

## **PROJECT BRIEF**

### **1. IDENTIFIERS:**

**PROJECT NUMBER:**

**PROJECT NAME:**

**WESTERN INDIAN OCEAN ISLANDS OIL SPILL  
CONTINGENCY PLANNING**

**DURATION:**

4 years

**IMPLEMENTING AGENCY:**

World Bank

**EXECUTING AGENCY:**

Responsible agencies: Ministries of  
Environment of the Government of Comoros  
(GOC), Seychelles (GOS), Madagascar (GOMr)  
and Mauritius (GOMs) and the Indian Ocean  
Commission Secretariat (IOCS)

**REQUESTING COUNTRY OR COUNTRIES:**

Regional: Comoros, Seychelles, Madagascar, and  
Mauritius

**ELIGIBILITY:**

All recipients are GEF-eligible

**GEF FOCAL AREA:**

International Waters

**GEF PROGRAMMING FRAMEWORK:**

Contaminant-based Operational Program # 10

### **2. SUMMARY:**

The project's objective is to protect the environmental integrity and globally significant biodiversity of a large, biologically rich and relatively pristine part of the Western Indian Ocean from the risks and consequences of oil spills, particularly major (Tier 3) spills. It will achieve this by helping the small island states of Comoros, Mauritius, Madagascar and Seychelles comply with the International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC). The project's specific objectives are to: (a) establish the legal and institutional frameworks in each country that are needed for them to comply with the relevant international marine pollution conventions, including the OPRC; (b) prepare and test both national and regional oil spill contingency plans; (c) develop appropriate national and regional oil spill response capacity; and (d) establish a sustainable financing mechanism and public/private sector collaborative arrangements for oil spill response. The project will be implemented jointly by the oil industry and the four participating governments, coordinated by the Indian Ocean Commission, and assisted by the International Maritime Organization, South Africa and France.



## **A. Project Development Objective**

### *A.1. Project development objective and key performance indicators (see Annex 1)*

The objective of the proposed project is to protect the environmental integrity of the coastal and marine ecosystems of a large, biologically rich and relatively pristine part of the western Indian Ocean. The project will achieve this by helping the small island states of Comoros, Mauritius, Madagascar, and Seychelles comply with the International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC), which requires states to develop and maintain adequate capacity to respond to oil pollution emergencies. Specific project objectives are to: (a) establish appropriate legal and institutional frameworks to ensure compliance with relevant international conventions; (b) develop national and regional contingency planning processes; (c) set up appropriate national and regional oil spill response capacity; (d) establish sustainable financial and institutional agreements and synergy through regional cooperation arrangements (including South Africa and Réunion). These objectives will be achieved by building awareness and preparedness at national levels, and establishing and organizing oil spill response capacity at national and regional levels. The project builds upon and complements the institutional framework provided by the Nairobi Convention, by recognizing the Indian Ocean Commission as the executing and implementing agency of the project.

### *A.2. Project global objectives and key performance indicators (see Annex 1)*

The project aims at limiting the contamination of international waters and conserving globally significant marine and coastal biodiversity by: (a) addressing the threat of oil spills in the Indian Ocean region; (b) involving the private sector in utilizing technological advances to resolve transboundary concerns associated with such a threat; and (c) developing a financing mechanism to sustain the national and regional capacity that the project will create to deal with oil spills.

## **B. Strategic Context**

### *B.1. Sector-related Country Assistance Strategy (CAS) goals supported by the project (see Annex 1)*

CAS document number/date of latest CAS discussion:

Mauritius: Report #16426-MAS, April 22, 1997

Madagascar: Report # 16249-MAG, February 18, 1997

Comoros and Seychelles: N/A

Country Assistance Strategies and Country Program Frameworks (CPF) for these countries focus only very generally on environmental protection, and do not specifically identify either oil pollution or protection of international waters as areas of priority intervention. The project is therefore designed to raise awareness of the threat of oil pollution to the environment and globally important biodiversity, as well as the economic potential of environmentally-related

activities, such as ecotourism and fishing.

**Comoros and Seychelles.** Both countries have Country Program Frameworks instead of CASs. For Comoros the project would support CPF objective to protect the environment. In the Seychelles, the project would support CPF objective to promote environmental sustainability of economic activities and environmental protection.

**Madagascar.** Two of the strategic objectives in the Madagascar CAS would be supported by the proposed project: (a) strengthening the public sector's ability to deliver quality services and create an enabling business environment; and (b) natural resources management to reduce degradation and develop ecotourism potential.

**Mauritius.** The proposed operation would support the CAS objective to improve environmental management.

### *B.2. GEF Operational Strategy/program objective addressed by the project*

The proposed project falls under the GEF's Contaminant-Based Operational Program (number 10). It is fully consistent with the long-term objective of this program, which is to develop and implement international waters (IW) projects that demonstrate ways to overcome barriers to the use of best practices for limiting release of contaminants critical for the IW focus area, and to involve the private sector in utilizing technological advances for resolving these transboundary priority concerns. In particular, the project would support the short-term objectives to (a) leverage significant private sector support to demonstrate the use of modern technology in preventing shipping accidents, oil spills, and releases of contaminants, and to demonstrate innovative measures to address issues relevant to international water conventions (International Convention on Civil Liability for Oil Pollution Damage (CLC), OPRC, FUND, etc); and (b) develop a regional IW project aimed at synthesizing and disseminating lessons learned, sharing the learning experience with groups of countries cooperating on IW projects, and addressing the technical and institutional needs of countries cooperating on IW projects. The project is also consistent with the Operational Program objectives of: (a) addressing an imminent threat; (b) responding to a strong desire by neighboring countries to collaborate; and (c) developing an innovative sustainable financing mechanism.

### *B.3. Main sector issues and government strategy*

**Regional issues.** The World Bank study, "Africa: A Framework for Integrated Coastal Zone Management (1996),"<sup>1</sup> identifies marine oil pollution from tanker traffic as one of the most serious coastal management issues for East Africa, with the Mozambique Channel singled out as an area under particular threat. The vulnerability of the Indian Ocean region to oil spill accidents has been noted in the work of other agencies, such as the International Maritime Organization's

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<sup>1</sup> Environment Department, Land, Water and Natural Habitats Division, Washington, D.C.

(IMO) 1994 Report on a Regional Oil Spill Contingency Program for the Island States of the Indian Ocean Region, funded by the Canadian International Development Agency (CIDA), and the United Nations Conference on the Sustainable Development of Small Island Developing States. The IMO report further identifies the need to protect native species and ecosystems, such as the World Heritage Site of Aldabra Atoll, the sea turtle breeding grounds of Ile Tromelain, and extensive coral formations, coastal wetlands and sand beaches.

A detailed risk and impact study was carried out as part of preparations for the proposed project to evaluate: (a) the likelihood that oil spills will occur, from small operational spills at oil handling facilities (Tier 1) to larger and more serious spills occurring in waters away from oil handling ports and harbors, for which a major response would be required (Tier 3); and (b) the damage that would result in the event of an oil spill. The study shows clearly that in all countries there are real risks of small operational spills occurring, and that there have been many such incidents in recent years. It also shows that Tier 2 events — during which up to 500 tons oil are spilled at or near harbors by vessels going aground or being involved in collisions — would have a serious impact locally and may well negatively affect regional marine ecosystems and marine biodiversity as well as national coastal resources. The study has examined several accident scenarios in which an outflow of 50,000 tons of oil could occur at different locations within the region (Tier 3 spills). It finds that accidents involving very large vessels carrying crude oil through the region would likely overwhelm the organization and response arrangements of the countries concerned, and could have devastating impacts on the environment of the region damaging coral reefs, seagrass beds, mangroves, beaches and shorelines, and devastating populations of dugongs, sea turtles, numerous seabirds and many other rare and important species of wildlife. A large oil spill could also severely harm the economies of the small island developing states by damaging fishing grounds, amenity beaches, diving and deep-sea fishing areas; disrupting shipping; and shutting down activities that depend on seawater intakes to aquaria or industrial plants. A somewhat lower level of tanker traffic passes by Mauritius, about 20 million tons per year; however the potential for an accident still exists. Annex 5 contains the executive summary of the study.

The region as a whole lacks legislation, equipment and a plan to confront an oil spill emergency, although Seychelles, Mauritius and Réunion have ratified some international conventions and have developed national oil spill contingency plans (still untested). Réunion has developed a national oil spill response plan, and has asked to participate in the proposed GEF operation, with French funding, to share its expertise with the other islands and to take part in the regional contingency plan. Of the mainland countries bordering the Channel, only Tanzania is developing a national oil spill response plan, but currently has no facilities nor equipment. A proposed IDA Credit to Mozambique would address oil pollution indirectly through ratification of the Marine Pollution Convention (MARPOL) and establishment of port reception facilities for ballast water. Currently, regional oil spill response capacity resides only in South Africa and the International Response Center. However, this cannot substitute for national and regional response capacity. There is potential for effective local action to respond to Tier 1 and 2 spills, and vital time would be lost without this capacity. In addition, the government and oil industry of South Africa are supporting this project by providing valuable expertise in training, joint exercises, sensitivity

mapping, preparing national response plans, and creating a mechanism to coordinate regional action to respond to Tier 3 spills.

**Regional initiatives.** Some international organizations are supporting projects which are complementary to the proposed project. The European Union is carrying out a project focused on helping countries comply with the requirements for maritime security. Under this project, the IOC, with the support of the European Development Fund (EDF), has launched a Regional Environment Programme covering all of the island states, which addresses marine pollution as part of its coastal zone component. The United Nations Environment Programme (UNEP) is preparing a Transboundary Diagnostic Analysis focusing mainly on sustainable fisheries management for the west Indian Ocean region. The UNEP initiative is directly complementary to the proposed Indian Ocean Oil Spill Contingency Project. The two projects are being tightly coordinated and the results of their respective studies, such as the risk and impact analysis conducted for the proposed project are being shared. The UNEP project is expected to be submitted to the GEF Council in October 1998.

**National issues.** Economic and sector work (ESW) for individual countries points to the need to protect marine resources, and individual countries have developed individual strategies to achieve this. Each of the governments of the Indian Ocean islands share common aspirations to develop the ecotourism potential of their respective countries. In each country, the fishing industry contributes to GDP. Economic development potential relies largely on protection of their shared resource, the Indian Ocean. Carrying approximately 30 percent of the world's total annual petroleum output, the Indian Ocean is one of the busiest shipping lanes in the world. An oil spill would ruin beaches and marine and coastal ecosystems. This would severely damage or destroy two key economic sectors of the island nations: tourism and fishing.

**Comoros.** A wide variety of ESW has been carried out by the Bank and other donors to identify the issues relevant to the proposed project. The Economic Strategy Note (1993), and subsequent Policy Framework Paper (1994) identified the need to protect fragile ecosystems and to implement mechanisms for managing environmental problems. The 1994 National Environmental Action Program (NEAP) also identified conservation of marine and coastal ecosystems and development of national environmental institutional and policy frameworks as key issues to be addressed. The 1996 Tourism, Environment and Infrastructure Sector Study emphasized the importance of environmental protection, particularly of marine and coastal ecosystems, to economic development based on tourism. The government's strategy is to implement the recommendations of the NEAP, as stated above, and to implement related measures (environmental legislation, updated building codes, institutional strengthening, public awareness and involvement of communities) through a multidonor infrastructure and environment program, of which the proposed Bank Infrastructure, Water and Environment Project is an integral part. The government has not yet ratified any of the international waters conventions, nor is there any oil spill response capacity at either the state level or at the level of the state-owned oil company.

**Madagascar.** Madagascar developed a National Conservation for Development Strategy in

1984. This was followed by the 1988 National Environmental Action Plan, completed with support from the World Bank, United States Agency for International Development, Swiss Cooperation, UNESCO, UNDP and the World Wide Fund for Nature. Both of these documents recognize the importance of preserving Madagascar's rich biodiversity and unique ecosystems as a basis for the development of tourism. The NEAP emphasizes the need to protect coastal zones; however it focuses on addressing land-based sources of pollution and environmental degradation. The government has undertaken several environmental projects with IDA support, and is currently preparing a transport project which addresses oil pollution in ports. However, the government has not yet signed any of the international waters conventions, nor has it developed a national oil spill response plan. Although the country annually imports and refines about 500,000 tons of crude oil, and moves fuel and oil products around the coast in small tankers, there is no oil spill response capacity of any sort, not even at the National Oil Company (SOLIMA) crude import facility at Toamasina.

**Mauritius.** The 1990 NEAP identified the lack of an institutional and regulatory framework for environmental management as a major sectoral bottleneck. The NEAP further emphasized the importance of preserving Mauritius' unique biodiversity and coastal ecosystems, essential for the development of the tourist industry. The government has been active in promoting environmental programs, including development of a national oil spill contingency plan under the authority of the Ministry of Environment, a Tier II plan and some equipment under the Marine Authority, and Tier I plans and equipment for oil terminals. These response plans are under revision and not all have been tested. There is a need for additional preparedness training. The government has ratified several international waters conventions (CLC 69, FUND 71, MARPOL 73/78 and Annexes I and II) and has expressed interest in ratifying OPRC 90. The local oil industries are committed to providing oil spill response equipment and generally support government initiatives in the field of oil spill response.

**Seychelles.** The 1990–2000 Environmental Management Plan of Seychelles recognizes the need to protect biodiversity from threats posed by concentrations of populations and economic activities, beach erosion, and inadequate management of sewage. The plan emphasizes the importance of regional environmental cooperation, particularly to guard against over fishing, and the need to develop baseline studies and scientific information on marine and coastal ecosystems. Finally, the plan proposes developing national preparedness and capacity to address oil spills as part of the development of Port Victoria. Seychelles is an active participant in international environmental conventions and programs and is home to two World Heritage sites (Aldabra Atoll and Valée de Mai Nature Reserve). The government has ratified the major international waters conventions (CLC 69, FUND 71 and OPRC 90) and has developed a national oil spill contingency plan within the National Environmental Management Plan. The oil spill contingency plan has recently been transferred from the Port Authority to the Coast Guard, therefore preparedness is limited. The country currently lacks oil spill response equipment, although the State Oil Company (SEPEC) has recently decided to purchase a small amount of equipment to cover its terminal operations.

#### *B.4. Sector issues to be addressed by the project and strategic choices*

The proposed project addresses all of the oil-spill related issues specified above. Each country will develop national institutional, physical and strategic capacity to respond to oil spills to protect national coastal and surrounding marine environments in the interest of conserving globally important biodiversity, protecting fisheries and promoting ecotourism. The project will protect the shared Indian Ocean resources by establishing regional agreements and strategies to respond to oil spill accidents that transcend national borders. The project will facilitate regional cooperation and coordination of the island nations, including (a) signing of international conventions and treaties (OPRC, CLC, FUND), (b) definition of a regional oil spill response plan, (c) coordination of national legislation, (d) ensuring adequate oil spill response capacity, and (e) establishing a mechanism for regional coordination. In order to ensure adequate oil spill response capacity, the project places primary emphasis on establishing financial sustainability for the oil spill response system at both national and regional levels, and on building cooperation between concerned national governments and the local and international oil shipping industries. This cooperation would mobilize technologies and procedures to address oil spill emergencies that have been developed by the oil industry.

### **C. Project Description Summary**

#### *C.1. Project components (see Annex 1)*

#### **Component A: Legislation and regulation for conventions**

Component A would assist the four countries develop their national legislative framework to take account of the provisions of the CLC 69, FUND 71 and OPRC 90 conventions. The assistance will be provided through: (a) a regional workshop on the ratification and implementation of the conventions to highlight the experience of countries that have already ratified and are implementing them (Mauritius to take a lead role); (b) expert consultancy to Comoros and Madagascar to assist in the preparation and ratification of relevant international conventions, and to develop or upgrade the national legal framework to take account of relevant conventions' provisions; and (c) expert consultancy to assist all four countries in drafting the technical legislation for the implementation of the conventions' provisions. This component will also provide for a long-term training course for legal officers at the IMO International Maritime Law Institute(IMLI).

#### **Component B: National oil spill contingency plans**

Training workshops and external experts would assist in developing national capacity for environment data collection and information management systems, identification of areas of environmental and socioeconomic importance, and establishment of national priority areas. This information would be used to create national environmental sensitivity maps. National contingency plans would be tested and joint regional exercises carried out.

### **Component C: Oil spill response equipment**

This component would consist of: (a) assessment of baseline situation to determine equipment needs; (b) specification of equipment need; (c) procurement of equipment, and (d) training in equipment operation and maintenance.

### **Component D: National capacity building**

This component would involve: (a) training on environmental sensitivity mapping, project management, convention implementation, and others; (b) training of trainers; (c) provision of expert advice and guidance in the specific matters relating to national contingency plans, oil spill equipment, fate and effects of oil in the marine environment, risk assessment and development of appropriate response strategies; (d) support to allow senior government officials to attend the main international seminars on oil pollution, technology and related matters; and (e) technical assistance on developing, reviewing and testing an oil spill response manual.

### **Component E: Regional institutional strengthening**

This component would assist in the development of a regional plan for response to a major oil spill. Specifically, this component would assist all beneficiary countries develop capacity for project management; development of regional agreements for cooperation; awareness raising, training and joint exercises; regional contingency planning, and establishment of a regional oil spill response coordinating center. The plan would be developed in conjunction with the relevant government departments and industry in South Africa, and be used as an opportunity to establish strong links with this country, which has resources that can be used to assist the member countries increase their own oil spill response capacity.

### **Project components summary**

<i>Components</i>	<i>Category</i>	<i>Cost including contingencies (US\$'000)</i>	<i>Percent of total</i>	<i>GEF financing (US\$'000)</i>
A. Legislation and regulation for conventions	Policy/ institution building	298.5	7.6	298.5
B. National oil spill contingency plans	Institution building	962.1	24.4	512.6
C. Oil spill response equipment	Physical/ institution Building	1,220.2	31.0	687.1
D. National capacity building	Institution Building	389.0	9.9	340.1
E. Regional institutional strengthening	Policy/ institution building	1,066.3	27.1	976.0
Total		3,936.1	100	2,814.3

### *C.2. Key policy and institutional reforms to be sought*

No major policy and institutional reforms are considered under this project. The project does, however, focus on building awareness and facilitating ratification and implementation of international waters conventions (OPRC, CLC, FUND), and on generating cooperation among national agencies and between the Indian Ocean countries to address oil spill emergencies. In addition, the project will support the development of sustainable institutional and financial arrangements among the countries and between the countries and the national and international oil industries.

### *C.3. Benefits and target population*

The project will significantly reduce the risk of devastating impacts on the biologically rich ecosystems of the west Indian Ocean Region due to an accidental oil spill. The Indian Ocean is home to the World Heritage Site of Aldabra Atoll (Seychelles), unique indigenous marine life such as the coelacanth and local species of aquatic birds, sea turtles and coral reefs. Protection of marine and coastal environments and conservation of biodiversity will help ensure that significant ecosystems and unique wildlife are not destroyed due to an oil spill accident. Protection of marine and coastal ecosystems will also promote growth in tourism and protect fisheries upon which many people depend. This will benefit the region as a whole, as well as individual nations and their residents. Oil shipping companies will benefit from reduced liability costs as the risk and impact of oil spills are contained. Indian Ocean countries will also benefit from the partnership that will be fostered among countries and between countries and the local and international oil industry. This partnership will result in the creation of sustainable institutional and financing arrangements for maintaining oil spill response capacity in the future and the mobilization of oil company equipment and expertise in the event of an emergency.

### *C.4. Institutional and implementation arrangements*

**Project Implementation Period.** The project will take place over four years, fiscal 1999 – 2003, completed by December 31, 2002 and closed by June 30, 2003. The project will be carried out in two phases: (a) building awareness and preparedness at the national level; and (b) establishing sustainable, operational oil spill response capabilities at the national and regional levels.

**Executing Agencies.** A project management unit (PMU) of the Indian Ocean Commission Secretariat (IOCS), ministries of the environment of Comoros, Madagascar, Mauritius, Seychelles, and national executing agencies (to be determined) will execute the project. Component A (legislation and regulation for conventions) will be executed in conjunction with IMO.

**Project Coordination and Oversight.** The project management unit established at the regional level under the Indian Ocean Commission Secretariat and headed by a regional coordinator will be

responsible for overall project coordination and implementation.

A project implementation coordinator within the ministry of environment for each country will coordinate the national components of the project. The project management unit and the project implementation coordinator will benefit from technical assistance for project management and monitoring and technical capacity in oil spill response management. A steering committee, comprising directors of environment for each participating country and representatives from South Africa (government and oil industry) and Réunion, will ensure national and regional interagency coordination and cooperation among all donors. IMO, IPIECA and the World Bank will participate in the steering committee as observers.

The ministries of environment in each of the countries will be responsible for drafting enabling legislation at the national level, and, with the Indian Ocean Commission Secretariat, for ensuring ratification of international conventions and protocols on the regional level. They will also have overall responsibility for drafting national and regional oil spill response plans. Executing agencies at the national level will contribute to these plans and will be responsible for carrying them out. The Indian Ocean Commission Secretariat, with expert assistance, will provide project coordination and oversight, particularly of regional components.

**Procurement.** Consultants and equipment to be financed under the GEF Grant will be procured according to World Bank procurement guidelines.

**Monitoring and Evaluation.** Monitoring and evaluation will be carried out at two levels: (a) tracking project progress; and (b) monitoring national capability. These tasks will be carried out while the project is under implementation by all involved parties, through regular joint supervision and review.

**Supervision.** Supervision will be jointly carried out by the Bank, IMO and IPIECA. The Bank will devote some 60 staff weeks to supervise progress under the GEF grant through fiscal 2003. During the first three years, supervision will focus on progress in achieving specific objectives, such as convention ratification, procurement, national and regional contingency plan development and implementation. During supervision and project reviews, particular attention will be paid to implementation of the mechanisms and the training program designed to promote institutional and financial sustainability.

**Monitoring.** Overall project monitoring will be based on indicators to be confirmed during appraisal and on the project implementation plan to be finalized by the Borrower and agreed on after negotiations. The steering committee, chaired by Indian Ocean Commission and assisted by consultants as necessary, will be responsible for the monitoring. The Indian Ocean Commission will monitor and coordinate progress under each project component through the project management unit, under the guidance of the steering committee. It will prepare progress reports every six months, commencing in January 1999, and submit them to the Bank within one month thereafter. No later than three months after completion of the project, the Indian Ocean

Commission will prepare and provide to the Bank a report on the execution of the project, its costs and current and future benefits to be derived from it.

**Accounting, financial reporting and auditing arrangements.** The Indian Ocean Commission will establish (prior to June 30, 1999) a project accounting system tracking the cost of the various goods and services provided under the project. It will keep separate project accounts together with their statutory financial statements. Terms of reference for annual audits of project accounts will be agreed upon at negotiations. Auditing will be carried out by independent auditors acceptable to the Bank, and the reports of such audits will be submitted to the Bank no later than six months after the end of the Borrowers' fiscal years.

**Mid-term review.** A mid-term review will be carried out in December 2000 by the Bank, together with Indian Ocean Commission and the other involved parties. In addition to covering all areas included in annual reviews, the mid-term review will assess the implementation status of the national and regional components, institutional and financial arrangements, cost-recovery system and the legal framework for regional cooperation. Prior to the mid-term review, the Indian Ocean Commission will contract a consultant (under project finance) to review and assess the progress of the project implementation and prepare the necessary documentation for the review. In particular, the review will consider and discuss the results of the review of the project implementation plan (PIP) and recommendations for updating/amending the PIP for the remainder of project implementation. It is expected that the mid-term review will result in the determination of a general framework for the sustainable institutional and financial arrangements between the concerned countries and between the governments and local and international oil industries.

## **D. Project Rationale**

### *D.1. Project alternatives considered and reasons for rejection*

One alternative is to continue to rely on oil spill response capacity in South Africa and the international response centers. While South Africa and the international response centers will continue to provide technical (and perhaps material) assistance, development of regional capacity is more appropriate to respond to a local oil spill emergency. The configuration of the islands and their history of cooperation through the Indian Ocean Commission argue for a project built on regional cooperation rather than reliance on outside and remote oil spill response capacity. For Tier 1 spills, only a limited response is likely, which could be provided by national capacity. For more serious spills, the combined capacity of the neighboring islands, in addition to the time saved by proximity, argue for developing regional capacity. Another alternative would be to develop oil spill response capacity in one or more countries in the region. While such an option might protect national waters and coastal regions, an oil spill typically has significant spillover effects and often requires international assistance. Therefore, the proposed project would develop both national and regional response capacity to address both national and transboundary environmental threats, and would bring the beneficiary countries the benefits of international emergency assistance by making them signatories to international waters conventions.

*D.2. Major related projects financed by the Bank and/or other development agencies (completed, ongoing and planned)*

<i>Sector issue</i>	<i>Project</i>	<i>Latest supervision ratings (Form 590)</i>	
		<i>Implementation progress (IP)</i>	<i>Development objective (DO)</i>
<b>Bank-financed</b>			
<i>General</i>			
Protection of International Waters	Mediterranean Pollution Control: Algeria (4871) Morocco (5347) Tunisia (5588)	S HS HS	S HS HS
Protection of International Waters	Ship-Generated Waste Management Project (Eastern Caribbean) (6957)	S	S
Protection of International Waters	Wider Caribbean Initiative for Ship-Generated Waste (6956)	U	S
<i>Regional</i>			
Environmental standards and monitoring	Mauritius Environmental Monitoring Project (1914) Seychelles Transport and Environment Project (2383)	S S	S S
Marine/coastal pollution	Mauritius Environmental Sewerage and Sanitation Project (not yet effective)		
Port pollution	Madagascar Transport Sector Project (under preparation)		
Environmental legislation/codes/infrastructure	Comoros Infrastructure, Water and Environment Project (under preparation)		
<b>Other agencies</b>			
Environmental legislation/codes/infrastructure	Comoros Multidonor Infrastructure and Environment Program (planned) (UNICEF/EDF/FAC/CFD/ Islamic Development Bank)		
Indian Ocean marine resources preservation and regional environmental legislation	IOC Regional Environmental Programme		
Indian Ocean regional pollution	IOC Regional Action Project for Maritime Security		
Marine resources management	IOC Regional Tuna Programme, IOC Regional Tourism Programme UNEP Transboundary Diagnostic Analysis of the West Indian Ocean		

IP/DO Ratings: HS (Highly Satisfactory), S (Satisfactory), U (Unsatisfactory), HU (Highly Unsatisfactory)

### *D.3. Lessons learned and reflected in proposed project design*

Lessons from the Indian Ocean Commission/European Union Regional Environmental Programme include: (a) the need for mechanisms to facilitate coordination between the Indian Ocean states, particularly in the area of environmental legislation; (b) the need for a flexible and responsive project management structure; and (c) the need to involve private sector actors and other local sources of expertise.

Lessons from World Bank projects in the area include: (a) the need to ensure a minimum level of participation from all countries, especially in the areas of financial sustainability, training and infrastructure maintenance; (b) the benefits of mobilizing and involving private sector expertise; and (c) the need for mechanisms to facilitate regional interaction.

The proposed project therefore: (a) builds on the regional coordination and cooperation built by the Indian Ocean Commission, while ensuring responsiveness through an autonomous project coordinator within the Commission; (b) sets minimum participation benchmarks for each of the countries defined in national and regional contingency plans; (c) incorporates expertise from the private sector and other countries in the region; and (d) ensures regional coordination and interaction through the regional contingency plans, training and joint exercises.

### *D.4. Indications of borrower commitment and ownership*

The countries are participating in the Indian Ocean Commission Regional Environment Program and been fully involved in preparatory project studies. They have made a request for a Grant to GEF (see Annex 4). Seychelles and Mauritius have developed national oil spill contingency plans.

### *D.5. Value added of Bank and Global support in this project*

The GEF financing and operational framework will act as a catalyst and a guide for individual country involvement and regional cooperation to respond to the risk of oil spill pollution. The World Bank brings considerable experience in working with beneficiary countries on global environmental issues and the ability to mobilize the private sector, in particular the international and local oil industries.

## **E. Issues Requiring Special Attention**

### *E.1. Economic*

- Summarize issues below (e.g., fiscal impact, pricing distortions)  
 To be defined (indicate how issues will be identified)       None

Economic evaluation methodology:

Cost benefit

Cost effectiveness  Incremental Cost  Other [specify]

The people of the developing island countries are stewards of rich and globally important marine and coastal ecosystems and biodiversity. Yet the resources are shared, so individual countries are reluctant to take action to protect the resources without the involvement of other beneficiary states — a familiar problem with open access resources. Further, two of the beneficiary countries are among the poorest in the world, and lack resources to invest in protecting global commons. The incremental cost analysis is detailed in Annex 3.

### *E.2. Financial*

Summarize issues below (cost recovery, tariff policies, financial controls and accountability)  
 To be defined (indicate how issues will be identified)      None

Cost recovery and sustainable financing of national and regional oil spill response centers. Financial accountability of local and international oil industries towards oil spill risks and issues. Implementation of sustainable institutional and financial arrangements within and among countries, and between countries and the oil industry.

### *E.3. Technical*

Summarize issues below (appropriate technology, costing)  
 To be defined (indicate how issues will be identified)      None

During project implementation, the most appropriate technical arrangements will be developed and used during training, joint exercises, marine sensitivity mapping, national and regional contingency plans preparation, etc. Equipment for oil spill response centers will be procured in accordance with the most appropriate standards and specifications.

### *E.4. Institutional*

Summarize issues below (project management, monitoring and evaluation capacity, administrative regulations)  
 To be defined (indicate how issues will be identified)      None

Regional coordination. Individual country agreement and active support for project. Sustainable institutional and financial arrangements within and among countries, and between countries and the oil industry will be developed during project implementation.

### *E.5. Social*

Summarize issues below (e.g., significant social risks, ability to target low income and other vulnerable groups)  
 To be defined (indicate how issues will be identified)      None

The social consequences of a major oil spill would be high, due to unemployment that would result from disruption to the tourism and fishing industries, and damage to a major food source (Seychelles and Comoros).

*E.6. Environmental*

a. Environmental issues:

Summarize issues below (distinguish between major issues and less important ones)

To be defined (indicate how issues will be identified)       None

Major:

Other:

b. Environmental category:        A          B          C

c. Justification/Rationale for category rating: The project comprises mainly technical assistance for the development of regional capacity to respond to an oil spill emergency. It does not generate any environmental impacts of its own.

d. Status of Category A assessment: EA start-up date:

Date of first EA draft:

Current status:

e. Proposed actions:

f. Status of any other environmental studies:

g. Local groups and NGOs consulted: (List names):

h. Resettlement

Summarize issues below (e.g., resettlement planning, compensation)

To be defined (indicate how issues will be identified)       None

i. Borrower permission to release EA:     Yes       No       N/A

j. Other remarks:

7. Participatory Approach:

a. Primary beneficiaries and other affected groups:

Name and describe groups, how involved, and what they have influenced.

Not applicable (describe why participatory approach not applicable with these groups)

Local oil industries and the International Petroleum Industry Environmental Conservation Association (IPIECA) have been involved in project design, since they are likely to bear the greatest responsibility and costs of an accidental oil spill. Local governments and academic institutions have been involved in the identification of environmental issues.

b. Other key stakeholders:

Name and describe groups, how involved, and what they have influenced.

Not applicable (describe why participatory approach not applicable with these groups)

Other donors — the Governments of South Africa and France (for Réunion), the European Union, South African, governments oil industries and IMO — are also participating in and contributing to the project.

8. Checklist of Bank Policies

a. This project involves (check applicable items):

- |   |   |
|---|---|
| <input type="checkbox"/> Indigenous peoples <a href="#">(OD 4.20)</a>   | <input type="checkbox"/> Riparian water rights<br><a href="#">(OP 7.50)</a> <a href="#">(BP 7.50)</a> <a href="#">(GP 7.50)</a>                         |
| <input type="checkbox"/> Cultural property <a href="#">(OPN 11.03)</a>  | <input type="checkbox"/> Financial management <a href="#">(OP 10.02)</a> <a href="#">(BP 10.02)</a>   |
| <input type="checkbox"/> Environmental impacts<br><a href="#">(OP 4.01)</a> <a href="#">(BP 4.01)</a> <a href="#">(GP 4.01)</a> | <input type="checkbox"/> Financing of recurrent costs <a href="#">(OMS 1.21)</a>  |
| <input type="checkbox"/> Natural habitats<br><a href="#">(OP 4.01)</a> <a href="#">(BP 4.01)</a> <a href="#">(GP 4.01)</a>      | <input type="checkbox"/> Local cost sharing<br><a href="#">(OP 6.30)</a> <a href="#">(BP 6.30)</a> <a href="#">(GP 6.30)</a>                            |
| <input type="checkbox"/> Gender issues <a href="#">(OP 4.20)</a>  | <input type="checkbox"/> Cost-sharing above country three-year average<br><a href="#">(GP 6.30)</a> <a href="#">(OP 6.30)</a> <a href="#">(BP 6.30)</a> |
| <input type="checkbox"/> Involuntary resettlement <a href="#">(OD 4.30)</a>   | <input type="checkbox"/> Retroactive financing above normal limit<br><a href="#">(OP 12.10)</a> <a href="#">(GP 12.10)</a>                              |
| <input type="checkbox"/> NGO involvement <a href="#">(GP 14.70)</a>   | <input type="checkbox"/> Disputed territory<br><a href="#">(OP 7.60)</a> <a href="#">(BP 7.60)</a> <a href="#">(GP 7.60)</a>                            |
| <input type="checkbox"/> NGO involvement (OP 4.36)  | <input type="checkbox"/> Other (provide necessary details)  |

b. Describe issue(s) involved, not already discussed above:

**F. Sustainability and Risks**

*F.1. Sustainability*

Project sustainability will rest on the overall commitment of the respective Indian Ocean Commission countries and the oil industry to protect the environment against oil spill pollution. The key objective of the project is to build sustainable institutional and financial arrangements within and among countries and between countries and the local and international oil industry. To ensure that this essential outcome is met, an institutional and financial sustainability study is being carried out. The recommendations of this study would be implemented gradually over the duration of the project to ensure that before project completion, the sustainable arrangements are in place and operational. Commitment to implement the study’s recommendations would be a condition for Board presentation of the project.

F.2. Critical Risks (reflecting assumptions in the fourth column of Annex 1)

<i>Risk</i>	<i>Risk rating</i>	<i>Risk minimization measure</i>
<i>Annex 1, "from Outputs to Objective"</i>		
Lack of/uneven compliance with regional plan by one or more countries	SR	The synergies among countries created by the project and the assistance brought by South Africa and Réunion will help the countries to comply.
Lack of/uneven capacity in one or more countries	SR	Project will strengthen capacity and encourage sharing of expertise among countries
Lack of enforcement capacity	MR	Synergies among countries created by the project and the assistance brought by South Africa
Lack of oil industry compliance	MR	The synergies among national industries created by the project and the assistance brought by South Africa oil industry and IPIECA
<i>Annex 1, "from Components to Outputs"</i>		
Risk of nonacceptance of international conventions by one or more countries	NR	IOC (regional cooperation agency) and government commitments
Risk of nonenforcement of national legislation or noncompliance with national response plan	MR	Synergies among countries created by the project and the assistance brought by South Africa
Lack of/uneven equipment operation and maintenance capacity	SR	Training to defined standard
Uneven financial capacity	SR	Planned sustainable institutional and financial arrangements will address this risk
Unclear national/regional roles and responsibilities	NR	Specific national and regional contingency plans
<b>Overall Risk Rating</b>	MR	

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

ANNEX 1

PROJECT DESIGN SUMMARY

<i>Narrative Summary</i>	<i>Key Performance Indicators</i>	<i>Monitoring and Supervision</i>	<i>Critical Assumptions and Risks</i>
<b>CAS/GEF Objective</b>			<b>(CAS Objective to Bank Mission)</b>
<u>Global Objective:</u> Limit contamination of international waters	Response time/limit of damage in case of oil spill Water quality	International Response Centers	Commitment by governments to strengthen environmental institutions and protect marine and coastal resources and globally important biodiversity.
<u>Comoros CPF Objective:</u> Environmental Protection — develop strategy for environmentally sustainable tourism	Sustainable national and regional oil spill response capacity in place.	Ministry of Environment (MOE)	Adoption of legal and legislative framework for ratification of relevant international conventions. Willingness to operate as part of a regional initiative.
<u>Seychelles CPF Objective:</u> Promote environmental sustainability of economic activities and environmental protection — (a) ensure that infrastructure development supporting tourism is environmentally benign; (b) promote preservation of environmentally sensitive areas	Sustainable national and regional oil spill response capacity in place.	Ministry of Environment	Adoption of legal and legislative framework for ratification of relevant international conventions. Willingness to operate as part of a regional initiative.
<u>Madagascar CAS Objective:</u> Promote environmental protection, improve infrastructure to facilitate tourism development	Sustainable national and regional oil spill response capacity in place.	Ministry of Environment	Adoption of legal and legislative framework for ratification of relevant international conventions. Willingness to operate as part of a regional initiative.
<u>Mauritius CAS Objective:</u> Improve environmental management — improve environmental strategic planning	Sustainable national and regional oil spill response capacity in place.	Ministry of Environment	Adoption of legal and legislative framework for ratification of relevant international conventions. Willingness to operate as part of a regional initiative.
<b>Project Development Objectives</b>			<b>(Development Objectives to CAS Objective)</b>
<u>GEF Operational Program Objectives:</u> (a) Develop and implement IW projects that limit release of contaminants threatening IW focal area; and (b) involve private sector in using technological advances to resolve transboundary issues concerning IW focal area	Legislation/conventions in place System of regional coop. in place 100% of petroleum shipping companies involved in regional contingency activities # of private sector operators involved in service provision	IMO/ Ministries of Transport (MOTs) Port Authorities	Assumes private sector has an interest in project objectives and will cooperatively share technology and expertise.
<u>Project Objective:</u> Protect the environmental integrity of coastal and marine systems in the Indian Ocean region	Clear and sustainable oil spill contingency plan in place in each country and in region as a whole Oil spill response equipment operation and maintenance capacity Response time/limit of damage in case of oil spill Water quality	MOEs/IOC  National gendarmeries/ coast guards Port/marine authorities	Assumes that regional oil spill response capacity is adequate and operates as expected.

**Annex 1 Project Design Summary (cont.)**

<b>Project Outputs</b>			<b>(Outputs to Development Objectives)</b>
Increased awareness and preparedness at national levels to respond to oil spills.	# of awareness/ training workshops # of oil industry shippers aware of oil spill contingency arrangements	IOCS MOTs National gendarmeries/ coast guards	Assumes continuity of trained staff.
Sustainable functioning of oil spill response institutions at national and regional levels.	# of staff trained and in place # of regional workshops/exercises Financial resources available (national and regional levels) An agreed and operating financial sustainability mechanism established	Ministries of Planning (MOPs) MOTs/MOEs Ministries of Finance (MOFs)	Risk of uneven compliance by one or more countries Risk of uneven capabilities in one or more countries Unclear regional roles and responsibilities
Legislative/regulatory framework at national and regional levels to facilitate regional response.	Legislation in place System for negotiating new legislation in place	IMO/MOEs/ IOCS	Risk of uneven compliance or enforcement capacity in one or more countries
Local and international oil industries - financial and technical support on a permanent basis	Annual amount of financing or weeks of TA provided	IPIECA/IOCS	Risk of lack of compliance by oil companies
<b>Project Components</b>	<b>Inputs</b>		<b>(Components to Outputs)</b>
<i>A. Legislation and regulation for conventions</i> (a) Training abroad (b) Regional workshop (c) Legal expertise for ratification (d) National legal framework upgrading	GEF funding IPIECA funding IMO input South Africa and Réunion assistance MARPOL Convention NEAPs/National Environmental Frameworks	MOEs MOTs	Risk of nonacceptance of international conventions by one or more countries Risk of nonenforcement of national legislation
<i>B. National oil spill contingency plans</i> (a) Oil spill response training (b) National contingency planning (NCP) expertise and training (c) Environmental sensitivity index (d) NCP review (e) NCP testing/updating (f) NCP coordination	GEF funding Oil industry contributions South Africa and Réunion assistance	MOEs MOTs Local oil industries	Needs clear delineation of industry, national and regional roles and responsibilities Risk of noncompliance by industry/individual countries
<i>C. Oil spill response equipment</i> (a) Expertise for equipment specification (b) Procurement of equipment (c) Equipment operator training (d) National exercises (e) Maintenance training (f) Equipment storage	South African oil spill response centers (Saldana Bay and Capetown)	MOEs MOTs Local oil industries	Lack of/uneven operation and maintenance capacity Uneven financial capacity
<i>D. National capacity building</i> (a) Workshops (b) Training of trainers (c) External expertise (d) International seminars (e) Expertise for oil spill response manual	South African government and oil industry staff and expertise	MOEs MOTs National gendarmeries/ coast guards	Lack of/uneven institutional capacity
<i>E. Regional institutional strengthening</i> (a) Conventions workshops (b) Assistance for project coordination (c) Training and seminars (d) Regional exercises (e) Regional contingency plan and agreements (f) Regional coordination center (g) Expertise and Studies	GEF funding IPIECA input South Africa government and oil industry staff and expertise Réunion assistance	MOEs MOTs IOCs South Africa Réunion	Needs clear delineation of national/regional roles and responsibilities

## ANNEX 2

### INCREMENTAL COST ANALYSIS

#### Regional Context and Broad Development Goals

1. The waters surrounding the island countries of the West Indian Ocean are ecologically rich. Marine and coastal ecosystems include extensive coral reefs that harbor several unique and endangered species of flora and fauna, such as the coelacanth. Sea turtles, dugons, and many species of sea birds also thrive in the region.

2. While the island countries vary in terms of their natural resources, economic basis and level of income (Comoros and Madagascar (per capita income US\$587) are among the poorest countries in the world, with per capita incomes of US\$470 and US\$587 respectively; Mauritius is a middle-income country with a per capita income of approximately US\$3,400, and Seychelles is upper-middle income with a per capita income of US\$6,600), all benefit significantly from tourism and fishing. Tourism in particular, which is based primarily on the countries' beaches and protected areas, offers great potential for future development in all countries. In Mauritius, for example, value-added in tourism is already growing by about 12 percent per year. The governments of the island nations recognize that their future economic development depends on the health of their natural resources and all have completed national environmental action plans or management plans to guide their future development. These plans all name the protection of marine and coastal ecosystems as priorities for the countries.

3. The western Indian Ocean is one of the most important and widely-used oil shipping routes in the world. It is estimated that 350 million tons of crude oil, representing over 30 percent of world petroleum production, pass near or through the coastal waters of the Indian Ocean island states each year, in transit to North America, Europe and Asia. Thus more than 5,000 tanker voyages per year take place through the sensitive coastal waters of Comoros and Madagascar, and pass near the World Heritage Site of Aldabra Atoll of Seychelles. In the last ten years, the amount of oil transported through the region has risen by over 60 percent. Most of the oil is transported on about 700 very large crude carriers (250,000 tonnes and over) and 4,000 medium-sized tankers (average of 60,000 tons). These tankers usually pass through the Mozambique Channel and between the islands of Grand Comoros and Aldabra. Smaller tankers pass to the east of Madagascar from ports in Southeast Asia. On average, more than 20 large oil tankers are in transit through the coastal waters of the island states every day. A maritime accident involving the discharge of large quantities of oil would have a disastrous impact on the fragile and sensitive natural resources of the concerned countries, and on their economies, which are not sufficiently diversified to survive such an incident without serious damage.

4. Of the four countries, only Mauritius and Seychelles have taken precautions to achieve a measure of protection against Tier 1 spills by acquiring specialized cleanup equipment for use at oil handling facilities. A risk and impact assessment study was carried out to evaluate (a) the likelihood that oil spills will occur, from small operational spills at oil handling facilities (Tier 1) to larger and more serious spills occurring in waters away from oil handling ports and harbors, for

which a response would be required (Tier 3); and (b) the damage that would result in the event of an oil spill.

5. The study shows clearly that in all countries real risks of small operational spills occurring exist; there have been many such incidents in recent years. It also shows that Tier 2 events — during which up to 500 tons oil are spilled at or near harbors by vessels going aground or being involved in collisions — would have a serious impact locally and may well negatively effect national and regional tourism.

6. The study has examined several accident scenarios in which an outflow of 50,000 tons of oil could occur at different locations within the region (Tier 3 spills). It finds that accidents involving very large vessels carrying crude oil through the region would likely overwhelm the organization and response arrangements of the countries concerned, and could have devastating impacts on the environment of the region damaging coral reefs, seagrass beds, mangroves, beaches and shorelines, dugons, turtles and seabirds. A large oil spill could also severely harm the economies of the small island developing states by damaging fishing grounds, amenity beaches, diving and deep-sea fishing areas; disrupting shipping; and shutting down activities that depend on seawater intakes to aquaria or industrial plants. Annex 5 contains the executive summary of the study.

7. While weather during much of the year is generally good, with calm seas and good visibility, weather patterns during the cyclone season (December through April) are quite unpredictable, creating risks of shipping accidents and marine pollution incidents. There are few navigational hazards through the region, and to date there have been few recorded shipping accidents in the region. However, the large numbers of tankers, and the great size and carrying capacity of the vessels involved, create the risk that a very large spill occurs in the Mozambique Channel. Local deliveries of petroleum products also involve some risk of environmental damage, which is exacerbated by the lack of oil spill response capacity, particularly in Madagascar and Comoros.

### **Baseline Scenario**

8. The countries of the region are committed to protecting their marine and coastal ecosystems and developing regional and national oil spill response capacity. Mauritius and Seychelles have ratified the International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC) and have developed national oil spill contingency plans.<sup>2</sup> However their oil spill response capacity remains short of the convention's requirements. Comoros and Madagascar have committed to ratifying the convention and, given the necessary financial assistance, to meeting its obligations. However, neither country has sufficient resources to undertake these activities without assistance from donors. Currently, regional oil spill response capacity resides only in South Africa and its Regional Response Center.

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<sup>2</sup> This convention defines national obligations to develop and maintain adequate capacity to respond to oil spill emergencies and facilitates international assistance in response to oil pollution incidents.

9. *Costs.* The governments of Seychelles and Mauritius have initiated national contingency planning to facilitate their national response to an oil spill emergency and have in addition, started to develop national legal and regulatory frameworks to ensure compliance with the relevant international conventions, and to build some oil spill response capacity. Neither Comoros nor Madagascar would undertake these activities without the GEF alternative. Under the baseline scenario it is expected that the four small island developing states would spend a total of about US\$450,200 during fiscal 1999–2002 to acquire some equipment to deal with oil spills and set up some very limited oil spill response capacity.

10. *Benefits.* Implementation of the baseline scenario would result in increased capacity for Mauritius and Seychelles to cope with oil spills occurring near their territories. This would somewhat reduce the risk of contamination of international waters. However, implementation of the baseline scenario would not ensure protection of globally significant marine and coastal resources or significantly reduce the risk of contamination of international waters, since no regional capacity would be developed.

### **Global Environmental Consequences**

11. Under the baseline scenario, neither Comoros nor Madagascar would be likely to develop any capacity for meeting oil spill emergencies. The threats to their marine and coastal habitats, among the most important in the world, would therefore be significant. Seychelles and Mauritius would develop limited national capacity primarily for dealing with problems arising in their home territories, so may be able to respond adequately to Tier 1 oil spills. They would not have sufficient capacity to deal with a more serious accident, however. No regional capacity would be developed to enable the nations to join together to respond to accidents regardless of where they occurred in the region, including in international waters.

### **GEF Alternative**

12. The GEF alternative would enable the islands of the west Indian Ocean to create and maintain a regional oil spill response capacity. This would make it possible to address accidents rapidly wherever they occurred in the region. Rapid response is critical to minimize damage from oil spills. Building regional capacity would also create a framework for the cooperation among the countries in other areas of shared concern, such as sustainable fisheries management. The GEF alternative will also provide the catalyst to bring governments and the local and international oil shipping industries together in a cooperative partnership that will be sustained through the establishment of a permanent regional collaboration and financing mechanism. Together governments and oil companies will develop sustainable institutional and financing arrangements to maintain oil spill response capacity. Further, oil companies have pledged to provide technologies and expertise to address oil spill emergencies.

13. *Costs.* The total cost of the GEF alternative is estimated to be US\$3.9 million, detailed as follows: (a) legal and regulatory framework for compliance with relevant conventions — US\$298,500 (*GEF financing* — US\$298,500); (b) national contingency planning — US\$962,100

(*GEF financing — US\$512,600*); (c) oil spill response equipment — US\$1.2 million (*GEF financing — US\$687,100*); (d) national capacity building — US\$389,000 (*GEF financing — US\$340,100*); (e) regional institutional strengthening — US\$1 million (*GEF financing — US\$976,000*).

14. The proposed project would leverage considerable resources from donors, which would not be available under the baseline scenario. The Government of South Africa, the oil industry and the Indian Ocean Commission have committed to contributing US\$533,300 for national contingency planning, equipment, the training of operators and joint exercises, national capacity building and regional institutional strengthening. The International Maritime Organization is part of the project. Réunion island and the European Union have both expressed an interest in supporting the project and discussions are underway with them about how they may be involved. In particular, the European Union may provide assistance to help countries comply with the provisions of the MARPOL Convention.

15. *Benefits.* Implementation of the GEF alternative would make it possible to develop true regional capability to respond to oil spill accidents in the west Indian Ocean region. This would generate global benefits by limiting contamination of international waters and protecting the globally important marine and coastal ecosystems such as the World Heritage Site of Aldabra Atoll of Seychelles and the sea turtle breeding grounds of Ile Tromelain. It would also generate regional benefits by creating a framework for future cooperation in matters of common concern, and by developing sustainable financing mechanisms for the regional initiative between countries and countries and the oil industry.

### **Domestic Benefits**

16. The GEF alternative would provide national benefits by reducing risk of catastrophic damage to beaches and coastal areas important to the tourist industry and to fishing grounds upon which many residents of the west Indian Ocean island nations depend for food and income.

### **Incremental Costs**

17. The difference between the cost of the baseline scenario (US\$450,200) and the cost of the GEF alternative (US\$3.9 million) is estimated to be US\$3.49 million. This represents the incremental cost for creating regional oil spill response capacity by: (a) formulating the legal and regulatory framework for ratifying and complying with relevant conventions; (b) developing national contingency plans; (c) procuring oil spill response equipment for regional institutions; (d) national capacity building, and (e) strengthening regional institutions. The GEF is requested to provide a grant of US\$2.814 million to finance part of the incremental costs. This will act as a catalyst for donors and governments, who will contribute the remainder. Details are presented in Tables A3.1–A3.6.

18. Several donors have committed to participating in the project, provided GEF funds are made available. South Africa will provide US\$160,600, the Indian Ocean Commission will provide US\$45,200, and oil industry will provide US\$327,500, for a total of US\$533,300 (including contingencies). Donor support will not be available in the absence of a GEF project, and therefore their contributions are not counted as baseline costs.

**Table A3.1 Incremental Cost Matrix: Summary**

	Costs (US\$ '000)	Domestic Benefits	Global Environmental Benefits
<b>Baseline</b>			
A. Legislation and regulations for conventions	0.0	Reduced risk of contamination of beaches and fisheries, primarily in Mauritius and Seychelles.	No regional capacity would be developed. No global benefits would be generated.
B. National oil spill contingency plans	127.9		
C. Oil spill response equipment	322.3		
D. National capacity building	0.0		
E. Regional institutional strengthening	0.0		
SUBTOTAL	450.2		
<b>Alternative</b>			
A. Legislation and regulations for conventions	298.5	<i>All island countries:</i> Reduced risk of contamination of beaches and fisheries.	Protection of globally significant marine and coastal resources. Prevention of transboundary pollution. Creation of regional capacity with sustainable institutional and financial arrangements to address other issues of regional concern, such as fishery management.
B. National oil spill contingency plans	962.1		
C. Oil spill response equipment	1,220.2		
D. National capacity building	389.0		
E. Regional institutional strengthening	1,066.3		
SUBTOTAL	3,936.1		
<b>Increment</b>			
A. Legislation and regulations for conventions	266.3		
B. National oil spill contingency plans	834.2		
C. Oil spill response equipment	897.9		
D. National capacity building	389.0		
E. Regional institutional strengthening	1,066.3		
SUBTOTAL	3,485.9		

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**GEF Grant** **2,814.3**

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**Table A3.2 Incremental Cost Matrix: Component A — Legislation and regulations for conventions**

	<b>Costs (US\$ '000)</b>	<b>Domestic Benefits</b>	<b>Global Environmental Benefits</b>
<b>Baseline</b>			
Comoros	0.0	No domestic benefits would be generated.	No regional capacity would be developed. No global benefits would be generated.
Madagascar	0.0		
Mauritius	0.0		
Seychelles	0.0		
<i>SUBTOTAL</i>	0.0		
<b>Alternative</b>			
Comoros	66.8	<i>All island countries:</i> Reduced risk of contamination of tourist beaches (in some countries tourism contributes up to 20 percent of GDP and employs up to 10 percent of the workforce); and fisheries (4 percent of GDP, and substantial subsistence food resources). Avoidance of social upheaval that may accompany the loss of employment opportunities and food resources.	Protection of globally significant marine and coastal resources in accordance with relevant international conventions. Prevention of transboundary pollution. Creation of regional capacity with sustainable institutional and financial arrangements able to rapidly respond to problems.
Madagascar	108.7		
Mauritius	72.2		
Seychelles	50.7		
<i>SUBTOTAL</i>	298.5		
<b>Increment</b>			
Comoros	66.8		
Madagascar	108.7		
Mauritius	72.2		
Seychelles	50.7		
<i>SUBTOTAL</i>	298.5		
<b>GEF Grant</b>	<b>298.5</b>		

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**Table A3.3 Incremental Cost Matrix: Component B — National Oil spill contingency plans**

	<b>Costs (US\$ '000)</b>	<b>Domestic Benefits</b>	<b>Global Environmental Benefits</b>
<b>Baseline</b>			
Comoros	11.1	<i>Mauritius and Seychelles:</i> Reduced risk of contamination of beaches and fisheries. <i>Comoros and Madagascar:</i> Improved ability to respond to Tier 1 spills	No regional capacity would be developed. No global benefits would be generated.
Madagascar	22.3		
Mauritius	55.6		
Seychelles	38.9		
<i>SUBTOTAL</i>	<i>127.9</i>		
<b>Alternative</b>			
Comoros	237.0	<i>All island countries:</i> Reduced risk of contamination of marine and coastal resources important to tourism (in some countries tourism contributes up to 20 percent of GDP and employs up to 10 percent of the workforce); and fisheries (4 percent of GDP, and substantial subsistence food resources). Avoidance of social upheaval that may accompany the loss of employment opportunities and food resources.	Nations develop capacity to participate in regional initiative, improving the likelihood that spills are dealt with quickly, and damage contained. Globally important marine and coastal resources (coral reefs, seagrass beds, mangroves, beaches and shorelines, dugons, turtles seabirds) are protected. Regional cooperation among countries and between countries and the oil industry provides sustainable institutional and financing arrangements.
Madagascar	342.7		
Mauritius	218.1		
Seychelles	164.4		
<i>SUBTOTAL</i>	<i>962.1</i>		
<b>Increment</b>			
Comoros	225.9		
Madagascar	320.4		
Mauritius	162.4		
Seychelles	125.4		
<i>SUBTOTAL</i>	<i>834.2</i>		
<b>GEF Grant</b>	<b>512.6</b>		

**Table A3.4 Incremental Cost Matrix: Component C — Oil spill response equipment**

	<b>Costs (US\$ '000)</b>	<b>Domestic Benefits</b>	<b>Global Environmental Benefits</b>
<b>Baseline</b>			
Comoros	0.0	<i>Mauritius and Seychelles:</i> Reduced risk of contamination of beaches and fisheries.	No regional capacity would be developed. No global benefits would be generated.
Madagascar	0.0		
Mauritius	166.7		
Seychelles	155.6		
<i>SUBTOTAL</i>	322.3		
<b>Alternative</b>			
Comoros	170.6	<i>All island countries:</i> Reduced risk of contamination of marine and coastal resources important to tourism (in some countries tourism contributes up to 20 percent of GDP and employs up to 10 percent of the workforce); and fisheries (4 percent of GDP, and substantial subsistence food resources). Avoidance of social upheaval that may accompany the loss of employment opportunities and food resources.	Nations develop capacity to participate in regional initiative, improving the likelihood that spills are dealt with quickly, and damage contained. Globally important marine and coastal resources (coral reefs, seagrass beds, mangroves, beaches and shorelines, dugons, turtles seabirds) are protected. Regional cooperation among countries and between countries and the oil industry provides sustainable institutional and financial arrangements.
Madagascar	509.6		
Mauritius	235.9		
Seychelles	304.0		
<i>SUBTOTAL</i>	1,220.2		
<b>Increment</b>			
Comoros	170.6		
Madagascar	509.6		
Mauritius	69.2		
Seychelles	148.4		
<i>SUBTOTAL</i>	897.9		
<b>GEF Grant</b>	<b>687.1</b>		

**Table A3.5 Incremental Cost Matrix: Component D — National capacity building**

	<b>Costs (US\$ '000)</b>	<b>Domestic Benefits</b>	<b>Global Environmental Benefits</b>
<b>Baseline</b>			
Comoros	0.0	None	None
Madagascar	0.0		
Mauritius	0.0		
Seychelles	0.0		
<i>SUBTOTAL</i>	<i>0.0</i>		
<b>Alternative</b>			
Comoros	85.9	<i>All island countries:</i> Reduced risk of contamination of marine and coastal resources important to tourism (in some countries tourism contributes up to 20 percent of GDP and employs up to 10 percent of the workforce); and fisheries (4 percent of GDP, and substantial subsistence food resources). Avoidance of social upheaval that may accompany the loss of employment opportunities and food resources.	Countries develop capacity to participate in regional initiative, improving the likelihood that spills are dealt with quickly and damage contained. Globally important marine and coastal resources (coral reefs, seagrass beds, mangroves, beaches and shorelines, dugons, turtles seabirds) are protected. Regional cooperation among countries and between countries and the oil industry provides sustainable institutional and financial arrangements.
Madagascar	125.8		
Mauritius	91.3		
Seychelles	85.9		
<i>SUBTOTAL</i>	<i>389.0</i>		
<b>Increment</b>			
Comoros	85.9		
Madagascar	125.8		
Mauritius	91.3		
Seychelles	85.9		
<i>SUBTOTAL</i>	<i>389.0</i>		
<b>GEF Grant</b>	<b>340.1</b>		

**Table A3.6 Incremental Cost Matrix: Component E — Regional institutional strengthening**

	<b>Costs (US\$ '000)</b>	<b>Domestic Benefits</b>	<b>Global Environmental Benefits</b>
<b>Baseline</b>			
Comoros	0.0	None	None
Madagascar	0.0		
Mauritius	0.0		
Seychelles	0.0		
Region	0.0		
<i>SUBTOTAL</i>	<i>0.0</i>		
<b>Alternative</b>			
Comoros	67.6	<i>All island countries:</i> Reduced risk of contamination of marine and coastal resources important to tourism (in some countries tourism contributes up to 20 percent of GDP and employs up to 10 percent of the workforce); and fisheries (4 percent of GDP, and substantial subsistence food resources). Avoidance of social upheaval that may accompany the loss of employment opportunities and food resources.	Creation of regional capacity improves the likelihood that spills are dealt with quickly, and damage contained. Globally important marine and coastal resources (coral reefs, seagrass beds, mangroves, beaches and shorelines, dugons, turtles seabirds) are protected. Regional cooperation among countries and between countries and the oil industry provides sustainable institutional and financial arrangements.
Madagascar	110.1		
Mauritius	73.0		
Seychelles	51.2		
Region	764.3		
<i>SUBTOTAL</i>	<i>1,066.3</i>		
<b>Increment</b>			
Comoros	67.6		
Madagascar	110.1		
Mauritius	73.0		
Seychelles	51.2		
Region	764.3		
<i>SUBTOTAL</i>	<i>1,066.3</i>		
<b>GEF Grant</b>	<b>976.0</b>		

TECHNICAL REVIEW  
WEST INDIAN OCEAN ISLANDS  
INDIAN OCEAN OIL SPILL CONTINGENCY PLANNING PROJECT

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**The Project Information Document (PID) and the Project Concept Document (PCD) have been reviewed. The significance and the scientific and technical merits of the proposal are as follows:**

- **The proposed project designs to protect the environmental integrity of the coastal and marine ecosystems in the Indian Ocean region against oil spill pollution, by raising awareness of the threat of oil pollution to the environment and the economic potential of environmentally related activities, such as ecotourism and fishing industry. The proposal is very well presented in the area of the protection of this international waters.**
- **The key objective of the project is to build sustainable institutional and financial arrangements within and among countries and between countries and the local and international oil industry. The project examines the status of national legislation in the participating countries in relation to marine pollution conventions. This gives a realistic view of gaps and short comings. Other aspects which the project looks into are the financial, technical, organizational and coordination considerations and capabilities of countries in the region. Private sector involvement is sought to leverage needed investments.**
- **The environmental issues in the region are clearly identified and the proposed project addresses all of the issues specified. A detailed risk and impact study has been reviewed and carried out using oil spill modeling. However, the impact of oil spill on aquaculture activities (such as finfishes in cages, mussels and oysters in floating rafts, and prawns in brackish water ponds) is not mentioned in the PCD. As with fisheries, damage may occur in the form of complete destruction of the cultured species or financial losses may also occur as a result of the reduced market value of the cultured species which have become contaminated by the spillage.**

- **It may be helpful to prepare a regional database and geographic information system (GIS) on marine and coastal resources. Mapping of environmentally sensitive areas should be considered. This can be done as base maps and resource map layers in a GIS-linked database and data management system, which will provide useful information for oil spill response in the region. The system should provide baseline information (e.g., ecologically sensitive areas), prioritization for each tier and distribution of assets for spill abatement.**
- **The project should be financially supported and implemented since implementation of the proposed project would result in increased capacity for Mauritius and Seychelles to cope with oil spills occurring near their territories. Development of the regional oil spill response capacity would make it possible to address accidents rapidly wherever they occurred in the region, and significantly reduce the risk of contamination of international waters. Pollution prevention is a more cost effective strategy and is expected to have only positive benefits to the environment.**

**Date: 11 May 1998**

World Bank Response to Technical Review

As suggested by the reviewer, we have incorporated the risk to aquaculture activities. The issue of sustainable fisheries management will be addressed by a United Nations Environment Programme (UNEP) Transboundary Diagnostic Analysis for the West Indian Ocean Region, which is complementary to and coordinated with the proposed Oil Spill Contingency Project.

Preparation of a regional database on marine and coastal resources and identification of priority areas will be a part of the project. Component B (national oil spill contingency plans) will address these issues by developing national capacity for environment data collection and information management systems, identifying areas of environmental and socioeconomic importance, and establishing priority areas. The information developed during the data collection and its analysis would be used to prepare environmental sensitivity maps.