PROJECT BRIEF

1. IDENTIFIERS

PROJECT NUMBER:	PIMS: 0096 UNDP: RAF00G31
PROJECT NAME:	**Regional (Angola, Namibia, South Africa): Implementation of the Strategic Action Program (SAP) Toward Achievement of the Integrated Management of the Benguela Current Large Marine Ecosystem (LME)**
PROJECT DURATION:	5 Years
IMPLEMENTING AGENCY:	United Nations Development Program (UNDP)
EXECUTING AGENCY:	UNOPS
REQUESTING COUNTRIES:	Republics of Angola, Namibia, and South Africa
ELIGIBILITY:	Eligible under para. 9(b) of GEF Instrument
GEF FOCAL AREA:	International Waters
GEF PROGRAMMING FRAMEWORK:	OP#8: Waterbody-Based Operational Program

2. SUMMARY

The long-term objective of the project is to undertake the array of priority measures identified in the Transboundary Diagnostic Analysis (TDA) and the Strategic Action program (SAP), in conjunction with the ongoing activities of the participating countries, donors, regional organizations, private industry, NGOs, and other affected interests to bring about the integrated, sustainable management of the Benguela Current Large Marine Ecosystem (BCLME). Major outputs will include provision of effective inter and intra project coordination and support through establishment of a Program Coordination Unit (PCU), and the identification and provision of resources for a Lead Agency in each of the participating countries. The project makes provision for the transfer of increasing amounts of responsibility and ownership of project activities as implementation proceeds. Other major project outputs include creation of the necessary mechanisms for, and steps to be undertaken to effect the sustainable management and use of the resources of the BCLME; assessment of environmental variability, ecosystem impacts, and improvement of predictability, preliminary steps to maintain BCLME ecosystem health and effectively control of pollution; and support to recruit new, additional donors and increase the level of co-finance during the life of the project and increased funding for the post-project programs and activities of the newly created Benguela Current Commission (BCC). The creation of the BCC, which must be negotiated among the participating countries, and immediate creation of the Interim Benguela Current Commission (IBCC), are highlights of the country-prepared and endorsed SAP. Seven Ministers from the three countries, representing the essential ministries relevant to the project activities and future work in the BCLME, have formally signed the SAP. At the substantive level, special emphasis in this project is being given to effecting the sustainable management and use of the resources of the BCLME and on assessment of environmental variability, ecosystem impacts, and improvement of predictability of system dynamics. Outputs and activities related to pollution and the coastal zone, issues whose transboundary impacts are limited at this point but likely to grow in future, are modest in nature but deemed critical to include as they sustain the broad level of interministerial participation that has characterized country efforts to date. Including a limited number of pollution and coastal zone activities is also necessary to the project objective of taking an integrated approach to the BCLME.

3. COSTS AND FINANCING (MILLIONS US $):

GEF Financing:		
Project:		**13.995**
PDF-B:		**.344**
Project Support Costs:		**1.119**
Sub-total GEF:		**15.458**
Co-financing:		
	National Governments[1]	15.627
	Private Industry[2]	.800
	DANCED	.040
	BENEFIT[3]	6.278
	SADC	.232
	Port Authorities	.473
Sub-total, Co-financing:		**23.450**
Total Project Cost:		**38.908**

Baseline (Million US $): **343.614**

5. GEF OPERATIONAL FOCAL POINT ENDORSEMENTS:

See Annex 3

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[1] Includes cash contributions of US$ 5,152,000 and In-kind contributions of US$ 10,475,438.
[2] Includes contributions from the diamond mining and oil industries.
[3] Includes funding to BENEFIT from National Governments, NORAD and the NORAD Nansen Programme, ICEIDA, FAO, GTZ, DFID, IRD, AWB, and the World Bank.

ACRONYMS

APR	Annual Project Review
ADB	African Development Bank
BCC	Benguela Current Commission
BCLME	Benguela Current Large Marine Ecosystem
BENEFIT	Benguela Environment Fisheries Interaction and Training
CO2	Carbon Dioxide
CTA	Chief Technical Advisor
DANCED	Danish Cooperation for Environment and Development
EEZ	Exclusive Economic Zone
ENVIFISH	Environmental Conditions and Fluctuations in Distribution of Small Pelagic Fish Stocks (Programme)
FAO	Food and Agriculture Organization of the United Nations
GDP	Gross Domestic Product
GEF	Global Environment Facility
GLOBEC	Global Ocean Ecosystems Dynamics
GOOS	Global Ocean Observing System
GTZ	(Deutsche) Gesellschaft fur Technische Zusammenarbeit
HAB	Harmful Algal Bloom
H2S	Hydrogen Sulfide
IBCC	Interim Benguela Current Commission
IC	Incremental Cost as defined by the GEF
ICSEAF	International Commission for the South East Atlantic Fisheries
IW	International Waters
LEARN	Learning Exchange and Resource Network
LME	Large Marine Ecosystem
MARPOL	International Convention for the Control of Pollution by Ships
M&E	Monitoring and Evaluation
NGO	Non-Governmental Organization
NORAD	Norwegian Agency for Development and Cooperation
PDF-B	Project Development Facility of the GEF
OP	GEF Operational Program
PCU	Program Coordination Unit
PIR	Project Implementation Review
PIRATA	Pilot Research Moored Array in the Tropical Atlantic
PSC	Project Steering Committee
PPER	Project Performance and Evaluation Review
PSC	Project Steering Committee
SADC	Southern African Development Community
SAP	GEF Strategic Action Program
SEAFO	Southeast Atlantic Fisheries Organization
SONANGOL	Sociedade Nacional de Combustiveis de Angola
SPACC	Small Pelagic Fish and Climate Change
STAP	GEF Scientific and Technical Advisory Panel
TDA	Transboundary Diagnostic Analysis
TPR	Tri-Partite Review
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
WB	The World Bank

I. Background And Context (Baseline Course Of Action)

Introduction

1. The Benguela Current Large Marine Ecosystem (BCLME) is situated along the coast of south western Africa, stretching from east of the Cape of Good Hope in the south, equatorwards to the Angola Front which is situated near the northern geopolitical boundary of Angola (see Fig.1). It is one of the four major coastal upwelling ecosystems of the world which lie at the eastern boundaries of the oceans. Like the Humboldt, California and Canary systems, the Benguela is an important center of marine biodiversity and marine food production. The BCLME's distinctive bathymetry, hydrography, chemistry and trophodynamics combine to make it one of the most productive ocean areas in the world, with a mean annual primary productivity of 1.25 grams of carbon per square metre per year - about six times higher than the North Sea ecosystem. This high level of primary productivity of the BCLME supports an important global reservoir of biodiversity and biomass of zooplankton, fish, sea birds and marine mammals, while near-shore and off-shore sediments hold rich deposits of precious minerals (particularly diamonds), as well as oil and gas reserves. The natural beauty of the coastal regions, many of which are still pristine by global standards, have also enabled the development of significant tourism in some areas. Pollution from industries and poorly planned and managed coastal developments and near-shore activities is, however, resulting in a rapid degradation of vulnerable coastal habitats.

2. The Namib Desert, which forms the landward boundary of the greater part of the BCLME, is one of the oldest deserts in the world, predating the commencement of persistent upwelling in the Benguela (12 million years before present) by at least 40 million years. The upwelling system in the form in which we know it today is about 2 million years old. The principal upwelling centre in the Benguela, which is situated near Lüderitz in southern Namibia, is the most concentrated and intense found in any upwelling regime. What also makes the Benguela upwelling system so unique in the global context is that it is bounded at both northern and southern ends by warm water systems, viz the tropical/equatorial Western Atlantic and the Indian Ocean's Agulhas Current respectively. Sharp horizontal gradients (fronts) exist at these boundaries of the upwelling system, but these display substantial variability in time and in space - at times pulsating in phase and at others not. Interaction between the BCLME and the adjacent ocean systems occurs over thousands of kilometers. For example, much of the BCLME in particular off Namibia and Angola is naturally hypoxic - even anoxic - at depth as a consequence of subsurface flow of low oxygen water masses southward and eastward from the tropical Atlantic. This is compounded by depletion of oxygen from more localised biological decay processes. There are also teleconnections between the Benguela and processes in the North Atlantic and Indo-Pacific Oceans (e.g. El Niño). Moreover, the southern Benguela lies at a major choke point in the "Global Climate Conveyor Belt" whereby warm surface waters move from the Pacific via the Indian Ocean into the North Atlantic on time scales of decades to centuries. It is noteworthy that the South Atlantic is the only ocean in which there is a net transport of heat towards the equator. As a consequence not only is the Benguela at a critical location in terms of the global climate system, but it is also potentially extremely vulnerable to any future climate change or increasing variability in climate.

Anthropogenic Influences

3. Centuries before the arrival in southern Africa of the first European explorers and settlers, indigenous coastal peoples sustainably harvested intertidal and near-shore marine life. Commercial exploitation in the BCLME commenced in the first part of the seventeenth century with the harvesting of fur seals and was followed by extensive whaling operations in the eighteenth and nineteenth centuries. Commercial trawling started around 1900 and commercial purse-seine fishing for sardine some 50 years later. Fisheries expanded rapidly in the 1960s and 1970s during a period when there was heavy exploitation of resources by foreign fleets - resulting in the severe depletion and collapse of several fish

stocks including hake, sardine and anchovy. Superimposed on this fishing pressure was the impact of the inherent natural environmental ecosystem variability and change. Together with the other factors mentioned in the following paragraphs, this has made the sustainable use and management of BCLME living resources difficult.

Fragmented Management: A Legacy of the Colonial and Political Past

4. Following the establishment of European settlements at strategic coastal locations where victuals and water could be procured to supply fleets trading with the East Indies, the potential wealth of the African continent became apparent. This resulted in the great rush for territories and the colonisation of the continent - mostly during the nineteenth century. Boundaries between colonies were hastily established, often arbitrary and generally with little regard for indigenous inhabitants and natural habitats. Colonial land boundaries in the Benguela region were established at rivers (Cunene, Orange). Not only were the languages and cultures of the foreign occupiers different (Portuguese, German, English, Dutch) but so were the management systems and laws which evolved in the three now independent and democratic countries of the region - Angola, Namibia and South Africa. Moreover, not only were the governance frameworks very different, but a further consequence of European influence was the relative absence of inter-agency (or inter-ministerial) frameworks for management of the marine environment and its resources and scant regard for sustainability. To this day mining concessions, oil/gas exploration, fishing rights and coastal development have taken place with little or no proper integration or regard for other users. For example, exploratory wells have been sunk in established fishing grounds and the well-heads (which stand proud of the sea bed) subsequently abandoned. Likewise the impact of habitat alterations due to mining activities and ecosystem alteration (including biodiversity impacts) due to fishing have not been properly assessed.

Historical Influences

5. Prior to the United Nations Law Convention on the Law of the Sea (UNCLOS) and the declaration and the establishment of Exclusive Economic (or Fishing) Zones, there was an explosion of foreign fleets fishing off Angola, Namibia and South Africa. The result was a severe depletion of the resources of the BCLME during the 1960s and 1970s - an effective imperialism and colonisation of the BCLME by mainly First World countries. This period also coincided with liberation struggles in all three countries, and associated civil wars. In the case of Namibia, over whom the mandate by South Africa was not internationally recognised, there was an added problem in that prior to independence in 1990, an EEZ could not be proclaimed. In an attempt to control foreign exploitation of Namibia's fish resources, the International Council for the South-east Atlantic Fisheries (ICSEAF) was established, but this proved to be relatively ineffectual at husbanding the fish stocks. In South Africa prior to 1994, environmental issues and sustainable management were low priorities on the political agenda. Moreover, the legacy of the past has resulted in a marked gradient in capacity from south to north in the region. Consequences of civil wars have been the population migration to the coast and localised pressure on marine and coastal resources (e.g. destruction of coastal forests and mangroves) and severe pollution of some embayments.

Threats to the System

6. In addition to the above-mentioned issues, the countries have identified a number of threats to, and issues associated with the management of the BCLME. These include:

- Habitat loss and pollution of the fragile and relatively pristine nature of the coast of the Benguela region due to uncontrolled tourism development and the ongoing expansion of rural areas;
- Serious degradation of coastal areas adjacent to urban centers in the southern part of the region as a result of pollution, habitat loss and the unsustainable exploitation of marine and coastal natural resources;

- Increasing exploitation of the marine biomass by both artisinal and industrial fishers in the absence of an agreed long-term regional strategy for the sharing of a sustainable economic yield;
- Increasing problems of human and ecosytem health caused by introduced species, especially of algae derived from ballast water, and other ship discharges of non-indigenous species;
- Ongoing mineral and petrogenic energy exploration and production both offshore and in coastal areas, with their attendant pollution and consequent habitat degradation risks;
- An apparent increase in the frequency of marked environmental changes in the ecosystem manifesting themselves through fluctuations in abundance and distribution of fish, birds, and mammals;
- Significant losses of biomass among higher order species of the ecosystem, most notably sea-birds (penguins) whales, and seals; and
- An apparent opportunity for important climate change monitoring since the BCLME is both a source and a sink of carbon dioxide and a known predictor of climatic variations in the region.

II. Rationale And Objectives (Alternative Course Of Action)

7. The outputs and activities of this project have been driven by the results of the TDA, (attached as Annex 5) and the SAP (full text of SAP attached as Annex 6; Summary of the Functions and Responsibilities of the Interim Benguela Current Commission (IBCC) attached as Annex 7) that were developed by the countries as part of their work under the PDF-B. The major transboundary issues confronting the countries as they attempt to sustainably manage the resources of the BCLME are as follows:

- A decline in BCLME commercial fish stocks and non-optimal harvesting of living resources;
- Uncertainty regarding ecosystem status and yields in a highly variable environment;
- Deterioration in water quality – chronic and catastrophic;
- Habitat destruction and alteration, including *inter alia* modifications and seabed and coastal zone and degradation of coastscapes;
- Loss of biotic integrity and threat to biodiversity;
- Inadequate capacity to assess ecosystem health; and
- Harmful algal blooms

8. The actions identified in the SAP are far-reaching and involve on-going, funded activities by the countries, regional organizations, the GEF, other donors, and private industry. These activities are included and briefly described in the project section dealing with co-finance, associated finance, and baseline assessments. Successful implementation of the SAP will depend upon well coordinated actions of the full-range of affected stakeholders, which include, *inter alia*, governments at all levels, regional organizations, the private sector, non-government organizations (NGOs), Implementing Agencies (IAs), donors, and commercial and artisinal fishers. Such a level of global and regional cooperation will entail substantial transaction costs but the effort and the costs are indispensable to successful project implementation. A central element of the SAP, the IBCC and the eventual Benguela Current Commission are further described in the Sustainability Section of this proposal.

Long-term Project Objective

9. The long-term objective of the project is to undertake the array of priority measures as identified in the Transboundary Diagnostic Analysis and the Strategic Action Program, in conjunction with the on-going efforts of the participating countries, donors, regional organizations, industry, NGOs and other affected interests, to bring about the integrated, sustainable management and protection of the Benguela Current Large Marine Ecosystem.

III. Rationale For Gef Financing

10. The projected outputs, activities, and relationship of those outputs and activities with those of the countries, regional entities, and other donors are seen as compatible with the three elements of the GEF-funded International Waters activities to meet the incremental costs of:

a) assisting groups of countries better understand the environmental concerns of their international waters and work collaboratively to address them;
b) building capacity of existing institutions, or through new institutional arrangements, to utilize a more comprehensive approach for addressing transboundary water-related environmental concerns; and
c) implementing sustainable measures that address priority transboundary environmental concerns.

IV. Project Outputs/Components And Expected Results

GEF project objectives and activities:

Output 1: Effective intra and inter-project coordination and support through the establishment of a Program Coordination Unit (PCU) leading to the creation and functioning of the Interim Benguela Current Commission, and the identification of, and provision of resources for, Lead Agencies and Inter-ministerial Committees in each of the participating countries.

Rationale:
11. There is a continuing need for a core-coordination unit similar to that which facilitated the work undertaken during the PDF-B. The three countries have expressed their satisfaction with a core coordination concept and have clearly stated their desire to see this concept continued during the SAP implementation phase. The PCU would be instrumental in securing the requisite amount of transnational and cross-institutional collaboration (international and regional organizations and donors) necessary to the success of the Project. The core-coordination unit is seen to be a transitional management entity that will be replaced as part of an orderly transition by the Benguela Current Commission (BCC). Recognizing that negotiations leading to a legal entity such as the BCC will take time, the countries have agreed to the immediate creation of an Interim Benguela Current Commission (IBCC). The IBCC has clearly defined roles and responsibilities that are described in the SAP. As the IBCC matures, it will increasingly take a leadership within the project and, eventually, the core-coordinating unit of the project will become the core-coordinating unit of the IBCC and, later, the BCC. More precise transition arrangements are spelled out in the Implementation Arrangements section of this Project Brief.

Output 1.1 Chief Technical Advisor (CTA), requisite technical, administrative and secretarial support, and requisite public participation and communications expertise recruited and hired;
Output 1.2 The PCU created and organized;
Output 1.3 The Project Steering Committee created and provision made for the conduct of its meetings;
Output 1.4 Assistance is provided to the participating countries for the creation of country specific Interministerial Coordinating Committees to continue the identification of country-specific, project related priority actions in support of SAP implementation.
Output 1.5 In consultation with the respective GEF country focal points, other government officials as necessary, and the UNDP Country Offices, a Lead Agency is designated for each participating country and a senior official is named to assume leadership of project activities and represent the participating country in meetings of the Project Steering Committee (PSC);

Output 1.6 Assistance provided to the participating countries for activities related to the creation and functioning of the Interim Benguela Current Commission and, to secure the provision of scientific advice, assistance to the Benguela Environment Fisheries Interaction and Training Program (BENEFIT); and

Output 1.7 Assistance provided to the participating countries for the coordination of communication with other, related GEF projects in the Canary Current, Guinea Current, Ballast Water and other GEF or comparable Large Marine Ecosystem projects at the global level. Participation in IW:LEARN and Train-Sea-Coast to facilitate inter-project sharing of best practices and lessons learned in LME and related projects.

Output 2. Creation of the necessary mechanisms for, and steps undertaken to develop real-time management capability to better sustain and utilize the resources of the BCLME.

Rationale

12. Work undertaken during TDA development resulted in the conclusion that the sustainable development and utilization of BCLME resources required the facilitation of the optimal harvesting of living resources; an assessment of other anthropogenic impacts and natural environmental variability on these resources and the ecosystem (see Outputs 3 and 4); an assessment of the impacts of mining and drilling in the waters of the BCLME and policy harmonization among countries for those activities; the responsible development of mariculture; the protection of vulnerable species and habitats; and an assessment of non-harvested species and their role in the ecosystem.

13. The countries have committed themselves to the following more integrated approaches related to the sustainable management and utilization of resources of the BCLME. They will undertake this commitment through the activities envisioned in this project, through their participation in the projects sponsored by other donors, their ongoing national programs, and their commitments undertaken in the SAP.

Output 2.1 The development of plans, concrete actions and timetables to achieve optimal sustainable living marine resource utilization.

14. The *causes* of the non-optimal use of living marine resources include fishing over-capacity, inadequate tools to assess the extent of non-optimal, non-sustainable use, the lack of collaborative assessment and monitoring, inadequate information, inadequate management, inadequate control (e.g fishing and pollution), lack of collaborative management of shared resources, and international policy on seal harvesting. The *impacts* of non-optimal use include, *inter alia,* high by-catch and undersize catch, negative impacts on the productivity cycle (due to extraction of higher trophic level species), short and long-term ecosystem change, resource depletion, human population movements at local and regional levels, large variations in landings, variation in food supply for birds, seals, etc., conflicts among users (e.g. artisinal vs. commercial fishers). The *risks and uncertainties* associated with non-optimal use include irreversible ecosystem change, changes in biodiversity, habitat destruction, and the collapse of commercially important stocks. *Socio-economic changes* include a variable and uncertain job market, loss of national revenue, lack of food security, erosion of sustainable livelihoods, missed opportunities, i.e. under-utilization and wastage, and loss of competitive edge in global markets.

15. The *transboundary relevance* of increasing knowledge about the abundance, distribution and ecosystem role of presently non-harvested species comes of an understanding that country boundaries do not correspond with ecosystem boundaries, that most of the region's important harvested resources are shared between countries, and that they move across national boundaries at times. Over-harvesting of species in one country can therefore lead to depletion of that species in another, and in changes to the ecosystem as a whole. Moreover, many resource management difficulties are common to all of the

participating countries and thus the shared experience of participation in the project will yield shared learning experience.

16. *Activities and solutions* foreseen include the collection, synthesis and proper use of information to facilitate reports on biological resources, annual state-of-the-ecosystem reports, and the provision of advice and recommendations for living marine resource harvesting levels and other matters related to resource use, particularly fisheries. There will be the creation of the Interim Benguela Commission whose functions and responsibilities will include, *inter alia,* the production of annual stock assessments, annual ecosystem reports, the provision of advice on harvesting resource levels, and other matters related to resource use, particularly fisheries. A more complete description of the functions and responsibilities of the Interim Benguela Current Commission can be found in Annex 7. Organizations such as SEAFO, while also working to address the issue of sustainability in the BCLME, are comprised of member countries that are not situated directly on the BCLME, and are not legally constituted to accomplish the tasks that the countries wish to have performed by the IBCC, and later, the BCC. As a result, there is interest in establishing a separate entity comprised of the three nations that do directly border the resource and that have specific, regionally based authorities regarding action in the BCLME. The result of activities undertaken by the participating countries will be measurable reductions in the exploitation of specifically identified natural resources that are deemed to be over-harvested so that stocks can be rebuilt to optimal levels and yield benefits to coastal communities and the overall regional economy. Other results will include improved forecasting, steps to assist in the prevention of irreversible ecosystem change, and the development of training manuals on management, enforcement, and opportunity creation.

Output 2.2 An assessment of mining and drilling impacts and development of policy harmonization among participating countries with regard to mining and drilling uses.

17. The TDA identified the principal *causes* of real or potential problems associated with mining and drilling impacts and include the building of pipelines which traverse parts of the BCLME or onshore pipelines in the proximity of the marine environment, drilling and dredging in the marine environment, and seismic exploration. The potential *impacts* of these activities include habitat destruction seabed modification, coastal soil, beach, intertidal and subtidal profile destruction, conflicts with other resource users, smothering of benthic fauna and the mortality of pelagic larvae due to sediment plumes. *Risks and uncertainties* associated with these activities include cumulative impacts, effects on benthos, biodiversity change, and cost-benefit questions. The *socio-economic consequences* potentially include financial and employment benefits to mining consortia, impacts on miners of exclusion zones and reserves, reduced artisinal fisheries, effects on coastal tourism, post-mining effects on coastal communities, and effects on onshore development.

18. The potential *transboundary consequences* involve the uncertainty of the cumulative effects of the mining and drilling on benthos that is occurring in the participating countries. Although most impacts appear localized, habitat alteration due to mining can cause migration of fauna and increase the potential for system wide ecosystem change. In addition certain mining activities conducted close to national boundaries could quite easily result in a transboundary effect and have negative consequences in a neighboring EEZ. The transboundary nature of the issue is also engaged by the fact that the oil/gas and diamond industries in the three countries are now working together to consolidate baseline information, and this consolidation will be accelerated as a result of the project. Further, there is a need to standardize regulation among the participating countries as a means of avoiding the adoption of lowest common-denominator approaches in the name of competition.

19. *Activities and solutions* include policy harmonization among the countries, enhanced consultation between and among sectoral interests, cumulative impact assessments of oil and mining activities in the BCLME, and a country agreed regional, integrated environmental plan that would include steps to ensure the effective management of mining impacts and the development of necessary post-mining activities.

Output 2.3 Country agreement on measures necessary to ensure the responsible development of mariculture.

20. The *causes* of or *dangers associated with* the development of mariculture include a failure to develop appropriate policy and legislation in advance of the development of the industry, differential policy approaches within each country, lack of enforcement, lack of adequate space, and a lack of information on safe and appropriate practices on the part of the mariculture industry. Potential negative *impacts* of mariculture include a threat to biodiversity including genetic stocks, species introductions, disease, conflict over limited space, competition for markets, and eutrophication. *Risks and uncertainties* include environmental variability, market uncertainty, and questions related to economic feasibility. The *socio-economic considerations* of mariculture include opportunities for job creation and sustainable livelihoods, revenue generation, potential tourism loss in heavily utilised areas and the introduction into the region of a potential growth industry.

21. The potential *transboundary consequences* include the possibility of biological invasions into adjacent countries by alien species, and threats to regional biodiversity. Cooperative transboundary activities that promote the responsible development of mariculture will minimize negative environmental consequences and may help reduce the pressure on traditionally over-harvested resources. Further, differences in policy among countries could lead to conflict (e.g. as a result of the spread of disease from one country to another, an alien species invasion of the regional ecosystem from a country point source, or market conflicts), and differential development of the industry.

22. *Activities and solutions* include a socio-economic assessment of mariculture's potential in the region, feasibility assessments, the formulation of harmonized policy for the region, and the development of sustainable mariculture training packages aimed at managers, communities, and potential entrepreneurs.

Output 2.4 Development of measures to achieve protection of vulnerable species and habitats.

23. The TDA identified the *causes* of species and habitat loss as including salt production, population migration to coastal areas, coastal pollution (including that from offshore mining), over-harvesting of commercial species, by-catch and the competition for space and prey (e.g. seals, birds, and humans). Impacts associated with these causes include threats to the global biodiversity value of coastal bird populations, regional ecosystem change, loss of wetlands, loss of fish spawning grounds, reduced populations of affected species, and increased competition for over-exploited resources. The TDA did not identify any *risks and uncertainties*. Potential *socio-economic consequences* deriving from the current lack of sufficient attention to vulnerable species and habitats include losses in tourism numbers and overall revenue as marine mammals, seabirds, turtles and their habitat contribute extensively to the ecosystem's appeal to tourists and downstream effects of habitat loss on economics of fisheries operations.

24. Identified *transboundary consequences* include the observation that most vulnerable species (e.g orange roughy), including several endemics (e.g. pelagic gobies), occur throughout the region or migrate between countries, thus ensuring that national activities and policies are likely to have transboundary consequences. Past over-exploitation of targeted species has altered the ecosystem as a whole, having an impact at all levels including top predators and resulting in a reduction of the gene pool. Some species (e.g. African penguin) are threatened or endangered. Exotic species have been introduced into the BCLME (e.g. European/Mediterranean black mussel) displacing endemic species and altering the ecosystem. Some vulnerable habitats occur regionally (e.g. wetlands and lagoons), while others in one country (e.g. mangroves) are of importance to migratory species which move across national borders. These considerations make it necessary to harmonize, to the extent possible, national policies to protect vulnerable habitats and species throughout the ecosystem.

25. *Activities and solutions* would include an assessment of the status of vulnerable species and habitats strengthening the national level work that has begun in some of the participating countries. The overall outputs would be a report on the overall status of the ecosystem, the impacts of human activities on the relationships among non-consumptive resources, together with recommendations for appropriate national and regional level species and habitat protection approaches.

Output 2.5 Develop an understanding of the relationship between harvested and non-harvested species and determine the role of non-harvested species in the ecosystem as a means to improve stock management practices and to assist in the conservation of bio-diversity;

26. The role of non-harvested species in the ecosystem is largely unknown – except at a quite generic level. The *causes* of this absence of necessary, specific information is simply that, with few exceptions (e.g. some seabirds and marine mammals) assessment of non-harvested species has not been a priority and thus not conducted. Some non-harvested species are likely to have high biomassas (e.g. lantern fish) with high potential for harvesting, and with it job creation and the lessening of pressure on currently over-exploited resources. However, the *impacts* of harvesting "new species" on food webs and on currently harvested species are uncertain and thus lead to increased *risks and uncertainties*. These relate to lack of information on predator-prey relationships, large, currently unmeasured biomass (e.g. lantern fish and gobies), market potential, economic viability, unknown impacts of harvesting, and the impact of pollution. Socio-economic considerations associated with unharvested species include potential to increase regional food security, job creation, and revenue generation.

27. The *transboundary relevance* of increasing knowledge about the abundance, distribution, and ecosystem role of presently non-harvested species stems from the fact that many of these species are known to straddle, or thought to straddle geopolitical boundaries. It is quite conceivable that, should one country commence harvesting of such species in the absence of adequate knowledge and without a proper understanding of the general biology and distribution dynamics, the result could be a negative impact on the ecosystem as a whole and on existing user rights of neighboring countries which presently target higher trophic level species. Sharing of knowledge, and understanding between and among countries with respect to non-harvested species is thus a responsible management approach within the BCLME and a key to the responsible, integrated management and future utilization of "new" resources. National decisions to proceed with the harvest of currently non-harvested species would be best undertaken through discussions with those nations who share the regional ecosystem. Success in the work of this output will likely be useful to, and replicable in, other regions of the world where there is a need to address transnational issues related to the shared use of LMEs.

28. The *activities and solutions* associated with this output would include dedicated joint surveys and assessments of non-harvested species to provide a baseline for integrated ecosystem management and development of an ecosystem model for such management.

Output 3. Improved understanding of BCLME environmental variability, ecosystem impacts created by environmental variability, and thus improve predictability as a means of strengthening the management of fish-stocks;

29. Work undertaken during the TDA demonstrates that the long-term sustainability of the BCLME requires a major effort to reduce the significant amount of uncertainty re. environmental variability and its ecosystem impacts, and thus improve the current level of system predictability. It also resulted in the understanding that there was a need to strengthen national and regional capacity and training to that end. The consequences of harmful algal blooms and the need to act on them was also a conclusion of the TDA. As with Output 2, the countries, through the activities envisioned in this project, through their participation in the projects sponsored by other donors, their ongoing national programs, and their

commitments undertaken in the SAP have committed themselves to the following more specific outputs related to the sustainable management and utilization of resources of the BCLME:

Output 3.1 A reduction in uncertainty and improvement in the predictability of the BCLME as a means to improve management of regional (LME) resources.

30. The BCLME is a complex and highly variable system for which there is evidence of system change and fragmentary but important evidence of increasing instability/variability. Scales of variability include: large scale sustained events, decadal changes, and high frequency of short-lived events and/or episodic events. Human impacts on the BCLME (e.g. fishing, pollution, coastal development) are superimposed on this inherent natural variability, and the combined effects of anthropogenic disturbance and natural variability have been implicated in ecosystem change and the collapse of harvested resources. There is also considerable uncertainty regarding ecosystem status and yields. Lack of information about and understanding of environmental variability and system wide impact hampers sustainable management of the BCLME resources and results in the non-optimal utilization of these resources.

31. *Causes* associated with uncertainty and poor predictability include the complexity of the processes involved, a poor understanding of these complex processes and cause and effect relationships, a poor understanding of the role of global driving forces, lack of data and information, inadequate mathematical models, and a lack of capacity to address these issues. *Impacts* and ecosystem consequences of the environmental variability are, *inter alia*, changes to coastal ecosystems from altered winds (strength and direction), including changes in coastline, changes in coastline morphology, and damage to coastal infrastructure, unpredictable variations in zooplankton and fish egg/larval survival, unpredictable changes in fish growth, unpredictable changes in species abundance, composition, distribution and availability, regime shifts, croos-boundary fish, seabird and seal movements, change in flux of CO2, methane and H2S between atmosphere, ocean and sediments, difficulties in managing resources sustainably, operational difficulties with resource utilization, and assessment of anthropogenic impacts. Unless this inherent uncertainty is reduced and predictability increased it will be extremely difficult to more effectively manage such *impacts* as changes to coastal ecosystems.

32. R*isks and uncertainties*. A risk to the sustainable use of the BCLME as a consequence of the inadequate information and understanding of the environmental variability and its ecosystem impacts (i.e. poor predictability) is that these natural processes, super-imposed on fishing and other forms of human use of the ecosystem, could result in major ecosystem changes, collapse of key fish stocks, and threats to biodiversity. The risk associated with attempts to improve predictability of variability and ecosystem consequences is that the system may be so complex as to make forecasting problematic (for example separation of anthropogenically-driven long term net change from natural cycles). Potential *socio-economic consequences* of poor predictability include uncertain employment (job losses and gains), over and under-utilization of resources, lack of food security, human population movements, high production costs, national/regional conflict, reduced capacity to support artisinal fisheries, and unpredictable changes in government revenue, private income and exports.

33. The *transboundary relevance* includes, *inter alia*, consequences for global climate change (carbon dioxide and methane flux), and the potential for shifts in regional distribution of biota, loss of species/biodiversity, altered food webs, and disruption of faunal migrations. They also include unsustainable management of shared and straddling fish-stocks, altered fish spawning patterns and population shifts, unpredictable fluctuations and availability of fish-stocks, unpredictable and variable distribution of fishery benefits, regional economic instability and unemployment, and regional conflicts among users. More specifically, the Benguela environment is highly variable and the ecosystem is naturally adapted to that variability. However, sustained large-scale environmental events such as Benguela Niños, episodic hypoxia/anoxia, Agulhas intrusions and changes in winds all affect the ecosystem as a whole, compounding negative effects from fishing. These events and changes generally

have their origin and cause outside of the BCLME, but are of such a scale that the impacts occur in BCLME international areas of the three countries, i.e. the changes are transboundary in nature. The poor ability to predict events and changes limit the capacity to manage effectively system wide. In addition, the BCLME is believed to play a significant role in global ocean and climate processes and may be an important site for the early detection of global climate change.

34. *Activities* and *more specific outputs* will include development of regional early warning systems for major environmental events/change, quantification of the utility/application of the Pilot Research Moored Array in the Tropical Atlantic (PIRATA), in cooperation with the South African Development Community (SADC). Other *activities* and more *specific outputs* include the production of the information needed to design monitoring/predictive systems, quantification of carbon dioxide flux, assembling a record of decadal ecosystem changes, developing a regional environmental analysis/reporting system/network, expanded knowledge and expertise on global climate change links, the establishment of regional advisory groups, establishment of a regional environmental network, and the establishment of links with other GEF LME projects globally.

Output 3.2 Strengthened capacity and the provision of targeted training required to effect improved management of the shared resources of the BCLME;

35. There is a lack of capacity, expertise and ability to monitor environmental variability, to assess the linkages and ecosystem impacts of this variability, and to develop the predictive capability required for sustainable integrated BCLME management. There is also an unequal distribution of capacity availability (human and infrastructure) between and among participating countries. The participating countries, in the endorsed SAP, recognize this issue as being "…a high priority if not the highest priority, in the region." The *causes* of this lack of capacity and targeted training include limited amounts of inter-country exchange of training opportunity, the degradation and downsizing of research institutions, inadequate training programs, lack of recurrent financing, lack of skills to maintain equipment, lack of equipment and supplies, lack of personnel, low salaries, lack of integration of ecosystem concerns in policy formulation, and, associated with much of the above, a regional brain-drain.

36. The *impacts* of limited capacity and inadequate training include poor regional decision making processes, regional inbalances in baseline information, predictive capability, data collection, etc., inadequate and (among participating countries) uneven information too determine indicators of future change, unsatisfactory levels of interaction between and among national and regional level institutions, and information that is not compatible across agencies and among countries. The *risks and uncertainties* associated with the current situation include the question of whether the countries will commit to supporting over the long term capacity development nationally and regionally, particularly in times of political and economic uncertainty. *Socio-economic consequences* include the potential for sub-optimal use of renewable resources due to lack of information, knowledge and understanding required for resource management, unequal resource access (among national and regional interests), absence of full stakeholder participation, creation of conflict between and among users, poorly informed and thus advised governments at all levels, and low institutional sustainability.

37. The *transboundary consequences* include uncoordinated regional resource management, research and monitoring programs, inability to effectively harmonize management approaches as the south-north capacity gradient leads to uneven research and monitoring effort in the system as a whole, and a continuation of a fragmented, ad-hoc approach to the ecosystem as a whole. *Activities* of this output will include an assessment of capacity needs to address transboundary issues, development of training partnerships with the private sector, the creation of regional multidisciplinary working groups, the exchange of personnel between countries to gain and transfer expertise and knowledge, and improved reliance on the Internet to maximize networking. More *specific outputs* will include a written regional strategy for capacity development, a written strategy for job creation, the development and application of

training courses, and a public information and environmental education program (one pilot demonstration project in each of the participating countries). It is hoped that demonstrating to the national governments that the benefits to be derived from the development of and suitably trained and remunerated workforce are greater than the costs associated with that effort.

Activity 3.3 A program to mitigate the negative effects of harmful algal blooms (HABS) and initiate measures to reduce marine litter.

38. Harmful algal blooms are a conspicuous feature of upwelling systems. The frequency of occurrence, spatial extent and duration of harmful algal blooms appear to be increasing in the BCLME. The harmful effect of these blooms is manifested in two main ways: the production of toxins which cause mortalities of shellfish, fish and humans; and anoxia in in-shore waters which also can lead to massive mortalities of marine organisms. The *causes* of these harmful algal blooms include natural processes, the introduction of cysts in surface waters, nutrient loading of coastal waters from anthropogenic activities, the changing state of the BCLME, and the introduction of exotic species. The *impacts* of harmful algal blooms include, as already mentioned, mortalities among human consumers of contaminated marine organisms, mass mortality of marine organisms, disruption of mariculture activities, interference with the recreational use of the marine environment, and anoxia which may in turn cause massive mortalities among marine organisms. *Risks and uncertainties* include a potential increase or decrease in incidence and intensity of HABs, the role of HABs as a whole, and the contribution of nutrient loading too the incidence of HABs. *Socio-economic consequences* include those deriving from human loss of life, loss of tourism revenue, increased cost of shellfish production, and the loss of shellfish/fish/mariculture markets and jobs.

39. *Transboundary consequences* include the incidence and effects of HABs across all three countries, and across national boundaries, thus making regional cooperation highly desirable. The countries, recognizing the need for transboundary action on HABs, have stated in their SAP that they will create "A regional HAB reporting network ….during 2001 with a view to its implementation in 2002", and that "Regional contingency plans for assessing the transboundary effects of HABs will be developed and implemented by December 2002." The SAP also recognizes that work on HABs will be an essential requirement to develop a plan to bring about regional mariculture policy harmonization. *Activities and more specific outputs* will include the development of an HAB reporting system for the BCLME, the development of regional HAB contingency plans, community projects linked too ministries of health, improvement in national capacities to monitor HAB toxins/species, a HAB regional network, a regional contingency plan, development and distribution of public information materials, and development of pro-active management strategies.

40. As populations increase, and as fishers, both commercial and artisinal seafarers, and consumers generally continue to engage in practices that create *marine litter*, the BCLME will experience increasing degradation and certain species will be placed at risk. The *causes* of marine litter include rapid urbanization and unplanned settlement, with variable and limited or no control by local authorities, over-taxed formal waste management infrastructure, lack of public awareness of impacts on ecosystems, "lost" fishing gear and the non-returnable, disposable nature of containers and packaging used in the region. The *impacts* of these causes include dangers posed to biodiversity particularly with regard to plastics that are ingested by organisms causing death. There are also the problems of aesthetic diminution of the BCLME with likely negative effects on tourism. The *risks* and uncertainties associated with marine litter include a lack of information on the exact quantities of these hazardous materials finding their way into the BCLME, a need to identify areas of waste accumulation through natural processes, the positive job impacts (job creation in the informal sector) that may be balanced by an incentive not to litter, and the potential degree of *transboundary movement* of marine litter.

41. *Activities* to address this issue in this phase of BCLME work are quite modest and intended to assist the countries in focusing on this issue of growing importance. *Outputs* will include beginning the process of regional standardization of national policies, initial efforts to increase the extent of current regulatory enforcement of current, the development of additional standards and legislation, and a modest pilot project in Angola for seafarer education.

Output 4 Undertake preliminary steps to maintain BCLME ecosystem health and effectively manage pollution as a means to safeguard fishery and other resources.

42. Coastal development and rapid expansion of coastal cities, much of which was either unforeseen or unplanned, is creating pollution "hotspots" along the coast of the BCLME such as at Luanda Bay, Walvis Bay and Saldanha Bay. Human populations will likely continue migration to coastal areas that will exacerbate existing hotspots and create new problem areas. Under these circumstances an anticipatory approach to minimize future, population related pressure on BCLME resources is necessary and warranted. Further, aging waste-water treatment infrastructure and inadequate policy, monitoring and enforcement is aggravating the problem. A substantial volume of oil is being transported in coastal areas adjacent to, and across waters of the BCLME. This poses a significant and increasing risk to contamination of large areas of fragile coastal environments damage to straddling fish stocks. In addition, there is a growing problem of marine litter throughout the BCLME. At this point the transboundary impacts of these growing and/or potential problems is unknown, but as these and other pollution issues grow along with coastal populations, undertaking the following, limited, proactive measures will assist in minimizing future damage to the BCLME from pollution effects.

Output 4.1 Develop measures to help prevent major oil spills as a means, *inter alia*, of protecting vulnerable BCLME Ramsar sites.

43. The questionable sea worthiness of some oil transport vessels and poorly equipped vessels, present and possible future military conflict, sabotage, human error, etc. are all potential *causes* of oil spills. The *impact* of a major spill would include coastline degradation and mortality of coastal flora and fauna. *Risks and uncertainties* would include the recovery period, the adequacy of cost recovery mechanisms, if any. *Socio-economic consequences* include opportunity costs (e.g. for tourism, fisheries and salt production), altered yields, reduced resource quality, and aesthetic impacts.

44. The *transboundary consequences* of oil spills come of the necessity to develop a regional oil spill prevention strategy. Additionally, the countries believe that resource sharing among them for containment, surveillance, and rehabilitation would make possible a level and quality of response that, acting singly, they could never hope to achieve. Development of a regional approach is also sensible given the fact that spills on the open ocean are quite capable of having transboundary impacts. Further, oil spills also have potentially severe consequences for the three coastal Ramsar sites located in the BCLME.

45. The *specific output* of this activity would be a regional oil-spill prevention strategy building on existing plans in the three countries, with provision made for the sharing of oil spill related resources, the sharing of rehabilitation plans. Cooperation with and learning from the experiences of other on-going GEF projects and other ocean oil and exploration drilling experience at the global level will be undertaken.

Output 4.2 Develop specific programs and measures to address deteriorating coastal water quality.

46. Unplanned coastal development, chronic oil pollution, industrial pollution, sewage, air pollution, the polluting effects of mariculture, lack of ship related pollution policies to deal with waste and oil recycling, and the growth of coastal communities are all contributing *causes* of the growing BCLME pollution problem. The *impacts* are those related to public health threats, reduced yields, unsafe edible organisms, changes in species dominance, ecosystem health and resilience, and job losses (e.g.

mariculture, fish processing) across the region. *Risks and uncertainties* include few or no baseline data from which to work, poor or no performance standards and pollution thresholds to be met by polluters, the question of the extent of the national level commitment to capacity building to engage pollution issues, and questions concerning cause-effect relationships. *Socio-economic consequences* include loss of tourism and its associated revenue, higher health costs, altered yields, reduced resource quality, aesthetic impacts, lowered quality of life, and loss of employment.

47. The potential *transboundary consequences* of pollution include the transport of pollutants across boundaries by way of prevailing currents (although the exact extent and effects are not known), migration of marine organisms as they seek to avoid polluted areas (e.g. Seals and seabirds), and negative impacts on straddling stocks. The countries recognize the strengths that come of taking a regional approach to the issue of coastal pollution. Accordingly, the countries have, in their SAP, committed themselves to the joint development of regional environmental quality indicators, regional proposals for marine pollution control and surveillance, and regional monitoring/inspection of the coastal zone and regional enforcement of standards. The countries will be placing the emphasis on prevention rather than more costly, after-the-fact remediation.

48. *Specific outputs* will include development of shared solution for water quality management through the use of regional workshops. Outputs will also include three demonstration projects on pollution control and prevention, (development of a regional pollution monitoring framework, training in marine pollution control, which would be interactive with training activities of the GEF Ballast Water project, and support for joint surveillance activities. In addition to these project-related outputs, the SAP includes a participating country commitment to jointly develop water quality criteria for receiving waters by June 2002.

Output 4.3 Specific measures and approaches to retard or reverse habitat destruction and alteration.

49. Several important habitats in the BCLME (e.g. pelagic habitat) have been negatively altered or lost as a consequence of development and other human impacts. The *causes* of habitat destruction and alteration include diamond mining, demersal trawling, variable river sediment input and changing land use, oil and gas exploration, production, and spills, mariculture, natural sediment transport, built coastal structures, human settlement and resource use, mangrove and other coastal forest harvesting, and coastal vehicle tracks. *Impacts* can be categorized into three areas: coastal progradation and redistribution, nearshore (i.e. less than 30 m), and shelf-slope (200m). The more specific impacts of habitat alteration or destruction include increased turbidity (sediment plumes), benthic community destruction, mobilization of heavy metals, faunal impacts (e.g. reproductive failure), increased frequency of HABs, coastal erosion, and increased organic loadings and anoxic conditions. *Risks and uncertainties* include an almost complete lack of data, absence of a framework for impact monitoring, cumulative local vessel impacts, climate change effects, and the problem of distinguishing impacts from natural spatial and temporal conditions. *Socio-economic* consequences include costly infrastructure rehabilitation and maintenance, losses in mariculture production, negative impacts on human health via heavy metal contamination, lost fishery productivity (e.g. rock lobster), and opportunity costs.

50. The *transboundary consequences* include sediment remobilization across national boundaries (e.g. as a result of diamond mining), migrations of marine fauna due to habitat loss, and possible transboundary movement of sediment. As with Output 4.3., a modest effort is envisioned to begin a regional process of engaging this issue. *Specific outputs* will include a comprehensive status report to fully document the current status of habitat loss, development of a regional early warning system and action plan, and an assessment of transboundary causality. Outputs will also include the adaptation and application of existing, standard environmental criteria, adaptation and application of existing regional structures to address problems, and adaptation and application of existing expertise in coastal processes.

Output 5 Recruitment of additional donors and increase in the level of co-finance during project implementation.

51. During year one of this SAP implementation project it will be timely to sponsor a donor conference using the GEF project as leverage for the creation of necessary additional donors and, as deemed necessary and appropriate by the participating countries, the securing of loans. The UNDP will partner with the World Bank in these efforts, and the World Bank has agreed to this level of participation. The African Development Bank (AfDB) will also be encouraged to participate. Activities will include:

Output 5.1 Development and implementation of a plan for continuing donor contact;

Output 5.2 Planning and implementation of 2 donor conferences, one shortly after GEF project approval and one immediately prior to SAP implementation;

Output 5.3 Development of donor conference reports and preparation of a strategy for ongoing BCLME finance.

V. Risks and Sustainability

Issues/Actions and Risks/Country Commitment

52. The long term success of regional scale marine ecosystem management programs, such as the one proposed here depend, *inter alia*, on the political willingness of the participating countries to cooperate, their willingness to continue project programs and approaches after the life of the GEF intervention, and the extent to which activities successfully engage system users of the resources that are the subject of intervention.

53. In relation to political willingness, the level of project risk is seen as low in Namibia and South Africa and moderate in Angola. Namibia, where fisheries account for ten percent of GDP, has shown a very high degree of technical and political level commitment to the project, and has indicated its strong willingness to continue. South Africa has shown a strong level of interministerial involvement in the PDF-B and, as with Namibia, the level of this strong interministerial commitment is likely to continue in the future. It might well have been expected that civil strife in Angola would have resulted in an uneven commitment of that country to this project. This has not been the case. Interministerial involvement on the part of Angola has characterized its presence at every major meeting of the BCLME, and the fact that two key Ministers, including the Minister of Petroleum, have signed the SAP is indication that the Government of Angola, despite the ongoing civil strife, is committed to the full project. There is a growing realization on the part of the countries that environmental sustainabiltiy is inextricably linked to food production, tourism, sanitation, population movements, and thus regional stability. They recognize that their ability to craft an integrated approach to the BCLME is crucial to that realization.

Sustainability

54. The risk of this GEF-initiated program and activities related to it, ending after the life of the project are also seen as low. Country completion of the TDA, a jointly undertaken, interministerial exercise characterized by strong cooperation and openness, led to the creation of the SAP. The SAP itself is a document containing a level of country commitment, particularly through the self-sustaining mechanism of the Benguela Current Commission (BCC), that is thorough in its programmatic approach, clear in its objectives, and specific in relation to the country commitment to sustain important BCLME initiatives after the life of the GEF intervention. The countries will, singly and jointly, continue aggressive attempts to solicit additional donor support during the life of the GEF project and beyond through efforts coordinated by the BCC.

55. It is recognized that negotiations necessary to create the permanent Benguela Current Commission will take some time, perhaps as long as the project itself. Recognizing this, the countries have pledged themselves to immediately create the Interim Benguela Current Commission (IBCC) which will have specified functions and responsibilities. The IBCC will be comprised of three representatives from each of the participating countries. Terms of office shall be for six years, thus actually extending beyond the life of the GEF intervention. The IBCC will also have non-voting representation from SEAFO, UNDP, SADC, and the Secretariat. As previously mentioned, other entities such as SEAFO are comprised of members that do not directly abut the BCLME, and thus the countries are interested in establishing a separate entity comprised of the three nations that do directly border the resource. The World Bank shall be represented on the IBCC for the duration of the project. Specialists and representatives of other stakeholders and regional and international organizations will be invited to join the IBCC from time to time as appropriate. The IBCC shall be comprised of five Advisory Groups on fisheries and other living marine resources, environmental variability and ecosystem health, marine pollution, legal and maritime affairs, and information and data exchange. The more specific functions of the Advisory Groups are described in the text of the SAP which is attached to this document as Annex 6.

56. Sustainability will also be enhanced by a progressive transfer of project leadership, overall project management and output production directly to the country formed IBCC and, later, the BCC. The IBCC and eventually the BCC will assume the leadership role for the project as it is formed and matures. Specifically, in year four of the project the leadership be assumed by a CTA chosen by the Project Steering Committee. In year five overall project management will be absorbed into the IBCC or, should negotiations for the formation of the BCC be concluded, that institution, which would have legal standing, would assume project responsibility. The existing PCU would at that time become the Commission core Secretariat, with additional staff resources being provided by the countries themselves as deemed necessary by the Commission and the countries.

Financial Sustainability

57. Financial sustainability is enhanced by the country commitment to sustain the Benguela Current Commission beyond the life of the GEF intervention, a continuation and building upon the already substantial level of co-finance for the project (approximately 165% of the GEF contribution), and the strong country and international donor support for the work of BENEFIT, which will serve as the science "arm" of the BCLME project. The SAP, signed by seven Ministers of the participating countries, is explicit in stating that "Member states agree to commit themselves to continuing the BCLME Programme beyond the GEF intervention, and will endeavour to (a) adopt appropriate legislation, (b) implement economic instruments and (c) establish a permanent Benguela Current Commission with a supporting Secretariat. A financial plan that will make provision for future sustainable funding will be prepared, including a study on the feasibility of establishing an Environmental Fund." The current level of support available to BENEFIT, and the donor and private sector level of support to the project is secure and projected to increase. This will be enhanced by the inclusion of Output 5 in this proposal, an Output expressly targeted to plan and implement donor conferencing to increase the current level of co-finance available to the project and to secure funding that would transcend the life of the direct GEF involvement.

VI. Stakeholder Participation

58. The seed for the BCLME Program was sown at a workshop/seminar held in Swakopmund, Namibia in mid-1995. This paved the way for the development of a PDF Block B Grant Proposal to GEF, and its subsequent approval and implementation in 1998. In July 1998 the First Regional BCLME Workshop, attended by approximately 100 stakeholders and regional and international experts, was held

in Cape Town, followed by a formal meeting of key stakeholders. The attendance and proceedings of this workshop are attached to this document as Annex 9.

59. Stakeholders have and will continue to include the ministries in Angola, Namibia and South Africa responsible for the environment, marine resources, mines, energy, tourism, science and technology, transport, ports and harbours, etc.; representatives of relevant industry sectors such as diamond mining, fishing (including artaisanal fishers), oil and gas (e.g. SONANGOL from Angola); education and training establishments - universities and technikons; regional and local authorities and NGOs. The lead stakeholders are: Ministry of Fisheries and Marine Resources, Namibia; Ministries of Fisheries and Environment, Angola; Department of Environmental Affairs and Tourism, South Africa.

60. The First Regional Workshop identified the issues and problems/constraints in the BCLME and possible solutions. As a follow-up, six comprehensive syntheses and assessments of information on the BCLME (thematic reports) were produced, viz: fisheries, oceanography and environmental variability, diamond mining, coastal environments, off-shore oil and gas exploration/production, socio-economics. These reports were reviewed at the Second Regional BCLME Workshop held in Namibia in April 1999, and used as a basis together with input from the First Workshop and participants for drafting the TDA and setting the SAP framework. Actions subsequently have led to the finalisation of the TDA, SAP, Project Brief and of the BCLME Program.

61. Social assessments included in this project proposal will analyse the costs and benefits of actions, in particular the policy actions, outlined in the SAP. This is a complex task in view of its nature and scope, and can only be undertaken effectively after the BCLME Program has been funded and officially launched. The IBCC and its subsidiary bodies will undertake the social assessments. Several of the key regional policies, frameworks and agreements will be developed by 2003. The countries as part of their commitment in the SAP have pledged to establish five Advisory Groups to help form and inform the process of project implementation. The countries have stated that the "Involvement with relevant NGOs is encouraged, particularly in the improvement of public participation and awareness in all of the focal areas they cover." These activities will include Advisory Groups on Fisheries and Other Living Marine Resources, Environmental Variability and Ecosystem Health, Marine Pollution, Legal and Maritime Affairs, and Information and Data Exchange. Public Involvement will be enhnaced by the creation of a Stakeholder Consultative Committee which will meet annually and act as a forum for all affected Stakeholders. Further provision for public involvement will be made through each of the Outputs of the project and through those respective budget allocations. Provision of financial resources for public involvement will also, where appropriate, be built into the project at the Activity level. Public Involvement resources available for Outputs 2, 3, and 4 will total US $325,000, exclusive of financial resources that the countries themselves, through their co-finance, will also make available for public involvement activities.

62. While benefits from the BCLME will obviously accrue to the three participating countries and SADC, the principal beneficiary of the BCLME Program will be the regional - and ultimately global - environment as a consequence of the application of sustainable integrated management of the BCLME and the universal application of principles and concepts developed here. The achievement of the sustainable use of the BCLME will benefit the populations in the three participating countries.

VII. Project Implementation, Institutional Framework And National And Regional Institutions

Project Implementation

63. The United Nations Office of Program Services (UNOPS) will be the Executing Agency for the project and on behalf of the three participating countries. The Project will have a Project Steering Committee comprised of the GEF Implementing Agencies, three members from each of the participating

countries, and a representative of the SADC and of BENEFIT. The Project Chief Technical Advisor will serve for an initial three-year period, and will be appointed consistent with standard UNDP procedures in consultation with the participating countries. There will also be a ministerial level, inter-agency and institutional coordinating committee which would meet annually to ensure that maximum use is made of the combined resources of the agencies and institutions with associated projects and to minimize duplication of effort. Participating agencies would include as invitees, among others, the signatories to the SAP.

64. The Implementing Agency (UNDP) role will be to contribute its on-the-ground strength and resulting trust it builds with national governments, directly facilitate workshops and the convening of key stakeholders consistent with its comparative advantage in capacity building, work to secure national country-based financial resources to complement project activities, and provide important links to other UN Agencies. UNDP will also provide administrative support and will be responsible for commitments such as contracting and disbursement and financial reporting. The World Bank will assist in the task of securing additional co-finance over the life of the project and will take the lead role in the organization of the proposed donor conferences.

Programmatic Linkages to Other Agency Programs

65. The Benguela Current Large Marine Ecosystem Program is closely linked to a number of other national and regional programs involving Angola, Namibia and South Africa. These include a regional fisheries science and capacity building initiative, BENEFIT, which is directed mainly towards fisheries research and training and is being co-ordinated by the Ministry of Fisheries and Marine Resources in Namibia. BENEFIT will assume a direct responsibility in the execution of a number of program activities specified in scientific, technological, and training elements of the project and resources will be provided to BENEFIT for this purpose. BENEFIT is already functioning as an independent scientific entity that provides on-going scientific advice to the three countries with regard to the BCLME. The project will strengthen the capacity of BENEFIT to continue and build upon this scientific advisory function.

66. Another regional organization that will play a part in the project is the South East Atlantic Fisheries Organisation (SEAFO), a regional organisation currently being formed that will sustainably manage and conserve the living marine resources of the high-seas convention area in accordance with the principles of long term sustainability, the application of the best science available, the precautionary approach, and the protection of biodiversity. This initiative is also being coordinated by the Ministry of Fisheries and Marine Resources in Namibia and involves Angola, Namibia and South Africa and the UK (St Helena) as well as a number of other countries including the USA, EU, Russia and Japan. Other international, regional and national initiatives that link to the BCLME are partnership pelagic fisheries-environment research projects (ENVIFISH and VIBES) between Angola, Namibia and South Africa and marine research institutions in the EU (Germany, Norway, France, United Kingdom, Spain and Portugal) and the European Joint Research Centre in Ispra, Italy and FAO. The BCLME Program will also have affiliation to international programs such as GLOBEC (Global Ocean Ecosystems Dynamics), SPACC (Small Pelagic Fish and Climate Change) and GOOS (Global Ocean Observing System). These organizations will promote contact with a network of international scientists and provide access to scientific products such as models, training, and new technologies. While all of the participating countries are not members of the Abidjan Convention, the project will establish a working connection with a related GEF LME project in the Canary Current and with the Gulf of Guinea Large Marine Ecosystem, should the GEF choose to support a project in that LME.

67. SADC (Southern African Development Community) is a regional intergovernmental body comprising 12 southern African countries including Angola, Namibia and South Africa. It's responsibilities include the promotion of growth and development , sustainable utilisation of resources and protection of the environment within the community. The BCLME program has formally been

ratified as a SADC program at the recent Council of SADC Ministers meeting in Maputo (Mozambique) and falls under the Fisheries Co-ordination Unit of SADC which is located at the Ministry of Fisheries and Marine Resources in Namibia. The SADC will be invited to assume a position on the PSC.

68. Direct and ongoing oversight of project activities will be the responsibility of the PCU, with a planned transition to the IBCC and, upon ratification of a formal Convention or other legal mechanism, the BCC. The PCU will be comprised of a Chief Technical Advisor, Public Participation and Communications Expertise, and requisite administrative and secretarial support. Consultants will be retained as necessary and priority will be given to the recruitment of national consultants as available.

VII. Incremental Costs And Project Financing

69. The overall cost of the project is US$ 38,908,650. GEF financing is in the amount US$ 15,458,000. Co-finance from National Governments, private industry, DANCED, BENEFIT, SADC, and Port Authorities are in the amount US$ 23, 450,650. Approximately 85% of the GEF contribution will be disbursed within the participating countries. The amount disbursed within each country will be dependent on a number of factors including competitive bidding for contracts and the availability of qualified national consultants required for specific project activities. Parity among the participating countries in relation to distribution of project funds will be in part assured by the fact that each country will have an Activity Centre. Full details of the cost of the project, including information related to the baseline, are to be found in Annex 1. Following is a tabular summary of the GEF contribution by Output and Activity.

Component	***Sub-component***	**Baseline (B)**	**Alternative (A)**	**Increment (A-B)**						
				Gov[1]	**GEF**	**Private**	**BENEFIT[2]**	**DANCED**	**Port Auth.**	**TOTAL**
I. Project Co-ordination	Effective intra and inter-project co-ordination and support through the establishment of a PCU	**350,000**	**2,882,323**	232,323	2,300,000					**2,532,323**
2. Management & sustainable use of BCLME resources	2.1 Plans, actions and timetables for sustainable resource utilisation.	**175,600,000**	**184,920,158**	1,941,000	3,800,000		3,579,158			**9,320,158**
	2.2. An assessment of mining and drilling impacts and policy harmonisation	**12,170,000**	**14,028,000**	558,000	600,000	700,000				**1,858,000**
	2.3 Development of mariculture.	**5,054,810**	**5,529,990**	155,780	300,000			19,400		**475,180**
	2.4. Protection of vulnerable species and habitats	**1,320,000**	**2,355,000**	525,000	500,000			10,000		**1,035,000**
	2.5 Assessment of non-harvested species and their role in the ecosystem	**14,517,423**	**15,879,400**	162,800	900,000		299,177			**1,361,977**
3. Assess. of environ. variability, ecosystem impacts & improvement of predictability	3.1 Reducing uncertainty and improving predictability	**87,541,265**	**102,387,780**	9,768,000	3,350,000		1,728,515			**14,846,515**

[1] *Includes contribution of* $232,323 from SADC for Project Coordination
[2] *Includes contributions by:* NORAD, DFID, GTZ, ICEIDA, DANCED, IRD, AWB, World Bank

	3.2. Capacity building and training for improved shared resource management	**13,889,000**	**14,905280**	345,600	300,000		370,680			**1,016,280**
	3.3. Harmful algal bloom mitigation and marine litter control	**3,016,968**	**3,919,718**	380,000	200,000		150,000	10,250	162,500	**902,750**
4. Maintenance of ecosystem health and management of pollution	4.1 Oil spill prevention and protection of critical sites from oil spills	**8,503,000**	**8,920,737**	295,158	50,000				72,579	**417,737**
	4.2 Improvement of water quality	**17,119,000**	**19,523,730**	1,222,000	945,000				237,730	**2,404,,730**
	4.3. Prevention or reversal of habitat alteration and destruction.	**3,284,700**	**3,962,800**	128,100	450,000	100,000				**678,100**
5. Donor co-ordination and fundraising	5.1 – 5.3 Development of plans for donor support, donor conferences and reporting.	**2,887,500**	**3,593,500**	256,000	300,000		150,000			**706,000**
	Total	**345,253,666**	**382,808,416**	**15,969,761**	**13,995,000**	**800,000**	**150,000**	**10,250**	**472,809**	**35,153,154**

IX. Monitoring and Evaluation

70. Project objectives, outputs and emerging issues will be regularly reviewed and evaluated annually by the PSC. The project will be subject to the various evaluation and review mechanisms of the UNDP, including the Project Performance and Evaluation Review (PPER), the Tri-Partite Review (TPR), and an external Evaluation and Final Report prior to termination of the Project. The project will also participate in the annual Project Implementation Review (PIR) of the GEF. Particular emphasis will be given to emerging GEF policy with regard to monitoring and evaluation in the context of GEF IW projects. This document generally, and more specifically the logframe in this document, will be used to identify relevant Process Indicators, Stress Reduction Indicators, and Environmental Status Indicators that will serve to inform the M&E process and be adopted by the participating countries. Indeed, the logframe has been specifically designed in a way that lends itself to the straightforward identification of Process, Stress Reduction, and Environmental Status Indicators.

71. In addition to the monitoring and evaluation described above, monitoring of the project will be undertaken by a contracted supervision firm, and by a balanced group of experts selected by UNDP. The extensive experience by UNDP in monitoring large programs will be drawn upon to ensure that the project activities are carefully documented. There will be two evaluation periods, one at mid-term and another at the end of the Program.

72. The mid-point review will focus on relevance, performance (effectiveness, efficiency and timeliness), issues requiring decisions and actions and initial lessons learned about project design, implementation and management. The final evaluation will focus on similar issues as the mid-term evaluation but will also look at early signs of potential impact and sustainability of results, including the contribution to capacity development and the achievement of global environmental goals. Recommendations on follow-up activities will also be provided.

73. Approximately US$100,000 will be allocated for the monitoring and evaluation (M&E) which will be undertaken by independent experts and UNDP. The evaluation process will be carried out according to standard procedures and formats in line with GEF requirements. The process will include the collection and analysis of data on the Program and its various projects including an overall

assessment, the achievement of clearly defined objectives and performance with verifiable indicators, annual reviews, and description and analysis of stakeholder participation in the Program design and implementation. Explanations will be given on how the monitoring and evaluation results will be used to adjust the implementation of the Program if required and to replicate the results throughout the region. As far as possible, the M&E process will be measured according to a detailed workplan and a Logical Framework Analysis approach developed and tabulated in the project document (prodoc).

X. Lessons Learned and Technical Reviews

74. The project will be involved from the start in the GEF International Waters Learning, Exchange and Resource Network Program (IW: LEARN). IW:LEARN is a distance education program whose purpose is to improve global management of transboundary water systems. It will provide structured interactive conferencing capability across and within the GEF International Waters Portfolio and will allow participants in GEF IW projects to share learning related to oceans, coastal zone management and to other river basins in Africa and in other development regions. For environmental professionals working on GEF related projects IW:LEARN will greatly expand opportunities for peer to peer, collaborative research with physically distant colleagues, opportunities to exchange best practices and training modules among projects, and the delivery of short courses.

List of Mandatory Annexes

Annex 1A - Incremental Cost Narrative
Annex 1B - Full Incremental Cost Matrix
Annex 2 - Logical Framework Analysis
Annex 3 - GEF Operational Country Focal Point Endorsement Letters
Annex 4 - STAP Review
Annex 4A – Response to STAP Review

List of Optional Annexes

Annex 5 - Full Transboundary Diagnostic Analysis
Annex 6A - Strategic Action Programme (SAP)
Annex 6B - SAP Country Commitments
Annex 7 - Summary of the Functions and Responsibilities of the Interim Benguela Current Commission
Annex 8 - Thematic Reports Prepared During the PDF-B Project Phase
Annex 9 - BCLME Regional Workshop Reports and Scientific Papers
Annex 10 - Stakeholder Involvement Description and List of Stakeholder Participants

Annex A: Incremental Cost Narrative

BROAD DEVELOPMENT GOALS

The Benguela Current system, bordering the Atlantic seaboard of Angola, Namibia, and South Africa is one of the most fertile marine systems on the planet. It is also highly since it is driven by coupling of fluctuating atmospheric and oceanic circulation. These in turn are subject to regional and global driving forces and to global change. Without a good understanding of these processes, exploitation of the fisheries resources of the Benguela Current is an empirical process that carries high risk of over-exploitation leading to poor sustainability and damage to biological diversity. This indeed occurred in the 18970's and some of the fish stocks have still not recovered thirty years later. Furthermore the Benguela Current is facing an unprecedented array of other human-caused threats, highlighting the need for rational regulation of its exploitation and additional measures to protect its fragile coastal ecosystems. The Benguela system is truly transboundary in nature, including the EEZs of the three coastal countries as well as a significant region of the high seas. All of the littoral countries are urgently seeking to address shared environmental problems and to protect and sustain their coastal economies. The major perceived problems of the BCLME Sea can be summarised as follows:

1) Habitat loss and pollution of coastal regions, partly through expansion of tourism and of populated rural areas;
2) Serious degradation of areas adjacent to urban centres and use of marine and coastal resources;
3) Increasing industrial and artisinal fisheries;
4) Introduction of exotic species;
5) Habitat degradation from oil and mineral exploitation in coastal zones and on the marine shelf;
6) An apparent increase in variability in the system, manifested in large fluctuations in natural populations of marine animals and birds;
7) Significant losses in higher order species; and
8) Its connection to global change, especially climate change.

The project seeks to assist the countries to develop and implement a regional approach to these issues and to reduce the uncertainties currently associated with human exploitation of the system. It will create a sustainable mechanism for co-operation that will be embodied in an international legal and policy framework for co-operation in protection and sustainable use of the BCLME environment. An urgent need for a co-operative framework is evident from the environmental perspective and the need has been clearly pronounced by the littoral states. The project will enable the countries to improve their capacity to work together within this new framework and to establish projects that will ensure a more sustainable future for the coastal zone.

Baseline

The need for protection and management of the BCLME environment and its resources has preoccupied the BCLME States for some years. However, during the long period of apartheid in South Africa, there was little co-operation with other African countries on environmental issues or resource exploitation. Despite this situation, there had been a number of actions at a national level within the three countries and each developed its own programme of fisheries management and research and of environmental protection.

With the end of apartheid, a new era in co-operation has begun between the three countries. This has been accompanied by the realisation that the rational exploitation of fisheries requires an integrated approach throughout the BCLME. More recently, largely as a consequence of the formulation of the BCLME TDA, there has been an increasing awareness that other economic activities; mining, maritime transport, urban development and coastal tourism; each exerts an impact on the coastal and offshore environment that may be transboundary in its consequences. The commitment to co-operate and seek common solutions has

been underlined in recent high-level political fora, such as the 1998 Cape Town Declaration and the Council of SADC Ministers at their 1999 Maputo meeting. Without catalytic funding however, these objectives are unlikely to be met.

The economic importance of marine natural resources to the three coastal countries has led to a significant investment in sectoral structures for management, monitoring and research. These ongoing programs form the most important part of the project baseline. The public sector agencies involved include:

South Africa

(1) Ministry of Environmental Affairs and Tourism
- Directorate: Marine and Coastal Management, South Africa
- Directorate: Marine Pollution, South Africa
- Directorate: Coastal Zone Management, South Africa

(2) Ministry of Minerals and Energy Affairs

Angola

(1) Ministry of Fisheries and Environment
- Instituto Investigacao de Pesqueira (IIP)

(2) Ministry of Petroleum
(3) Ministry of Minerals and Energy

Namibia

(1) Ministry of Fisheries and Marine Resources
(2) Ministry of Environment and Tourism
- Directorate of Resource Management

(3) Ministry of Mines and Energy
(4) Ministry of Works, Transport and Communication Maritime Division

In addition, there is work going on in the private sector to try to improve sustainability of harvests (in the case of fisheries) and mitigate the local impacts of mining and dredging. Those contributing to this baseline are:

1) South African Fishing Industry
2) Namibian Fishing Industry (Contribution to the Ministry of Fisheries and Marine Resources (Sea Fisheries Fund)
3) Diamond mining industry (S. Africa and Namibia)
4) Oil and gas industry (Namibia and Angola)

It should be stressed that there is currently no alternative framework to bring each of these sectors together across boundaries.

Besides these activities the countries are engaged in a number of bilateral donor financed activities which are directly or indirectly related to the BCLME particularly in support of improved fisheries management. Some of these activities represent 'baselines' in the context of the current project (see Incremental Cost matrix). Countries contributing relevant bilateral programmes include:

- Norway,
- Germany,
- Denmark,
- Ireland,

- Iceland,
- UK

The European Union also provides some support.

Of particular importance as a single example of cross-border co-operation is the **BENEFIT** programme (the Benguela Current Large Marine Ecosystem Programme, see Project Brief). The main emphasis of this programme is to support rational fisheries development. The programme thus mostly generates domestic benefits for the three participating countries and little or no emphasis is placed on global and regional environmental benefits. It is a solid baseline for co-operative research in the region. Note that the Incremental Costs Table separates the domestic and regional benefits of the BENEFIT programme.

Global Environmental Objective
The global environmental objective of the proposed project is: Environmentally sustainable development and management of the BCLME environment, including living resources and water quality, so as to obtain the utmost long-term benefits for the human populations of the region, while protecting human health, ecological integrity and the region's sustainability for future generations.

- The GEF intervention in the BCLME will be mainly based on the following assumptions:
- That the regional and global benefits of co-operation developed in the project will act as an incentive for sustaining the work in the future.
- Even if countries were to taken unilateral action, they could not ensure the protection of biological diversity in the marine and coastal areas of the BCLME.
- High transactions costs have impeded regional co-operation to address environmental externalities; these include the costs of communications between countries, building the basis of trust, convening multi-stakeholder fora, learning about current and emergent environmental problems, obtaining regional consensus on the need to intervene, and formulating regional agreements regarding measures to protect the transboundary environment.
- Current donors supporting bilateral and multilateral programmes .in the region will be willing and able to co-operate with the GEF in implementing this project.

The potential global and regional benefits that will accrue if these problems are comprehensively addressed will likely be substantial, including the protection of fragile coastal biomes and the maintenance of a diverse marine ecosystem. It will also enable a better understanding of the coupling between regional variability and global change and enable such change to be incorporated into models for resource exploitation.

GEF Alternative
This would be accomplished by GEF provision of catalytic support for incremental costs associated with the creation of robust mechanisms for intersectoral cross border co-operation within a Benguela Current Commission and for implementing the Strategic Action Programme (SAP) for the BCLME, developed during the PDF Phase of the Project. The approach would be consistent with the guidance for GEF Operational Programme Number 8, “Waterbody-based Operational Programme.” The goal of this Operational Programme is to assist countries in making changes in the ways that human activities are conducted in different sectors so that the particular waterbody and its multi-country drainage basin can sustainably support the human activities. Projects in this OP focus mainly on seriously threatened waterbodies and the most imminent transboundary threats to their ecosystems as described in the Operational Strategy. Consequently, priority is placed on changing sectoral policies and activities responsible for the most serious root causes needed to solve the top priority transboundary environmental concerns.

The GEF alternative would support a proposed project to:

1) assist groups of countries to better understand the environmental concerns of their international waters and work collaboratively to address them;
2) build capacity of existing institutions, or through new institutional arrangements, to utilize a more comprehensive approach for addressing transboundary water-related environmental concerns; and
3) implement sustainable measures that address priority transboundary environmental concerns.

This would be accomplished through GEF support to key measures that would be unachievable without the active co-operation of the three countries in the region and of the wider international community. The way in which these measures build upon the considerable national baseline is outlined in the incremental cost table (Annex A).The GEF alternative would achieve its global and regional objectives through the following short-term objectives:

1. Effective intra and inter-project coordination and support through the establishment of a Program Coordination Unit (PCU) leading to the creation and functioning of the Interim Benguela Current Commission, and the identification of, and provision of resources for, Lead Agencies and Inter-ministerial Committees in each of the participating countries.

2. Creation of the necessary mechanisms for, and steps undertaken to develop real-time management capability to better sustain and utilize the resources of the BCLME.

2.1 The development of plans, concrete actions and timetables to achieve optimal sustainable resource utilization.
2.2 An assessment of mining and drilling impacts and development of policy
2.3 Country agreement on measures necessary to ensure the responsible development of mariculture.
2.4 Development of measures to achieve protection of vulnerable species and
2.5 Develop an understanding of the relationship between harvested and non-harvested species and determine the role of non-harvested species as a means to improve stock management practices and to assist in the conservation of biodiversity;

3. Create improved understanding of environmental variability, ecosystem impacts created by environmental variability, and thus improve predictability as a means of strengthening the management of fish-stocks.

3.1 A reduction in uncertainty and improvement in the predictability of the BCLME as a means to improve management of regional (LME) resources.
3.2 Strengthened capacity and the provision of targeted training required to effect improved management of the shared resources of the BCLME;
3.3 A program to mitigate the negative effects of harmful algal blooms (HABS) and initiate measures to reduce marine litter.

Undertake preliminary steps to maintain BCLME ecosystem health and effectively manage pollution as a means to safeguard fishery resources.

4.1 Develop measures to help prevent major oil spills as a means, *inter alia*, of protecting vulnerable BCLME Ramsar sites .
4.2 Develop specific programs and measures to address deteriorating coastal water quality.
4.3 Specific measures and approaches to retard or reverse habitat destruction and alteration.

5. Support to recruit additional donors and increase the level of co-finance during project implementation.

The BCLME project represents an interesting case in which the improvement of knowledge of uncertainties will provide a better basis for the sustainable use of natural resources and the conservation of biological diversity. It may prove to be an example of a regime that will be profoundly affected by global change and it is of paramount importance to understand its current status in order to detect contemporary or future changes. The cost of doing this is clearly incremental to the national efforts focused on maximising resource yield through conventional precautionary management strategies.

System Boundary (Scope of the intervention)

The project will inevitably result in a large number of downstream impacts and benefits and care has been taken to include these within the system boundary. This however, becomes somewhat unpredictable with respect to the high seas element of the BCLME that is beyond the jurisdiction of the coastal countries and for migratory species that spend part of their life cycle in other regions. In this respect, it is important to point out that LMEs are open systems without 'hard' geographical boundaries. It is reasonable to assume that almost all of the exploitable resources of the Benguela Current Upwelling area are contained within the Economic Exclusive Zones of the three coastal countries. There are however, a number of bilateral agreements with other countries (notably within the European Community and Russia) for exploitation of resources of the BCLME. These will be indirect beneficiaries of the intervention and are beyond the system boundary. However, it should also be noted that EU countries are major contributors to the baseline and are co-financing the project itself.

Incidental Domestic Benefits

Over the long-term, a variety of domestic benefits would accrue through implementation of the proposed project. The most valuable domestic benefits to be gained from the project are associated with substantially strengthened institutional and human capacity in integrated coastal zone management, increased technical knowledge and public awareness of BCLME environmental issues, and improved national capacities in environmental legislation and enforcement as well as in natural resources management. Additional domestic benefits in terms of exploitable resources are unlikely to be realized within the period of the project itself. Bilateral aid programmes focused on domestic improvements in fisheries management have been included within the baseline in order to clearly distinguish between actions most likely to result in domestic benefits (baseline bilateral projects) from those that will mainly result in regional and global ones (the present project).

Summary Incremental Costs :

Baseline:	!The Formula Not In Table
Alternative:	!The Formula Not In Table
Incremental:	!The Formula Not In Table
GEF Financing:	
Project	**$13,995,000**
PDF-B	**$344,000**
Project Support Costs	**$1,119,000**
Co-Finance	**$23,450,650**
Total project Cost	**$38,908,650**

Annex B Incremental Costs/Complete Matrix

Component	Sub-component	Cost Category	Cost		Domestic Benefits	*Global Environmental Benefits*
			Source	($ million)		
I. Project Co-ordination	**Effective intra and inter-project co-ordination and support through the establishment of a PCU**	Baseline	Namibia	250,000	Countries in the region have some form of institutional framework for the protection of their own coastal and marine environments but these have not developed specific capacity to deal with shared problems within the BCLME.	All countries were actively involved in the preparation of the Benguela Current TDA and Strategic Action Programme. The establishment of interim mechanisms for the PDF phase of the project included a significant contribution from the beneficiary countries.
			Angola	50,000		
			S. Africa	50,000		
			TOTAL	**350,000**		
		Alternative		**2,882,323**	Effective coordination and implementation of national activities, integration of these environmental activities into national policies and investment programmes. Strengthened institutional and human capacity through training and active involvement of national experts in the TDA and SAP preparation.	Strong regional body and regional cooperation, enhanced stakeholders coordination and communication at the regional level.
		Increment	SADC Sector co-ordinating unit for fisheries, 1999-2004	232,323		
			GEF	2,300,000		
			TOTAL	**2,532,323**		
2. Management and sustainable use of BCLME resources	**2.1 Plans, actions and timetables for sustainable resource utilisation**.	Baseline	National Governments	126,405,000	Bilateral funding is focused on the development of a more rational management of fisheries at a national level. This generates benefits in terms of fisheries yield, though integrated management of the resource is not possible without transboundary co-operation.	Improved national management may generate global benefits for biological diversity but these are difficult to quantify.
			Fishing Industry (Levies)	25,273,000		
			Bilateral Donor Aid			
			NORAD (Nansen Programme)	11,868,500		
			ICEIDA	2,912,903		
			IRD	350,000.		
			BENEFIT Pgm			
			National Governments	4,922,400		
			NORAD (Nansen Programme)	3,637,900		
			ICEIDA	212,258		

			FAO	18,900		
			TOTAL	**175,600,000**		
		Alternative		**184,920,158**	Well conceived plans for sustainable resource utilisation based upon co-operative studies and forecasting will lead to more sustainable fish yields for all three countries.	Rational management of the resource will conserve ecosystem integrity, avoiding sudden collapses in species through overfishing (already observed in the 1970s).
		Increment	National Governments	1,941,000		
			BENEFIT Pgm			
			National Governments	1,641,000		
			NORAD (Nansen Programme)	1,212,633		
			ICEIDA	707,525		
			FAO	18,900		
			GEF	3,800,000		
			TOTAL	**9,320,158**		
	2.2. An assessment of mining and drilling impacts and policy harmonisation	Baseline	National Governments	1,590,000	Assessment of local impacts is mandated by national legislation and should mitigate the effects of this activity as far as possible.	Any mitigation of impacts will benefit benthic organisms.
			Diamond Mining Industry	8,630,000		
			Offshore Oil and Gas Ind.	1 950,000		
			TOTAL	**12,170,000**		
		Alternative		**14,028,000**	Strong self regulatory code of practice encourages sustainable development at the national level.	Incorporation of the duty to protect biological diversity within the industry code of practice will help to protect global biodiversity.
		Increment	National Governments	558,000		
			Diamond Mining Industry	500,000		
			Offshore Oil and Gas Ind.	200,000		
			GEF	600,000		
			TOTAL	**1,858,000**		
	2.2 Development of mariculture.	Baseline	National Governments	1,388,096	Mariculture is currently poorly developed in the region. Existing mariculture regulations contain insufficient safeguards for avoiding accidental introductions of species	None
			Mariculture Industry	3,500,000		
			Bilateral Donor Aid			
			GTZ	138,585		

			DANCED	27,500	accidental introductions of species.	
			TOTAL	**5,054,810**		
		Alternative		**5,529,990**	The development of mariculture provides alternative employment opportunities, makes use of areas damaged by diamond mining and improves food security (e.g. in Angola)	Properly conceived mariculture has the potential of replacing ecosystem functions lost by damaging benthic communities in mining operations. Proper regulations will avoid accidental introductions of species to the wild.
		Increment	National Governments	0155,780		
			Bilateral Donor Aid			
			DANCED	19,400		
			GEF	300,000		
			TOTAL	**475,180**		
	2.4. Protection of vulnerable species and habitats	Baseline	National Governments	910,000	National biodiversity conservation programmes. Currently, these pay little attention to marine and coastal habitats and communities.	Urgent need for the comprehensive overview on the state of BCLME Biodiversity. No regional strategy for the protection of BCLME biodiversity exists.
			Fishing Industry	150,000		
			World Bank	250,000		
			DANCED	10,000		
			TOTAL	**1,320,000**		
		Alternative		**2,355,000**	Existence of a co-ordinated strategy will protect migratory species and shared habitats to the benefit of all three countries.	Conservation of habitats and species of global significance. Regional network of protected areas as a part of global one.
		Increment	National Governments	0525,000		
			DANCED	10,000		
			GEF	500,000		
			TOTAL	**1,035,000**		
	2.5 Assessment of non-harvested species and their role in the ecosystem	Baseline	Nat. Governments	10,533,800	Existing studies are sporadic and non-systematic. The contribution of occasional outside research studies is difficult to quantify.	Previous research has provided valuable insights on the importance of improving understanding of ecosystem functions from a global and regional perspective.
			Fishing Industry	2,106,100		
			NORAD	847,750		
			ICEIDA	208,050		
			BENEFIT Pgm			
			National Governments	410,200		
			NORAD	259,850		
			ICEIDA	151,613		
			TOTAL	**14,517,423**		

		Alternative		**15,879,400**	A better knowledge of marine trophic webs will enable the more rational management of commercial species and improve long-term productivity and sustainability of the fishing industry.	Current knowledge of marine food webs is rather poor. Any efforts to conserve marine biodiversity (particularly transboundary systems) requires a careful assessment of species other than those harvested commercially.
		Increment	Nat. Governments	162,800		
			BENEFIT Pgm			
			Nat. Governments	136,755		
			NORAD	86,616		
			ICEIDA	75,806		
			GEF	900,000		
			TOTAL	**1,361,977**		
3. Assessment of environmental variability, ecosystem impacts and improvement of predictability	**3.1 Reducing uncertainty and improving predictability**	Baseline	Nat. Governments	63,202,800	Even the existing somewhat narrowly focused co-operative research is likely to improve management in the fisheries sector and enhance sustainability.	Current research is focused on improving management of fisheries rather than pursuing global environmental benefits.
			Fishing Ind. (Levies)	12,636,600		
			Bilateral Donor Aid			
			NORAD (Nansen Programme)	3,391.000		
			GTZ	2,089,362		
			ICEIDA	832,258		
			IRD	200,000		
			BENEFIT Pgm			
			Nat. Governments	2,461,200		
			NORAD (Nansen Programme)	1,039,400		
			GTZ	1,624,000		
			ICEIDA	60,645		
			TOTAL	**87,541,265**		

		Alternative		**102,387,780**	Improved knowledge of environmental variability will reduce the risk of collapse of fish stocks and enable better deployment of the coastal labour force.	Upwelling systems such as the BCLME play a key role in global climate regulation and in maintaining biological diversity. It is important to understand the natural variability of the system in order to elucidate global change and to avoid excessive exploitation to the detriment of biodiversity. Acquiring this knowledge requires an approach that is beyond the current capacity of the three countries but is in the interest of the global community in its efforts to protect biological diversity and mitigate climate change.
		Increment	Nat. Governments	9,768,000		
			BENEFIT Pgm			
			Nat. Governments	820,500		
			NORAD (Nansen Programme)	346,466		
			GTZ	541,334		
			ICEIDA	20,215.		
			GEF	3,350,000		
			TOTAL	**14,846,515**		
	3.2. Capacity building and training for improved shared resource management	Baseline	Nat. Governments	2,306,760		Present capacity is insufficient to ensure global and regional benefits.
			Bilateral Donor Aid			
			NORAD	4,212,000		
			GTZ	261,170		
			ICEIDA	1,664,400		
			BENEFIT Pgm			
			NORAD	1,640,800		
			DFID	550,000		
			GTZ	406,000		
			DANCED	110,000		
			IRD	50,000		
			AWB	450,000		
			World Bank	110,000		
			TOTAL	**13,889,000**		

		Alternative		**14,905280**	Strengthened national institutions (through provision of equipment, training and networking). Easy and reliable access to electronic means of communication, data and information exchange. Stakeholders trained and taking advantage of BCLME products.	Sustainability of BCLME activities and global and regional benefits.
		Increment	National Governments	345,600		
			BENEFIT Pgm			
			NORAD	164,080		
			DFID	125,000		
			GTZ	40,600		
			DANCED	11,000		
			IRD	5,000		
			World Bank	25,000		
			GEF	300,000		
			TOTAL	**1,016,280**		
	3.3. Harmful algal bloom mitigation and marine litter control	Baseline	National Governments	1,539,615	Little protection of coastal populations or of distant consumers from the consequences of HABs. Poor protection of sensitive ecotones from litter.	none
			Fishing Industry (levies)	359,903		
			Mariculture Industry	170,000		
			BENEFIT Pgm	272,450		
			DANCED	25,000		
			Port Authorities	650,000		
			TOTAL	**3,016,968**		
		Alternative		**3,919,718**	Better policies and standards, leading to lessened risk.	Improved understanding of the possible coupling of HABs with phenomena such as global change and increased nitrogen flux.
		Increment	National Governments	380,000		
			BENEFIT Pgm	150,000		
			DANCED	10,250		
			Port Authorities	162,500		
			GEF	200,000		
			TOTAL	**902,750**		
4. Mainten-ance of ecosystem health and	**4.1 Oil spill prevention and protection of critical sites from**		National Governments	2,969,000	Contingency plans are insufficient or absent	Sensitive habitats (including RAMSAR sites) are currently unprotected.
			Port Authorities	2,773,000		
			NORAD	1,200,000		

management of pollution	**oil spills**		DANCED	250,000		
			Oil Industry	1,311,000		
			TOTAL	**8,503,000**		
		Alternative		**8,920,737**	Contingency plans protect sites of national interest.	Protection of habitats for migratory species of regional/global interest.
		Increment	National Governments	295,158		
			Port Authorities	72,579		
			GEF	50,000		
			TOTAL	**417,737**		
	4.2 Improvement of water quality	Baseline	National Governments	10,970,000	Little attention is currently paid to water quality issues though human settlements tend to coincide with especially sensitive areas.	The integrity of communities and habitats at sites suffering from water quality deterioration cannot currently be protected.
			Port Authorities	2,373,000		
			NORAD	1,200,000		
			DANCED	550,000		
			DFID	250,000		
			Oil Industry	1,822,000		
			TOTAL	**17,119,000**		
		Alternative		**19,523,730**	Strengthened national capacities for effective marine contaminant reduction and mitigation. Protection of human and non-human populations.	Regional system of effective marine contaminant reduction and mitigation. Regional quality assurance system established. Protocol for pollution prevention designed.
		Increment	National Governments	1,222,000		
			Port Authorities	237,730		
			GEF	945,000		
				2,404,,730		
	4.3. Prevention or reversal of habitat alteration and destruction.	Baseline	National Governments	640,500	Uncoordinated development of valuable coastal zones. Institutional capacity to address these issues is weak.	No Regional approaches developed.
			Diamond Mining Industry	863,100		
			DFID	500,000		
			GTZ	261,170		
			World Bank	250,000		
			TOTAL	**3,284,700**		
		Alternative		**3,962,800**	Strengthened institutional and human capacity in each country to protect coastal zones. Specific national plans for protection.	Adoption of common regional approaches results in reduced environmental degradation and loss of coastal habitats for migratory species and global biodiversity.

		Increment	National Governments	128,100		
			Diamond Mining Industry	100,000		
			GEF	450,000		
			TOTAL	**678,100**		
5. Donor co-ordination and fundraising	**5.1 – 5.3 Develop-ment of plans for donor support, donor conferences and reporting.**	Baseline	National Governments	1,280,000	Insufficient financial support for the protection and rehabilitation of the BCLME Environment.	No regional investment strategy developed.
			Fishing Industry	380,000		
			Diamond Mining Industry	250,000		
			Bilateral Aid Donors			
			DFID	550,000		
			NORAD	50,000		
			GTZ	50,000		
			DANCED	27,500		
			BENEFIT	250,000		
			World Bank	50,000		
			TOTAL	**2,887,500**		
		Alternative		**3,593,500**	Improved national capacities, priority investment projects developed for each country.	Priority Investment Portfolios prepared and donors identified.
		Increment	National Governments	256,000		
			BENEFIT Pgm	150,000		
			GEF	300,000		
			Total	**706,000**		

Annex C Logical Framework (Logframe)

Intervention Logic	Objectively Verifiable Indicators	Sources of Verification	Assumptions and Risks
Long-term Objective			
• Implement the Strategic Action Program jointly developed by the countries in conjunction with the ongoing efforts of participating countries, donors, regional organizations, private industry, NGOs and others to bring about integrated, sustainable management of the BCLME.	• Through the activities of the project, a cooperatively developed and approved framework and coordination mechanism for SAP implementation. More specifically: • Improved national and regional capacities for the long-term sustainable development of the resources of the BCLME. • Increased country support for and donor interest in and support for the immediate outputs of the project and the long term sustainabiltiy of the resources of the BCLME. • Documented, substantial stakeholder participation in the work of the project.	• PCU documents. • PSC Meeting agendas and minutes • Project committee and workgroup meeting agendas and minutes • Terms of Reference/Work plans • Establishment of the IBCC • Nomination and appointment of high-level Commissioners to the IBCC • Minutes and other written documents relating to the work of the IBCC	• Continued country commitment to a regional approach. • Country commitment to implementation of the SAP • Key regional institutions and national governments working co-operatively. • Negative changes in economic political and social conditions may detract from country commitment to a regional approach.

Project Purposes			
• Assist groups of countries to better understand environmental concerns of shared international waters and collaboratively address them • Build capacity of existing institutions, or through newly created institutions to utilize a more comprehensive approach for addressing transboundary, water-related concerns. • Implement sustainable measures that address priority transboundary environmental concerns	• Regional approaches and mechanisms to address root causes and system uncertainties developed and implemented. • Country participation in and commitment of resources to required measures. • Country participation on committees and workgroups associated with project activities.. • Strong IBCC and country support for the creation and work program of the project PCU.	• Completed work plans. • National and additional donor commitments to work plan elements. • PCU documents and working group reports. • Disbursement records.	• The participating countries and the yet to be developed IBCC will be consistent in their strong support for and involvement in the work of the project. The extent of country commitment demonstrated in the formulation of the TDA and SAP would indicate this continiuing commitment. • Continuing civil disturbance in Angola makes it difficult for that country to continue its participation in project execution. Mitigating this concern is the fact that Angola has participated fully and enthusiastically in the project for the past two years, years characterized by substantial civil disturbance within the country. • Countries are willing to commit necessary resources to the IBCC and make the commitment to secure agreement on the permanent BCC. • GEF funds may not be adequately complemented by country commitments and other donors.

Output 1			
• Effective intra and inter project coordination and support.	• PCU created • PSC created. • Country-specific Interministerial Committees (IMCs) re-established. • Country Lead Agencies and senior lead officials designated. • IBCC Commissioners nominated and appointed. • Project plan to effectively interact with related, regional GEF IW projects. • Increased country commitment for regional level participation in project related global fora. • Increased capacity to create national benefits through enhanced transboundary management regime. • Specific progress in toward creation of the BCC from the initial IBCC. • Specific progress in transferring the work of the PCU to the IBCC. • Specific progress in transferring elements of the PCU to the workings of the IBCC and, ultimately, the BCC.	• CTA and other PCU staff employed/contracts issued/terms of reference defined. • PSC meeting agendas and minutes. • IBCC meeting agendas and minutes. • Purchase orders/contractual agreements/ and training records • Documented increased level of project (regional) and governmental participation in regional and international fora. • Increased extent to which explicit regional positions are formed for use in various global fora. • Formalized, published progress reports on extent of SAP implementation. • Formalized arrangements/agreements between and among Implementing Agencies/project regions re. Inter-project cooperation and collaboration. • Written records and reports of inter-project communications, workshops and cross-project field trips. • A report on the documented progress of empowering the IBCC to begin taking managerial responsibility for the project.	• The PCU will facilitate the work program of the project and assist the countries in the formulation of and initial work program for the IBCC • The PSC will move quickly to hire the CTA. Delay in the hire of the CTA will have a cascading effect of delays for the hire of support staff and the formulation of work plans. • The countries will be willing to quickly designate Interministerial Committee members, senior officials, who have sufficient policy-level standing to enhance prospects for timely implementation of project results, and Commissioners to the IBCC. • IAs and cross-project country representatives will see it in their best interests to participate in inter-project coordinative and cooperative activities. • Short-term national needs may outweigh increased level of participation in regional fora.

Output 2			
• Effect the sustainable management and utilization of the resources of the BCLME.	• Issuance of annual state-of-the-ecosystem reports. • Specific recommendations and agreements on harvesting levels of specific species. • Improved forecasting techniques with resulting positive environmental, economic and social benefits for the participating countries. • Creation of regional approaches to mining issues and to activities related to oil exploration and drilling, including the harmonization of approaches. • Cooperatively developed socio-economic assessment of potential for, and feasibility of expanded mariculture. • Formulation of harmonized approaches to mariculture. • Formulation of regionally-based methodologies for the conduct of environmental impact studies. • A regional approach to post-mining activities in the waters of the BCLME. • Measures to achieve protection of vulnerable species. • A completed assessment of non-harvested species and their role in the ecosystem	• Agendas and meeting minutes of pertinent PCU, PSC, IBCC and Stakeholder Meetings. • Copies of annual state-of-the-ecosystem reports. • Documents detailing country agreement on the sustainable harvest of shared biological resources. • Approved workplan for review of the functions and authorities of the LCBC. • Copies of regionally developed forecasting techniques for the BCLME. • Reports detailing progress made to the harmonization of country approaches to oil exploration and drilling. • Written, country-endorsed agreements or understandings with respect to the future development of mariculture in the region. • Written country endorsed regional approaches to post mining activities in BCLME waters. • Written agreements on joint approaches to be taken with regard to vulnerable species. • Final report describing the extent of non-harvested species and their role in the ecosystem.	• Countries see the long-term benefit deriving from a regional approach to bringing about the sustainable use of BCLME resources. The risk is that individual countries will give priority to those uses that accrue to the greatest domestic benefit without taking into account broader LME interests. Creating and helping build capacity for the IBCC and the BENEFIT program are crucial to mitigating this danger. • A risk is that countries will not be willing to make national legislative or regulatory changes that are narrowly targeted to one portion of the country. This risk can be mitigated by developing regional approaches that minimize the extent to which existing country-wide legislation needs to be altered.

Output 3			
• Assess environmental variability, ecosystem impacts, and improve predictability.	• Improved predictability of BCLME and decreased levels of uncertainty re. Management decisions. • An overall regional early warning system to help predict extreme events. • Existence of an overall strategy for capacity building and targeted training to enhance regional capacity. • Strengthened capacity in targeted national and regional institutions. • Targeted training programs are developed. • Development of a HAB reporting system at the regional level. • Specific improvements in the capacity to monitor HAB toxins/species. • Cooperatively developed HAB contingency plans.	• Agendas and meeting minutes of pertinent PCU, PSC, IBCC and Stakeholder Meetings. • Country reports on existing, relevant data and information. • Data and information synthesis report. • Written assessment of the relevance of PIRATA to the needs of the BCLME and description of how it is to be applied. • Records related to the establishment and workings of necessary workgroups. • Written document describing the overall strategy for capacity building. • Written description of and methodologies and training manuals to be included in the training component of the project. • Copy of the HAB reporting system. • Copies of HAB contingency plans. • List of agreed upon, key environmental indicators. • Reports describing extent of country compliance with management plans.	• The PCU, IBCC, BENEFIT and other regional organizations will have to cooperate closely to bring about the desired results of this output. To date cooperation (during activities related to the PDF-B) have been promising. • Sufficient cooperative and efficient linkages are created between and among the PCU, the IBCC, agencies of the participating countries, related GEF projects, and with other related initiaitives globally will be necessary to realize this Output.

Output 4			
• Take preliminary steps to maintain BCLME ecosystem health and effectively manage pollution.	• Regional contingency pollution plan. • Initial development of regional protocols and pollution related conventions or agreements. • Specific provisions for linking to other GEF IW projects addressing similar issues. • Specific number of regional workshops to address pollution issues of regional concern. • Three pilot demonstration projects to address pollution hotspots. • Water quality criteria jointly developed by the participating countries by 2002. • Beginning of a process of regional standardization of national policies. • Initial efforts to increase the level of current enforcement. • A pilot demonstration project in Angola for Seafarer education re. responsible pollution prevention. • A comprehensive report re. current status of habitat loss in the BCLME. • Development of a regional early warning system to flag habitat loss. • Adaptation and application of existing national environmental criteria to begin formulation of regional pollution criteria.	• Agendas and meeting minutes of pertinent PCU, PSC, IBCC and Stakeholder Meetings. • Draft documents related to the development of regional protocols and/or agreements. • Documented written exchanges with or field trips taken to other, related GEF projects. • Written documentation concerning the design and execution of the three pilot demonstration projects. • Copies of draft country agreed, regionally based water quality criteria. • Preliminary, written reports of efforts to harmonize existing national policies. • Documents describing the process and results of the Angola based pilot demonstration project for Seafarers. • Written report descriptive of the current extent of habitat loss in the BCLME. • Early drafts of attempts to formulate regional pollution criteria.	• Existing, formal country endorsement of the Strategic Action Program will translate into country commitment for joint action to implement its key recommendations. As the outputs for this component are modest, and the ministries related to this component fully supportive, the prospect for successful completion of the activities contemplated is high. • The PCU, IBCC and participating countries and the LCBC will be able to work together with communities and stakeholders in the pilot demonstration projects. This is seen as likely given the positive experience of community involvement during the PDF-B. • Perceived benefits of participation may be insufficient to attract full range of stakeholders. • Project aims may be seen as inconsistent or competing with local interests.

Output 5			
• Increased donor participation throughout the life of the project and increase co-finance.	• Development of an overall plan to increase donor and country resource commitment to the project and the long term sustainability of the BCC. • Donor conferences planned and executed. • Systematic procedure established to use the GEF project to leverage other donors for direct and indirect support to project activities. • Increased donor support for direct and indirect assistance to project related activities and the longer term activities of the BCC.	• Relevant agendas and minutes of the PCU and the PSC. • Documented additional contributions to the regional BCLME effort.	• A key assumption is that suitable levels of cooperation can be established and maintained between the UNDP and the WB and that the IBCC and the participating countries will be actively involved in preparation for and attendance at the donor conferences. This assumption seems well-grounded in that IA cooperation has already begun between this project and other projects in the region under the auspices of both the UNDP and the WB.

Annex D – GEF Focal Point Endorsement Letters

REPUBLIC OF NAMIBIA

MINISTRY OF ENVIRONMENT AND TOU[illegible]SM

Directorate of Environmental Affai[illegible]
Private Bag 13306, Windhoek
Tel. + 264 61 249015 Fax + 264 61 240539 e-mail ph@[illegible]

Our Ref
Enq: Dr P Barnard or Mr S T Shilongo 8 Februar[illegible]000

Dr M. J. O'Toole
Regional Co-ordinator
BCLME Programme
Ministry of Fisheries and Marine Resources
Private Bag 13355
Windhoek

Dear Dr O'Toole,

GEF national focal point endorsement:
Project Brief of the Benguela Current Large Marine Ecosyst[illegible] Programme

On behalf of the Government of the Republic of Namibia, I have reviewed, and fu[illegible]ndorse, the Project Brief entitled "Implementation of the Strategic Action Programme (SAP) Towards Achievement [illegible]he Integrated Management of the Benguela Current Large Marine Ecosystem (LME)."

Namibia strongly wishes to see the successful implementation of this important regi[illegible]l programme and has committed considerable energy and funds toward its development.

Yours sincerely,

Dr Peter Tarr

Head: Environmental Affairs
GEF National Focal Point

URGENT - 1 PG.
FAX TO:
DR. JOHN HOOGH
FROM:
[illegible]

Annex E – STAP Review

Review of the Implementation of the Strategic Action Programme Toward Achievement of the Integrated Management of the Benguela Current Large Marine Ecosystem:

George T Needler, Bedford Institute of Oceanography

1. Overall Impression

The overall objective of this project is the difficult and ambitious integrated and sustainable management of the Benguela Current Large Marine Ecosystem. The approach is balanced and rational. The systems and mechanisms proposed are consistent with those taken in other regions of the global oceans, including those adjacent to more developed nations. However, it is important to remember the management failures that have occurred in other regimes, for example the collapse of ground fish stocks in the northwestern Atlantic even though these systems were at the time thought to be well-managed. The success of this project depends on the collection of adequate and comparable environmental and ecosystem observations, their systematic analysis and interpretation and the implementation of management mechanisms, all the while keeping within the scientific, technical and administrative capabilities of the nations involved.

2. Relevance and Priority

The region of interest is of considerable importance. As noted, it is of importance in the overall mass, heat, and water budgets of the global ocean and carries the warm waters of the tropical Indian Ocean into the South Atlantic and northward. As such, a one-time survey, including moorings, was carried out as part of the World Ocean Circulation Experiment (WOCE) in the early 90s. It is also a region of considerable upwelling, which remains basically unquantified, as is the case in most such regions globally. Lastly, it is a region under pressure from fishing, land and sea-based pollution stress and/or mining activities. For the citizens of the adjacent countries, especially those dependent on the resources and health of the ocean, effective management of the marine ecosystem is of paramount importance. Given the apparent commitment of the 3 regional governments and their partners, the project can yield substantial rewards as long as it remains focussed on realistic goals.

3. Scientific and Technical Soundness of the Project Outputs/Components

Output 1. Effective intra and inter-project coordination and support through the establishment of a Program Coordination Unit ...

The proposed Program Coordination Unit, multinational bodies and connections to external GEF projects seem to be both traditional and workable.

Output 2. Creation of the necessary mechanisms for, and steps undertaken to develop, real-time management capability to better sustain and utilise the resources of the BCLME.

Once again the general approach seems reasonable. The subgoals address living marine resources, mining and drilling impacts, mariculture, and the protection of vulnerable species and habitats. The potential success depends on the commitment of the nations and partners to the project and the realisation that the broader social and economic gaols can only be addressed incrementally. The issues to be addressed are truly transboundary in nature and can only be faced jointly.

Regarding fisheries management, I am somewhat surprised to see reference to the *optimal* use of marine resources. While not an expert in the field, I had thought that in general the concepts of optimal use, maximum sustainable yield, etc are not now considered the most useful tools for fisheries management and that recognition of the uncertainties in marine ecosystems had lead to concepts such as the precautionary principle (whatever the definition might be). In a region such as the Benguela Current, where natural variability will only be defined after decades of observations, recognition of inherent uncertainty in the environment and ecosystem is surely necessary.

Output 3. Create improved understanding of BCLME environmental variability, ecosystem impacts created by environmental variability, and thus improve predictability as a means of strengthening the management of fish stocks.

First, I would point out that *predictability* in the marine climate on time scales beyond a few days is essentially non-existent, with the notable exception of the ENSO system in the tropical Pacific. However, real-time analyses are a valid management tool and the marine environment does exhibit considerable persistence (as for the weather, tomorrow has a good chance of being the same as today, but for the marine environment the persistence is of course longer in most aspects). Prediction of seasonal and interannual enviromental change and shifts will remain difficult in the foreseeable future.

In terms of specific activities, mention is made of the PIRATA array in the tropical Atlantic. I would think that extension of this (expensive) technology would be inappropriate. In the tropical oceans the length scales of the variability are large, especially in the zonal direction. In a region with the relatively small scale eddy-like variability of the Benguela Current regime any practical array of moorings of the PIRATA type would be incoherent and most likely ineffective in describing the environmental state.

The question of observations of the marine environment raises something that seems to be missing in this document, that is the international plans for the global observing systems, the Global Climate Observing system (GCOS), the Global Ocean Observing System (GOOS) and the Global Terrestrial Observing System (GTOS). Regarding the ocean climate GCOS and GOOS have an identical component which is currently being refined by their common expert panel, the Ocean Observations Panel for Climate (OOPC). A major initiative of the OOPC is the Global Ocean Data Assimilation Experiment (GODAE) which is scheduled to take place in the 2003-2005 period. The intention is to distribute roughly 3000 profiling floats globally during this period. If fully implemented the profiling float array will provide a profile of temperature and salinity on a 250 km scale every 10 days. Assimilation of the float data with that from precision satellite altimetry and surface forcing into high resolution ocean models has the potential of describing the oceanic state to scales of a few tens of kilometres. Whether funding for GODAE will allow full global coverage is, I believe, unclear. If funding for a few profiling floats were to become available in the Benguela Current region, and the adjacent South Atlantic Ocean it might influence the regions for which analyses will be readily available. It should be noted that profiling floats in general drift with the deep current field and thus move from one region of the ocean to another, including into the regions of the EEZs. The last IOC Assembly passed a resolution aimed at ensuring that coastal nations will be informed when floats approach the EEZs of coastal states and instructed on how to access the data.

GOOS also is addressing observing systems for Living Marine Resources, the Health Of The Ocean and the Coastal Ocean. Although these are less developed than those for large-scale ocean climate, generic plans will be forthcoming shortly and nations will be asked to make commitments to the global systems. For the coastal oceans the observations required will be, for most purposes, the same as those required for this project on the BCLME. The power of participation in GOOS and GCOS is that participation obtains access to the larger data sets. In this case the off-shore conditions may easily be defined by GODAE,and

its follow-on programs if GODAE is successful. In addition, COP-4 (5?) strongly recommended the GEF facilitate the participation of Third World Nations in GOOS/GCOS.

The basic point is that the global observing systems GOOS and GCOS have strong overlapping interests with this project in the Benguela Current region. It should pay to keep connected.
Another aspect of existing large-scale ocean analyses (mostly surface fields) is that many are available on the web. I am aware that in some parts of coastal Africa the relatively simple technology needed to take advantage of freely available products has not been in place. It should be an element of this project.

Output 4. Develop measures to maintain BCLME ecosystem health and effectively manage pollution as a means to safeguard fishery and other resources.

Subgoals address oil spills, coastal water quality, and habitat destruction and alteration. All have a transboundary aspect and can be addressed given political will with adequate scientific, technical and financial support.

Output 5. Recruitment of additional donors and increase in the level of co-finance during implementation.

No Comment.

4. Project Sustainability

The project brief discusses the political will of the nations involved and expresses the belief that the level of commitment is high. As indicated elsewhere in this review, the stated objectives are extremely broad and perhaps optimistic. The project has the promise of great rewards but sustainability depends on setting achievable medium-term objectives and the acceptance of both unexpected success and failure. Most western nations have seen both, even with the availability of the best expertise and significant resources. However, experience is a great teacher.

Concluding generalities.

This project has the potential for considerable socio-economic advantage for the nations involved. Beyond the need for realistic short-term objectives as stated above there are a large number of critical details that are not addressed in the existing documents but on which the project depends. One is the question of data compatibility and exchange. Whereas the accuracy required for observations in the coastal environment can be met with reasonable ease given good practises, observations in the off-shore are often more demanding. The advantages of the exchange of data within the broader mechanisms of the IOC, GOOS and GCOS should not be ignored. Participation gains access and the capability to profit on the larger scale.

The project clearly depends on the expertise of those participating and this expertise is bound to be varied. Thus, capacity building must have a strong personal component.

Little detail is provided about the observations required by the project. However, it will not matter which structures are in place or what is the expertise of those involved in the analyses, if adequate environmental data is not available as a basis. While physical and biochemical observations are obtainable with the proper practices, fisheries statistics are well know to be problematical in many regimes. Estimates of fish stocks based on the reports of fishers have been known to be unreliable for reasons that are relatively obvious. This is another case where the need for fully committed participation by stakeholders is required.

Annex F: Response to STAP Review

As the STAP review is generally supportive of the Project, only those comments requiring comment will be addressed.

With regard to Output 3 the Reviewer suggests that use of the PIRATA array in the tropical Atlantic would be inappropriate. He further states that with the relatively small-scale eddy-like variability of the Benguela Current regime any practical array of moorings of the PIRATA type would be incoherent and most likely ineffective in describing the environmental state. While the countries see PIRATA as being a useful tool, they recognize that its utility will require initial and thorough assessment. The scales that the project intends to focus upon are in fact the large scales the reviewer implies will be necessary, and any PIRATA buoy deployed in the BCLME is likely to be quite far north and offshore to assess the coupling with the equatorial system. No small-scale eddy variability in the Benguela will be attempted, and the Reviewer's observation that this would be inappropriate is correct. It should be noted however that the last two Benguela Ninos could have been predicted with lead times of three months if there had been access to the right information and had there been opportunity to coordinate effort and evaluate available realtime data. There is also an excellent correlation type forecast between SST offshore of Angola and summer rainfall in the possession of SADC, and this information will be available to the project. Hence scientists participating in project preparation have seen some potential usefulness in employing a PIRATA buoy.

The Reviewer also has stated that the Project should take into account the potential importance of the wok of the GOOS to the Outputs of the Project. We agree. The Project Brief had already mentioned the importance of GOOS and, given the Reviewers comments, that language has now been strengthened. The Project will also develop ongoing coordination with work being undertaken as part of the Global Ocean Data Assimilation Experiment, or GODAE. We fully agree with the Reviewer that "….the global observing systems GOOS and GCOS have strong overlapping interests with this project in the Benguela Current region," and the Project will ensure that work undertaken by the Project will be connected to efforts of these two important global initiatives and others such as IOC.

In the section of the Reviewers comments titled Concluding Generalities, it is stated that there are a large number of critical details that are not addressed in the Project Brief. This is true. The Project Document, as is intended under GEF projects, will serve to more fully define the actual tasks that are to be performed under each activity, who will be responsible for performance, the costs involved, rough timetable established, and review mechanisms that will judge implementation performance.

Annex G Country Actions

Angola Country Action

In terms of the provisions of the BCLME SAP, Angola (together with Namibia and South Africa) has implemented or will implement the following policy actions:

- Will act to establish the Interim Benguela Current Commission (IBCC) to implement the SAP and strengthen regional co-operation (that is promotion of sustainable integrated management of the BCLME), in anticipation of the establishment of a permanent BC Commission within five years.

- In 1998, during the second year of the PDF-B, Angola jointly founded the Benguela-Environment-Fisheries-Interaction-Training (BENEFIT) Programme (BENEFIT aims to develop the enhanced science capacity required for the optimal and sustainable utilization of living resources of the BCLME). Angola has been, and continues to be, an active supporter of, and participant in, BENEFIT.

- Has pursued and will continue to pursue a policy of co-financing with industry and donor agencies to strengthen existing regional mechanisms and ensure necessary capacity building consistent with project objectives.

- Has begun encouraging the use of clean technologies.

- Is actively promoting the use of economic and policy instruments that foster sustainable development.

- Will cooperate in the establishment of a regional structure to conduct trans-boundary fish stock and ecosystem assessments, with joint surveys undertaken co-operatively over a five-year period starting in 2001, and will undertake co-operative assessments of shared non-exploited species.

- Will participate in the harmonization of the management of shared stocks (where applicable).

- Will participate in the development of a responsible mariculture policy in co-operation with SADC by December 2002.

- Has committed itself to compliance with the FAO Conduct for Responsible Fishing.

- Is harmonizing policies on protected areas and other conservation measures with policies of other IBCC States (Angola's marine fisheries are managed in terms of a broad-based Fisheries Act which was developed with assistance from FAO and promulgated in 1992).

- Will participate in a regional assessment of the most vulnerable species and habitats, to be completed by December 2001 as part of a developing policy to protect vulnerable species and biological diversity. Is committed to participation in the development of a regional marine biological diversity management plan will be developed by December 2003.

- Will participate in development (by IBCC) by December 2002 of a regional framework for enhanced consultation to mitigate the negative impacts of ocean mining, collaborate to harmonize mining policies relating to shared resources, and undertake impact assessment of cumulative effects of mining on the BCLME.

- Will participate in development of a regional harmful algal bloom (HABs) reporting network during 2001 with a view to its implementation in 2002. Regional contingency plans for assessing the transboundary effects of HABs will be developed and implemented by December 2002.

- Will participate in development by 2003 of a cost-effective regional early warning system for monitoring major environmental events within the BCLME, the establishment of an environmental baseline, and other actions with a view to improving system predictability necessary for long-term sustainable management.

- Through the IBCC, will undertake to develop, in co-operation with SADC, a responsible regional mariculture policy by December 2002.

- Will development by June 2002 of waste water quality criteria for receiving waters for point source pollution.

- Has, with international assistance, formulated a National Contingency Plan for the Prevention and Management of Oil Spills. The IBCC will endeavour to harmonize this Plan and contingency plans in Namibia and South Africa and develop the mechanisms for sharing technology, expertise and clean-up equipment in the region. A regional policy will be developed by 2003 to minimize cross-border impacts of oil pollution.

- All hydrocarbon activities in Angola are managed in terms of the Petroleum Law (Decree 13/78) by SONANGOL (State Oil Company). EIAs are obligatory prerequisites for all drilling activities. Will participate through its representation on the IBCC to facilitate co-ordinated actions for the assessment and mitigation of negative impacts on the ecosystem of oil and gas exploration/production.

- Will, through its participation on the IBCC, develop a common strategy for implementing MARPOL 73/78 in the BCLME region will be devised by December 2000.

- Will participate in the development of a regional policy on ballast water for the BCLME, developed in tandem with the existing GEF ballast water management project.

- Will serve as Host Country for The BCLME Activity Centre for Biological Diversity, Ecosystem Health and Pollution. The Centre will be functional by 2000/2001.

Namibian Country Actions

In terms of the provisions of the BCLME SAP, Namibia (together with Angola and South Africa) will implement the following policy actions:

- The establishment Interim Benguela Current Commission (IBCC) to implement the SAP and strengthen regional co-operation (that is promotion of sustainable integrated management of the BCLME), in anticipation of the establishment of a permanent BC Commission within five years.

- In 1998, in the second year of PDF-B implementation, Namibia jointly founded the Benguela-Environment-Fisheries-Interaction-Training Programme (BENEFIT) with Angola and South Africa . This Programme aims to develop the enhanced science capacity required for the optimal and sustainable utilization of living resources of the BCLME. Namibia has played a key role in implementation of BENEFIT and is the host country for the location of the Secretariat and for regional co-ordination.

- Has and will continue to actively pursue a policy of co-financing with industry and donor agencies to strengthen existing regional mechanisms and ensure necessary capacity building.

- Has and will continue to encourage the use of clean technologies

- Has and will continue to promote the use of economic and policy instruments that foster sustainable development.

- Will participate in the establishment of a regional structure to conduct trans-boundary fish stock and ecosystem assessments, with joint surveys undertaken co-operatively over a five-year period starting in 2001, and co-operative assessments of shared non-exploited species.

- Will harmonize efforts to manage shared stocks (where applicable).

- Will participate in the development of a responsible mariculture policy in co-operation with SADC by December 2002.

- The Government of Namibia has committed itself to compliance with the FAO Conduct for Responsible Fishing.

- Will act to harmonize policies on protected areas and other conservation measures with those of other IBCC States.

- Will participate in a regional assessment of the most vulnerable species and habitats, to be completed by December 2001, as part of a developing policy to protect vulnerable species and biological diversity. A regional marine biological diversity management plan will be developed by December 2003.

- Development (by IBCC) by December 2002 of a regional framework for enhanced consultation to mitigate the negative impacts of ocean mining, collaboration to harmonize mining policies relating to shared resources, and impact assessment of cumulative effects of mining on the BCLME.

- Wil participate in development of a regional harmful algal bloom (HABs) reporting during 2001 with a view to its implementation in 2002. Regional contingency plans for assessing the transboundary effects of HABs will be developed and implemented by December 2002.

- Will assist in the development, by 2003, of a cost-effective regional early warning system for monitoring major environmental events within the BCLME, the establishment of an environmental baseline, and other actions with a view to improving system predictability necessary for long-term sustainable management.

- Through the IBCC, will develop, in co-operation with SADC, a responsible regional mariculture policy by December 2002.

- Will develop, by June 2002, waste water quality criteria for receiving waters for point source pollution.

- Namibia has, with international assistance, formulated a National Contingency Plan for the Prevention and Management of Oil Spills. Namibia will, through its participation in the IBCC, act to harmonize this Plan and contingency plans in Angola and South Africa and develop the mechanisms for sharing technology, expertise and clean-up equipment in the region. A regional policy will be developed by 2003 to minimize cross-border impacts of oil pollution.

- All hydrocarbon activities in Namibia are managed in terms of the Petroleum Act (1992). Namibia has undertaken to make EIAs obligatory prerequisites for all drilling activities. Namibia will, through its membership on the IBCC, act to facilitate co-ordinated actions for the assessment and mitigation of negative impacts on the ecosystem of oil and gas exploration/production.

- Namibia will, through the IBCC, develop a common strategy for implementing MARPOL 73/78 in the BCLME region will be devised by December 2000.

- A regional policy on ballast water for the BCLME will be developed in tandem with the existing GEF ballast water management project.

- Namibia will serve as the host country for the BCLME Activity Centre for Fisheries and other Living Marine Resources. Namibia will also be the Lead Country for the project and will host the project PCU.

In addition to the above, the following policy actions have been undertaken by Namibia that supports the BCLME Programme and the implementation of the Strategic Action Plan (SAP). Some of these actions are being developed by virtue of participation in this regional initiative.

- Environmental Management Act (1998)

  The Namibian Government has recently promulgated the Environmental Management Act (Act X of 1998) which prescribes the need for environmental assessments for various activities including marine mining and mineral extraction, harbour construction and associated structures, reclaimation of land below high water mark and other industrial activities related to sewage and waster treatment. A Sustainable Development Commission, representative of key government ministries, specialists and NGOs is responsible for issuing

licences which have Environmental Clearance with or without conditions.

- Sea Fisheries Act 29 of 1992

  The Sea Fisheries Act 29 of 1992 regulates pollution at sea and controls the disposal of fish and domestic waste from ships, disturbance of rock lobsters, marine invertebrates and aquatic plants, and restricts areas of seabed damage.

- South East Atlantic Fisheries Organisation (SEAFO)

The Ministry of Fisheries and Marine Resources has been a key player in the development of the SEAFO (along with Angola, South Africa and U.K.) which will be tasked with management of the high seas fisheries in the south east Atlantic. This agreement is expected to be ratified in the year 2000 and will have strong links with BCLME and BENEFIT.

- Coastal and Marine Biodiversity Programme (UN Convention on Biodiversity)

  The Government of Namibia has recently ratified the UN Convention of Biodiversity which will result in the protection of marine biodiversity within the national boundaries of the BCLME. A Strategic Plan for Coastal and Marine Biodiversity has been produced that will result in a new legislation to protect national coastal and marine biodiversity by July 2003.

- Marine Protected Areas

The Ministry of Fisheries and Marine Resources has completed an assessment of the needs to establish a number of marine protected areas along the coast of Namibia and plans to introduce legislation to effect this policy by December 2001. This is part of its efforts to bring licy and legislation in line with the Convention of Biodiversity of which the Namibian Government is a signatory.

- Mariculture Development

  The Ministry of Fisheries and Marine Resources has recently drafted legislation which establishes criteria for issuing of mariculture licencing, addresses environmental impacts of mariculture developments and mitigation and regulation regarding the introduction of alien species. Legislation is expected to be enacted by June 2001.

- National Oil Spill Contingency Plan

  The Maritime Affairs Division of the Ministry of Works, Transport and Communications is currently formulating a National Contingency Plan for oil spills which is expected to be completed by June 2001

- Contingency Plan of Harmful Algal Blooms

  The Namibian Ministry of Fisheries and Marine Resources is formulating a National Contingency Plan to address Harmful Algal Blooms in the BCLME off Namibia which is expected to be implemented by December 2001.

- MARPOL 73/78. The Government of Namibia is considering joining the MARPOL 73/78 Convention. It is expected that an agreement will be reached by December 2000 and that ratification will be completed by June 2001. This will be beneficial for Namibia in meeting her commitments to protection of the marine environment within the BCLME.

- Namibian Port Authority Act2 or 1994. This Act gives the Port Authorities in Namibia the responsibility to protect the marine environment in harbour areas from oil pollution, toxic waste and disposal of waste/litter.

- Maritime Notice No. 4 (1994). This Notice provides rules and procedures for the collection of garbage from vessels so as to prevent disposal at sea.

South African Country Actions

In terms of the provisions of the BCLME SAP, South Africa (together with Namibia and Angola) will implement the following policy actions:

- Has accepted responsibility to share in the creation of the Interim Benguela Current Commission (IBCC) to implement the SAP and strengthen regional co-operation (that is promotion of sustainable integrated management of the BCLME), in anticipation of the establishment of a permanent BC Commission within five years.

- In 1998, during the second year of PDF-B implementation, South Africa jointly founded the Benguela-Environment-Fisheries-Interaction-Training Programme (BENEFIT) which aims to develop the enhanced science capacity required for the optimal and sustainable utilization of living resources of the BCLME). South Africa has been, and will continue to be, an active supporter of, and participant in, BENEFIT.

- Has actively pursued, and will continue to pursue, a policy of co-financing with industry and donor agencies to strengthen existing regional mechanisms and ensure necessary capacity building.

- Has encouraged, and will continue to encourage, the use of clean technologies.

- Has promoted and will continue to promote the use of economic and policy instruments that foster sustainable development.

- Will participate in the establishment of a regional structure to conduct trans-boundary fish stock and ecosystem assessments, with joint surveys undertaken co-operatively over a five-year period starting in 2001, and will undertake co-operative assessments of shared non-exploited species.

- Will act to harmonize, wit its project partners, the management of shared stocks (where applicable).

- Will act to cooperatively develop a responsible mariculture policy in co-operation with SADC by December 2002.

- Has committed itself to compliance with the FAO Conduct for Responsible Fishing.

- Has agreed to play its part in the harmonization of policies on protected areas and other conservation measures with policies of other IBCC States .

- Will participate in a collaborative regional assessment of the most vulnerable species and habitats, to be completed by December 2001, as part of a developing policy to protect vulnerable species and biological diversity. South Africa will fully participate in the deevlopment of a regional marine biological diversity management plan to be completed by December 2003.

- Work within the IBCC to develop, by December 2002, a regional framework for enhanced consultation to mitigate the negative impacts of ocean mining, collaboration to harmonize mining policies relating to shared resources, and impact assessment of cumulative effects of mining on the BCLME.

- Work to incorporate South African into a regional harmful algal bloom (HABs) reporting to be developed during 2001 with a view to its implementation in 2002. Will participate in the development of regional contingency plans for assessing the transboundary effects of HABs, to be implemented by December 2002.

- Develop by 2003 a cost-effective regional early warning system for monitoring major environmental events within the BCLME, the establishment of an environmental baseline, and other actions with a view to improving system predictability necessary for long-term sustainable management.

- Through the IBCC, will participate in efforts to develop, in co-operation with SADC, a responsible regional mariculture policy by December 2002.

- Develop by June 2002 waste water quality criteria for receiving waters for point source pollution.

- South Africa has in place a National Contingency Plan for the Prevention and Management of Oil Spills. South Africa will work through the IBCC to harmonize this Plan and contingency plans in Namibia and Angola and develop the mechanisms for sharing technology, expertise and clean-up equipment in the region. South Africa will be part of a regional policy, to be developed by 2003, to minimize cross-border impacts of oil pollution.

- South Africa has acted to make EIAs an obligatory prerequisite for all drilling activities. South Africa commits to work within the IBCC to facilitate co-ordinated actions for the assessment and mitigation of negative impacts on the ecosystem of oil and gas exploration/production.

- Through IBCC, South Africa commits to its participation in a common strategy for implementing MARPOL 73/78 in the BCLME region will be devised by December 2000.

- Soth Africa has committed to participation in the global GEF ballast water management project.

- South Africa has agreed to be the Host Country fo The BCLME Activity Centre for Environmental Variability and Improved Predictability. It is expected that the Centre will be operational by 2000/2001.

In addition to the above, the following policy actions have been undertaken by South Africa which in effect supports the BCLME Programme and the implementation of the Strategic Action Plan (SAP).

- Marine Living Resources Act

  This Act, the South African government's major statement on policy related to the conservation and orderly utilization of marine living resources, was promulgated in September 1998. The regulations associated with it and aspects of the Act itself are undergoing review in light of experiences and findings that flow from implementation and research activities and as a result of regional programmes such as the BCLME and BENEFIT.

- Coastal Policy

  South Africa is undertaking a total review of its policy on coastal utilization and

development. The process, currently in the White Paper phase and targeted for finalization during the year 2000, is subject to ongoing interaction with all stakeholders, which means that outputs from the BCLME process will be able to feed into the process in a meaningful manner prior to promulgation.

- South East Atlantic Fisheries Organisation

  SEAFO was evolved as a combined initiative of the three southern African countries bordering the SE Atlantic plus the United Kingdom, for its St Helena dependency. Its aim is to improve management, understanding and control of the straddling living marine resources beyond the 200 mile EEZs of the three countries. The convention is due for ratification during the year 2000, so the BCLME programme will be able to make notable input during the convention's implementation.

- National Environmental Management Act

  South Africa's NEMA is being developed as a means of effectively coordinating all policy relating to the use of its air, terrestrial and marine environments, specifically related to preserving the quality of life of its people. Scheduled for promulgation in 2001, NEMA offers the BCLME initiative a real conduit for influencing national policy in an effective manner.

- Convention of Biological Diversity

  South Africa ratified the CBD in 1996 and a discussion document on the conservation and sustainable use of South Africa's biological diversity was widely circulated and discussed prior to incorporation in a draft white paper. Many of the principles of the CBD were incorporated into the Marine Living Resources Act of 1998 to control marine biodiversity issues, such as marine protected areas, overfishing, ecosystem effects of fishing and importation of alien species for aquaria or mariculture. BCLME inputs to the implementation phase of the CBD are crucial.