustainable fishery and reduce administration costs • Area management plans for large marine areas agreed including zoning, close seasons, size limits and quotas supported by a clear decision framework with threshold values identified. • Fishery councils established with broad stakeholder involvement including fishermen, fish merchants,	• Composition of the fishery management bodies and meeting minutes. • Local implementation and policing of management plans	

Project Strategy	Indicator	Base Line	Target *Unless otherwise stated these are targets for Project completion*	Means of Verification	Assumption
			tourism industry, community groups, scientists and local government stakeholders. • Enforcement arrangements agreed and implemented at the local level • Improved compliance with existing fishery management regulations through review of enforcement mechanisms at selected sites		
	3. Improved understanding of the ecosystem in which the two fisheries are imbedded.	• Existing management plans do not take into account the impact of the fishery on the ecosystem or benefits of a healthy ecosystem, although both are acknowledged. There is a lack of scientific information about the interactions and the trophic linkages	• To review existing knowledge of the fisheries to determine appropriate fishery management tools to achieve sustainable mixed fisheries in a healthy robust ecosystem and then to test them through a monitoring and evaluation framework. • Spiny lobster fishery data collection records improved with increased returns and improved measurement criteria (*over the short project period observable improvement in the stock is unlikely*) • Comprehensive baselines created for reef fisheries including the identification of indicator species of environment health, sensitive areas and exploitable, over-exploited fish stocks and review of fishing practices and markets. • Improved reef fish catch data including increased returns	• New agreed fisheries management plans based on the EBM approach • Final pilot project reports	

Project Strategy	Indicator	Base Line	Target *Unless otherwise stated these are targets for Project completion*	Means of Verification	Assumption
			and measured parameters and environmental status monitoring programme established.		
	4. Improved catch return data and fisheries information	• Spiny lobster catch data compiled by members of FAO and the WECAFC Ad hoc working group is available but coverage is incomplete and the data is inconsistent. There is no socio-economic data available relating to the lobster fisheries. Only limited catch data is available for reef fisheries.	• To agree a monitoring and evaluation framework for both the spiny lobster and reef fisheries which can be replicated throughout the region and will provide information not only catches but also the ecosystem status and socio-economic setting • Models for monitoring programs with MPA effectiveness indicators developed and under implementation	• Agreed M&E framework and database • Training in sampling techniques and processing and data sampling • Results from two years of pilot project implementation.	
Outcome 4: Cost-Effective Project Management Arrangements Provided for	1. Establishment of regional Project Coordination Unit	N/A	• A fully operational and equipped PCU established in the offices of IOCARIBE in Cartagena,, Colombia within three months of project commencement.	• Local administration staff appointed • PCU hosting agreement signed with IOCARIBE • Filing and accounting systems set up and bank account opened.	Timely and efficient project start-up with quick release of funds
	2 Appoint Chief Technical Advisor and regional technical experts	N/A	• An internationally recruited chief technical advisor appointed within one month of project commencement and regional technical experts within two months.	• Contracts signed	
	3. Cost-effective project delivery	N/A	• Delivery of project outputs to budget and programme at the required technical specification	• Steering Committee reports • UNDP Progress reports measured against inception report	

SECTION III: TOTAL BUDGET AND WORK PLAN

Summary Budget of GEF Grant

Award Title:	**PIMS 2193 IW FSP Regional: Sustainable Management of the Shared Living Marine Resources of the Caribbean Large Marine Ecosystem (CLME) and Adjacent Regions**					
Award ID:	00049579					
GEF Outcome/Atlas Activity	**Source of Funds**	**Amount (USD) Year 1**	**Amount (USD) Year 2**	**Amount (USD) Year 3**	**Amount (USD) Year 4**	**Total (USD) All Years**
1. Analysis of Transboundary Marine -Living Resources Issues	GEF	620,000	820,000	473,116	0	1,913,116
	Sub-total	**620,000**	**820,000**	**473,116**	**0**	**1,913,116**
2. SAP Development and Identification of Reforms and Investments	GEF	110,000	671,500	793,500	480,000	2,055,000
	Sub-total	**110,000**	**671,500**	**793,500**	**480,000**	**2,055,000**
3. Targeted Projects Demonstrating Early SAP Implementation	GEF	475,000	640,000	655,000	610,000	2,380,000
	Sub-total	**475,000**	**640,000**	**655,000**	**610,000**	**2,380,000**
4. Project management	GEF	197,000	164,000	162,000	137,000	660,000
	Sub-total	**197,000**	**164,000**	**162,000**	**137,000**	**660,000**
	Total	**1,417,000**	**2,290,500**	**2,078,616**	**1,222,000**	**7,008,116**

Caribbean Large Marine Ecosystem - Total Budget and Work Plan

Award ID:	00049579
Award Title:	PIMS 2193 IW FSP Regional: Sustainable Management of the Shared Living Marine Resources of the Caribbean Large Marine Ecosystem (CLME) and Adjacent Regions.
Business Unit:	UNDP1
Project Title:	PIMS 2193 IW FSP Regional: Sustainable Management of the Shared Living Marine Resources of the Caribbean Large Marine Ecosystem (CLME) and Adjacent Regions
Project ID:	00060566
Implementing Partner (Executing Agency)	UNOPS

GEF Outcome/Atlas Activity	Responsible Party/ Implementing Agent	Fund ID	Donor Name	Atlas Budgetary Account Code	ATLAS Budget Description	Amount Year 1 (USD)	Amount Year 2 (USD)	Amount Year 3 (USD)	Amount Year 4 (USD)	Total (USD)	See Budget Note:
OUTCOME 1: Analysis of transboundary issues relating to LMR Management	**UNOPS**	**62000**	**GEF**	71200	International Consultants	160,000	165,000	100,000		425,000	1
				71300	Local Consultants	199,500	300,000	165,000		664,500	2
				71400	Contractual services – companies	200,000	300,000	165,000		665,000	3
				72200	Equipment	10,500	5,000	5,000		20,500	4
				71600	Travel	50,000	50,000	38,116		138,116	5
				74200	Audio Vis/Print prod.						
					Sub-total Outcome 1	**620,000**	**820,000**	**473,116**	**0**	**1,913,116**	
OUTCOME 2: Development and Identification of Reforms and Investments for Management of Shared Living Resources	**UNOPS**	**62000**	**GEF**	71200	International Consultants	60,000	221,000	273,000	190,000	744,000	6
				71300	Local Consultants	50,000	250,500	250,000	200,000	750,500	7
				72100	Contractual services – company		150,000	200,000		350,000	8
				72200	Equipment						
				74200	Audio Vis/Print prod.		5,000	5,500	5,000	15,500	9
				71600	Travel		45,000	65,000	85,000	195,000	10
					Sub-total Outcome 2	**110,000**	**671,500**	**793,500**	**480,000**	**2,055,000**	

OUTCOME 3: Targeted Projects Aimed at Strengthening the Policy Cycle and Early SAP Implementation	**UNOPS**	**62000**	**GEF**	71200	International Consultants	45,000	30,000	30,000	30,000	135,000	11
				71300	Local Consultants	50,000	50,000	50,000	55,000	205,000	12
				72100	Contractual services – companies	370,000	540,000	550,000	500,000	1,960,000	13
				72200	Equipment						
				74200	Audio Vis/Print prod.	5,000	5,000	10,000	10,000	30,000	14
				74500	Miscellaneous						
				71600	Travel	20,000	10,000	10,000	10,000	50,000	15
					Sub-total Outcome 3	**490,000**	**635,000**	**650,000**	**605,000**	**2,380,000**	
PROJECT MANAGEMENT	**UNOPS**	**62000**	**GEF**	71200	International Consultants	45,000	45,000	45,000	30,000	165,000	16
				71300	Local Consultants	50,000	50,000	50,000	50,000	200,000	17
				71600	Travel	20,000	20,000	15,000	15,000	70,000	18
				74500	IW Learn	5,000	5,000	5,000	5,000	20,000	19
				72200	Equipment	45,000	10,000	5,000	5,000	65,000	20
				72500	Office Supplies	10,000	10,000	5,000	5,000	30,000	21
				74200	Audio Vis/Print prod.	12,000	19,000	22,000	12,000	65,000	22
				74500	Miscellaneous expenses	10,000	5,000	15,000	15,000	45,000	23
					Total Management	**197,000**	**164,000**	**162,000**	**137,000**	**660,000**	
					PROJECT TOTAL	1,417,000	2,290 ,500	2,078,616	1,222,000	7,008,116	

Budget notes:

1. *122 staff-weeks of international consultants (including 20 wks of CTA and 92 wks of the Senior Project Officer) to work on Activities 1.2 Update of the TDA and 2.2 Creation of Information Management System – see ToR Part III. Consultancies include: Environment Officert (20 wks) to review biodiversity related issues in the TDA, have input into IMS development and provide guidance on introduction EBM approach in the transboundary fisheries; Economist(18 wks) to undertake a socio-economic evaluation of CLME fisheries for inclusion into the TDA, and drafting of relevant TDA section ; Chemist (10 wks) to assess the levels of transboundary pollution based on existing data and information and the potential impact on artisanal and high seas fisheries, draft relevant section of TDA and assist in preparation of CLME Status of environment report ; TDA/SAP expert (5 wks) provide guidance on the TDA development process including the CCA and identification of priority interventions, facilitate TTT meetings and draft relevant sections of TDA.*
2. *Includes:*
    a. *100 staff- weeks of a pool of national experts forming the TDA Technical Task Team responsible for development of TDA. 10 members drawn from around the region and sub-regions.*
    b. *25 staff- weeks of regional stakeholders forming the Stakeholder Advisory Group to review TDA products, including the communications and PI strategy and SHA. Ten members drawn from a wide range of stakeholders.*

c. *100 staff-weeks of regionally recruited Public Participation officer (see ToR). Responsible for all PI components associated with the project and pilot projects. Reporting direct to CTA.*
d. *300 staff-weeks of sub-regional fisheries expert to provide input into TDA, coordinate sub-regional responses, provide technical oversight of TDA gap filling studies, development of interventions and pre-feasibility studies of priority interventions. The key national experts providing the linkage between regional and national activities. Involved in all project components.*
e. *137 staff weeks of national fisheries experts to collate and process fisheries, contaminant and socio-economic data for the IMS and provide information for development of M&E framework indicators and the REMP.*
f. *15 staff weeks of sub-regional institutional and legal expert to prepare the institutional map of the region for inclusion into the TDA. This is a key element for SAP development.*

3. *Contracts including:*
   a. *Development of IMS deliverables include: Definition of user requirements it the short and long term to meet existing and future decision frameworks; System design and proposals for institutional support; Review of sources of information and preparation of meta-database; Collation and processing of existing fisheries, biological, contamination and socio-economic data and information (to be collected by national consultants; Information exchange and standard data input protocols and format; QA protocols; Design and creation of system framework; Design manual; and Capacity needs assessment and training.- $250,000. To be executed by IOC under an IAA agreement (Estimated consultant input 50 international staff weeks and 50 national staff weeks). Technical management will be provided by the Scientific Officer. Data collation and processing will be carried out separately by national consultants. The development of the IMS will be closely tied to the M&E/REMP development thereby making cost savings. Wherever possible national consultants will be used for system development.*
   b. *Large pelagic fisheries gap filling activities, include the following deliverables: Establishment of a draft fisheries data collection programme for large pelagics not under the jurisdiction of the ICCAT (i.e. dolphinfish, blackfin tuna, cero and king mackerels, wahoo and bullet tunas); Desk studies of the trophic linkages within the pelagic system and establishment of initial management plans, including target and limit catch reference points (TRP and LRP) for key species; Assessment of the economic importance and impact of recreational fisheries in the region. Contract to be let to regional fisheries consultants or organization and linked to the FAO WECAFC working group - $120,000 (Estimated consultant input 100 staff-weeks) Technical oversight to be provided by CTA..*
   c. *Flying fish fisheries gap filling activities, includes the following deliverables: Review of fisheries data and collection programme, including catch/effort information, in the Eastern Caribbean taking into account long lining and mixed landings; Bioeconomic studies of the fishery to establish the bioeconomic criteria and set reliable management measures for the fourwinged flying fish; Assessment of species interaction between flying fish and large pelagic fishes to provide for these in management using EBM principles; and Assessment of economic risk and social impacts to refine the management for the fourwinged flying fish. Contract to be let to regional fisheries consultants and linked to the work of FAO WECAFC working groups - $145,000 (Estimated consultant input 115 staff weeks). Technical oversight to be provided by CTA.*
   d. *Groundfish and shrimp fisheries gap filling activities, includes the following deliverables: Assessment of the impact of anthropogenic activities on the productivity of the shrimp fisheries in the coastal zone and the drafting of coastal development guidelines for their protection; Bioeconomic assessment to determine the bioeconomic equilibrium and establish a LRP for the shrimp fisheries; and a desk assessment of primary/secondary productivity, trophic chains, species diversity, species interaction of the ground fish fisheries of the Brazil-Guianas shelf and the development of management strategies and tools to address the ecosystem dimension of the fishery - $150,000 (estimated consultants input 120 staff weeks). Technical oversight to be provided by CTA.*
4. *Computer server to host IMS and web-site. GIS plotter and printer. Statistical and GIS software and other specialized software for support of the IMS.*
5. *Travel: It is underlined that as a regional project with 23 GEF-eligible participating countries, some travel within the region will be required by the project. Efforts have been made and will continue to be made to maintain travel costs at a minimum. Teleconference or other electronic means will be preferred whenever possible. When actual meetings or workshops must be held in order to support project objectives, all efforts will be made to keep costs at a minimum and to hold meetings back-to-back. Includes:*
   a. *Inception meeting and first SCM incorporating Stakeholder Advisory Group meetings*
   b. *Travel cost associated with four TDA TTT meetings (CCA, interventions and priority pre-feasibility studies, gap filling activities, draft TDA review). Meetings to be held in Cartagena or Panama to reduce cost and whenever possible back-to-back with other regional meetings to share costs with other donors*
6. *157 staff-weeks of international consultants (including 90 wks of CTA, 67 wks of Senior Project Officer) to work on Activities 3.1 Development of the SAP, 3.2 Improved Management frameworks, 3.3 Monitoring evaluation and reporting)- see ToR Part III. International consultancies include a Fisheries Governance expert to guide the develop3333ment of strengthened governance at regional and sub-regional levels and development of decision frameworks (75 wks) (Act 3.2) Deliverables include: An*

analysis of current management and governance frameworks for all major Caribbean fisheries; review of relevant existing international fisheries agreements and other agreements and institutions affecting the health and sustainability of the goods and services of the CLME; elaboration of a regional management and governance framework options paper through extensive consultations within the region and taking into account existing institutions and structures; selection of preferred framework option and initiation of implementation; drafting of legal and institutional arrangements documents; and facilitation of document negotiation process. A TDA/SAP expert (12 weeks) to provide advice and facilitate the SAP development process including development of vision, LMR management objectives, targets and SAP M&E framework. Consultant to assist in facilitation of SAP meetings and ensure GEF best practice is followed. It will be important for the consultant to combine the LME and SAP approaches and ensure that SAP implementation is a key focus of any strengthened Governance framework. (Act 3.1 and 3.2. TAD/SAP consultant to prepare first draft of SAP. An Environment Officer (25 weeks) to develop the concept of EBM approach within the SAP and Governance framework and provide input into the design of the M&E framework and REMP. An economist to review SAP and investigate potential economic instruments to ensure sustainability of framework(9 wks).

7. *Includes:*
    a. *100 staff-weeks of a pool of national consultants forming the SAP formulation team. 10 members drawn from the TDA TTT and government nominees from the three sub-regions. The SAP formulation team will be assisted by the sub-regional fisheries experts.*
    b. *25 staff- weeks of regional stakeholders forming the stakeholder advisory group to review SAP products*
    c. *30 staff-weeks of Public Participation officer to provide input into the SAP and Governance strengthening processes ensuring integration of the Communications and PI strategy.*
    d. *300 staff-weeks of sub-regional fisheries expert to provide input into SAP as members of SAP formulation team, have input into the design of sub-regional governance structures, review monitoring programmes and have input into the REMP and M&E framework design.*
    e. *213 staff weeks of national fisheries experts to collate information on monitoring programmes and assist with construction of baseline, design of the M&E framework and preparation of CLME status report.*
    f. *95 staff-weeks of a pool of national consultants to assist with strengthening of Governance framework.*
8. *Contract for the development of M&E framework and REMP includes the following deliverables: Review of existing monitoring programmes for fisheries, priority habitats and species, productivity, pollution and socio-economic variables (LME approach); Objectives of M&E and Regional Environmental Monitoring Programme within existing and future decision support frameworks; List of key GEF indicators (process, stress reduction and environmental status indicator) in each LME category; construction of baseline and identification of gaps; Design of REMP including extent and frequency of monitoring, parameters measured, standardised methods, QA/QS procedures, laboratory accreditation, Sampling methods, Sampling processing; Capacity assessment and training programme design; Draft data sharing agreements and management proposals; Programming (phasing) and costings; and CLME status of the environment report. - $ 350,000. To be executed by IOC under an IAA agreement (Estimated consultant inputs 75 staff weeks international and 50 staff national)*
9. *Costs of TDA and SAP production*
10. *Includes:*
    a. *Travel costs associated with two SCM, incorporating Stakeholder Advisory Group meetings*
    b. *Travel costs associated with 4 SAP formulation team meetings (Vision and LMR management objectives, targets and interventions, M&E framework, draft SAP review). Meetings to be held in Cartagena or Panama to reduce cost and whenever possible back-to-back with other regional meetings to share costs with other donors*
    c. *Travel costs associated with 2 REMP design meetings*
11. *200 staff-weeks of international consultants (29 wks of CTA and50 wks of Senior Project Officer) – see ToR Part III. The PCU will maintain overall technical oversight of pilot project implementation and will be closely involved it their execution. The Marine biologist will have the made role reporting direct to the CTA.*
12. *Includes:*
    a. *70 staff weeks of Public Participation expert, coordinating all public participation activities associated with the pilot project and the dissemination and replication strategy.*
    b. *135 staff weeks of a pool of national consultants to provide fisheries and public participation support*
13. *Includes contracts:*
    a. *Spiny Lobster pilot (for detailed outputs see draft project document in Part V of this document) - $860,000. To be executed by OPESCA under an inter-agency agreement (Estimated consultant inputs 40 international staff weeks and 400 national staff weeks)*
    b. *Reef fish pilot (for detailed outputs see draft project documents in Part V of this document) – $1,100,000. To be executed by UNEP under an inter-agency agreement (Estimated consultant inputs 70 international staff weeks and 500 national staff weeks)*

14. *Costs of production and distribution of dissemination materials for the two pilots*
15. *Travel costs associated with pilot project site visits 8/y by PCU staff. Flights $1000 each, pds and terminals $500*
16. *60 staff-weeks of international consultant (60 wks of CTA)*
17. *200 staff-weeks of national consultants including office manager and administrative assistant*
18. *CTA to take four missions per year to overview pilot project sites, attend technical workshops, on project management business to UNDP-GEF NY or Panama, UNOPS Copenhagen, plus a mission to 2009 IW conference. 16 Plane-tickets at $2,000 each plus $8,000 to Australia, total $40,000, Pds and terminals $30,000.*
19. *$20,000 for IWLEARN support activities.*
20. *Hardware and software equipment for PCU, includes telecommunications and internet connection*
21. *Office supplies including furniture*
22. *Web-site creation and up-keep, newsletters, posters, public awareness materials, and translations*
23. *Requirements for translations cannot be predicted with precision*

Quarterly work plan	Caribbean Large Marine Ecosystem															
	Full Sized Project Timeline															
	Q1 2008	Q2	Q3	Q4	Q1 2009	Q2	Q3	Q4	Q1 2010	Q2	Q3	Q4	Q1 2011	Q2	Q3	Q4
Activity																
Outcome 1– Analysis of transboundary LMR issues																
1.1 TDA Review and update																
Gap Analysis																
Thematic studies																
Causal Chain Analysis																
Stakeholder analysis and PI Strategy																
Institutional mapping and legal review																
Regional Socio-economic review																
Identification of interventions and pre-feasibility studies																
TDA update																
1.2 Information Management System (IMS)																
System design																
System development and testing																
Training																
Data collection, collation and processing																
IMS Launch												*				
Outcome 2 – SAP development and identification of reforms and investments																
2.1 Development of SAP																
Development of vision and EcoQOs																
Setting targets																
Prioritization of interventions																
Draft SAP																
Finalize and endorse SAP																
Donors Conference																*
2.2 Improved management framework for LMR																
Development of options and consultations on regional framework																
Selection and promotion of preferred option																
Economic instruments study to support new framework																
Agreement and endorsement of regional framework																
Institutional strengthening/capacity building at Sub-regional level																

Quarterly work plan	Caribbean Large Marine Ecosystem															
	Full Sized Project Timeline															
	Q1 2008	Q2	Q3	Q4	Q1 2009	Q2	Q3	Q4	Q1 2010	Q2	Q3	Q4	Q1 2011	Q2	Q3	Q4
Promotion of ratification of relevant international treaties and ICCAT																
Dissemination of results																
2.3 Monitoring, evaluation and reporting																
Establishment of institutional reporting procedures																
Review of existing monitoring programmes																
Develop Regional Environmental Monitoring Programme (REMP) and provide capacity building – ESI																
Develop GEF suite of M&E indicators																
Construct baseline and insert into IMS																
Undertake first CLME evaluation																
Outcome 3 – Fishery Demonstration Projects																
Stakeholder analysis and creation of stakeholder group																
Final project design, including site selection																
Fishery/ecosystem data collection and preliminary analysis																
Review of policy cycle and make recommendations for improvement																
Development of strengthened policy cycles at local/national levels																
Development and implementation of management plan																
Establishment of monitoring programme																
Reporting and dissemination of results																
Outcome 5 -Project Management																
5.1 Establish and maintain PCU																
Outcome 6-Project Coordination																
6.1 Establish and maintain web-site																
6.2, 6.3 Stakeholder Advisory Group, Partners of the Project meetings					*				*				*			*
6.4 Inception and Steering committee meetings	*				*				*				*			*

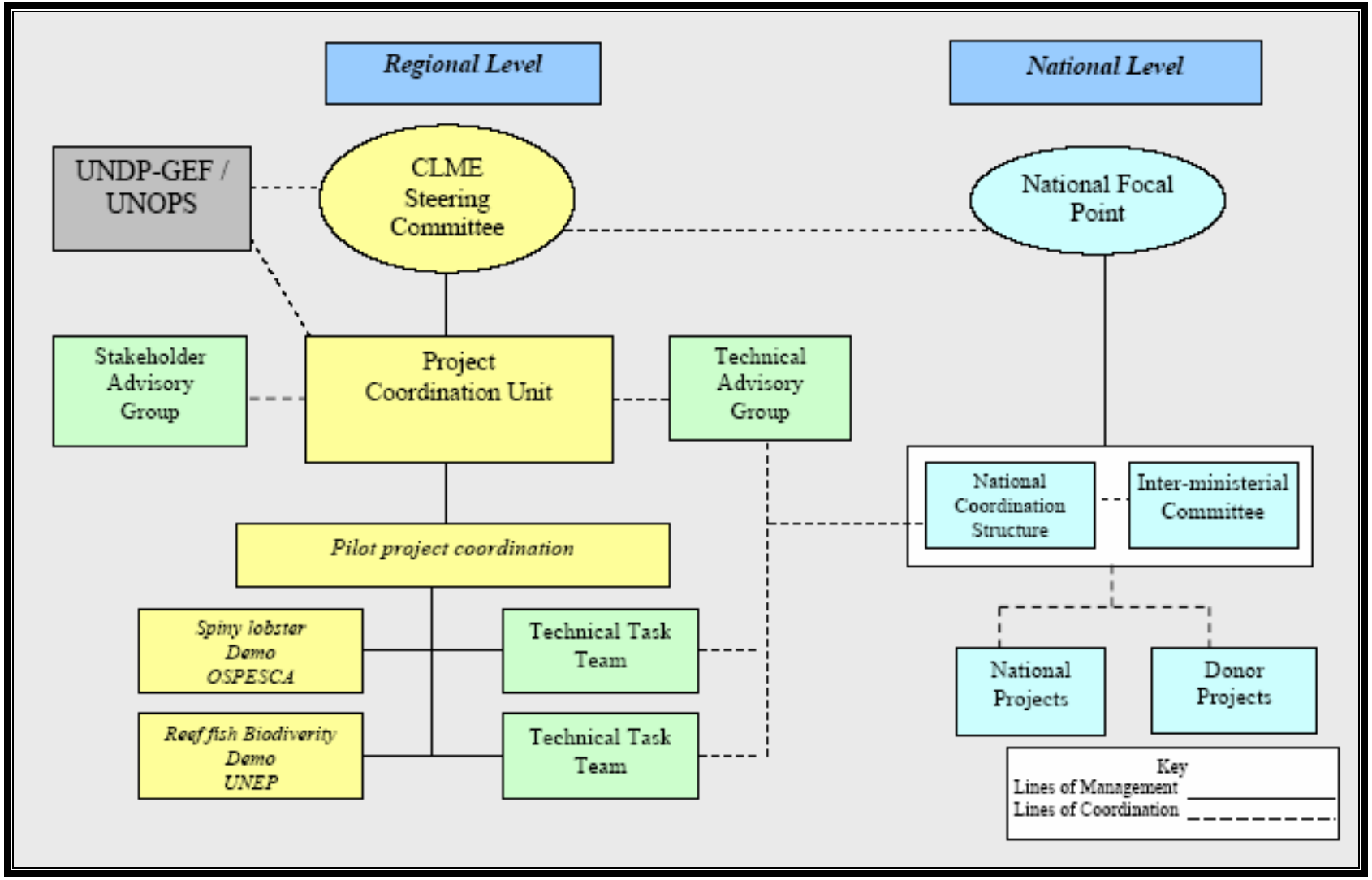
SECTION IV : ADDITIONAL INFORMATION

PART I: DEMONSTRATION PROJECTS DOCUMENTS: PLEASE SEE SEPARATE FILE (ANNEX A)

PART II: CO-FINANCING LETTERS: PLEASE SEE SEPARATE FILE (ANNEXES B THROUGH G)

ANNEX B CLME GOVERNMENT CO-FINANCING PART 1 OF 3
ANNEX C CLME GOVERNMENT CO-FINANCING PART 2 OF 3
ANNEX D CLME GOVERNMENT CO-FINANCING PART 3 OF 3
ANNEX E CLME NGO CO-FINANCING 1 OF 1
ANNEX F CLME OTHER CO-FINANCING PART 1 OF 2
ANNEX G CLME OTHER CO-FINANCING PART 2 OF 2

PART III: ORGANIGRAM OF PROJECT



PART IV: TERMS OF REFERENCES FOR KEY PROJECT STAFF AND MAIN SUB-CONTRACTS

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A. Terms of Reference: Chief Technical Advisor

General Responsibilities:

The Chief Technical Advisor (CTA) shall be responsible for the overall coordination of all aspects of the UNDP-GEF CLME. He/she shall liaise directly with designated officials of the Participating Countries, other Members of the PSC, the Implementing Agency, the Executing Agency, UNDP Country Offices, existing and potential additional project donors, National Focal Points, and others as deemed appropriate and necessary by the PSC or by the CTA him/her self. The CTA will be also responsible for the management of the project as well as for the delivery of a number of technical activities. The budget and associated work plan will provide guidance on the day-to-day implementation of the approved Project Document and inception report and on the integration of the various donor funded parallel initiatives. The CTA will be responsible for oversight of the pilot projects, and will provide guidance and orientation with a view to ensuring that these are fully aligned and harmonized with work undertaken within the main project. He/she shall be responsible for delivery of all substantive, managerial and financial reports from and on behalf of the Project. He/she will provide overall supervision for all staff in the Program Coordination Unit, as well as guiding and supervising all external policy relations, especially those related to other Projects within the CLME Project.

Specific Duties:

- Manage the UNDP- GEF Components of the PCU, its staff, budget and imprest account;
- Prepare an Annual Work Plan of the program on the basis of the Project Document and inception report, under the general supervision of the Project Steering Committee and in close consultation and coordination with related Projects, National Focal Points, GEF Partners and relevant donors;
- Coordinate and monitor the activities described in the work plan;
- Coordinate the SAP development process and oversee the Governance Framework development;
- Oversee the pilot project implementation and design the replication strategy;
- Ensure project compliance with all UN and GEF policies, regulations and procedures, as well as reporting requirements;
- Ensure consistency between the various program elements and related activities provided or funded by other donor organizations;
- Prepare and oversee the development of Terms of Reference for consultants and contractors;
- Coordinate and oversee preparation of the substantive and operational reports from the Program, including the revised TDA;
- Promote the Project and seek opportunities to leverage additional co-funding; and,
- Represent the Project at meetings and other project related fora within the region and globally, as required.

Qualifications:

- Post-graduate degree in the Marine Sciences, Environmental Management, or a directly related field (e.g. fisheries management, natural resources economics, etc.);

- Demonstrated experience in management of multi-disciplinary projects, preferably of bi-national or regional scope, including team-building skills;
- At least fifteen years experience in fields related to the assignment;
- Demonstrated diplomatic, interpersonal, networking and negotiating skills;
- Familiarity with the goals and procedures of international organizations, in particular those of the GEF and its partners (UNDP, UNEP, the World Bank, and regional organizations related to Project activities, and currently identified Project donors);
- Fluency in Spanish and English, both speaking and writing; and
- Previous work experience in one or more of the participating countries, and previous work experience in the region on issues related to the Project will be very favorably considered.

B. Terms of Reference: Senior Project Officer

General Responsibilities:

The Senior Project officer shall be the deputy project manager and shall assist the CTA in the overall coordination of all aspects of the UNDP-GEF CLME. He/she shall assume the responsibilities of the CTA in their absence including communications with the Steering Committee members. The Senior Project Officer will have general responsibility for ensuring the Project's high quality technical output.

Specific Duties:

- Assist the CTA in preparation of an Annual Work Plan of the Project on the basis of the Project Document and inception report;
- Oversee development of the information management system;
- Coordinate the design and implementation of the Regional Environmental monitoring Programme;
- Ensure close collaboration with the major technical partners (FAO, NOAA, IOC, and GESAMP, GPA).
- Manage the TDA update and have day-to-day responsibility for management of the TDA gap filling activities;
- Oversee the day-to-day implementation of the spiny lobster and reef fish pilot projects reporting directly to the CTA;
- Establish and maintain the project web-site with assistance from other PCU staff;
- Preparation of Terms of Reference for Consultants and Contractors; and
- Represent the Project at technical meetings within the region and globally, as required.

Qualifications:

- Post-graduate degree in Environment Science and/or Management, Oceanography or a directly related field;
- A good background in Information Technology;
- At least fifteen years experience in fields related to the assignment;
- Demonstrated management, interpersonal, networking and team building skills;
- Familiarity with the goals and procedures of international organizations, in particular those of the GEF and its partners (UNDP, UNEP, the World Bank, IOC (UNESCO) and regional organizations related to Project);
- Fluency in Spanish and English both speaking and writing; and
- Previous work experience in one or more of the participating countries, and previous work experience in the region on issues related to the Project will be very favorably considered.

D. Terms of Reference: Stakeholder and Public Participation Expert

General Responsibilities:

The Stakeholder and Public Participation expert shall have responsibility for all aspects of public involvement and participation relating to the project and shall report directly to the CTA. He/She shall also work with the CTA to promote the project regionally and the development of promotional materials and events.

Specific Duties:

- Undertake a revised Stakeholder Analysis to determine the views and opinions from a wide range of stakeholders on the transboundary problems and issues;
- Formation and coordination of the Stakeholder Advisory Group and its input into the TDA/SAP development process;
- Development of a Communications and Public Participation Strategy including proposals for stakeholder participation in the Governance Framework;
- In close collaboration with the pilot projects develop stakeholder involvement activities and self policing policies to strengthen fisheries governance;
- Assist the Senior Project Officer with the development and maintenance of the Project web-site;
- Prepare a quarterly news bulletin (internet based) to be distributed as widely as possible in the region;
- Preparation of Terms of Reference for Consultants and Contractors; and
- Represent the Project at technical meetings within the region and globally, as required.

Qualifications:

- Post graduate qualification in environmental management, social sciences, or related discipline;
- Demonstrated understanding of the socio-economic processes which lead to degradation of international waters and coastal areas;
- Demonstrated experience in development of public participation in international waters and/or regional projects;
- At least three years demonstrated and successful experience in preparing and implementing stakeholder and public involvement projects;
- Demonstrated ability to discuss, negotiate and facilitate stakeholder group consultations in the region;
- Familiarity with the goals and procedures of international organizations, in particular those of the GEF and its partners (UNDP, UNEP, the World Bank, IOC (UNESCO) and regional organizations related to Project);
- Fluency in Spanish and English both speaking and writing; and
- Previous work experience in one or more of the participating countries, and previous work experience in the region on issues related to the Project.

E. Terms of Reference: Administrative Assistant (AA)

General Responsibilities:

As part of the CLME Unit (PCU), the AA will perform a variety of secretarial, coordinating, monitoring and administrative services to ensure the efficient daily running of the PCU and in support of project/programme activities. The AA will work within the PCU ensuring the smooth functioning and continuity of the projects/programmes and will receive directions from the Chief Technical Advisor on technical matters.

Specific Duties:

- Draft correspondence and documents of an administrative nature in consultation with the CTA and TA.
- Coordinate the procurement activities for the PCU and support the financial control and monitoring activities of the PCU.
- Establish and maintain the filing system of technical documents and general internal and external correspondence
- Make administrative arrangements with regard to recruitment of additional consultants / experts for the Project
- Assist in the organization of meetings held by PCU (Steering Committee, working groups, etc), and provide administrative and secretarial support during the meetings.

Qualifications:

- Equivalent to graduation from secondary school or equivalent technical or commercial school
- Specialized training in secretarial/administrative training, or equivalent work-related experience, including typing and proven skills on standard office software.
- Fluent in English and Spanish, written and orally.
- Work with computerized systems and databases.
- Demonstrated managerial and communication skills.
- Sound computer skills
- Previous experience within the UN system or with GEF projects is an asset.

PART V: IMPACTS, CONSEQUENCES AND CAUSES OF PRIORITY TRANSBOUNDARY AREAS OF CONCERN IN THE SUB-REGIONS OF THE CLME PROJECT AREA

Table 3: Impacts, Consequences and Causes of Over-Exploitation of Living Marine Resources in the Sub regions of the CLME Project Area

	Central-South America Sub-region	Guianas-Brazil Sub-region	Insular Caribbean Sub-region
Impacts	• Changes in species and size composition • Reduced abundance of fish stocks due to destructive fishing practices • Excessive by-catch and discards of demersal species in shrimp fishery • Threats to biodiversity from Illegal, Unreported and Unregulated (IUU) fishing • Habitat degradation	• Changes in species and size composition • Reduced abundance of fish stocks due to destructive fishing practices • Excessive by-catch and discards of demersal species in shrimp fishery • Threats to biodiversity from Illegal, Unreported and Unregulated (IUU) fishing • Habitat degradation	• Reduced abundance of fish stocks • Changes in trophic structure of fish populations, with a trend towards small, low trophic level species • Threats to biodiversity and other changes in the ecosystem • Habitat degradation
Socio-Economic Consequences	• Loss of employment and financial gain accruing to coastal communities • Health-related injuries and death from fishing practices involving deep sea diving • Reduced food security (artisanal and industrial) • Erosion of sustainable livelihoods • Increase in operational expenses due to increasing distance to fish offshore • Increased conflicts and costs to ensure compliance due to poaching and illegal fishing • Missed opportunities due to under-utilization of pelagics and by-catch wastage • Loss of competitive edge in global marketplace	• Loss of employment and financial gain accruing to coastal communities • Reduced food security (artisanal and industrial) • Erosion of sustainable livelihoods • Loss of foreign exchange earnings • Loss of competitive edge in global marketplace	• Loss of employment and financial gain accruing to coastal communities • Reduced food security (artisanal and industrial) • Erosion of sustainable livelihoods • Increase in operational expenses due to increasing distance to fish offshore • Increased conflicts and costs to ensure compliance due to poaching and illegal fishing

Linkages To Other Transboundary Problems	• Habitat degradation • Pollution	• Habitat and community modification	• Habitat degradation • Pollution • Climate Change
Transboundary Consequences	• Negative spill-over effects due to shared and migratory nature of the resources • Reduction in species of global significance • Illegal fishing by foreign vessels increasing local and regional conflicts • Inappropriate management of regional resources • Potential irreversible changes in nature of LME	• Negative spill-over effects due to shared and migratory nature of the resources • Illegal fishing by foreign vessels increasing local and regional conflicts	• Negative spill-over effects due to shared and migratory nature of the resources • Reduction in species of global significance • Illegal fishing by foreign vessels increasing local and regional conflicts
Immediate Causes	• Catching of large quantities of immature and spawning individuals, particularly lobster, conch and demersals • Non-selective fishing gear • Destruction of habitats and loss of biodiversity • Indirect fishing effort by the shrimp trawl fisheries on groundfish species • Harvesting of turtle eggs and meet by indigenous peoples • IUU fishing from both	• The multispecies nature of these fisheries; • Overcapacity (fishing effort and processing infrastructure) in the mainly industrial shrimp fishery and in the mainly open access, multigear groundfish artisanal fishery • Indirect fishing effort by the shrimp trawl fisheries on groundfish species • Destruction of juvenile groundfish by “Chinese seines” and pin seines; • IUU fishing from both national and foreign fishers • Habitat loss or degradation from nearshore trawling and	• Harvesting of fish beyond the level of MSY • Catching of large quantities of immature and spawning individuals • Destruction of habitats and loss of biodiversity •

	national and foreign fishers • Habitat loss or degradation from nearshore trawling and deforestation of mangrove forests • Chemical pollution from the agricultural and mining sectors • Ease and low cost associated with catching conch	deforestation of mangrove forests • Chemical pollution from the agricultural and mining sectors.	
Underlying Causes	• Fishing over-capacity in the shrimp and lobster fisheries • Failure to acknowledge full impact of artisanal fishing effort • Destructive fishing methods • Lack of alternative food source • Foreign markets' demand for shrimp and lobster • Inadequate institutional and legal frameworks for fisheries and coastal zone management • Insufficient technical and financial capacity • Lack of information on the biology, economic and social status of each of the major fisheries • Variations in national regulations affecting management and limited	• Foreign markets' demand for shrimp and groundfish • High level of investment in a shrimp fishery • Local demand for groundfish as a source of food • Need for foreign exchange • Dependence on the groundfish fishery as a source of employment and income in many rural communities • Government subsidies • Inadequate institutional and legal frameworks for fisheries and coastal zone management • Insufficient technical and financial capacity •	• Fishing over-capacity • Government subsidies • Improvements in technology • Destructive fishing methods • Inadequate information and assessment tools information • Inadequate fisheries management and control • Lack of collaborative management at the regional level • Insufficient technical and financial capacity • •

	monitoring, enforcement and surveillance • Foreign poaching due to poor surveillance		
Root Causes	• Rural poverty • Illiteracy • Lack of political will • Lack of integrated governance structures and weak governance where it exists • Lucrative nature of the lobster fishery • Little clarity in access rights policies that are divorced from the sustainability levels of the resources • Open access nature of fisheries • Lack of consensus in the use and management of shared resources • Lack of EEZ delimitation • Lack of priority for the fisheries by governments • Cultural practices by indigenous peoples • Natural phenomena • Excessive nationalism	• The need by the shrimp industry to obtain adequate returns on their large capital investment • Rural poverty • Illiteracy • Lack of integrated governance structures and weak governance where it exists.	• Growing population pressure for food and employment • Limited resources and human capacity • Lack of political will • Insufficient stakeholder involvement and public awareness • Inadequate planning at all levels • Low priority afforded fishing relative to other economic sectors • Poor legal framework at the regional and national levels • Weak and ineffective regulatory and institutional frameworks • Failure to integrate environmental considerations in development plans • Inadequate institutional and legal frameworks for fisheries and coastal zone management • Cultural and language barriers • Natural phenomena

Table 4: Impacts, Consequences and Causes of Habitat Degradation and Community Modification in the Sub-regions of the CLME Project Area.

	Central-South America Sub-region	Guianas-Brazil Sub-region	Insular Caribbean Sub-region
Impacts	• Loss of ecosystem structure and function • Reduction/loss of biodiversity • Reduction in fisheries productivity • Introduction of invasive species	• Modification or loss of ecosystems (mangroves/corals) and ecotones • Reduction/loss of biodiversity; • Reduction in fisheries productivity	• Loss of ecosystem structure and function • Reduction/loss of biodiversity • Reduction in fisheries productivity
Socio-Economic Consequences	• Loss of employment and financial gain accruing to coastal communities from declining fish stocks • Deterioration in quality of life among coastal communities • Increased conflicts between local population and tourists • Loss of social welfare particularly among rural and indigenous communities • Loss of competitive edge in the global market as a tourism destination	• Loss of employment and financial gain accruing to coastal communities from declining fish stocks • Deterioration in quality of life among coastal communities	• Loss of employment and financial gain accruing to coastal communities from declining fish stocks • Loss of tourism-related employment and financial gain accruing to coastal communities and national treasury from diminished amenity value of area • Loss of natural coastal protection function • Increased the vulnerability and cost of protection of coastal land, infrastructure, and humans to damaging waves and storm surges. • Reduced existing income and foreign exchange from other sectors • Reduced investment potential • Loss of educational and scientific values • Loss of competitive edge in the global market as a tourism destination
Linkages To Other Transboundary Problems	• Over-exploitation of living resources • Pollution	• Over-exploitation of living resources • Pollution	• Over-exploitation of living resources • Pollution • Climate Change
Transboundary Consequences	• Loss of feeding, spawning and nursery grounds for species with transboundary distribution • Loss of genetic and biological diversity • Potential irreversible changes in nature of the LME	• Loss of feeding, spawning and nursery grounds for species with transboundary distribution • Loss of genetic and biological diversity • Potential irreversible changes in nature of the LME	• Loss of feeding, spawning and nursery grounds for species with transboundary distribution • Loss of over-wintering mangrove and nearshore habitat for migratory species • Loss of genetic and biological diversity • Potential irreversible changes in nature of the LME

	Central-South America Sub-region	Guianas-Brazil Sub-region	Insular Caribbean Sub-region
Immediate Causes	• Removal of coastal habitat for fuel and housing • Trawling activities and other destructive fishing practices • Sediment load from rivers • Waste discharges coastal communities and aquaculture farms • Physical alteration for tourism, housing and industrial developments in the coastal zone • Abandonment or loss of fishing gear	• Removal of coastal habitat for energy/fuel • Clearing for agriculture (rice), aquaculture (shrimp culture) and other development activities.	• Overfishing and excessive harvesting (e.g. of mangrove trees); • Diseases and coral bleaching; • Physical and biological alteration • Damage and destruction, including removal and burial of coastal and nearshore habitat.
Underlying Causes	• Cheap cost of destructive fishing traps • Non-existing standards or standards with limited application and enforcement • Unsustainable tourism practices • Improper land use and poor agricultural practices • Poorly planned coastal development • Inadequate waste management • Natural causes	• Inadequate land use policies • The need to produce crops for food (nutrition) and export • Limited job and income earning opportunities in other sectors.	• Destructive fishing methods • Rising demand for food • Excessive harvesting of mangrove trees • Unsustainable tourism practices • Improper land use and poor agricultural practices • Poorly planned coastal development • Inadequate waste management • Invasive species
Root Causes	• Inadequate planning at all levels • Poor legal framework at the regional and national levels • Weak and ineffective regulatory and institutional frameworks • Failure to integrate environmental considerations in development plans • Cultural differences	• Inadequate integrated development strategies • Lack of integrated planning among the economic sectors • Insufficient consideration of the environment in development plans	• Growing population pressure for food, employment and housing • Insufficient stakeholder involvement and public awareness • Inadequate planning at all levels • Poor legal framework at the regional and national levels • Weak and ineffective regulatory and institutional frameworks • Failure to integrate environmental considerations in development plans • Cultural and language barriers

	Central-South America Sub-region	Guianas-Brazil Sub-region	Insular Caribbean Sub-region
			• Natural phenomena • The lack of economic valuation of ecosystems and their services • Limited integrated watershed and coastal area management.

Table 5: Impacts, Consequences and Causes of Pollution in the Sub-regions of the CLME Project Area

	Central-South America Sub-region	Guianas-Brazil Sub-region	Insular Caribbean Subregion
Impacts	• Deterioration of environmental quality • Degradation of coastal ecosystems • Threats to living marine resources • Changes in structure of reef communities.	• Deterioration of environmental quality • Degradation of coastal ecosystems • Threats to living marine resources.	• Deterioration -of environmental quality • Degradation of coastal ecosystems • Threats to living marine resources.
Socio-Economic Consequences	• Diminished aesthetic value and amenity of area for recreational and other uses • Reduced revenues from tourism • Deterioration in human health	• Loss in revenues from fish products • Deterioration in human health from disease vectors, HABs, heavy metals, toxins and POPs	• Deterioration in human health from disease vectors, HABs, heavy metals, toxins and POPs • Diminished aesthetic value and amenity of area for recreational and other uses • Reduced revenues from tourism
Linkages To Other Transboundary Problems	• Habitat degradation • Decline in abundance of living marine resources	• Habitat degradation • Decline in abundance of living marine resources	• Habitat degradation • Decline in abundance of living marine resources
Transboundary Consequences	• High potential for transport of pollutants across EEZs in wind and ocean currents • Transboundary impacts from plumes of major continental rivers and pollution in large bays •	• High potential for transport of pollutants across EEZs in wind and ocean currents • Transboundary impacts from plumes of major continental rivers •	• High potential for transport of pollutants across EEZs in wind and ocean currents • Transboundary impacts from plumes of major continental rivers • Extra-regional atmospheric transport of dust, POPs and other contaminants to the region
Immediate Causes	• Atmospheric deposition and flooding • Chemical fertilizers and pesticides in run-off • Microbial and nutrient loading from tourism, fishing, fish processing and residential developments • Ballast water discharges • Use of chemicals in fishing practices • Discharges and spillages from the petroleum sector	• Farmed areas concentrated in the coastal belt • Culture practices for agricultural crops resulting in drainage directly to waterways and the sea • Lack of treatment or monitoring of the effluents and non-point sources of discharge • Use of least expensive technology available for mainly artisanal mining • Inadequate construction and maintenance of storage facilities for the waste containing cyanide from large scale mining operations	• Point and non-point land-based sources of discharge of industrial and urban waste • Operational spills in ports and marinas • Runoff of agricultural fertilizers and pesticides • Dumping of solid waste • Land degradation • Atmospheric deposition

Underlying Causes	• Poor agricultural practices (including excessive use of fertilizers and pesticides) • Unsustainable tourism practices • Poorly planned coastal development • Inadequate waste management and disposal • Deficient information and limited application of national and international standards	• Inadequate land use policies • The need to produce crops for food (nutrition) and export • Limited job and income earning opportunities in other sectors • The demand for gold in the world market • Unemployment and lack of income earning opportunities • Illegal immigration • Insufficient institutional capacity to regulate the mining sector	• Poor agricultural practices (including excessive use of fertilizers and pesticides) • Unsustainable tourism practices • Poorly planned coastal development • Inadequate waste management and disposal • Limited cleaner production technologies in industry
Root Causes	• Weak and ineffective legal, regulatory, and institutional frameworks • General lack of environmental quality standards and legislation • Limited financial and human resources • Poor surveillance and enforcement, and limited compliance • Lack of adequate data and information due to irregular or no monitoring and assessment •	• Inadequate integrated development strategies • Lack of integrated planning among the economic sectors • Insufficient consideration of the environment in development plans • Poverty • Illiteracy • Need for adequate returns on investment • Weak governance.	• Weak and ineffective legal, regulatory, and institutional frameworks; • General lack of environmental quality standards and legislation • Limited financial and human resources • Poor surveillance and enforcement, and limited compliance • Lack of adequate data and information due to irregular or no monitoring and assessment • Scientific activities are not integrated • Insufficient certification of laboratories. • Limited financial resources for infrastructure maintenance and renovation • Limited use of appropriate, efficient and cost-effective pollution prevention technologies

PART VI: STAKEHOLDER INVOLVEMENT PLAN: PLEASE SEE SEPARATE FILE (ANNEX H)

PART VII: PRELIMINARY REGIONAL AND SUB-REGIONAL TRANSBOUNDARY DIAGNOSTIC ANALYSES: PLEASE SEE SEPARATE FILE (ANNEXES I AND J)

SIGNATURE PAGE

Countries: **Antigua and Barbuda**
UNDAF Outcome(s)/Indicator(s):
(Link to UNDAF Outcome. If no UNDAF, leave blank)

Expected Outcome(s)/Indicator (s): Fostering the development and implementation of required policy reforms, institutional arrangements, and investments to achieve sustainable management of the living marine resources of the Caribbean Sea through the development of a Strategic Action Program based on a Transboundary Diagnostic Analysis. Specifically the project also contributes to global and regional environmental objectives by addressing the depletion of coastal and marine fish stocks and associated biological diversity. Other indicators include: improvements in fish stock and coastal habitat achieved; community livelihoods sustained and access to fish for artisanal fishers secured; multi-agency partnerships for action developed; enhanced policy cycles for key fisheries at a sub-regional level, articulated at the regional level with associated institutional reforms, increased enforcement, and demonstration projects; and community livelihoods improved in demonstration areas

Expected Output(s)/Indicator(s): An intergovernmental, multi-sectoral regional management and governance framework for management of the living marine resources of the Caribbean, the elements of which have been integrated into the policies, programmes and projects of participating countries and their partners, at the national and regional levels. Indicators include: a) a Transboundary Diagnostic Analysis that identifies priority actions; b) a country-owned regional mechanism for harmonized fisheries management; c) national policy, legislative and institutional reforms aimed at improved integrated management of marine and coastal resources; and d) governance policy cycles strengthened at the sub-regional level for selected fisheries including through two demonstration projects targeting specific priority fisheries.

Implementing partner: UN Office for Project Services (UNOPS)
(Designated institution/Executing agency)

Programme Period: 2008-2011	
Programme Component: Energy and Environment for Sustainable Development	
Project Title: Sustainable Management of the Shared Living Marine Resources of the Caribbean Large Marine Ecosystem (CLME) and Adjacent Regions	
Project ID: 00060566	
Project Duration: 4 years	
Management Arrangement: Agency Execution	
Total budget:	54,599,227
• GEF Trust Fund	7,008,116
• In kind contributions	47,591,111

Agreed by:

Governments	Signature	Name and Title	Date
Antigua and Barbuda	_____	_____ _____	_____
Bahamas	_____	_____ _____	_____
Barbados	_____	_____ _____	_____
Belize	_____	_____ _____	_____
Brazil	_____	_____ _____	_____
Colombia	_____	_____ _____	_____
Costa Rica	_____	_____ _____	_____
Dominica	_____	_____ _____	_____
Dominican Republic	_____	_____ _____	_____

Grenada	_____	_____ _____	_____
Guatemala	_____	_____ _____	_____
Guyana	_____	_____ _____	_____
Haiti	_____	_____ _____	_____
Honduras	_____	_____ _____	_____
Jamaica	_____	_____ _____	_____
Mexico	_____	_____ _____	_____
Nicaragua	_____	_____ _____	_____
Panama	_____	_____ _____	_____

St. Kitts and Nevis	_____	_____ _____	_____
St. Lucia	_____	_____ _____	_____
St Vincent and the Grenadines	_____	_____ _____	_____
Suriname	_____	_____ _____	_____
Trinidad and Tobago	_____	_____ _____	_____

Agreed by (UNOPS: Implementing Partner/Executing Agency):

	_____	**Mr. Vitaly Vanshelboim** Deputy Executive Director UNOPS Copenhagen.	_____

Agreed by UNDP:

	_____	Mr Yannick Glemarec Executive Director UNDP-GEF	_____