

UNITED NATIONS DEVELOPMENT PROGRAMME

PROJECT DOCUMENT

Project Title: Conservation Management of Eritrea's Coastal, Marine and Island Biodiversity

Country: Eritrea

Project Number: ERI/97/G31/B /1G/99/UNDP cost sharing financing **GEF.\$4.986M**

GEF Focal Area: Biodiversity

Prior Obligations: Convention on Biodiversity: acceded 21 March 1996

GEF Financing: \$ 4.986 million

Govt. of Eritrea: \$.840 million (in kind)

GEF Implementing Agency: UNDP

GOE Executing Agency: GOE, Macropolicy and International Economic Cooperation

GOE Implementing Agency: Ministry of Fisheries (MFish)

Counterpart Agencies: Various national and local ministries and authorities

Cooperating Agency: UNOPS

Project Duration: 5 years;
Phase I¹ - Oct. 1998 - Sept. 2000
Phase II - Oct. 2000 - Sept. 2003

Project Starting Date: **October 1, 1998**

Prior Assistance: \$ 0.311 million (GEF PRIF Pilot Phase)

Project Summary:

The objective of the project is to ensure the conservation and sustainable use of the globally significant biodiversity of Eritrea's coastal, marine and island (CMI) ecosystems. These are currently threatened by the rapid development of fisheries, tourism and oil exploration. The project will facilitate sustainable development of the CMI resources, through a participatory management framework, establishment of conservation areas and species programs, an operational information system, and increased public awareness of the needs and benefits of CMI biodiversity.

Approved:

On behalf of the Executing Agency (Macro Policy and International Economic Cooperation)

Date: _____

On behalf of the Implementing Agency (Ministry of Fisheries)

Date: _____

On behalf of the United Nations Development Programme

Date: _____

¹ Project phased only to correspond to government planning horizons

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ACRONYMS

CBD	Convention on Biological Diversity
CITES	Convention on International Trade of Endangered Species
CMI	Coastal, Marine and Island
CTA	Chief Technical Advisor
DOE	Department of the Environment
EAE	Eritrean Agency for the Environment
EIA	Environmental Impact Assessment
FAO	Food and Agriculture Organization (United Nations)
GEF	Global Environment Facility
GIS	Geographic Information System
JICA	Japanese International Cooperation Agency
IA	Implementing Agencies
ICZM	Integrated Coastal Zone Management
IUCN	World Conservation Union
MARPOL	Convention for Prevention of Marine Pollution
MFish	Ministry of Fisheries
MOLG	Ministry of Local Government
MPIEC	Macro Policy and International Economic Cooperation
MLWE	Ministry of Land, Water and Environment
MMR	Ministry of Marine Resources
MOT	Ministry of Tourism
NEMP-E	National Environmental Management Plan (Eritrea)
ODA	Overseas Development Agency (United Kingdom)
PDF	Project Development Fund
PPU	Policy and Planning Unit (MFish)
PRIF	Pre-investment Funding (GEF/UNDP Document)
RAMSAR	Convention for Wetlands Conservation
RBA	Regional Bureau for Africa (UNDP)
R&ED	Resources and Environment Division (MFish)
RSSAP	Red Sea Strategic Action Program
UNCDF	United Nations Capital Development Fund
UNDP	United Nations Development Program
UNEP	United Nations Environment Programme
USAID	United States Agency for International Development
WB	World Bank

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A. CONTEXT

Summary

The objective of this project is to ensure the conservation and sustainable use of the globally important biodiversity of Eritrea's coastal, marine and island ecosystems. Currently this biodiversity is threatened by the rapid, and largely uncontrolled, development of fisheries, tourism infrastructure and oil exploration activities. While Eritrea's National Environmental Management Plan (NEMP) and Framework Marine Conservation Strategy (FMCS) identify measures to regulate and manage these activities, their implementation is delayed by resource and capacity constraints. The project will contribute to Eritrea's ability to overcome these resource and capacity constraints and carry out early implementation of the FMCS and those components of the NEMP that have an immediate bearing on the conservation and sustainable use of Eritrea's coastal, marine and island (CMI) biodiversity. In particular the project will significantly contribute to: the development of an appropriate participatory management framework; the establishment of conservation management areas and programs for the conservation of habitats and species of special concern outside these areas; a coastal, marine and island biodiversity information system to be made operational; and, public awareness of the needs for and benefits of biodiversity and its sustainable use to be increased.

A.1. Description of Subsector

Background

After thirty years of devastating war and armed struggle Eritrea won its independence in 1993, making it one of the world's newest nations. However, it is also one of the poorest, average per capita income for the country's 3.5 million people is currently estimated at US \$70-150 (World Bank, 1994). While traditionally the main source of economic support has been limited agriculture in highland areas and artisanal fishing in scattered coastal areas, the primary economic development opportunities for Eritrea lie in its coastal, marine and island (CMI) areas. These opportunities include fisheries, trade, petroleum, services and tourism. While the development of these sectors could have significant impacts on the environment of the Red Sea as a whole, as well as on the globally important biodiversity of Eritrea's CMI area, Eritrea is committed to ensuring that this development is sustainable, the quality of the Red Sea environment as a whole is maintained, and that the integrity of its coastal, marine and island biodiversity is not compromised.

The GEF (6th tranche) released \$400,000 in preparatory funds which allowed an initial level of capacity building, coastal surveys, community activities, the preparation of a Framework Marine Biodiversity Conservation Strategy, and preparation of an Eritrean *Contribution to the GEF Red Sea Strategic Action Programme (RSSAP)*. The latter defines Eritrea's actions with respect to the regional issues of navigation risk, maritime pollution, and the management of straddling stocks of living marine resources. These will be funded through the regional Red Sea Strategic Action Programme, a cooperative activity involving all of the Red Sea nations, a part of which is anticipated to be presented to the GEF for funding under the "International Waters Focal Area" later in the year. This project, while harmonized with the Red Sea SAP, targets only the GEF focal area of "Biodiversity" within Eritrea's coastal, marine and island areas. It is urgently needed at this time in order to directly supplement other government activities which are rapidly enhancing Eritrea's capacity to exploit its pelagic and demersal fisheries, and so as to not lose the momentum established with the PRIF funding.

Social/Cultural/Economic Issues

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Although Eritrea's 1,200 km coastal plain ranges from 20-60 km in width and contains 59% of the country's land area, it is largely undeveloped due to its arid nature and the absence of any permanent rivers. The total coastal mainland population is estimated to be 73,000 people, including approximately 35,000 people in Assab (the strategic southern port city); 20,000 in Massawa (Eritrea's other deep-water port located in the center of the coast); and 15,000 people in scattered settlements between Massawa and Assab. Only 10 out of about 350 Eritrean islands are inhabited, with a total population of about 2,600 in 20 villages. Although currently infrastructure is limited and current levels of artisanal fishing have little environmental impact, major development investments are either already in progress (fisheries) or are being planned (oil and tourism). Comparison with other Red Sea states provides some indication of the potential magnitude of these developments and their impacts. In Saudi Arabia almost 40% of the coast is converted for oil and residential services and landfill and oil contamination has caused possibly irreversible damage in a number of areas (Sheppard, et al. 1992).

A. 2. Eritrean Environment Strategy

While pursuing the development of its fishery, tourism and oil resources, Eritrea is committed to ensuring that this development is sustainable and the ecological integrity of its coastal, marine and island biodiversity is maintained. Considerable groundwork on strategic planning, priority setting, and the policy context for combining conservation and sustainable development has already been laid. A *National Environmental Management Plan for Eritrea* (NEMP) was completed in 1995. A *Framework Marine Conservation Strategy* was prepared in 1996 in preparation for Eritrea's accession to the Convention on Biological Diversity 21 March 1996. A *National Biodiversity Strategy* is currently under preparation with World Bank/GEF support, and Eritrea has drafted a contribution to a *GEF Red Sea Strategic Action Programme*. Draft regulations on coastal and marine resources have been prepared, including legislation on ICZM (GOE/MMR, 1995), fishery management, and oil spill planning, all of which will form part of a broader Environmental Law that is now under preparation.

A. 3. Prior and Ongoing Assistance

Since 1994, the UNDP, the World Bank, and various bi-lateral donors and non-governmental organizations (NGOs) have been assisting the Government and community groups with strategic planning and rehabilitation projects after thirty years of war. During this time, there has been a considerable amount of support targeting Eritrea's Red Sea fishery resources, with an emphasis on capacity building and infrastructure. Limited support is also in place for tourism and education. Assistance which is relevant to the sustainability of Eritrea's valuable CMI resources are outlined on the document cover page, detailed in Annex V. and analyzed in Annex III on Incremental Costs. As mentioned previously, UNDP-GEF has also directly supported the conservation and sustainable management of Eritrea's CMI resources through a project preparation advance (PRIF) which is now completed. The PRIF has provided a sound basis for realistic assessment of needs and project design, as well as capacity building.

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A.4. Institutional Framework for Subsector

The Ministry of Fisheries (MFish) undertakes planning, management and regulatory functions in the CMI environment based on guidelines of the Eritrean environmental legislation in regular consultation with the Ministry of Land, Water and Environment. The Ministry of Fisheries from time to time calls upon the relevant ministries as counterparts supporting and cooperating in MFish's activities in order to collectively address coastal-marine issues. While the GOE provides a unifying mechanism for all people, the traditional leaders, "Baitos", are a strong voice for most coastal communities and play an active role in Eritrea's development process. All government agencies are focusing on the importance of empowering local communities and facilitating local representation in national decision-making.

B. PROJECT JUSTIFICATION

B. 1. Problem Identification: The Present Situation

Eritrea's Regionally and Globally Significant Biodiversity

The Red Sea supports the highest degree of endemism of any oceanic water body in the world - an estimated 18% of 1,250 fish species and 20% of 220 coral species. Although biodiversity-relevant research in the region is fairly recent and has largely been conducted in the northern half of the Red Sea, it appears some groups of Red Sea organisms comprise the richest marine diversity west of Indonesia - more than similarly sized areas in the eastern Pacific or Atlantic (Sheppard, et. al., 1992). However, because of its relatively small size, limited oceanographic circulation, and high endemism, the Red Sea as a whole is particularly susceptible to pollution, loss of species and reduction in ecosystem productivity (Sheppard, et. al., 1992).

Eritrea's CMI area covers more than 121,000 km² of the Red Sea (as compared to 124,000 km² of land area) and includes more than 350 offshore islands and 1,200 kms of coastline (18% of the Red Sea continental coastline). The extensive areas of coral reef, seagrass and mangroves support globally important biological diversity as well as maintaining the ecological stability and productivity of the CMI systems. Despite limited research, the area was inaccessible during the 30 year war, more than 250 species of reef fish from 49 families and 110 marine and shore bird species from 41 families have been recorded. The approximately 210 islands of the Dehalak Archipelago support globally significant breeding populations of turtles and "dugongs" (UNEP/IUCN, 1988) as well as breeding, nesting and wintering sites for European, African and Asian birds. Healthy relict populations of Eritrea's larger wildlife species, e.g. gazelle and wildass have also been found in the coastal and island areas (GOE/MMR, 1994a; GEF/UNDP, 1993c).

The Dehalak Archipelago and its geological twin, the Farasan Archipelago in Saudi Arabia, are relicts of large Pleistocene reef platforms up to a few hundred meters thick that formed on underlying salt diapirs and have been modified over time by tectonic displacement and aerial erosion. Today these platforms provide the substrata for modern reef development and their varied topography includes sand banks, shoals, shallow cemented areas, and large gullies up to 150m deep, which cut into the archipelagos and support unusual species. The Red Sea is the only semi-enclosed water body in the world containing such archipelagos. While the Saudi islands are extensively developed, the Dehalak region is virtually unpopulated and pristine, providing an ideal baseline for biodiversity research and conservation. Consequently the entire Dehalak Archipelago has been proposed as a marine reserve (UNEP/IUCN, 1988), (although it has also erroneously been cited as an "established" reserve (GBRMPA/WB/IUCN, 1995).

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B.2. Expected End of the Project Situation

The GEF contribution will supplement the Government's efforts to enable the rapid development and implementation of an overall management framework for Eritrea's coastal, marine and island areas and to thus ensure that during the current rapid development of Eritrea's coastal, marine and island environment, the globally significant biodiversity is maintained. This will be promoted through the development of awareness, together with the necessary skills and capacities of Eritrean stakeholders, to put in place conservation areas and habitat and species conservation programs, as well as an appropriate overall management framework for the coastal, marine and island environment.

The approach includes strong participation in communication and cooperation between all government agencies, the private sector, and local communities; a development and zoning plan; an understanding of and action plans for addressing development impacts on the CMI environment; EIA guidelines; a strategy for sustainable financing of CMI conservation activities; and effective mechanisms for regional and international collaboration. A marine protected areas system will be established, including initially three conservation management areas, as well as programs for the conservation of important habitats and species outside protected areas. The baseline inventory and information system which currently focuses on fisheries stocks will be extended to cover all marine biological diversity, a baseline data set on Eritrea's CMI biodiversity will be completed, and this information will be widely available and used in sectoral planning. Through awareness activities, all stakeholders, schoolchildren, and the public will have a broad understanding of the need for, benefits of, and how to sustainably manage CMI biodiversity.

While all of the above actions are considered to be part of the Government of Eritrea's priorities, GEF assistance will enhance the achievement of goals pursued by the Government.

B. 3. Partners and Beneficiaries

In light of the wide-range of stakeholders in the coastal, marine and island context of Eritrea, the project involves multiple partners and beneficiaries, including policy makers, government institutions, traditional leaders (Baitos), fishing communities, the private sector, and other community members. Partner agencies for conducting the activities include relevant line ministries and other government institutions. Furthermore, community groups such as fishing co-operatives and women's groups will be involved in all aspects of the project. They are represented largely through the Baitos (Eritrea's traditional leaders), who have a strong cultural role in decision-making, and may also participate in the Planning Team for implementation. Project activities will emphasize capacity building to enable the appropriate partners to determine, and carry through, appropriate courses of action.

B. 4. Project Strategy and Implementation Arrangements

The overall project strategy is to support participatory, cross-sectoral mechanisms among targeted stakeholders to foster increased awareness of the value of CMI resources, and ensure that both national and local capacity is in place to manage these resources sustainably for the long-term benefit of Eritrea and the world. The project is intended to provide an objective information and management complement to efforts targeting full exploitation of fishery, tourism and oil resources. This project incorporates high levels of capacity building, and builds a strong management framework. The resulting approach includes several modes of intervention including policy analysis, planning, training, and the achievement of established conservation areas and monitoring programs. Strategic mechanisms

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and participatory techniques for community involvement in ICZM and conservation management were incorporated throughout the project design.

The project will be nationally executed by Macro Policy and International Economic Cooperation (MPIEC). Implementation of the project will be led by a planning team based in MFish and will involve staff from all divisions of MFish. For purposes of enhancing implementation, the planning team will consult with other relevant ministries and departments as the need arises. Inter-ministerial, local community, private sector, and other stakeholder coordination will be handled by MPIEC in consultation with the planning team. There will be particularly close links with the Department of the Environment (DOE) to ensure integration of environment policies at the national level. The project will be implemented in two phases. Phase I will comprise building of a CMI information system, creation of awareness of biodiversity values, capacity building and initiation of CMI management Frame work. Phase II will be based on achievements and results of phase I and will include mainly establishment of CMI management system as well as development of management programmes for habitats and species of special concern out side conservation management area. In addition, incompleted activities of phase I will be carried out. GEF project staff will include a full time project manager, conservation specialist, geographer and sociologist for the duration of the project. An international technical advisor will be full-time for the duration of the first year with the possibility of extension if so decided at the end of the first year. Selected activities will be implemented as sub-contracts through issue-based time-bound Task Forces (plans and strategies) and community groups (conservation management areas and species and habitat conservation).

Recruitment of project personnel and procurement of equipment will be the responsibility of the implementing agency which will, however, use UNOPS' services in recruiting international personnel.

UNDP will serve as the GEF Implementing Agency with the Country Office as the lead mechanism. The three GEF Implementing Agencies (UNDP, UNEP and World Bank) will also provide the requisite linkages between this project and the GEF Red Sea Strategic Action Programme until such time as full collaboration is achieved between the states themselves.

B. 5. Reasons for Assistance from UNDP/GEF

This is a biodiversity project and falls within GEF Operational Programme No. 2: Coastal, Marine, and Freshwater Ecosystems. It promotes the conservation and sustainable use of the globally important biodiversity of Eritrea's coastal, marine and island ecosystems in the Red Sea. These Red Sea ecosystems support the highest degree of "endemism" of any oceanic water body - an estimated 18% of 1,250 fish species and 20% of 220 coral species. While other parts of the Red Sea have been subject to considerable disturbance, due to restricted access in the coastal zone during the war, in Eritrea these ecosystems are pristine in most areas. However, these ecosystems, and their biodiversity, are currently under increasing threat as Eritrea is rapidly developing its fisheries sector, starting development of a tourism sector and is commencing oil exploration. While Eritrea cannot be expected to not develop these resources, it will be to the benefit of the country, and the world, if they can be developed sustainably.

The project will enable Eritrea to respond directly to the 1995 *Jakarta Mandate* of the second meeting of the Conference of the Parties (COP-II) of the Convention on Biological Diversity (CBD), as endorsed at COP III (III/19. Annex Section C. Item b), and in particular Decision II/10 on the Conservation and Sustainable Use of Marine and Coastal Biodiversity, in that it addresses four of the five key areas of concern outlined in the Mandate: Integrated Marine and Coastal Area Management

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(ICAM), Marine and Coastal Protected Areas, Sustainable Use of Coastal and Marine Living Resources, and Introduction of Alien Species. The project will specifically allow Eritrea to develop and implement legislation appropriate to MARPOL and, where relevant, both legislation and action related to the CITES and RAMSAR Conventions. The project will also enable Eritrea to contribute to the *Global Coral Reef Monitoring Network* and the *International Coral Reef Initiative*. At a regional level it will extend Eritrea's cooperation with the *GEF Red Sea Strategic Action Programme* and lead to a more coordinated and holistic approach to the management of the Red Sea, its ecosystems and species, and the threats to these.

This project has been developed by Eritrea's Ministry of Fisheries in consultation with the Department of the Environment and with the support of a GEF pilot phase PRIF. It reflects the priorities for coastal and marine conservation laid out in the *National Environmental Management Plan for Eritrea or NEMP* (GoE 1995), and the *Framework Marine Conservation Strategy* (GoE 1996) - prepared in preparation for Eritrea's accession to the Convention on Biological Diversity 21 March 1996 - , as well as the findings of the *Marine Environment Protection Conference* (GoE 1994a). It is closely coordinated with the *National Biodiversity Strategy*, currently under preparation with World Bank/GEF support, and Eritrea's contribution to the *GEF Red Sea Strategic Action Programme*.

The project demonstrates a comprehensive participatory approach to the management of sectoral activities which cause degradation to globally significant coastal and marine resources, as well as to the integrated management of shared and transboundary water bodies (the Red Sea), and coastal zone and small island geographic units (e.g. Dehalak Archipelago). For example, the project's sectoral studies, policy actions, and conservation management for areas, species and habitats, will explore innovative economic incentives for the conservation of biological diversity and sustainable use, including measures to assist Eritrea find ways to compensate local communities for lost opportunity costs, e.g. loss of short-term fisheries, in exchange for longer term diversified rewards based on the sustainable management of biodiversity. The project also actively raises awareness, trains, and involves local community groups (e.g. fishing co-operatives, women's groups) and traditional leaders (Baitos) in policy development, monitoring programs, and the management of conservation areas and species programs. In doing so the project addresses problems that are common to other geographic regions, including the Red Sea and Western Indian Ocean, and as such it is both innovative and replicable.

GEF has had vast experience in conservation and CMI management. Lessons learned from projects in the Indian Ocean, the Red Sea and the Gulf of Mexico have informed this project in terms of approaches. They range from project and programme implementation to decentralisation at regional and community level while using both expatriate and local expertise which facilitate easy transfer of skills. Strong emphasis on training and implementation at all levels by nationals in the existing system enhances sustainability. As a consequence, and in accordance with Eritrean Government policy, this project takes a participatory cross-sectoral approach, incorporates high levels of capacity building, and builds a strong management framework. Mechanisms and participatory techniques for community involvement in ICZM and conservation management were incorporated into project design. As a consequence during the preparatory PRIF work a participatory cross-sectoral CPTI has already been established as a basis for cooperation and coordination and on which the project will build.

The GEF increment will complement government investments in the fisheries production sector and strengthen the Eritrean MFish in balancing its efforts to increase production with actions to ensure conservation of the CMI environment. While all of these investments incorporate environmental provisions relative to the specific activities being financed, such as pollution avoidance at fueling stations, environmental assessments, and use of environmentally friendly fishing gear, and these

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activities are financed from within these projects and not by the GEF, there is no overall regulatory framework, set of standards, or mechanism for the coordination of these. The GEF project will put this overall framework in place. In this respect, it constitutes the continuation of other projects closely related to the development and rehabilitation of fisheries planning and management. These include support to the development of a tourism master plan, support for marine resource assessment and information management and support to the University of Asmara for university training in marine biology and fisheries and the establishment of a marine research station.

B. 6. Special Considerations

Convergence of several issues point to the urgency of this project. First, Eritrea has probably some of the most diverse and important coastal, marine and island ecosystems in the Red Sea, including the Dehalak Island Archipelago which is home to globally significant populations of dugongs, marine turtles and birds. Until recently the biodiversity resources associated with these ecosystems, primarily fisheries, have been largely untapped due to the limited access of the CMI areas during the war. This has led to a rich abundance of resources associated with these ecosystems including rich opportunities for fisheries, pristine reefs for diving, etc. Yet, also due to the war, little information has actually been collected on the scale and status of Eritrea's coastal, marine and island resources. Nonetheless, large-scale development is moving forward, which is sector-based and investigating selected resources. Consequently there is an immediate need to gain a better understanding of the state of the CMI resources, assess the results of these findings as they affect multiple stakeholders, and ensure that mechanisms for long-term, balanced approaches to development are in place.

B.7. Coordination Arrangements

Implementation of the project will be led by a planning team based in the Mfish and will involve staff from all divisions of the Mfish. The planning team will consult with other relevant line ministries as the need arises. The project staff will be the focal points for implementing the day to day aspects of the project. MPIEC will deal with strategic and integrated planning issues at a policy level and will handle inter-ministerial, local community, private sector, and other stakeholder coordination in consultation with the planning team. The planning team will form time-bound Task Forces that will draw on one or more agencies and relevant community groups, to study and act on specific issues such as the conservation management areas, species and habitat conservation activities as necessary. These Task Forces report to the planning team.

B. 8. Counterpart Support Capacity

The GOE has expressed national commitment to the conservation management of the CMI ecosystems through the NEMP, Marine Framework Strategy, - including a series of participatory stakeholder workshops, and Eritrea's accession to the CBD. The series of workshops, surveys, and community-based activities conducted during the PRIF phase have demonstrated sustained interest and involvement by government as well as local communities. The project design is participatory and multi-sectoral, involving a wide variety of government agencies as well as local communities and traditional leaders (baitos). The project builds and strengthens existing institutions and no new institutions or institutional frameworks are created. All personnel are Eritrean, except a CTA and training-oriented short-term international consultancies. There are no large-scale infrastructure or investment costs to maintain. The guiding philosophy for all components is capacity building supported by targeted training, and the

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meeting of equipment and logistics needs for government staff and community groups. While equipment will be purchased and activities will be carried out under the project, these will be sustained in the long term through the MFish recurrent budget. In this regard the project includes a specific component (Activity 3.7) that will develop and implement a strategy for assuring the financial sustainability of coastal, marine and island biodiversity conservation, and environmental protection, through appropriate generation and use of revenues derived from the use of the CMI environment and its resources.

C. DEVELOPMENT OBJECTIVE

Overall objective: To ensure the conservation management of Eritrea's coastal, marine and island biodiversity.

This GEF project will supplement the efforts of the Government to ensure that during the current rapid development of Eritrea's coastal, marine and island environment, the globally significant biodiversity is maintained. It contributes to this through the development of awareness, together with the necessary skills and capacities, of Eritrean stakeholders, to put in place conservation areas and habitat and species conservation programs, as well as an appropriate overall management framework for the coastal, marine and island environment. Beneficiaries include policy makers, government institutions, traditional leaders (Baitos), fishing communities, the private sector, and other community members. Project activities will emphasize capacity building to enable the appropriate actors to determine, and carry through, appropriate courses of action.

D. IMMEDIATE OBJECTIVES, OUTPUTS and ACTIVITIES²

Component 1. Building A Coastal, Marine And Island Information System:

Immediate Objective 1: Establish a system for ensuring that up-to-date biodiversity information is used in all CMI planning and management activities.

Output/Activities

- 1.1. The completion of *baseline data surveys* including: a) air, land, sea methods b) "remote-sensing" data on habitats, species, resource uses, pollution impacts, c) participatory appraisal surveys of the stakeholders, socio-economic considerations, traditional knowledge, and d) legislation and policy surveys.
- 1.2. The establishment of a comprehensive *reference collection* including literature acquisition, including preparation and curation of displays.
- 1.3. Completion of the establishment of a *Geographic Information System* (GIS) for data synthesis, analysis and ongoing presentation of the information from surveys and monitoring.
- 1.4. The synthesis of survey and monitoring information into annual *CMI Biodiversity Profiles*.
- 1.5. Establishment of an *ongoing monitoring program*, including the establishment of five small-scale,

² See also Annex II. The Logical Framework Matrix.

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appropriate technology field stations and community liaison centers in strategic locations for monitoring and community outreach purposes which will complement MFish facilities.

- 1.6. The active dissemination of *CMI Biodiversity Information* so that it is widely available and used in all sectoral planning and activities.

Component 2. Awareness Of Biodiversity Values:

Immediate Objective 2: Increase at all levels (Baitos, community groups, managers, administrators, policy makers, and private sector) awareness of the need for, the benefits of, and how to, sustainably use and manage Eritrea's coastal, marine and island biodiversity resources

- 2.1 The preparation of a *CMI awareness action plan* to identify target groups and appropriate communication mechanisms, as well as catalyze awareness and collaboration with other agencies, the media, and promote the dissemination of traditional knowledge.
- 2.2. Enhance the capacity of MFish *produce and disseminate* interpretive materials, and provide information to other agencies and communities.
- 2.3. Integrate *CMI issues into formal education systems* through building collaboration between the MFish, education authorities and community groups.

Component 3: Coastal, Marine And Island (CMI) Management Framework:

Immediate Objective 3: Develop a comprehensive, integrated and participatory management framework for the conservation management and sustainable development of Eritrea's coastal, marine and island biodiversity

Outputs/Activities

- 3.1. Support the Core Planning Team (CPT) as the mechanism for cooperation in project implementation and coordination in relation to the CMI environment. This will include the continuation of participatory workshops, started under the GEF PRIF, to develop policy, strategic priorities and plans, and to coordinate the implementation of multi-sector development activities on the ground.
- 3.2. Preparation of targeted *sectoral studies on development impacts* on biodiversity including: urban and rural settlement, shipping and navigation, oil industry, and tourism.
- 3.3. Preparation of *CMI-EIA Guidelines* and assistance with development of the capacity for enforcement and monitoring compliance by appropriate agencies.
- 3.4. Preparation and adoption of a *CMI Development and Zoning Plan* which integrates information from the baseline, monitoring and sectoral studies and includes optimal zoning and use guidelines.
- 3.5. Incorporation of CMI Development and Zoning Plan recommendations into appropriate *sectoral policies, plans, and institutional structures*, roles and activities.

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- 3.6. Elaborating *legislative provision* for implementation of the CMI Development and Zoning Plan and EIA Guidelines
- 3.7. Preparation and implementation of a strategy proposing different *financing mechanisms* for CMI conservation.
- 3.8. Facilitation of *regional and international linkages* through communications, consultations and workshops - in particular with the regional GEF Red Sea Strategic Action Program. Global linkages will include participation in activities such as the International Coral Reef Initiative and the Global Coral Reef Monitoring Network, as well as implementing appropriate legislation and acceding to relevant international conventions (e.g. MARPOL, RAMSAR).

Component 4: Conservation of Special Habitats And Species

Immediate Objective 4: Develop and implement a participatory management program for critical conservation management areas, and for habitats and species of special concern outside conservation management areas.

Outputs/Activities:

- 4.1. Establishment of a *CMI Conservation Area System Plan* which incorporates the CMI Development and Zoning Plan information as well as database and monitoring information. This could also be linked to regional network of conservation areas for sites and migratory species.
- 4.2. Establishment of *three community-based conservation management areas*, one in each of the: Dur Gaam and Dur Gella Islands; the Fatuma Island group; and the Museri Island group.
These sites were identified as a result of the GEF PRIF work and in addition to being selected because of their globally significant biodiversity (See Annex E) represent and demonstrate different environments, issues and management strategies (e.g. fishery replenishment, ecotourism, scientific reserve). All require the development of focused surveys and monitoring, management plans, implementing legislation, and small-scale *field operations centers*.
- 4.3. Preparation of a *migratory species conservation network and activities* for endangered, endemic, migratory and/or indicator species that are not in the conservation management areas, in particular: marine turtles, marine mammals, migratory birds and sharks (see GOE/MMR 1996 and GEF/UNDP/GOE 1996).
- 4.4. Preparation of activities on a local, national and regional scale which address issues of *exotic species*, both from ship-sources and land-sources, with particular attention to island ecosystems. These will include assessments, monitoring, response plans, port-side requirements and public awareness.

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E. INPUTS

The GEF financed part of the project is USD \$4.986 million. This includes all local and international consultancies, committees, equipment, training courses, field activities, communication and logistics costs, publications and information dissemination, mission travel and a global ten percent contingency. The inputs provided by GEF to support the outputs and activities detailed in the previous section are summarized below and elaborated further in the Section J.

International Consultancies: A Chief Technical Advisor will work full-time for the first year of the project with the possibility of extension if so decided at the end of the first year. There will be four “trainers” who will come to Eritrea at targeted intervals to provide ongoing training, and co-ordination and cohesion to in addition to training provided through specific courses. Several consultants, in addition to the trainers, that have experience with coastal and marine resource management may be required to assist with studies, strategies and plans throughout the project.

National Consultants: There will be funds for four full-time National positions, including a Project Manager, Conservation Specialist, Geographer and Sociologist. Several national consultants are required to assist with studies, strategies and plans throughout the project as well as some training, as part of capacity building.

Participatory Facilitation and Co-ordination Committees at the National, Municipal and Village levels: An inter-ministerial committee consisting of MFish and MOLG will serve as the overall facilitator and coordinator of the project, and designate issue-specific Task Forces as needed. Selected community leaders and groups will work with each component in conjunction with MFish.

Capacity Building: All travel and subsistence costs for workshops, conferences, on and off-site courses will be provided.

Publications and Information Dissemination: Funds will be provided for acquisition of publications, preparation of maps and atlases, course materials and public awareness materials.

Equipment: Procurement and contracting will be done in accordance with standard NEX procedures. Basic field, transport and project execution equipment will be provided to carry out the training, and implementation for the surveys, monitoring, conservation management areas, habitat and species, and public awareness by both MFish lead staff and community members.

F. RISKS

Two key risks are involved in this project:

- i) that the capacity of the Eritrean Ministry of Fisheries to carry out project activities may have been overestimated. This was experienced during the implementation of the GEF financed preparatory stage or PRIF.
- ii) that regional events within the Red Sea but beyond Eritrea's control, such as a pollution disaster, a failure to properly regulate fisheries, an exotic species invasion, or political events, result in extensive destruction or damage to Eritrea's CMI biodiversity.

During the implementation of the GEF financed PRIF considerable progress was made in building relationships between Eritrea and PERSGA (Regional Organization for the

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Conservation of the Environment of the Red Sea and Gulf of Aden) which involves the other states bordering the Red Sea. While there is not yet a full regional framework for the coordinated management of the whole of the Red Sea, the activities under this project will again further this cooperation and reduce the likelihood of events outside Eritrea's direct control adversely affecting project objectives.

G. PRIOR OBLIGATIONS and PREREQUISITES

There are no prior obligations associated with this project. The following are considered as "prerequisites" for actions required at the outset of the project in order to assure smooth implementation of the project but are not pre-conditions for signature of the project document and releasing of funds:

- a) Completion of the PRIF phase.
- b) The MFish is to designate key staff to work with the project and establish the project team. MFish will also ensure that personnel travelling overseas for training are contractually bound to return to Eritrea and fulfill their obligations with MFish.
- c) MFish to prepare equipment specifications and possible sources, and to have initiated procurement arrangements based upon revisions as necessary from the PRIF phase.
- d) The MFish and the UNDP Resident Representative will agree on procurement and contracting arrangements for budget items and activities in accordance with standard UNDP NEX procedures..

H. PROJECT REVIEW, REPORTING

Consultations, Inputs and Technical Review

The project has been the subject of various inter-agency reviews and consultations since its inception, in particular in preparation for and through its approval by the GEF Participants Assembly in 1993. More recently inter-agency consultations have included consultations between UNDP and the World Bank in Asmara and Washington and between all of the GEF IAs through the Red Sea Strategic Action Programme (RSSAP). Three "input workshops" on project components and coordination held in Eritrea included representatives of implementing agencies. Important technical assistance to design was provided through several biodiversity specialists as well as through the GEF STAP technical reviews.

Suggestions made during the GEF STAP Technical Reviews have been taken into account during project design. During the Technical Review held in January 1997 the strong support for the project by the cabinet and the importance of capacity building were again emphasized.

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Both the PRIF work and the last response to the STAP Technical Reviewer point to the importance of absorptive capacity and this has been carefully assessed during the 18 month PRIF phase. While PRIF activities have strengthened these in both the MFish and the DOE, they are still limited and the activities of the project have been carefully phased to take these into account and ensure that all project activities can be successfully achieved.

Monitoring, Evaluation and Reporting:

Process indicators and their verification are described in the logical framework matrix. Appropriate impact indicators and procedures for their measurement and verification will be established under the relevant project components. These will include ecological, socio-economic, and institutional capacity parameters. For example, the completion of the baseline data set and the establishment of an ongoing monitoring programme (outputs 3.1 and 3.5) will enable changes in CMI site, habitat and species biodiversity to be measured in the long term. Ecological parameters already identified for measurement include: ecosystem function, structure, and integrity at seascape, community, and species levels. The planning team also provides a mechanism for ongoing internal assessment of progress.

The project will be executed according to UNDP National Execution Guidelines for financing details (executing agency MPIEC). With regard to technical matters, the progress of the project activities will be backstopped by the GEF Regional Bureau for Africa at UNDP Headquarters. The project will be subject to standard annual UNDP tri-partite reviews (joint review by the implementing agency (MFish), the executing agency (MPIEC) and UNDP), follow standard GEF reporting procedures, and follow the normal requirements for mid-term and final evaluation procedures. These are detailed as follows:

- a. Initial tripartite planning meeting at the beginning of the project;
- b. Annual tripartite review meetings thereafter starting within the first 12 months of full implementation and where possible held in co-ordination with and incorporating the substantive monitoring and review mechanisms;
- c. An independent mid-term evaluation of the project approximately mid-way through the project.
- d. A final independent evaluation at the end of the project.

The GOE implementing agency (MFish) will prepare the following:

- a) An initial "inception report" which will describe the plans for the first year of the project and will be presented at the first review meeting noted above;
- b) A standard annual PPER report in preparation for each TPR;
- c) Annual GEF PIR (Project Implementation Review) reports;
- d) A "terminal report" on the 5 year project period to be presented at the final tripartite review meeting as noted above.

All reports shall be prepared in draft sufficiently in advance of formal meeting dates to allow review and technical clearance by all government parties, UNDP/GEF/RBA and the UNDP Resident Representative.

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I. LEGAL CONTEXT

This project document shall be the instrument referred to as such in Article 1 of the Standard Basic Service Agreement between the Government of Eritrea and the United Nations Development Programme, signed by the parties on 2 June, 1994. The host country implementing agency shall, for the purpose of Standard Basic Assistance Agreement, refer to the government co-operating agency described in that Agreement. In order to promote flexibility in the implementation and management of this UNDP project the following types of revisions may be made to this project document with the signature of the UNDP Resident Representative only, provided he or she is assured that the other signatories of the project document have no objections to the proposed changes:

- a) Revisions in, or addition of, any of the annexes of the project document;
- b) Revisions which do not involve significant changes in the immediate objectives, outputs or activities of the project, but are caused by the rearrangement of inputs already agreed to or by cost increases due to inflation; and
- c) Mandatory semi-annual revisions which rephrase the delivery of agreed project inputs, or reflect increased expert or other costs due to inflation, or take into account agency expenditure flexibility.
- d) The Government will provide the Resident Representative with certified periodic financial statements, and with an usual audit of the financial statements relating to the status of UNDP (including GEF) funds according to the procedures set out in Section 30503 of the UNDP Policies and Procedures Manual (PPM) and Section 10404 of the UNDP Finance Manual. The Audit will be conducted by the legally recognized auditor of the Government, or by a commercial auditor engaged by the Government.

J. BUDGET

Summary Budget by Component (\$ mill)	GEF	Govt.	PRIF	Total
1. CMI Management Framework	1.120	0.201		1.321
2. Conservation of Special Habitats and Species	1.771	0.280		2.051
3. Coastal-Marine-Island Information System	1.686	0.279		1.965
4. Awareness of Biodiversity Values	<u>0.409</u>	<u>0.080</u>		<u>0.489</u>
Total	\$4.986	\$0.840	\$0.311	\$6.137

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Summary GEF Budget by Line Item (\$1,000)

GEF Contribution	Total	Phase I (Oct. '98 - Sept. 2000)		Phase II (Oct. 2000 - Sept. 2003)		
		Year 1	Year 2	Year 3	Year 4	Year 5
Personnel						
CTA & consultants (Int & Nat).	600	150	150	150	75	75
National Personnel	216	43.30	43.30	43.30	43.30	43.30
Personnel Travel	50	10	10	10	10	10
Monitoring & Evaluation missions	85	10	35	5	5	30
Subcontracts						
Participatory workshops	150	50	40	40	10	10
Sectoral studies	300	100	100	100		
CMI plans & strategies	135	25	110			
CMI information & monitoring	300	90	80	70	30	30
Community participation	395	155	110	110	10	10
Training						
Training abroad	368	105	151	56	46	10
In-country training	440	138	137	105	60	0
Equipment						
Expendable (field equipment)	100	55	15	15	14	1
Non-expendable	694	334	134	156	70	-
Premises/field stations	630	190	110	110	110	110
Miscellaneous						
Operations & maintenance	175	35	35	35	35	35
Administration & communication	50	10	11	11	9	9
Monitoring & evaluation reports	15	5	-	5	-	5
Sundries and contingencies	88	17.6	18.6	18.6	16.6	16.6
Project support services @8%	82	18	21	23	11	9
Project support services @3%	113	33	27	22	16	14
GEF Total	4,986	1415	1247	1033	693	598

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For the Detailed Implementation Plan

See separate Excel file “ **Budgetver5.xls**” **10 pages**

ANNEX I
REFERENCES and BACKGROUND DOCUMENTS

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**ANNEX II
LOGICAL FRAMEWORK MATRIX**

<u>Development Objective:</u> To ensure the conservation management of Eritrea's coastal, marine and island biodiversity.	<u>Indicators</u> - biodiversity not being lost - select CMI species and habitats are protected and sustainably managed - sustainable use of Eritrea's CMI biodiversity taking place	<u>Verification</u> - ongoing monitoring of species, ecosystems and their use - area and species conservation programs functioning	<u>Assumptions</u> - government continues its commitment to participatory conservation management of Eritrea's CMI biodiversity - a means of financing the ongoing conservation of these resources is successfully developed.
<u>Immediate Objective 1:</u> Establish a system for ensuring that up-to-date biodiversity information is used in all CMI planning and management activities.	1.1. Complete baseline data set on the biodiversity of eritrea's nearshore coastal, marine and island areas. 1.2. Comprehensive Reference collection on CMI resources 1.3. Operational Geographic Information System (GIS) 1.4. Biodiversity profiles 1.5. Ongoing monitoring program established 1.6. CMI Biodiversity Information widely available and used in all sectoral planning and activities		
<u>Immediate Objective 2:</u> Increase at all levels (Baitos, community groups, managers, administrators, and private sector) awareness of the need for, the benefits of, and how to, sustainably use and manage Eritrea's coastal, marine and island biodiversity resources	2.1. A CMI awareness action plan, developed and implemented. 2.2. Awareness materials produced and disseminated 2.3. CMI information integrated into formal education systems.		
<u>Immediate Objective 3</u> Develop a comprehensive, integrated and participatory management framework for the conservation management and sustainable development of eritrea's coastal, marine and island biodiversity.	<u>Outputs</u> 3.1. Effective co-ordination and participatory involvement mechanisms for coastal, marine and island biodiversity planning and management 3.2. Sectoral and Cross-Sectoral Analyses and Action Plans on development impacts on CMI biodiversity produced 3.3. CMI EIA Guidelines Established 3.4. Coastal, Marine and Island (CMI) Development and Zoning Plan 3.5. Incorporation of CMI Development and Zoning Plan recommendations into appropriate sectoral policies, plans, and institutional structures, roles and activities. 3.6. Legislative Provision for Implementation of the CMI Development and Zoning Plan and EIA Guidelines 3.7. Strategy for financing coastal, marine and island biodiversity conservation 3.8. Effective Regional and International Linkages		
<u>Immediate Objective 4:</u> Develop and implement a participatory management program for critical conservation management areas, and for habitats and species of special concern outside conservation management areas.	4.1. Development of a CMI Conservation Area Systems Plan 4.2. Establishment of three community-based conservation management areas: Dur Gaam and Dur Gella Islands; the Fatuma Island group; and the Museri Island group. 4.3. Migratory Species Conservation Network and Actions Established 4.4. Improved Management of Exotic Species		

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COMPONENT 1 - BUILDING A COASTAL-MARINE-ISLAND INFORMATION SYSTEM

OBJECTIVES AND ACTIVITIES	INDICATORS	VERIFICATION	ASSUMPTIONS/RISKS
<p><u>Immediate Objective 1:</u> Establish a system for ensuring that up-to-date biodiversity information is used in all CMI planning and management activities.</p>	<ul style="list-style-type: none"> - baseline data set completed; - comprehensive reference collection in place; - GIS operating; - biodiversity profiles produced - ongoing monitoring programme established - biodiversity information widely used in sectoral planning and management activities. 	<ul style="list-style-type: none"> - information available as requested 	
<p>Output 1.1. Complete baseline data set on the biodiversity of eritrea's nearshore coastal, marine and island areas.</p> <p>Activities:</p> <ol style="list-style-type: none"> 1. Acquire missing aerial and satellite data to complete basic coverage of Eritrea's CMI area. 2. Reconnaissance air survey of the whole coastline and islands, and including marine megafauna. 3. Focused air, land and sea surveys on habitats, species, resource uses, pollution impacts, as indicated by reconnaissance survey and not yet already covered in PRIF work. 4. Participatory appraisal surveys of the coastal, marine and island stakeholders to collect information on sociological and economic considerations, including traditional knowledge, public perceptions, attitudes and values. 5. In-situ, short course on reconnaissance and sample air survey design and implementation. 6. Ex-situ, short course on participatory rural appraisal and other socio-economic survey techniques. 	<ul style="list-style-type: none"> - air surveys are conducted; - further reconnaissance surveys and reports are completed; - participatory surveys and interviews are conducted - increased capacity to carry out ecological and sociological surveys and monitoring for a wide range of coastal-marine-island habitats and users; 	<ul style="list-style-type: none"> - reports, maps, GIS system documentation 	<ul style="list-style-type: none"> - access to key areas available; - willingness to participate by relevant government agencies and communities.
<p>Output 1.2. Comprehensive Reference collection on CMI resources.</p> <p>Activities:</p> <ol style="list-style-type: none"> 1. Literature survey and expansion of exiting literature base. 2. Preparation, curation and display of reference collection. 3. Ex-situ, short course on library and curatorial methods. 	<ul style="list-style-type: none"> - literature surveys and expanded reference collection(s) in place. 	<ul style="list-style-type: none"> - site visits 	<ul style="list-style-type: none"> - no major problems experienced in data repatriation.

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<p>Output 1.3. Operational Geographic Information System (GIS)</p> <p>Activities:</p> <ol style="list-style-type: none"> 1. Complete the existing data management and GIS system. 2. Coordinate and share information with other regional and international monitoring programs; 3. Ex-situ, medium course on GIS design and application, and data management. 	<ul style="list-style-type: none"> - reports, GIS maps and monitoring results prepared - participation by Eritrea in relevant global initiatives, e.g. the Global Coral Reef Monitoring Network and International Coral Reef Initiative; - specific skills in survey, monitoring and data management techniques are acquired by project core team and/or participants; 	<ul style="list-style-type: none"> - reports available - regional and global programme publications 	<ul style="list-style-type: none"> - suitable political climate for required regional and international cooperation;
<p>Output 1.4. Biodiversity profiles</p> <p>Activities:</p> <ol style="list-style-type: none"> 1. Design mapping and reporting formats for existing biodiversity survey results. 2. Conduct analysis and synthesis of surveys and GIS outputs to generate maps, tables, charts, etc. 3. Produce comprehensive atlas and companion reports to make up a baseline biodiversity profile. 4. Through monitoring, update profiles in subsequent years. 	<ul style="list-style-type: none"> - Preparatory reports, maps and atlas prepared; - Biodiversity profiles prepared; - Annual profile updates prepared. 	<ul style="list-style-type: none"> - documents 	
<p>Output 1.5. Ongoing monitoring program established</p> <p>Activities:</p> <ol style="list-style-type: none"> 1. Design and establish an ongoing monitoring system for eritrea's coastal, marine and island resources, uses and impacts, and environmental parameters (including climate, oceanography, with reference to oil spill management, global warming, etc.). 2. Establish small-scale, appropriate-technology field monitoring and community liaison centers in Dehalak Kabir, Tio, Edi, Gelalo, Barasori. 3. Disseminate information collected through the monitoring program to local communities, Baitos, government agencies, regional and international interests, in appropriate ways. 4. In-situ, short course on design and implementation of monitoring programs, including, modules on detailed CMI habitats (reefs, seagrasses and mangroves) and megafauna surveys. 5. Series of in-country training modules for MFISH and community technicians in habitat and species monitoring and information gathering among the community regarding values of biodiversity. 	<ul style="list-style-type: none"> - Replicable monitoring program for key habitats, species, ecologically sensitive areas and potential or existing pollution hot spots in place; - Five small-scale, field-based conservation/monitoring centers are in place; - Monitoring is linked, where appropriate, to ongoing regional and /or international efforts, e.g. for transboundary issues (pollution, migratory species), representative habitats, etc. - Appropriate design and application of CMI management and monitoring activities; - specific new skills shown to be incorporated into project activities; - trainees impart skills to other GoE and community members; 	<ul style="list-style-type: none"> - site visits and interviews - reports 	<ul style="list-style-type: none"> - community members interested in participation; - suitable political climate for required regional and international cooperation;

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<p>Output 1.6. CMI Biodiversity Information widely available and used in all sectoral planning and activities</p> <p>Activities:</p> <ol style="list-style-type: none"> 1. Disseminate relevant data generated through this project for use in related sectoral plans, particularly fishery and tourism plans and activities. 2. Contribute ongoing work done in other areas of similar habitats (reefs, mangroves, seagrasses) to appropriate global programs, e.g. the Global Coral Reef Monitoring Network now being established through international partnerships. 	<ul style="list-style-type: none"> - CMI biodiversity information widely available; - CMI biodiversity information being used in wide range of different sectoral planning and management activities - Eritrean CMI biodiversity information being used in international reports, documents and publications 	<ul style="list-style-type: none"> - sectoral plans - international reports, publications 	<ul style="list-style-type: none"> - Access to local, national and regional data is sufficient;
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COMPONENT 2: - AWARENESS OF BIODIVERSITY VALUES

OBJECTIVES AND ACTIVITIES	INDICATORS	VERIFICATION	ASSUMPTIONS-RISKS
<p>Immediate Objective 2: Increase at all levels (Baitos, community groups, managers, administrators, and private sector) awareness of the need for, the benefits of, and how to, sustainably use and manage eritrea's coastal, marine and island biodiversity resources</p>	<ul style="list-style-type: none"> - a range of information and materials on Eritrea's CMI biodiversity are widely available; - a wide range of stakeholders appreciate the special value of eritrea's CMI resources and its global significance. - individuals and institutions get involved with different conservation activities and comply with EIA and other policy guidance. 		<ul style="list-style-type: none"> - continued appreciation by MFISH of the broad range of stakeholders in the environment;
<p>Output 2.1. A CMI awareness action plan, developed and implemented.</p> <p>Activities: 1. Identify target groups and appropriate mechanisms for communicating with each. 2. Formulate an action plan for the CMI awareness program. 3. Catalyze other relevant agency awareness activities, Baitos-initiated campaigns, and mass media interest.</p>	<ul style="list-style-type: none"> - An awareness action plan is produced; - Willingness by different groups to participate in a range of activities; - Feed back of products prepared by other audiences 	<ul style="list-style-type: none"> - plan 	<ul style="list-style-type: none"> - continued appreciation by MFISH of the broad range of stakeholders in the environment;
<p>Output 2.2 Awareness materials produced and disseminated.</p> <p>Activities: 1. Develop capacity to procure and generate basic awareness and information materials. 2. Develop materials and information on Eritrea's marine coastal and island environment for use by Baitos, other agencies and community groups. 3. Produce signs, exhibits and other interpretative products, in response to emerging needs. 4. Develop information outlets associated with all MFISH centers and project field stations. 5. Ex-situ course in public awareness and marketing and techniques for design and production of awareness and promotional materials, interpretative products and exhibits.</p>	<ul style="list-style-type: none"> - public awareness materials are produced and distributed; - materials produced are appropriately targeted at a wide range of different audiences; - appropriate messages and communication techniques are used; 	<ul style="list-style-type: none"> - materials visible - site visits and interviews 	
<p>Output 2.3. CMI information integrated into formal education systems.</p> <p>Activities: 1. Collaborate with education authorities to integrate coastal, marine and island issues into formal education systems.</p>	<ul style="list-style-type: none"> - specific courses and curricula are prepared; - increased numbers of students at all levels are knowledgeable about Eritrea's CMI biodiversity; 	<ul style="list-style-type: none"> - school curricula and exam papers 	<ul style="list-style-type: none"> - Ministry of Education accepts the value of incorporating courses on CMI resources at all levels.

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COMPONENT 3. CMI MANAGEMENT FRAMEWORK

OBJECTIVES AND ACTIVITIES	INDICATORS	VERIFICATION	ASSUMPTIONS/RISKS
<p><u>Immediate Objective 3</u> Develop a comprehensive, integrated and participatory management framework for the conservation management and sustainable development of Eritrea's coastal, marine and island biodiversity.</p>	<ul style="list-style-type: none"> - a multi-disciplinary team of government and community leaders working together on CMI issues through an effective, participatory and sustainable CMI management framework - sectoral and cross-sectoral analyses and action plans prepared; - CMI EIA guidelines in use and effective; - CMI Development and Zoning Plan in place; - CMI recommendations adopted into appropriate sectoral plans and activities; - CMI Development Plan and EIA guidelines backed by appropriate legislation; - strategy for financing CMI biodiversity conservation in place; - effective regional and international linkages for CMI management in place 	<ul style="list-style-type: none"> - annual PPER's, mid-term & final evaluations - reports and guidelines exist and in use - legislation adopted - biodiversity activities being financed - Red Sea countries working together in context of SAP 	<ul style="list-style-type: none"> - government continues its commitment to participatory management; - different ministries, agencies and community groups willing to work together; - need for CMI zoning plan understood by all stakeholders; - continued understanding of need to collaborate with regional partners to ensure effective management of Red Sea, - suitable political climate for such collaboration; - possibility to establish non-political dialog mechanisms that are substance/technical based in character. - baseline information is sufficiently developed to guide planning;
<p>Output 3.1. Effective co-ordination and participatory involvement mechanisms for coastal, marine and island biodiversity planning and management</p> <p>Activities:</p> <ol style="list-style-type: none"> 1. Maintain and strengthen the MEPC. 2. Formalize the current ongoing process of public workshops. 3. Establish issue specific cross-sectoral Task Forces, and surveillance and enforcement networks within the MEPC. 4. Provide project planning and management training and follow-up assistance to MFISH. 	<ul style="list-style-type: none"> - government and non-governmental stakeholders working together through the MEPC - appropriate divisions of responsibilities and all parties fulfilling their obligations - community leaders (Baitos) and community members are actively involved in participatory planning and management workshops; - real problems are solved in a participatory manner - Task Forces and networks established and carrying out tasks as appropriate - project management manuals and guidelines produced - outputs delivered on time 	<ul style="list-style-type: none"> - meeting and workshop minutes and attendance records 	<ul style="list-style-type: none"> - government continues its commitment to participatory management; - different ministries, agencies and community groups willing to work together;

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<p>Output 3.2. Sectoral and Cross-Sectoral Analyses and Action Plans on development impacts on CMI biodiversity produced</p> <p>Activities: 1. Undertake sector specific and cross-sectoral analyses of the impacts and management implications of key development activities on CMI biodiversity and develop and implement action plans to address these. Issues to be addressed include - rural and urban settlement - industrial development, in particular waste disposal, plant siting, raw materials supplies, cement and salt industries, local area pollution - shipping and navigation - oil exploration and exploitation, transfer, waste disposal, the Oil Spill Contingency Plan - other industry, e.g. fisheries - tourism</p>	<p>- Sectoral and cross-sectoral analyses and action plans completed - findings incorporated into CMI Development and Zoning Plan, as well as other activities. - Better understanding of linkages between and across sectors for CMI and transboundary resources achieved.</p>	<p>- reports and plans available</p>	<p>- effective cross-sectoral participation between agencies, private sector, communities, etc.</p>
<p>Output 3.3. CMI EIA Guidelines Established</p> <p>Activities: 1. Develop, using a participatory process, and adopt EIA guidelines for coastal, marine and island resource uses. 2. Develop the capacity to evaluate EIAs, and enforce and monitor compliance. 3. Train DOE and MFISH staff in EIA procedures including evaluation, enforcement and monitoring, through in-situ short courses and follow-up support.</p>	<p>- realistic guidelines prepared; - enforcement capacity in place.</p>	<p>- guidelines available and in use</p>	<p>- Basic guidelines and policy context established before hand by the Department of the Environment; - sufficient information from Task Forces (Output 1.3) to prepare effective guidelines; - need for guidelines and compliance understood by all stakeholders;</p>

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<p>Output 3.4. Coastal, Marine and Island (CMI) Development and Zoning Plan</p> <p>Activities:</p> <ol style="list-style-type: none"> 1. On the basis of analysis and review of the data from the sectoral and cross-sectoral studies (Output 2.2), together with the biodiversity profiles (Output 3.3), formulate an ecologically-based, integrated, CMI Development and Zoning Plan that includes consideration of both transboundary and multi-sectoral development issues. 2. Through participatory workshops refine, approve and adopt the CMI Development and Zoning Plan. 3. Develop capacity in coastal zone planning and management through one Ph.D, and three M.SC. ex-situ courses, together with in-situ short course plus follow-up support. 	<ul style="list-style-type: none"> - Steering committee and community groups meeting regularly on plan development; - CMI Development and Zoning Plan completed; - CMI Development and Zoning Plan being implemented; - 3 Ph.D.s are achieved and positive reports from supervisors; - 6 Master's of Science are achieved with positive reports from supervisors; - Students return to Eritrea and incorporate into CMI management activities. 	<p>- plan</p>	<ul style="list-style-type: none"> - need for CMI zoning plan understood by all stakeholders; - all stakeholders willing to cooperate in its development and implementation; - Eritrean laws on land and marine governance are sufficiently clear to facilitate realistic planning; - baseline information is sufficiently developed to guide planning (Output 1.3);
<p>Output 3.5. Incorporation of CMI Development and Zoning Plan recommendations into appropriate sectoral policies, plans, and institutional structures, roles and activities.</p> <p>Activities:</p> <ol style="list-style-type: none"> 1. Incorporate the recommendations of the plan into appropriate sectoral policy and development policy/planning initiatives. 	<ul style="list-style-type: none"> - CMI recommendations adopted into appropriate sectoral plans and activities; 	<p>- cross-sectoral plans and activities</p>	<ul style="list-style-type: none"> - need for compliance with, CMI zoning plan understood by all stakeholders; - legislative provision in place (output 1.6)
<p>Output 3.6. Legislative Provision for Implementation of the CMI Development and Zoning Plan and EIA Guidelines.</p> <p>Activities:</p> <ol style="list-style-type: none"> 1. Evaluate the suitability of existing legislation (including traditional laws and practices) as a foundation for implementation of the CMI Development and Zoning Plan. 2. Develop appropriate legislation under the ICZM Proclamation and other relevant instruments (e.g. Environmental Law) to address CMI resource management and biodiversity conservation needs. 3. Ex-situ short course on environmental law for coastal and marine issues, conflict resolution and mitigation, and community workshop facilitation. 	<ul style="list-style-type: none"> - relevant legislation drafted and adopted; 	<p>- legislation</p>	<ul style="list-style-type: none"> - need for CMI zoning plan understood by all stakeholders;

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<p>Output 3.7. Strategy for financing coastal, marine and island biodiversity conservation</p> <p>Activities:</p> <ol style="list-style-type: none"> 1. Identify costs of conservation management and potential sources of revenue from use of the CMI environment. 2. Define options and mechanisms and develop a strategy for equitable and sustainable exchange and sharing of benefits and costs between government, the private sector, and local communities. 3. Adopt and implement the strategy. 	<ul style="list-style-type: none"> - a strategy identifying specific mechanisms, e.g. fees, tariff structures, tourism revenues, pollution costs, and/or conservation trust funds is prepared. - revenues generated by conservation management areas feed back into management of these areas and other conservation activities; 	<ul style="list-style-type: none"> - evaluations - biodiversity conservation activities being financed nationally 	<ul style="list-style-type: none"> - greater understanding of the true costs and benefits associated with CMI resources - a means of financing the ongoing conservation of these resources is successfully developed.
<p>Output 3.8. Effective Regional and International Linkages</p> <p>Activities:</p> <ol style="list-style-type: none"> 1. Develop and strengthen linkages to other bilateral and regional initiatives, in particular the regional-based GEF Red Sea Strategic Action Plan. 2. Make presentations at relevant regional and international conferences on coastal, marine and island biodiversity. 3. Mid-way through the project, host a small, focused workshop with other countries in the region on biodiversity conservation management topics for nearshore coastal, marine and island environments. 4. Develop and contribute to implementing legislation through relevant instruments (e.g. MARPOL) to address specific regional and international coastal and marine resource management and biodiversity conservation needs and maritime boundaries. 	<ul style="list-style-type: none"> - compliance with and enforcement of international treaties (CITES, etc.) - significant contributions to International conferences made; - cooperation with regional initiatives such as the GEF Red Sea Strategic Action Plan - Eritrean-hosted international conference conducted. 	<ul style="list-style-type: none"> - regional meeting attendance, participation lists - regional cooperation agreements 	<ul style="list-style-type: none"> - continued understanding of need to collaborate with regional partners to ensure effective management of Red Sea, - suitable political climate for such collaboration; - possibility to establish non-political dialog mechanisms that are substance/technical based in character.

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COMPONENT 4 - CONSERVATION OF SPECIAL HABITATS AND SPECIES

OBJECTIVES AND ACTIVITIES	INDICATORS	VERIFICATION	ASSUMPTIONS/RISKS
<p><u>Immediate Objective 4:</u> Develop and implement a participatory management program for critical conservation management areas, and for habitats and species of special concern outside conservation management areas.</p>	<ul style="list-style-type: none"> - conservation management areas established; - special conservation programs for migratory and exotic species in place. 	<ul style="list-style-type: none"> - Reports, on-site activities; contacts with network groups; 	<ul style="list-style-type: none"> - information from task forces, CMI studies, etc. sufficient; - sufficient government and community will to set aside particular sites as conservation areas and limit exploitation of certain species or certain harvesting methods; - realistic alternative income strategies can be devised;
<p>Output 4.1. Development of a CMI Conservation Area Systems Plan</p> <p>Activities:</p> <p>1. Based on the biodiversity profiles, the National Biodiversity Strategy and the CMI Development Plan, develop a multiple-purpose CMI Conservation Management Areas System Plan illustrating different management approaches and the conservation of habitats and species of special concern outside conservation management areas.</p> <p>2. In-situ medium length course on marine & coastal conservation management area system planning for MFISH & DOE.</p>	<ul style="list-style-type: none"> - CMI Conservation System Plan prepared that incorporates: - zones and boundaries; - issue-specific actions; - staffing and training; - infrastructure and equipment; - linkages with communities and other concerned authorities; - habitat and species conservation and monitoring; - sustainability and financing mechanisms; and - options for regional and international linkages (e.g. UNESCO Biosphere Reserves, World Heritage Sites) - plan in place and being implemented 	<ul style="list-style-type: none"> - plan 	<ul style="list-style-type: none"> - information from task forces, CMI studies, etc. sufficient. - suitable political climate for required regional and international cooperation;

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<p>Output 4.2. Establishment of three community-based conservation management areas (CMA's): Dur Gaam and Dur Gella Islands; the Fatuma Island group; and the Museri Island group.</p> <p>Activities:</p> <ol style="list-style-type: none"> 1. Undertake additional (beyond the PRIF) focused surveys and inventories of the three areas. 2. Based on information collected and analyzed and stakeholder assisted analysis of management needs and actions, formulate Management Plans for the three areas. 3. Establish these conservation management areas under appropriate Eritrean law. 4. Establish small-scale, initial operations center or base-camp for each conservation management area suitable to the needs of that site, demonstrating simple appropriate technologies and the utilization of existing resources. 5. Progressively phase in management of these areas as appropriate based on the evolving capacity of Baitos, MFISH, local communities and other appropriate authorities. 6. Professional attachment for one conservation area manager to similar area elsewhere for internship, with Train the trainers mandate upon return to Eritrea. 7. In-situ training for wardens, rangers and guides. 8. Study tours to other community-managed conservation management areas, preferably within the region in order to exploit the cultural and language similarities, historical ties and economic interdependencies. 9. Series of in-country modules for community leadership in conservation activities for project and financial management, and community-based habitat and species monitoring 	<ul style="list-style-type: none"> - Detailed inventories and other studies of these areas are conducted; - management plans are prepared; - legal designation of areas made; - operations centers established; - management taking place; - training completed; - specific new skills shown to be incorporated into project activities; - trainees impart skills to other GoE and community members; 	<ul style="list-style-type: none"> - management plans - site visits and interviews 	<ul style="list-style-type: none"> - sufficient government and community will to set aside particular sites as conservation areas; - baseline data and CMI zoning and planning activities are sufficiently in place to proceed with establishment of conservation areas; - community members are willing to participate;
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<p>Output 4.3. Migratory Species Conservation Network and Actions Established</p> <p>Activities:</p> <p>1. Implement selected activities as prescribed in the National Biodiversity Strategy, the CMI Conservation Management Areas System Plan, and the Red Sea Action Plan, for migratory species: specifically turtles, dugongs, dolphins and sea birds. These actions will complement the sites established through the CMI conservation management area system, focusing on management and recovery plans for endemic, endangered, migratory and indicator species.</p> <p>2. Investigate and establish incentives and new income generating alternatives for harvesting activities affecting these species that are no longer sustainable.</p>	<ul style="list-style-type: none"> - preparation of different species specific action plans; - targeted activities linked with other regional and international initiatives in the co-management of particular species and habitats; - recommendations for alternative incomes developed. 	<ul style="list-style-type: none"> - national plans - regional plans 	<ul style="list-style-type: none"> - sufficient information generated on which to base management of eritrea's diverse and globally significant migratory species; - suitable political climate for required regional and international cooperation; - increased understanding and quantification of the full economic value of conserving and losing particular species; - realistic alternative income strategies can be devised;
<p>Output 4.4. Improved Management of Exotic Species</p> <p>Activities:</p> <p>1. Assess the status of the problem of CMI-based introduced species and develop recommendations for national, regional and international management.</p>	<ul style="list-style-type: none"> - exotic species assessment conducted; - recommendations developed and implemented. 	<ul style="list-style-type: none"> - reports 	<ul style="list-style-type: none"> - sufficient understanding of the problems of exotic species, especially in marine and island areas;

**ANNEX III
CALCULATION OF INCREMENTAL COSTS**

Broad Development Goals and the Baseline

1. While recognizing that development of its coastal, marine and island resources is critical for the economic progress of Eritrea, in particular the fisheries, oil, tourism and trade potential of the CMI area, the government is committed to doing so in a sustainable manner. It completed a *National Environmental Management Plan for Eritrea* (NEMP) in 1995, a *Framework Marine Conservation Strategy* in 1996, is currently working on preparation of a *National Biodiversity Strategy*, has drafted a contribution to the *Red Sea Strategic Action Programme*, and is currently preparing a *National Environmental Law*.

2. While the NEMP calls for the development of an Integrated Coastal Zone Management Plan, the development of a marine protected area system, and establishment of an environmental monitoring and information system, resource and capacity constraints result in slow and limited implementation. Currently the Policy and Planning Unit in the Ministry of Fisheries (MFISH) is developing the capacity to provide overall guidance on marine policy issues, guidelines on the development and management of the marine environment are being produced, limited work is being done towards the establishment of a marine protected areas system, and an information system is under development with support from other donors and with a very heavy emphasis on fisheries stock. Fisheries development work is, however, proceeding rapidly, at least one major tourism resort in the Dehalak archipelago is in its advanced planning stages, and oil exploration is being planned. Associated with these a major port rehabilitation project is being considered with possible funding from the World Bank.

Global Environmental Objective

3. The objective of the GEF alternative is to ensure the conservation and sustainable use of the globally important biodiversity of Eritrea's coastal, marine and island ecosystems. These are currently threatened by the rapid development of fisheries, tourism and oil exploration activities which, though subject to their own internal environmental assessment requirements and theoretically regulated through the implementation of the NEMP, are in practice largely uncontrolled because financial and capacity constraints currently prevent implementation of the NEMP.

4. Despite limited research Eritrea's coastal, marine and island biodiversity is known to include more than 250 species of reef fish from 49 families, and 110 marine and shore bird species from 41 families. The islands of the Dehalak Archipelago support globally significant breeding populations of turtles and dugongs (UNEP/IUCN, 1988) as well as breeding, nesting and wintering sites for European, African and Asian birds. Healthy relict populations of Eritrea's larger wildlife species, e.g. gazelle and wildass, thought to have been decimated by the war, have also found in the coastal and island areas (GOE/MFISH, 1994a; GEF/UNDP, 1993c). The overall biodiversity importance of the Red Sea is also well known, supporting the highest degree of endemism of any oceanic water body in the world - an estimated 18% of 1,250 fish species and 20% of 220 coral species.

GEF Alternative

5. The GEF project will contribute to the rapid development and implementation of an overall management framework for Eritrea's coastal, marine and island areas. This will include a strong participatory mechanism for communication and cooperation between all government agencies, the private sector, and local communities; a development zoning plan; an understanding of and action plans for addressing development impacts on the CMI environment; EIA guidelines; a strategy for sustainable financing of CMI conservation activities; and effective mechanisms for regional and international

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collaboration. A marine protected areas system will be established, including initially three conservation management areas, as well as programs for the conservation of important habitats and species outside protected areas. The baseline inventory and information system which currently focuses on fisheries stocks will be extended to cover all marine biological diversity, a baseline data set on Eritrea's CMI biodiversity will be completed, and this information will be widely available and used in sectoral planning. Through awareness activities all stakeholders, schoolchildren, and the public will have a broad understanding of the need for, benefits of, and how to sustainably manage CMI biodiversity.

6. While all of the above actions are considered to be part of the Government of Eritrea's priorities, GEF assistance will enhance the achievement of goals pursued by the Government

7. Incremental domestic benefits of implementing the GEF alternative will primarily include an improved ability to plan and coordinate across all coastal, marine and island activities. A national marine protected areas system, an ability to monitor, disseminate and incorporate biodiversity information into all sectoral planning and management activities, and a broad awareness of CMI biodiversity, will be achieved approximately five years earlier than they might otherwise and thus before significant adverse environmental impacts from CMI development arise.

Scope of the Analysis

8. The system boundary for this project is that defined by Eritrea's coastal, marine and island environments, and the national development activities taking place within them. While the GEF intervention focuses on globally significant biological diversity, the system includes all activities in the CMI environment including fisheries, tourism, oil development, shipping and navigation, port handling, and urban settlement. Since the Red Sea is a semi-enclosed water body there is also significant cross-border transmission of impacts. While a system boundary could be drawn to include the whole of the Red Sea, at this stage Eritrea wishes to develop its own capacity to address impacts within its own CMI environment while at the same time progressively building cooperation with the other Red Sea states and moving towards coordinated management for the whole of the Red Sea. Development of regional linkages to address migratory species issues, straddling stocks, navigation and oil hazard issues is thus included within this intervention.

Costs

Overall costs can be summarized as follows (US \$ millions):

	<u>Baseline</u>	<u>Alternative</u>	<u>Increment</u>	<u>GEF</u> <u>(3/97)</u>	<u>GEF</u> <u>(6/97)</u>	<u>GEF</u> <u>(10/98)</u>
Fisheries Development	35.72	35.72	0	0		
CMI Management Framework	1.69	3.08	1.39	1.19	1.12	1.12005
Conservation of Special Habitats and Species	0.20	2.14	1.94	1.66	1.77	1.36840
Coastal-Marine-Island Information System	3.85	5.78	1.93	1.66	1.69	2.09695
Awareness of Biodiversity Values	0.20	0.76	0.56	0.48	0.41	0.37830
	\$ 41.66	\$ 47.49	\$ 5.83	\$ 4.99	\$4.99	4.96370

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Incremental Cost Matrix

	Baseline	Alternative	Increment
Fisheries Development			
Global Environmental Benefit	Significant global environmental disbenefit in the form of reduced biodiversity throughout the CMI area as a consequence of overexploitation of the pelagic fisheries, including reduced populations of migratory species and marine mammals.	Reduced impacts on globally significant biodiversity as a result of effective coordination and regulation of CMI activities and appropriate policy and management changes in the fisheries sector.	
Domestic Benefit	Significant short term economic benefits from rehabilitation of fisheries infrastructure, training and equipping of artisanal fishers, and establishment of cooperatives, boat building, credit, and marketing systems.	Significant short term economic disbenefits in terms of additional costs of mitigation methods, environmentally friendly fishing gear, and regulated yields. Long term economic benefits resulting from sustainable fisheries and avoidance of costs of remedial environmental actions.	
Costs	35.72	35.72	0
Coastal, Marine & Island Management Framework			
Global Environmental Benefit	Adverse impacts on biodiversity as a consequence of rapid and lightly controlled developments in fisheries, coastal infrastructure (particularly tourism), and other sources of pollution.	Reduced impacts on globally significant biodiversity as a consequence of increased awareness and understanding of biodiversity importance and ecosystem function, and appropriate policy and management changes in the fisheries sector, in coastal zone development and management (including mangrove destruction), in pollution control (both land based and ship based), and in accidental or intentional alien species introductions.	
Domestic Benefit	Some improvement in the coordination of coastal, marine and island activities.	Earlier (estimated 5 years), and significantly enhanced, improvements in the management of the CMI area as a result of more rapid and more extensive increases in ability to undertake and coordinate planning and management on the part of all CMI stakeholders	

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Costs	1.69	3.08	1.39
Conservation Management of Habitats and Species			
Global Environmental Benefit	Probable short term (5 years) irreversible impacts on currently pristine sites and species of global biodiversity importance.	Three conservation management areas established and managed. Globally significant reefs, mangroves, seagrasses, migratory birds, marine mammals, turtles, etc. in Eritrea's domain are protected and sustainably managed. Staff and communities trained in management.	
Domestic Benefit		CMI protected area system established years earlier than anticipated and before irrevocable damage to certain areas and loss of some species.	
Costs	0.20	2.14	1.94
Coastal, Marine, Island Information System			
Global Environmental Benefit	Partial data set on Eritrea's CMI biodiversity generated. Information on abundance and distributions of some fish species available.	Full baseline data set on Eritrea's CMI biodiversity generated enabling appropriate conservation measures to be taken for important sites and species and providing a baseline against which changes in biodiversity status can be measured. Biodiversity concerns more fully addressed in other sectoral planning and management as a result of the wide availability of CMI biodiversity information.	
Domestic Benefit	Information available on fisheries resource (abundance and distributions). Limited information on coral reef areas that may be developed for tourism available.	More comprehensive information on CMI ecosystems enable better fisheries and infrastructure development planning and management.	
Costs	3.85	5.78	1.93
Biodiversity Awareness			
Global Environmental Benefit	Limited awareness of CMI biodiversity amongst few national stakeholders.	Broad awareness of CMI biodiversity and the need for, benefits of, and how to, sustainably use and manage it amongst all stakeholders, schoolchildren and the public.	
Domestic Benefit			
Costs	0.20	0.76	0.56

ANNEX IV

CONCLUSIONS OF SURVEY FINDINGS
AND
PROPOSED CONSERVATION MANAGEMENT AREAS

(extract from Eritrean Contribution to GEF Red Sea Strategic Action Programme)

Under the GEF financed PRIF a series of ecological studies and community interviews were conducted with a view to increasing knowledge on the resources and status of Eritrea's coastal-marine and island habitats. This has enabled the identification of three key coastal-marine-island sites for the initial installation of conservation management areas.

Geographical areas for conservation management of marine biodiversity:

Considering the entire Eritrean Red Sea area to include generally the area from the coast proper out to the mid way line between Eritrea and its neighbors on the opposites shores of the Red Sea, a number of major areas can be defined along the coast and amongst the islands at this stage from the information available:

1. **Northern coast:**
 - 1.1 Evident that the coastline **between Ras Kassar in the north and Massawa in the south** is mainly a flat, rapidly shelving, and simple land/sea interface, of limited opportunity for major biodiversity concentration.
 - 1.2 Exception to this is the area around **Mersa Ibrahim/Mersa Mubarak** with substantial mangrove, seagrass area, and some reefs.
2. **The Gulf of Zula and associated areas:**
 - 2.1 The Gulf itself has significance due to its continental islands, the Dissei/Madote undersea ridge, and being the threshold of the continental Rift Valley in Africa. Also major historical significance.
 - 2.2 The **Massawa area:** itself has significant reef undergoing rapid changes, the narrowest coastal plain, and the closest connection with the highlands that form the bulk of the country, and in particular support the bulk of the Eritrean human population.
 - 2.3 The **Buri Peninsula:** cannot be divorced from the Gulf, and has in addition significance in receiving and deflecting southern currents from the northern coast, and relatively significant land-based wildlife.
3. The **Howakil Bay:** and archipelago are a mix of continental and salt-diapir uplifted coral islands. These include considerable shallow areas between islands, of lower biodiversity, but on the islands includes the highest elevations above the sea, thus with the greatest altitudinal diversity on islands (up to 207 m ASL).
4. The **south-central coast:** reflects to some extent the northern, long sand-dune fringed coastline to the north, giving way to recent lavas reaching the sea in the south. Limited biodiversity, with rapid change from shallow to deep water just offshore.
 - 4.1 **Berasole Bay** and islands reportedly significant.
 - 4.2 **Aseb Bay** and islands - the major mangrove area of the coast. Sennahor island is volcanic and significant.
5. The **Hanish archipelago:** - offshore volcanic archipelago, completely different to any other area.
6. The **Dehalak Archipelago:** is significant in itself, however it should be noted that major

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biodiversity exists around its edges where there is rapid change from land to shallow water to deep water. The same cannot be said for the interior where there is a major giant island forming based on Dehalak Kebir and many surrounding islands, on a platform with waters mainly less than 2 m, and a larger area less than 5 m deep. Limited patch reefs, and mainly sandy bottom.

General comparisons of North and Southern Red Sea:

- in general there is a big difference in the ecology & natural condition;
- corals are by far more diverse in the north than in the southern localities visited;
- fringing reefs in the north form slopes which extend to about 18-25m but in the south in the areas surveyed the slope extends 5-9m and in many areas were patchy;
- fishes & sea grasses are by far more diverse in the south than in the north;
- the water in the south is more turbid;
- many islands & coasts in the south are continental & volcanic in their origin which gave them a good scenery above and under water.
- few islands have continental origin in the north.
- most of the islands throughout the Red Sea are significant for land-based breeding of turtles and marine birds, and a passage stop for Palaearctic terrestrial birds, as well as marine.

Considerations for potential conservation area development:

Given the above information, and the requirement for some tentative names for potential development as Marine Protected Areas of some category or another, the following are recommended. Coastal-marine-island conservation areas need to first meet the following criteria:

- high and demonstrable biodiversity value,
- widespread habitat/species representation,
- and be an area of diminished Biodiversity that could be rehabilitated.

The areas should also be pragmatic, i.e. accessible for management purposes, rather than very isolated and therefore merely a "paper preserve": reasonably close to a center of Ministry of Fisheries management, e.g. Massawa, Dehalak Kebir and/or Aseb. There should be considerable distance between the suggested areas, in order to spread the load and conservation value to as much of the Eritrean marine environment as possible, including:

- to the south,
- to the north (but no management centers to date),
- and to the central area

Given these criteria, and our present knowledge the following three areas are suggested as target sites for the GEF project proposal and other related activities:

1. *Dur Gaam and Dur Gella Islands:*

- close to Massawa (30 km, 1.25 hours by fast boat)
- often frequented by tourists, divers, snorkellers, fishermen
- known turtle nesting beaches
- representative land flora and fauna
- interesting diving and snorkeling locations close-to and between the islands
- uninhabited, therefore minimal conflict with human user rights

2. *Fatuma Island group:*

- close to Aseb
- the whole bay much used by fishermen, especially for turtle hunting, therefore could provide a reserve to buffer pressure against these species
- exposed on its northern edges to the open Red Sea and Bab-el-Mendab straits, this island is the first recipient of Gulf of Aden and Indian Ocean effects, thus a good monitoring point mangrove, Suaeda saltbush, and open areas on land
- evidence suggests it is an important nursery area for sharks, fish and other species; potential turtle nesting beaches exist
- seagrass and seaweed beds offshore

3. Museri Island group:

- close to Dehalak Kebir, but uninhabited, and of reasonable proximity to Massawa (90 km, ca. 2.5 hours by fast boat)
- terrestrial habitat includes mangroves (3 out of the 4 species potential for Eritrean coasts), Euphorbia thickets, Suaeda saltbush and others
- evident extensive coral gardens in the past, including amazing 2-3m Acropora tables, although currently dead
- extensive deepwater (9m) patch coral areas in good visibility
- scenic on land, with the backdrop of both the mainland to the south, and the giant island of Dehalak Kebir to the north
- very diverse fish and live coral around the other islands, indicate that additional live coral gardens exist in the area
- limited human use of the area
- significant nesting Crab Plover colony, one of 3 known in the area, and therefore the world since this species is endemic to the Red Sea and Arabian Gulf
- other significant bird breeding areas, including Pink-backed Pelicans, Terns, Brown Boobies, European (not African) Spoonbills, etc.

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ANNEX V - RELATIONSHIP OF OTHER CMI PROJECTS

Title	Amount	Donor	Executing Agency	Objectives & Activities	Relationship to GEF Project
Fishing Infrastructure	\$16.0	African Devt. Bank	MFISH	- construction of fisheries infrastructure; - support to artisanal fishermen; - road improvement and water supplies; - fishing gear on credit.	<p>Major part of root cause of the problem - rapid development of fisheries sector without concomitant development of broader marine environmental planning and management capacity based on ecosystem approach.</p> <p>Includes:</p> <ul style="list-style-type: none"> - port infrastructure - transport infrastructure - vessels and gear - fish handling and marketing - training - credit <p>While these projects incorporate environmental assessments and components to deal with issues such as pollution control (Semhar),</p> <p>impacts on water currents and the seabed (Port Infrastructure), and the use of environment friendly fishing gear (Zula Bay), there is no overall regulatory framework, set of standards, or mechanism for the coordination of these.</p>
Fishing Port/ Infrastructure - Assab	\$10.0	JICA	MFISH	- fishing port, ice plant, blast freezer, work shops, offices, etc. ; - credit for artisanal fishermen; - boats and fishing gear; - fish transport and marketing facilities.	
Semhar-Assab Fisheries Rehabilitation	\$7.8	UNCDF UNDP FAO	MFISH	- fisheries infrastructure and landing facilities; - fishing cooperatives and loans; - training for fishermen.	
Fisheries Stock Assessment	\$3.0	CFD-France	MFISH	- assessment of fisheries potential; - equipment and training for stock assessment.	
Training/Credit for Artisanal Fishermen	\$0.91	EEC IGAD	MFISH	- training and credit for artesian fishermen.	
Zula Bay Village Fisheries	\$0.56	OXFAM CIDA	MFISH	- provision of boats and gear; - training of women in fisheries related activities.	
Fishing Corporation Establishment	\$0.25	FAO	MFISH	- business management training; - assistance in privatization and marketing.	
Fishery Planning & Management	\$0.79	UNDP	MFISH	- capacity building in fisheries management	

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Title	Amount	Donor	Executing Agency	Objectives & Activities	Relationship to GEF Project
Marine Resources Data Management	\$0.65	ODA	MFISH	- training and technical assistance in marine resource assessment; - data collection and analysis.	- provides a foundation on which the GEF project builds. Project finishes January 98.
Marine Biology Education	\$1.0	Netherlands	MOE	- university level training in marine biology.	focuses on scientific training at university level. GEF project focuses on primary and secondary schooling, plus provides specific applied training to practitioners in MFISH.
Tourism Master Plan	\$0.7	UNDP WTO	MOT	- develop tourism master plan, including CMI area.	sector specific and needs linking to CMI environmental planning framework through GEF project.

**ANNEX VI
DETAILED BUDGET**

THIS NOW NEEDS REVISING FOR CONSISTENCY:

1. BUDGET LINES AND AMOUNTS

2. COMPONENT NUMBERS HAVE CHANGED

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ANNEX VI-3: OTHER PROGRAM COSTS

	OTHER PROGRAMME COSTS	Comp 1	Comp 2	Comp 3	Comp 4	
		Info System	Educ	Mgmt	CMA's	
	GOE - to increment					
	Total Increment					
	Baseline					
	ADB					16,000.00
	JICA					10,000.00
	UNDP-UNCDF					7,800.00
	France CFD					3,000.00
	EEC-IGADD					910.00
	OXFAM/CIDA					560.00
	FAO					250.00
	UNDP			790.00		
	ODA	650.00				
	Dutch		1,000.00			
	UNDP/WTO/MOT			700.00		
	Total Baseline					
	Total Baseline plus Increment					

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ANNEX VI - DETAILED BUDGET

ANNEX VI-1: DETAILED BUDGET BY COMPONENT

		DESCRIPTION	COMP	1	2	3	4		TOTALS
EXC	BL			Info Syst	Educ-Aware	Mngmt	CMA's	mm	(\$1,000)
	10.00	PROJECT PERSONNEL							
	11.50	International Consultant							
CAE	11.51	Chief Technical Advisor (CTA)	all	30.00	30.00	60.00	480.00	48	600.00
	11.99	Sub Total Internat. Consultant						48	600.00
	15.00	DUTY TRAVEL							
NEX	15.01	Duty Travel	CTA	12.50	12.50	12.50	12.50		50.00
	15.99	Sub Total Duty Travel							50.00
CAE	16.00	SUPERVISOR MISSION COSTS							
		Monitoring & Evaluation (UNDP-HQ)	all	21.25	21.25	21.25	21.25		85.00
	16.99	Sub-Total Mission Travel							85.00
	17.00	NATIONAL PERSONNEL							
	17.01	Project Manager	all	13.50	13.50	13.50	13.50	60	54
	17.02	Geographer	3	13.50	13.50	13.50	13.50	60	54
	17.03	Sociologist	1,4	13.50	13.50	13.50	13.50	60	54
	17.04	Conservation specialist	2	13.50	13.50	13.50	13.50	60	54
NEX	17.99	Sub Total National Personnel						240	216.00
	19.00	PERSONNEL TOTAL		117.75	117.75	147.75	567.75	311	951
	20.00	SUB CONTRACTS							
	21.00	WORKSHOPS/CONFERENCES							
	21.01	MEPC/Stakeholders	1			15.00			15.00
	21.02	Task force Workshops	1			10.00			10.00
	21.03	CMI Planning Workshops	1			15.00			15.00
	21.04	International Linkages	1			100.00			100.00
	21.05	CMI and formal education	4		10.00				10.00
	21.99	Work shop Contract Sub- Total							150.00
	22.00	Sector STUDIES and EIA							
	22.01	Rural/Urban Settlement	1			50.00			50.00
	22.02	Shipping and Navigation	1			50.00			50.00
	22.03	Oil Industry/Fishery	1			50.00			50.00
	22.04	Other CMI industries	1			50.00			50.00
	22.05	Tourism-Cultural Heritage	1			50.00			50.00
	22.06	EIA guidelines- implement	1			50.00			50.00
	22.99	EIA and Studies Sub-Total							300.00

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	23.00	CMI PLANS AND STRATEGIES						
	23.01	Development-Zoning Plan	1		50.00			50.00
	23.02	Biodiversity Financing Strat	1		15.00			15.00
	23.03	Conservation Area Plan	2			25.00		25.00
	23.04	Species-Habitat Networks	2			25.00		25.00
	23.05	Public Awareness Plan	4	20.00				20.00
	23.90	CMI Plans-Strategies Sub total						135.00
	24.00	CMI INFO/MONITORING						
	24.01	Air-land-sea surv.-monitor	3	200.00				200.00
	24.02	GIS/monitor	3	50.00				50.00
	24.03	Biodiv. profile/monitor	3	50.00				50.00
	24.90	CMI Info/monitorSub-Total						300.00
	25.00	COMMUNITY GROUPS						
	25.01	Community tech. monitor	3	100.00				100.00
	25.02	Community Awareness	4		75.00			75.00
	25.03	Conserva. Area Mgmt.	2			100.00		100.00
	25.04	Special Habitat and species	2			100.00		100.00
	25.05	Exotic Species Actions	2			20.00		20.00
	25.90	Community Group Sub-Total						395.00
NEX	29.00	SUB-CONTRACT TOTAL		400.00	105.00	505.00	270.00	1280.00
	30.00	TRAINING						
	32.00	TRAINING ABROAD						
	32.01	Project Mgmt. Study Tour.	1		7.00			7.00
	32.02	Comm. Mgmt. study tours	2			40.00		40.00
	32.03	Rural Appraisal Train	1		8.00			8.00
	32.04	Reference/ Curatorial	3	10.00				10.00
	32.05	CZM MSc Studies x 6	1-3	48.00	48.00	48.00		144.00
	32.06	CZM PhD Study x 3	1-3	44.00	44.00	44.00		132.00
	32.07	Environ. law	1		12.00			12.00
	32.08	Conservation Mgt. attach.	2			10.00		10.00
	32.09	Marketing,Communication	4		5.00			5.00
NEX	32.90	Training abroad Sub-Total						368.00
	33.00	IN COUNTRY TRAINING						
NEX	33.01	Community leadership course	2			5.00		5.00
NEX	33.02	Comm. technician course	2			14.00		14.00
NEX	33.03	GIS Design/Data Mgmt.	3	19.00				19.00
NEX	33.04	Surveys-Monitoring course	3	23.00				23.00
NEX	33.05	CZM planning course	1		8.00			8.00
NEX	33.06	EIA course	1		13.00			13.00
NEX	33.07	Conservation Mgt Area	2			13.00		13.00
CAE	33.08	Data Management trainer	3	75.00			5	75.00
CAE	33.09	Coastal-marine ecology trainer	1		90.00		6	90.00
CAE	33.10	Coastal Zone Manag. trainer	1		90.00		6	90.00

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CAE	33.11	Marine protect area trainer	2				90.00	6	90.00
	33.90	In-country Training Sub-Total						23	440.00
	39.00	TRAINING TOTAL		219.00	5.00	320.00	264.00	23	808.00
	40.00	EQUIPMENT							
	41.00	EXPENDIBLE EQUIPMENT							
	41.01	Base line data Equip.	3	7.00					7.00
	41.02	Water Quality	3	20.00					20.00
	41.03	Climate Data	3	20.00					20.00
	41.04	Reference Collection	3	4.00					4.00
	41.05	GIS Related	3	3.00					3.00
	41.06	Monitoring Related	3	5.00					5.00
	41.07	Protected area - species	2				17.00		17.00
	41.08	Public Awareness	4		24.00				24.00
	41.90	Sub-Total Expendable Equipment							100.00
	42.00	NON-EXPENDABLE EQUIPMENT							
	42.01	Base line data Equip.	3	185.00					185.00
	42.02	Water Quality	3	41.00					41.00
	42.03	Climate Data	3	73.00					73.00
	42.04	Reference Collection	3	30.00					30.00
	42.05	GIS Related	3	80.00					80.00
	42.06	Monitoring Related	3	74.00					74.00
	42.07	Protected area-species	2				170.00		170.00
	42.08	Public Awareness	4		41.00				41.00
	42.90	Sub-Total Non-Expendible							694.00
	43.00	PREMISES							
	43.01	Monitor/Comm. Centers x 5	3	400.00					400.00
	43.02	MPA Conser Centers x 3	2				337.50		337.50
	43.03	Project Core Office Upgrade	all	20	20	20	20		80.00
	43.90	Sub-Total Premises							817.50
NEX	49.00	EQUIPMENT TOTAL		812.00	85.00	20.00	507.00		1,424.00
	50.00	MISCELLANEOUS (all)							
	51.00	Operations and Maintenance	all	43.75	43.75	43.75	43.75		175.00
	52.00	Reports	all	3.75	3.75	3.75	3.75		15.00
	53.01	Administration-communication	all	12.50	12.50	12.50	12.50		50.00
	55.02	Sundries	all	22.00	22.00	22.00	22.00		88.00
NEX	59.00	MISCELLANEOUS TOTAL		82.00	82.00	82.00	82.00		328.00
	99.00	PROJECT TOTAL (GEF)		1630.75	394.75	1074.75	1690.75	334 mm	4791.00
		CAE Support Costs @ 8%		10.10	4.10	20.90	47.30		82.40
		NEX Support Costs @ 3%		45.53	10.20	24.40	33.30		112.83
	99.00	GRAND TOTAL (GEF plus CAE/NEX)		1685.98	409.05	1119.85	1771.35		4986.23

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ANNEX VI-2: DETAILED BUDGET BY YEAR

	DESCRIPTION	Com	YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5		TOTAL
			mm	\$	mm	\$	mm	\$	mm	\$	mm	\$	
10.00	PROJECT PERSONNEL												
11.50	International Consultant												
11.51	Chief Technical Advisor		12	150.00	12	150.00	12	150.00	6	75.00	6	75.00	600.00
11.99	Sub Total Internat.		12	150.00	12	150.00	12	150.00	6	75.00	6	75.00	600.00
15.00	DUTY TRAVEL												
15.01	Duty Travel			10.00		10.00		10.00		10.00		10.00	50.00
15.99	Sub Total Duty Travel			10.00		10.00		10.00		10.00		10.00	50.00
16.00	MISSION COSTS												
	Monitoring & Evaluation			10.00		35.00		5.00		5.00		30.00	85.00
16.99	Sub-Total Mission Travel			10.00		35.00		5.00		5.00		30.00	85.00
17.00	NATIONAL PERSONNEL												
17.01	Project Administrator	all	12	10.80	12	10.80	12	10.80	12	10.80	12	10.80	
17.02	Geographer	3	12	10.80	12	10.80	12	10.80	12	10.80	12	10.80	
17.03	Sociologist	1,4	12	10.80	12	10.80	12	10.80	12	10.80	12	10.80	
17.04	Conservation specialist	2	12	10.80	12	10.80	12	10.80	12	10.80	12	10.80	
17.99	Sub Total National		48	43.20	48	43.20	48	43.20	48	43.20	48	43.20	216.00
19.00	PERSONNEL TOTAL		60	213.20	60	238.20	60	208.20	54	133.20	54	158.2	951.00
20.00	SUB CONTRACTS												
21.00	WORKSHOPS/CONFEREN												
21.01	MEPC/Stakeholders	1		3.00		3.00		3.00		3.00		3.00	
21.02	Task force Workshops	1		2.00		2.00		2.00		2.00		2.00	
21.03	CMI Planning Workshops	1		3.00		3.00		3.00		3.00		3.00	
21.04	International Linkages	1		20.00		20.00		20.00		20.00		20.00	
21.05	CMI and formal education	4		2.00		2.00		2.00		2.00		2.00	
21.99	Work shop Contract Sub-			30.00		30.00		30.00		30.00		30.00	150.00
22.00	Sector STUDIES and EIA												
22.01	Rural/Urban Settlnent	1		16.60		16.60		16.60					
22.02	Shipping and Navigation	1		16.60		16.60		16.60					
22.03	Oil Industry/Fishery	1		16.60		16.60		16.60					
22.04	Other CMI industries	1		16.60		16.60		16.60					
22.05	Tourism-Cultural Heritage	1		16.60		16.60		16.60					
22.06	EIA guidelines- implement	1		16.60		16.60		16.60					
22.99	EIA and Studies Sub-Total			100.00		100.00		100.00					300.00
23.00	CMI PLANS AND												
23.01	Development-Zoning Plan	1		25.00		25.00							
23.02	Biodiversity Financing Strat	1				15.00							
23.03	Conservation Area Plan	2				25.00							
23.04	Species-Habitat Networks	2				25.00							

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23.05	Public Awareness Plan	4			20.00								
23.90	CMI Plans-Strategies Sub			25.00	110.00								135.00
24.00	CMI INFO/MONITORING												
24.01	Air-land-sea surv.-monitor	3		40.00	40.00		40.00		40.00		40.00		
24.02	GIS/monitor	3		10.00	10.00		10.00		10.00		10.00		
24.03	Biodiv. profile/monitor	3		10.00	10.00		10.00		10.00		10.00		
24.90	CMI Info/monitorSub-Total			60.00	60.00		60.00		60.00		60.00		300.00
25.00	COMMUNITY GROUPS												
25.01	Community tech. monitor	3		20.00	20.00		20.00		20.00		20.00		
25.02	Community Awareness	4		15.00	15.00		15.00		15.00		15.00		
25.03	Conserva. Area Mgmt.	2		20.00	20.00		20.00		20.00		20.00		
25.04	Special Habitat and species	2		20.00	20.00		20.00		20.00		20.00		
25.05	Exotic Species Actions	2			5.00		5.00		5.00		5.00		
25.90	Community Group Sub-			75.00	80.00		80.00		80.00		80.00		395.00
29.00	SUB-CONTRACT TOTAL			290.00	380.00		270.00		170.00		170.00		1280.00
30.00	TRAINING												
32.00	TRAINING ABROAD												
32.01	Project Mgmt. Study Tour.	1		7.00									
32.02	Comm. Mgmt. study tours	2			40.00								
32.03	Rural Appraisal Train	1		8.00									
32.04	Reference/ Curatorial	3		10.00									
32.05	MSc Studies x 6	1-3		24.00	48.00		24.00		24.00		24.00		
32.06	PhD Study x 3	1-3		22.00	22.00		22.00		22.00		44.00		
32.07	Environ. law	1			12.00								
32.08	Conservation Mgt. attach.	2					10.00						
32.09	Marketing,Communication	4		5.00									
32.90	Training abroad Sub-Total			76.00	122.00		56.00		46.00		68.00		368.00
33.00	IN COUNTRY TRAINING												
33.01	Community leadership	2			5.00								
33.02	Comm. technician course	2			14.00								
33.03	GIS Design/Data Mgmt.	3		19.00									
33.04	Surveys-Monitoring course	3		23.00									
33.05	CZM planning course	1		8.00									
33.06	EIA course	1		13.00									
33.07	Conservation Mgt Area	2			13.00								
33.08	Data Management trainer	3	1	15.00	2	30.00	2	30.00					
33.09	Coastal-marine ecology	1	1	15.00	2	30.00	2	30.00	1	15.00			
33.10	Coastal zone manag. trainer	1	2	30.00	2	30.00	1	15.00	1	15.00			
33.11	Marine protect area trainer	2	1	15.00	1	15.00	2	30.00	2	30.00			
33.90	In-country Training Sub-		5	138.00	7	137.00	7	105.00	4	60.00	0	0.00	440.00
39.00	TRAINING TOTAL		5	214.00	7	259.00	7	161.00	4	106.00	0	68.00	808.00
40.00	EQUIPMENT												
41.00	EXPENDIBLE EQUIPMENT												

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41.01	Base line data Equip.	3	7.00								
41.02	Water Quality	3	20.00								
41.03	Climate Data	3	20.00								
41.04	Reference Collection	3	2.00	1.00	1.00						
41.05	GIS Related	3		1.00	1.00		1.00				
41.06	Monitoring Related	3	1.00	1.00	1.00		1.00		1.00		
41.07	Protected area - species	2		5.00	5.00		7.00				
41.08	Public Awareness	4	5.00	7.00	7.00		5.00				
41.90	Sub-Total Expendible		55.00	15.00	15.00		14.00		1.00		100.00
42.00	NON-EXPENDIBLE										
42.01	Base line data Equip.	3	100.00	50.00		35.00					
42.02	Water Quality	3	41.00								
42.03	Climate Data	3	73.00								
42.04	Reference Collection	3	10.00	10.00		10.00					
42.05	GIS Related	3	50.00	30.00							
42.06	Monitoring Related	3	50.00	24.00							
42.07	Protected area-species	2				100.00		70.00			
42.08	Public Awareness	4	10.00	20.00		11.00					
42.90	Sub-Total Non-Expendible		334.00	134.00		156.00		70.00			694.00
43.00	PREMISES										
43.01	Monitor/Comm. Centers x 7	3	50.00	50.00		50.00		50.00		50.00	
43.02	Field /Conser Centers x 5	2	60.00	60.00		60.00		60.00		60.50	
43.03	Project Office Upgrade		80.00								
43.90	Sub-Total Premises		190.00	110.00		110.00		110.00		110.00	630.00
49.00	EQUIPMENT TOTAL		846.00	323.00		344.00		248.00		150.50	1911.50
50.00	MISCELLANEOUS (all)										
51.00	Operations and Maintenance		35.00	35.00		35.00		35.00		35.00	175
52.00	Reports		5.00			5.00				5.00	15
53.01	Administration-		10.00	10.00		10.00		10.00		10.00	50
55.02	Sundries		17.60	17.60		17.60		17.60		17.60	88
59.00	MISCELLANEOUS TOTAL		67.60	62.60		67.60		62.60		67.60	328
99.00	PROJECT TOTAL (GEF)		1364.00	1199.00		988.00		666.00		575.00	4791.00
	Support Costs @ 8%		18.00	21.00		23.00		11.00		9.00	82.00
	Support Costs @ 3%		33.00	27.00		22.00		16.00		14.00	113.00
99.00	GRAND TOTAL (GEF +		1415.00	1247.00		1033.00		693.00		598.00	4986.00

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ANNEX VII

INDICATIVE EQUIPMENT LIST

Item	Budget Line	Budget (\$100)	Output #
BASE LINE DATA			
<i>EXPENDIBLE</i>	41.01	7,000	3
Photographic Supplies			
Data Sheets			
Underwater Slates			
Polarizing Sunglasses			
Air craft Charts			
<i>NON-EXPENDIBLE</i>	42.01	185,000	3
Cameras			
Global Positioning System			
Double -cab 4WD Vehicles			
SSB Radios			
SCUBA Equipment			
WATER QUALITY ANALYSIS			3
<i>EXPENDIBLE</i>	41.02	20,000	3
Glass wares			
Plankton nets			
Miscellaneous chemical reagents			
Ropes			
<i>NON EXPENDIBLE</i>	42.02	41,000	3
Salinity- Conductivity- Temperature meters			
Bottom Sediment samplers			
Stereo Microscopes			
Compound Microscopes			
Inverted Microscopes			
Water Samplers			
Light Meter			
PH Meters			
Dissolved Oxygen Meters			
Spectrophotometer			
Hand-held salinity refractometer			
Flow meters for plankton nets			
Anchors			
Buoys			
Reverse Thermometers			
Deep freezers			
Ovens			
CLIMATE DATA EQUIPMENT			3
<i>EXPENDIBLE</i>	42.03	20,000	3
Tapes			
Stationery			
Video Tapes			
<i>NON EXPENDIBLE</i>	41.03	73,000	3
Tide gauge			
Flowmeter			
Hygrothermograph			
Wind Speed and direction indicator			
Recording Rain gauge			
Nutrient Analysis Kkts			
Underwater video camera, player, monitor			
Underwater Camera - simple			
Underwater camera - complex			
Pollution test kit			
Turbidity meter			
Laptop Computers			

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Duplicating Machine			
Tape Recorders			
High Capacity Photocopiers			
REFERENCE COLLECTION			
<i>EXPENDIBLE</i>	41.04	14,000	3
Books, manuals, journals			
Preservatives			
Specimen containers			
Labels			
Dissecting Kits			
Microfiche readers			
<i>NON-EXPENDIBLE</i>	42.04	30,000	3
Display Shelves			
Book shelves			
Computer, scanner			
GIS SYSTEM			
<i>EXPENDIBLE</i>	41.05	3,000	3
Soft Ware			
Acetate Sheets			
<i>Subtotal</i>			
<i>NON-EXPENDIBLE</i>	42.05	80,000	3
Computers			
Digitizer			
Colour Plotter			
Printer			
UPS			
Screen			
Work Stations			
Removable Hard Discs			
Storage Media			
Aerial Photographs			
Satellite Imagery			
Stereoscope			
10X Conical Magnifiers			
MONITORING PROGRAM			
<i>EXPENDIBLE</i>	41.06	5,000	3
First Aid Kits			
<i>NON-EXPENDIBLE</i>	42.06	74,000	3
House hold and office Furniture			
Fresh water reservoirs			
Solar panel system, lighting, power			
SSB Radios			
Fuel pumps			
Water pumps			
Boat, with engine			
PROTECTED AREA and SPECIES MANAGEMENT			
<i>EXPENDIBLE</i>	41.07	17,000	2
First aid kits			
Wild-life protection equipment			
<i>NON EXPENDIBLE)</i>	42.07	170,000	2
House hold and office Furniture			
Fresh water reservoirs			
Solar panel system			
Inflatable Boat, and engine			
Binoculars			
Work shop equipment			
SSB radios			
Motor bikes			
Vehicles			
PUBLIC AWARENESS			
<i>EXPENDIBLE</i>	41.08	24,000	4
Flip charts, stand			

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Video tapes			
Sign materials			
Brochure holders			
<i>NON EXPENDIBLE</i>	42.08	41,000	4
High volume photocopier			
Desk top Computers			
Color Printers			
Color photocopiers			
Voltage regulators			
Slide projectors			
Overhead projectors			
Generators			
Video player, camera, screen			
Display Frames			
Display cases			
Display boards			
Underwater viewing ports			
PREMISES			
Small-scale Field Monitoring/Community Centers	43.01	250,000	3
Marine Protected Area Conservation Centers	43.02	300,000	2
Project Office Upgrade	43.03	80,000	all

ANNEX VIII

TERMS OF REFERENCE

(Includes Project Core Team, Training and Sub-contracts)

A. PROJECT CORE TEAM

Project staff will be the focal points for implementing the day to day aspects of the project. These are indicative terms of reference (TORs) to recruit an international Chief Technical Advisor (CTA) and National Personnel in key disciplines required by the project. It is anticipated that the CTA will serve full time for the duration of the first year with the possibility of extension if so decided at the end of the first year. The National Project Manager is thereby expected to take on increased responsibility. The other National core team specialists are costed as full time for the duration of the project. More detailed TORs may be developed during the initial phase of the project during the recruitment process if needed.

1. Chief Technical Advisor

This should be a person with extensive on-the-ground CMI project management experience and with a graduate degree(s) in a discipline related to coastal zone management and/or tropical coastal-marine ecology; preferably in the Red Sea region. This is anticipated to be an international recruitment, with the CTA working full time for the duration of the first year of the project with the possibility of extension if so decided at the end of the first year. A primary goal will be to ensure the National Project Manager is gradually capable to run the project. The CTA will have sufficient experience to carry out the following areas of responsibility:

- *General project management:*

Coordinate all project staff, consultants, subcontractors and activities, including planning, implementation, procurement, monitoring, evaluation and reporting.

- *Lead responsibility for the overall CMI Framework Objective:*

In cooperation with GOE, the project Geographer, Sociologist and Conservation Specialist serve as lead focal point on the accomplishment of following outputs and training related to these outputs:

- Work with the planning team for implementation on interagency and community coordination in CMI planning and management;
- Preparation of sectoral studies and development impacts;
- Development of CMI-EIA guidelines;
- Preparation and adoption of a CMI Development and Zoning Plan;
- Incorporation of the CMI Development Plan in sector policies, plans and legislation;
- Development of a strategy for CMI financing mechanisms; and
- Facilitation of regional and international linkages, e.g. the Red Sea Strategic Action Programme, global coral-reef conservation initiatives, and international conventions.

- *Oversight and guidance on training activities:* This will include ensuring linkages of training between components, guidance on TORs for all training, and preparation and management for specific training courses and training advisors related to Component I.

2. National Project Manager (NPM)

This should be an Eritrean national, who has leadership qualities and strong management and scientific background. They should have extensive experience in managing development projects with an emphasis on natural resources management and preferably coastal zone or marine areas. They will preferably have had graduate level training related to natural resources management. The NPM will be familiar with government policy at the national, regional and local level and have extensive experience in working with community groups. The NPM will work closely with the CTA on overall project management, and achievement of project components. After the first year of the project, the NPM will be expected to have gradually taken on the lead responsibility for the project in coordination with part-time assistance from the CTA on approval of extension of the contract by Government.

- *General project management:* Assist the CTA to facilitate and coordinate all project staff, consultants, training, subcontractors and activities, including planning, training, implementation, monitoring, evaluation and reporting, as well as procurement.
- *Assist with the coordination and workshops and subcontracts related to participatory involvement by government and community groups:* Liaise regularly with the planning team for implementation and community leaders in the implementation of the subcontracts and workshops throughout the project.
- *Assist with training, especially the in-country activities.* Also participate in the *project management study tour.*
- *Provide guidance and direction on overall procurement for the project.*

3. Geography Specialist

This should be an Eritrean national trained in Geography or a related discipline at the undergraduate level and preferably graduate level, and experience with geographical information systems (GIS), monitoring and data management, including applications of geographic principles and techniques to on-the-ground, coastal-marine context. Preferably they will have experience working with government and community based projects.

- *Lead responsibility for Objective 3: Building a Coastal, Marine and Island Information System:* In cooperation with GOE, community groups, the CTA, the NPA, the Sociologist and Conservation Specialist serve as lead focal point on the accomplishment of following and training related to these outputs, including:
 - completion of baseline data surveys;
 - establishment of a reference collection;
 - completion and establishment of GIS;
 - information synthesis into biodiversity profiles;
 - establishment of an ongoing monitoring program; and
 - dissemination and application of CMI information.
- *Oversight guidance for training related to Component 3,* and close coordination with the trainers, in particular the Data Management and the Conservation area trainers.

4. Sociologist:

This should be an Eritrean national, who will be the lead person for working with the communities and providing links between the communities and MFish teams. They should have undergraduate, or preferably graduate, training in the social sciences with regard to natural resource management, extensive experience in working with community groups, applying social information into environmental contexts, preferably in coastal-marine setting, and be familiar with participatory rural appraisal techniques and applications.

- *Oversight guidance for Component 4: Awareness of Biodiversity Values:* In cooperation with GOE, community groups, the CTA, the NPA, the Geographer and the Conservation Specialist serve as lead focal point on the accomplishment of following outputs and training related to these outputs: including:

- preparation of a CMI Awareness Plan;
- cultural roles in establishing the conservation areas and community activities;
- preparation and dissemination of interpretive materials;
- integration of CMI issues into formal education systems.

- *Oversight guidance for training related to Component 4,* and close coordination with the trainers, in particular the ICZM and the conservation area trainers.

- *Integration of cultural perspectives and values* into all of the project components, with particular emphasis on the development of the Coastal Zone Management Plan and the establishment of the conservation areas.

- Serve as key project liaison with *community leaders*.

5. Conservation Management specialist:

This should be an Eritrean national trained in coastal-marine resources management or a related discipline at the undergraduate level and preferably graduate level. They should have experience with design and establishment of coastal-marine protected areas, as well as ecological considerations for migratory and exotic species. Preferably they will also have experience working with government and community based projects.

- *Lead responsibility for Objective 2:* In cooperation with GOE, community groups, the CTA, the NPA, the Sociologist and Conservation Specialist serve as lead focal point on the accomplishment of following outputs and training related to these outputs:

- development of a CMI Conservation Area System Plan;
- establishment of three community-based conservation management areas;
- development of a migratory species conservation network and activities; and
- development of activities to address exotic species.

- *Oversight and guidance selected training activities:* This will include ensuring linkages of training between components, guidance on TORs for all training, and preparation and management for specific training courses and advisors related to Component II. He/she will work closely with the trainer-advisor for marine conservation areas, and the coastal-marine ecology trainer.

B. TRAINING

Training is achieved through three streams in the project. These include:

a) Overall, day-to-day development and transfer of skills will be conducted by project staff and key staff from involved agencies, as described in the previous section.

b) “Trainers” who serve as short-term advisors to work in Eritrea at targeted intervals, can provide overall guidance and cohesion to training throughout the project and assist the CTA and project staff in integrated capacity building. These “trainers” will also ensure that all of the training throughout the project is well integrated within and between all components as appropriate, and reaches out to targeted beneficiaries.

c) Course-specific specialists will work both in-country and abroad on particular courses. The “trainer-advisors” above will also help to coordinate and arrange these courses in their respective disciplines.

This section describes indicative TORs for the advisory “trainers” as well as succinct descriptions of specific courses, to be taught by additional specialists if needed. The courses will be detailed as appropriate during the initial phases of project.

Funds in the budget for the trainer advisors include fees, travel and DSA. This will be mostly for missions to work in country, with some time at their home to prepare training materials, help facilitate arrangements for the specific courses, and conduct follow-up as appropriate. The funding allocated for each specific course (see budget) under the oversight of each trainer, include costs of travel for participants and/or the course leader, as well as course leaders fees and materials as appropriate.

The following chart summarizes indicative time frames for the trainers as well as counterpart linkages.

Trainer Specialty	Year 1	Year 2	Year 3	Year 4	Year 5	Comp.	National Counterparts
ICZM	2 mm	2 mm	1 mm	1 mm	0	1, 4	Proj. Manager, Sociol.
MPAs	1 mm	1 mm	2 mm	2 mm	0	2	Conservation Area Spc
C-M Ecology	1 mm	2 mm	2 mm	1 mm	0	2,3	Geography, Consv. Area
Data Mgmt.	1 mm	2 mm	2 mm	0	0	3	Geography Spc.

1. ICZM Trainer-Advisor

- *Counterpart support* to the National Project Manager and the Sociologist;
- Assist with selected *activities in Component I*, especially the development of the CZM Plan, guidance on the sector studies and integration into the plan, links with other components, and regional linkages.
- *Oversight and guidance on working with the project participants on developing the following courses.* Help identify instructors, and to ensure that training related to Coastal Zone Management and planning, both in-country and abroad is well coordinated, providing the necessary level of skills and interconnected with the other component activities including those related to CMI conservation of

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habitats and species, information management and monitoring and awareness of biodiversity values.

- Project Management Study Tour (32.01)

Short study tour, e.g. 2 weeks, for 2 persons ex-situ. Associated with the above, the candidates shall on return to Eritrea run a short course in project leadership and management for project staff, and related appropriate people from institutions that may participate in the planning team for implementation.

- Coastal Zone Planning and Management (33.05)

A short, in situ short course, 1.5 weeks to familiarize government staff and community members on the basic principles of CZM; to be conducted in both Assab and Massawa.

- Environmental Law, Conflict Resolution (32.07)

Ex-situ, 4 week short course to learn skills on environmental law and conflict resolution , including skills in mitigation and facilitation among different stakeholders, including government, private and community groups.

- Environmental Impact Assessment (33.05)

In-situ, 2 week short course with field work, with staff from Mfish and planning team institutions to target EIA methodologies and develop guidelines for the coastal-marine context.

- Participatory Rural Appraisal and Socio-Economic Survey Techniques (32.03):

Short training course, including Workshop management, 1 week in-situ, for all relevant project and related staff.

- Marketing and Production of Interpretative Materials (32.09):

Strategic Approach To Development, Outreach, Communication; ex-situ, 1 month medium term course.

- MSc. University-level degree (CZM) (32.05):

Support 2 MSc scholarships in the field Coastal Zone Management or related.

- Ph.D. University-level degree (CZM) (32.06):

Support 1 Ph.D scholarship in the field Coastal Zone Management or related.

2) Marine Parks Trainer-Advisor

- *Counterpart to the National Conservation Specialist* on conservation areas and critical needs for habitats and species;

- Assist with all *activities in Component II*, targeting conservation areas and migratory species issues, as well as contributing to developing CMI Information System Development and ICZM, and contribute to the Conservation Area System Plan, and Species networks.

- *Oversight and guidance on working with the project participants on developing the following courses.* Help identify instructors, and to ensure that training related to conservation area and species activities, both in-country and abroad is well coordinated, providing the necessary level of skills and interconnected with the other component activities including those related to CMI conservation of habitats and species, information management and monitoring and awareness of biodiversity values.

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- Marine Protected Area Personnel Training - Management Attachment (32.08):
Attachment to a coastal-marine national parks, in a context that is relatable to Eritrea, to gain protected area planning and management skills, conservation, community skills) ex-situ, e.g. 1 person for 3 months.
- Marine Protected Area Personnel - Rangers/guides (33.07)
Training in field survival, boats/navigation, interpretation, patrol work, field craft, species recognition, simple monitoring and reporting, radio operation, materials collection, etc. in-situ, 2 weeks, for e.g. ten persons.
- Study Tours to Community-Based Marine Management Locations (32.02):
Senior community members visit similar conservation area situations to experience community management/participation in marine environment management; ex-situ, e.g. 2 weeks.
- Community Leadership Course (33.01):
To be conducted by the community members who attended the study tours to provide transfer of experience to other in-country community groups, in-situ, e.g. 1 week.
- MSc. University-level degree (Marine Protected Areas) (32.05):
Support for up to 1 MSc scholarship in the field of Marine Protected Areas or related.
- Ph.D. University-level degree (Marine Protected Areas) (32.06):
Support for 1 Ph.D scholarship in the field of Marine Protected Areas or related.

3) Coastal Marine Ecology Trainer

- *Counterpart to the National Geography Specialist and Conservation Specialist* on critical needs for habitats and species.
- Assist with selected *activities in Components I, II and III*, targeting conservation areas and migratory species issues, as well as contributing to developing CMI Information System Development and ICZM, and the Conservation Area Plan and species networks, and the establishment of the conservation areas and monitoring programs.
- *Oversight and guidance on working with the project participants on developing the following courses.* Help identify instructors, and to ensure that training related to conservation area and species activities, both in-country and abroad, is well coordinated, provides the necessary level of skills and is interconnected with the other component activities including those related to CMI conservation of habitats and species, information management and monitoring and awareness of biodiversity values.
- Design and Implementation of Surveys and Monitoring Programs (33.04):
Targeted especially at Marine, Coastal and Island Habitats and Megafauna Surveys, reefs, seagrasses, mangroves) 5 week in-situ, short course with field exercises.
- Community Technician Environmental training (33.02):
Special training relevant to habitat/species, recognition, specific biology and requirements, mangroves, seagrass, reefs, corals, turtles, birds, Cetaceans, management methods; 2 weeks in-situ, short course.

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- MSc. University-level degree (Marine Ecology) (32.05):
Support for up to 1 MSc scholarship in the field of Marine Ecology or related.

4) Data Management Trainer

- Serve as a *Counterpart with the Geography Specialist*;
- Assist with all *activities in Component III*, targeting baseline data, GIS systems, biodiversity profiles, monitoring program and assurance that CMI information is available and used.
- *Oversight and Guidance on the following courses:* Help to ensure that training related to Data Management, both in-country and abroad is well coordinated, providing the necessary level of skills and interconnected with the other component activities including those related to CMI planning, conservation of habitats and species, and awareness of biodiversity values.
 - GIS design, application and data management (33.03):
Expansion of existing GIS system and training, including remote image analysis and interpretation techniques for satellite and air photos; in-situ, for 5 weeks
 - Communications, Library and Curatorial Training Course (32.04):
Design and production of public awareness/educational materials for interpretative products and exhibits, library management, reference collection curation and display) ex-situ short course, 4 weeks, e.g. Nairobi Kenya National Museums.
 - MSc. University-level degree (Information Management) (32.05):
Support for up to 2 MSc. scholarships in the field of Coastal-Marine Information Management and Monitoring or related.
 - Ph.D. University-level degree (Information Management) (32.06):
Support for 1 Ph.D scholarship in the field of Coastal-Marine Information Management and Monitoring or related.

C. SUBCONTRACTS

Throughout the course of the project there are multiple activities conducted through different mechanisms that have funding and management requirements. These include, workshops, studies, plans and specific activities to be lead by task force teams and community groups. Each of the subcontracts will be coordinated by respective partners as indicated in the subsequent sections.

1. WORKSHOPS and CONFERENCES

During the project there are a large number of workshops and conferences to facilitate the participatory character of the project and the many partners and beneficiaries. Therefore, funds for holding workshops and conferences have been allocated as indicated in the detailed budget. These meetings will be facilitated by different groups as indicated. Specific details on these workshops and conferences will be developed during the life of the project.

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- Planning team/ Stakeholder Workshops (21.01, Component I):

The planning team for implementation will hold workshops during the course of the project for them to meet and provide guidance, reflecting the views of different stakeholders and serve as the Advisory Group for the Project.

- Task Force Team Workshops (21.02, Component I):

These will be targeted workshops for the task forces to work together on specific issues sector-based issues and integration of the sector studies, or other thematic issues as they arise. These will be lead by the planning team for purposes of implementation.

- CMI Development Plan and Process Workshops (21.03, Component I):

This is for a series of participatory workshops through the development of the CMI Zoning plan and process to ensure involvement by government, community members and private sector as needed. This will be lead by the planning team for implemetation.

- Red Sea and International Linkages (21.04, Component I):

In order to participate with other Red Sea and international partners in collective conservation of migratory and other transboundary issues as they arise, funds are allocated for ongoing capacity to contribute to the evolving GEF "Red Sea Action Programme" as well as attend other international events. Included in this cost are funds for Eritrea to host a workshop/conference in Eritrea on regional biodiversity and conservation management with partners from other places with similar habitats and challenges. Funds from this could also facilitate partnership in international monitoring networks, e.g. the Global Coral Reef Monitoring Network and the International Coral Reef Initiative. This will be lead by Mfish in close coordination with the DOE.

- Formal Education Workshops: (24.04, Component 4):

In addition to the projects strong role in community education, funds are also allocated for the Mfish to work with education authorities in the preparation of coastal-marine-island related activities in conjunction with the Biodiversity Awareness Component.

2. SECTOR STUDIES AND EIA GUIDELINES.

These will be led by task force teams with co-ordination and guidance from the planning team for implementation and the DOE. These will be objective analysis of critical sector issues occurring in the coastal-marine-island system boundary of Eritrea. These will form a major part of the information gathering required for the CZM Plan, as well as contribute to other strategic plans. These studies are also to ensure that CMI conservation activities are integrated with development perspectives. EIA guidelines will be developed for the CMI context to contribute to the ongoing EIA under way through the DOE. Funds are also provided to include consultants if needed for further training, guidance, preparation and local costs, and production. The scope of the studies as outlined below reflect priorities developed in project preparation as well as during the process of review for the Eritrean Contribution to the Red Sea Strategic Action Program (RSSAP). Further specification of scope and details of these sub-contracts will be developed as appropriate during the project implementation process.

- Rural and Urban Settlement (22.01, Comp. 1):

This study will focus on the range of settlement issues, both in rural and urban settings that

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have an impact now or in the near future in the coast. This will include housing, master planning, e.g. airports, etc. with regard to demographics, settlement patterns as they may affect the use of CMI resources and ecosystems. It could also include issues of groundwater, water planning, etc.

- Shipping and Navigation (22.02, Comp. 1):

Throughout the Red Sea shipping and navigation are key issues at national, local and international levels. Issues include port management, navigation risks, oil spills, waste, etc. This study in combination with the one on oil industry will look at how this sector influences the CMI context.

- Oil Industry (22.03, Comp.):

While closely related to the above study, this one will focus on sea-based pollution and petroleum, including siting and location considerations, as well as impacts of solid and liquid waste, ballast and bilge waters and oil leakage from exploration, processing, transfers and storage at sea.

- Other CMI Industries/Fisheries (22.04., Comp.):

This is to look at other industries that have an influence in the coast, e.g. fisheries. While much of the project focuses on linkages between fishery exploitation and conservation, this study will facilitate a direct review, especially with regard to impacts of different types of fisheries, e.g. shark fishing, reef fish, marine megafauna, mariculture, and studies of demersal and pelagics. This will also look at the linkages of fisheries with the other sectors identified.

- Tourism (22.05, Comp. 1)

This study will focus on the role that tourism plays in the CMI context, both nearshore and on the islands. This will address demographic and settlement issues, as well as recreational opportunities and impacts of tourism on coral reef environments through managed diving. It will also look at issues related to the international trade for marine curios and the aquarium trade often linked to tourism, as well as fisheries. This study will also address guidelines needed for sound tourism construction, e.g. dredging, filling, etc.

- EIA Guidelines and Implementation (22.06, Comp.)

This study provides an opportunity to build on the work in place by the DOE in drafting policy and broad environmental guidelines. This will focus on issues relevant to coastal, marine and island contexts and the impacts from the sector-based activities identified above. This will also provide a mechanism for looking at how these sectoral activities are linked in terms of shared impacts. These studies will pave the way for legislation to implement the guidelines.

3. PLANS and STRATEGIES SUB-CONTRACTS:

Throughout the course of the project, several strategic plans and strategies will be prepared. These will serve as blue-prints for key objectives of the project, e.g. biodiversity conservation and integration into the Eritrean development context, especially fisheries and tourism. These studies will be largely coordinated by MFish, in close cooperation with the DOE, but will require considerable input from all GOE partners and community groups. The trainer-advisors detailed above will also contribute to these studies. Funds are allocated for all preparatory requirements, including meetings, materials as well as

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contracting of specialists as needed. Specific details of these sub-contracts will be developed as appropriate during the project implementation process.

- CMI Development and Zoning Plan (23.01, Comp. 1):

This will be a key product of the project, and serve as a blueprint guide for looking at linkages between the different uses of the coastal, marine, island realm in connection with the ecosystems that provide the resource base. This plan will be based on many of the other activities in the project, e.g. the baseline studies, the sector studies, the EIA guidelines, the conservation area system plan. It will provide a framework for the overall planning aspects of the project. It will be lead by the MFish in close cooperation with other members which the planning team for implementation may call upon.

- Biodiversity Financing Strategy (23.02, Comp. 1):

This strategy is to investigate different ways of financing biodiversity, e.g. through conservation area fees and permits, tourism and pollution taxes earmarked for conservation, trust funds, etc.

- CMI Conservation Management Area System Plan (23.03, Comp. 2):

While a key output of the project is to establish three operational conservation areas, this system plan will look at conservation sites for the whole system boundary of Eritrea's coastal, marine and island areas, from an integrated and longer-term perspective. It will also provide an opportunity to look at conservation areas that are linked to other areas in the Red Sea, as well as links with migratory species outside of the established conservation areas. This study will also incorporate findings from the ongoing GEF Biodiversity Strategy being conducted by the DOE.

- CMI Species and Habitat Plans (23.04, Comp. 2)

This study will address the needs of conservation relevant to particular groups of species, e.g. endemic, rare, migratory and exotic species. It will form the basic overview of issues related to species, and outline approaches for networks related to particular species, as well as indications of specific actions the project should support. It will also provide a window to work with other Red Sea and global partners on species management issues beyond Eritrea's shores.

- CMI Public Awareness Plan (23.05, Comp. 4)

This plan is to look at the overall marketing and public education needs and audience for Eritrea, with regard to different delivery mechanisms, e.g. events, workshops, radio, TV, print media etc. This will also address different audiences, e.g. community groups, tourists, government, private sector etc. From this a specific plan of action for the project to support related to public awareness will be prepared.

4. COMMUNITY GROUP SUB-CONTRACTS

A considerable level of effort in the project will be directed toward the involvement of community groups in all phases of the project, especially monitoring, management and establishment of conservation areas and particular species. In addition to training, specific "sub-contract" funds are allocated for these purposes to provide assistance needed to the community groups and to facilitate them having a high degree of ownership and control over the use of these funds in coordination with GoE activities. These funds will cover several communities in different areas of Eritrea, including coastal and island people. Specific details of these sub-contracts will be developed as appropriate

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during the project implementation process.

- Community Technician Monitoring Activities (25.01, Comp. 3):

Throughout the project there are many opportunity for community members to be involved. One key role is to be involved in selected monitoring activities in different areas of the coast, and for different species groups. The project supports 5 centers for monitoring which will also be community focus areas. This sub-contract is to make funds available to community members as needed during the life of the project.

- Community Awareness (25.02, Comp. 4)

There are many ways that communities can be involved, e.g. as naturalists or community technicians as above, or in more village based events to raise the awareness of CMI environmental issues. This subcontract fund will be used for different community groups as needed for public awareness, e.g. beach clean ups, special education activities, field trips etc.

- Conservation Area Management (25.03, Comp. 2);

A key output of the project is the establishment of three-community based conservation areas, most likely with one site in each of the following areas: Dur Gaam and Dur Gella Islands, the Fatuma Group and the Museri Island group. This subcontract facilitates funds to carry out much of the day to day activities needed in establishing these conservation areas. This will be lead by the MFish as well as community groups.

- Special Habitat and Species (25.04, Comp. 2); and

As mentioned above in the section on Plans and Strategies, one will be prepared to address migratory species issues. This subcontract facilitates funds to carry out much of the day to day activities needed in establishing specific programs of action related to species management. This will be lead by the MFish as well as community groups.

- Exotic Species Management (25.05, Comp. 2).

As mentioned above in the section on Plans and Strategies, one will be prepared to address exotic species issues, e.g. introductions from ship and land-based sources, with particular attention to island ecosystems. This subcontract facilitates funds to carry out much of the day to day activities needed in establishing specific programs of action related to species management. These will include assessments, monitoring, response plans, port-side requirements and public awareness. This will be lead by the MFish as well as community groups.

ANNEX IX

Letter from Eritrea GEF Operational Focal Point

ANNEX X

MAP

ANNEX XI

GEF STAP TECHNICAL REVIEW

*CONSERVATION MANAGEMENT OF ERITREA'S
COASTAL, MARINE AND ISLAND BIODIVERSITY*

Reviewer: Clive R. Wilkinson, 26th January 1997

1. RELEVANCE AND PRIORITY

This Project has already been well researched and reviewed, and has been notified as a GEF funding priority. Funding was not allocated earlier - which appears to have been fortunate as the current proposal is more focused and precise; moreover, there has been more time to develop infrastructure in Eritrea from an almost non-existent base.

Thus, it is recommended to proceed with this project.

Several issues emphasize the urgency of proceeding to protect the marine, coastal and island biodiversity and, more importantly, the habitats. It is noted that there is particularly strong emphasis on developing oil exploration, fishing and tourism in these areas and current aid funding has made fishing a top priority. The people of Eritrea need development, but it should not be at the expense of future sustainability.

There is about \$35.6 million being allocated or planned to enhance fishing in Eritrea; this is approximately 7 times greater than the money being allocated for management and conservation of the same areas. Thus, there is an urgent need to monitor the impacts of the new fishing, tourism and oil exploration activities and determine whether these are having unsustainable long-term impacts on the Eritrean coastal resources

2. BACKGROUND AND JUSTIFICATION

Description and Status of Biodiversity:

There are few data on the biodiversity of Eritrea, but what little is known does point to both rich and important diversity of animals and plants. Along the coast, are rich tropical coral reefs, mangroves and seagrass beds, as well as some other high saline and high turbidity environments. These contain many endemic species that warrant conservation, including a few of the large megafauna categories: dugong, turtles, dolphin, shark and seabirds. Of these, probably the dugong and turtles are at greatest risk, due to local or external exploitation. An inevitable expansion of shark fishing will put greater pressures on both dugong and turtles. The islands are obviously valuable stopover sites for local and migrating seabirds.

Three factors emphasize the importance of proceeding with this project:

- the relatively poor documentation of the resources;
- the presumed (and partially documented) high biodiversity of the region; and
- the relatively pristine state of these resources now.

Population and Economics:

The population density in the region is currently low, due to past wars and the poor nature of the soils and rainfall on the coastal plain. As economic development increases, the dependence on poor soils in low rainfall areas will be replaced by income from developments exploiting the sea - fishing, tourism, and oil and mineral exploration. These are all imminent and all indicate an urgent need to put in place management of the resources.

Existing Plans and Policies:

It is apparent from the document prepared by the Government of Eritrea, that there is considerable awareness of the need for coastal management to avoid the damage that has occurred elsewhere to resources e.g. reefs and mangroves.

The Government has prepared a detailed plan for resource conservation, with the development of a governmental structure of departments and committees, backed up by planned legislation, to ensure marine resource conservation. These plans will require both intellectual and financial support, and much of that is being envisaged within this project. The plans of the government maybe a little too all-encompassing - including consideration of ex situ conservation of endangered species. If this project is successful in implementing the development of a coastal protection and management plan with a committed populace, then the need for activities, like ex situ conservation, are avoided.

A critical point in the process is the formation of the Marine Environment Protection Committee. If this has the support of government and is widely representative, then it will be a most powerful tool in the project. Likewise, the designated lead agency, Ministry of Fisheries, needs government support. It will derive considerable support and kudos from this project. These are two areas that should be monitored closely and possibly given further support. They should be closely looked at during project review.

Lead agencies and stakeholder committees that do not have government support from the top, and through all levels of the political and bureaucratic structure, can be undermined and rendered ineffective by more powerful ministries e.g. mining, agriculture and fisheries.

May I suggest that members of both groups be given exposure to agencies and committees that are effective (and ineffective) to learn their lessons. Those on the Great Barrier Reef are probably best known, but are remote in distance and social context. Closer examples in Egypt, Kenya, Seychelles, Tanzania, and maybe the ASEAN countries, could be more applicable.

The Government may be taking a bet each way, with the policies of conserving the coastal resources by establishing these bodies and this GEF project, and through putting emphasis on the large inputs of funds into fishing, tourism and oil exploration. Both streams will tend to go in conflicting directions, therefore a careful balance is needed of development and caution (conservation). This balance can only be achieved, at this stage, through this project and the other conservation activities indicated (e.g. ODA/MFISH, OXFAM/CIDA, UNDP/WTO/MOT).

3. OBJECTIVES

The Objectives stated are clear and most appear achievable.

The major focus is on capacity building within Eritrea; in the Government, education sectors and in communities. These are essential. In addition, there is a strong emphasis on developing the infrastructure to form marine protected areas and set up the necessary management.

There is a strong emphasis on education about biodiversity, and there should be a similar emphasis on the need to appreciate and manage whole areas of the coastal resources, not just the species within the areas. Therefore, there should be parallel emphasis on developing an appreciation for coral reefs, mangrove forests or seagrass beds, and mechanisms of managing large areas. Large area management is inherent in the Government goals of establishing the whole coastline as a 'Marine Protected Area', with specific conservation zones within. If this can be achieved, it will be a first for the developing world and would be a powerful example for other countries.

4. ACTIVITIES

There is a strong focus on education across all levels, including producing relevant PhDs, the building up of the Government Departments and Committees, and developing an awareness amongst the local communities. The project recognizes the need to involve the Baitos and put emphasis on management at the community level.

This last area (building up Baitos capacity) should be given strong support within the project, and this appears to be well covered within the plans. This is a point for review.

A possible suggestion (if it has not already been considered) is adding emphasis on water participation e.g. teaching the local people to swim, snorkel and scuba dive. In this way, there will be an increased awareness amongst the local population, and it is probable that some of them will gain extra employment as park guides and rangers, and scuba diving instructors.

The other important activity is to build up the confidence of the inter-agency and stakeholder committee (MEPC). A lack of education in some members may result in them feeling disenfranchised. Therefore, all proceedings should be conducted in a basic, jargon-free language and special attention should be made to make all concepts clear to participants. Government Departments should be encouraged to consider all decisions and recommendations made by these committees seriously, and if not acceded to, care should be taken to explain reasons for digressions.

5. CRITICAL ANALYSIS

I have no real critical comments. The Project has been carefully put together, considering the abilities and conditions in Eritrea, and the terms and conditions of GEF Biodiversity projects, and the UNDP.

The timetable should have some built-in flexibility, because developing logistic and capacity structure in a country at such an early stage of development, may be delayed. The period of budget expenditure is 5 years, with an apparent slow down of spending in the last years. This may provide the necessary lag time to take up earlier problems.

There is only provision for 1 PhD and 3 Masters scholarships. This number is relatively low and the concept would be damaged if 1 or 2 students dropped out. It would be an advantage to increase this number and consideration could be given to using any unspent Sundries and Contingency moneys for more scholarships. Details were not available to the reviewer on the number of scholarships in similar areas of study being awarded by other donors e.g. The Netherlands, UK etc.

6. SUSTAINABILITY

It is clearly apparent that the Government of Eritrea has accepted most of the goals of the project and put into place mechanisms to maintain these goals into the future. One would presume that if Eritrea is able to achieve even 50% of the objectives listed in the project document, there should be other donors willing to assist an African country with the will to manage natural resources.

Whether the Eritrean commitment is real, has to be determined, but a reading of the government documents shows a full awareness of the values of these high biodiversity resources and the need to manage them.

The largest point for continued sustainability will be through capacity building in the population - in communities, schools, universities and colleges, and in government departments. If the awareness is there and sufficient benefits accrue to the population, then sustainability is almost assured.

One of the potentially greatest threats to sustainability could be the massive amounts of moneys being put into advancing fisheries. There was little evidence in the reports supplied of large under-exploited, fisheries stocks. Wherever enthusiasm has been placed in massive fisheries development, there has almost always been a collapse in the fisheries. In the Gulf of Thailand, massive aid was given to develop a large fishery - now that fishery has collapsed and the enhanced fishing capacity is now being used to raid fisheries in other countries. The Red Sea is a more enclosed and less productive body of water.

In many instances of expanding fisheries, outsiders often obtain the greatest benefits by creaming off the income from the fisheries and also much of the aid money. Such attractive money may lead to an undermining of the conservation ethic being developed within this project.

7. INNOVATION and 8. PROJECT LOCATION

The location is possibly ideal for the following reasons:

- few past and immediate development pressures threaten the resources;
- a people recovering from many years of war have an impressive willingness to manage their own resources in a sustainable manner;
- an area of high biodiversity has many endemic species, and few large physical threats to those resources; and

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- and a government that is saying all the right things.

The project is innovative in dealing with nearly intact resources - other than that there is no need for further innovation. It is appropriate to learn from past mistakes in other countries and then seek success by well tried routes.

9. FUNDING LEVEL

The funding appears adequate. Much care has been taken over about 3 years to get the mix right and the totals calculated. The only provision, maybe to increase the degree of flexibility to account for delays in implementing parts of the project. Enhancing education should be the priority for unspent moneys.

In an earlier project description, direct training was allocated 10.4% of the total. This new budget has 13% devoted to training, with more money now put into community activities. The contribution of the Dutch and other governments to University training is a welcome addition. It is hoped that this additional training will be closely coordinated within the objectives and activities of this project. It is almost certain that similar people will seek training in both schemes.

10. TIME FRAME

This appears appropriate, and some degree of flexibility could be built into the review process to allow for delays.

11. SUMMARY

This is a good project, that has gone through a long period of consideration, review and refinement. It targets improving the capacity of the people of Eritrea to manage their own coastal resources and the biodiversity therein. There is a solid balance of education, management and community awareness raising.

Therefore, I recommend funding of the project, virtually as is.

There is the right mix of components for success. The worrying signs are outside the design of the project. These are:

- whether the Eritrean lead agency has the support of the principal political office holders in Eritrea and support of the cabinet;
- whether so much effort, and hence distraction, applied to fishing and oil exploration, will divert community attention away from the need to manage coastal resources;
- whether the region will remain stable, without any additional international and inter-ethnic conflicts .

12. ADDITIONAL COMMENTS

The only additional comments are that the MFISH and MEPC be given access to examples of successful and failed stakeholders committees and lead agencies to learn from wins and losses. Such exposure either could be provided during planned visits to other coastal projects, or through bringing members of such committees in from developing countries.

The involvement of tourism as a component in the management of the coastal resources appears to be outside this project. It is apparent that tourism is poorly developed, probably through a

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lack of infrastructure to bring in and provide for international tourists. Tourism could be the major alternative income replacement to the current low levels of fishing and collecting (turtles, molluscs etc.), and to the potential increases in fishing activity.

An attempt should be made to provide input into planning for the large proposed expansion of the fishing sector to ensure sustainability and limited damage to the resources of coral reefs, mangroves and seagrasses. Previous experience is that when fishing expands, the resources almost inevitably degrade.

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