

GLOBAL ENVIRONMENT FACILITY

CONCEPT NOTE

Requesting countries:	Comoros, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, South Africa, and Tanzania.
Other participating country:	France (La Réunion) is participating as a partner.
GEF focal area	International Waters
GEF program framework:	Operational Program No. 10
Project title:	Western Indian Ocean Marine Electronic Highway and Coastal and Marine Contamination Prevention Project
Requesting agency:	World Bank
Total project cost:	US\$24 million
Financing plan:	US\$10 million, GEF US\$14 million, cofinancing (governments, International Maritime Organization (IMO), industry groups (IPIECA, INTERTANKO, ITOPF), the Indian Ocean Commission, France, European Union, and NORAD.
Project duration:	Four years
Block A Grant awarded:	No
PDF B requesting agency:	World Bank.

Acronyms and Abbreviations

CLC	Civil Liability for Oil Pollution Damage
COLREG	Convention on the International Regulations for Preventing Collisions at Sea
FUND	International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage
INTERTANKO	International Association of Independent Tanker Owners
IPIECA	International Petroleum Industry Environmental Conservation Association
ITOPF	International Tanker Owners Pollution Federation
MARPOL	International Convention for the Prevention of Pollution from Ships
IMO	International Maritime Organization
OPRC	International Convention on Oil Pollution Preparedness, Response and Cooperation
SOLAS	International Convention for the Safety of Life at Sea
UNCLOS	United Nations Convention on the Law of the Sea
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
WIO-LaB	Addressing Land-based Activities in the Western Indian Ocean Program

WESTERN INDIAN OCEAN
Marine Highway Development and Coastal and Marine Contamination
Prevention Project

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CONCEPT NOTE

WESTERN INDIAN OCEAN Marine Electronic Highway and Coastal and Marine Contamination Prevention Project

Project objective

The global environmental goal of the proposed Western Indian Ocean Marine Electronic Highway and Coastal and Marine Contamination Prevention Project is to help protect the region's globally significant and extremely sensitive coastal and marine environments and rich biodiversity. The project has two main objectives. The first is to help prevent ship-based environmental contamination (such as oil spills from groundings and illegal discharges of ballast and bilge waters) and unsustainable exploitation of marine resources (such as illegal fishing and fishing practices). This will be achieved by testing the economic, technical, and institutional feasibility of introducing precision navigation systems, such as a marine electronic highway, to guide ships through sensitive areas and to monitor the movements and activities of fishing and other vessels within countries' territorial waters. The second major objective is to strengthen the capacity of countries to respond to an oil spill emergency in the region. This will be achieved by supporting efforts of Kenya, Tanzania, and Mozambique to become part of a regional oil spill response plan, by completing the identification and mapping of environmentally sensitive areas along coasts and sea lanes, and by strengthening the regional collaboration that has been built under the GEF-supported West Indian Ocean Islands Oil Spill Contingency Planning Project.

Linkages to other GEF-supported projects to improve management of the large marine ecosystems

The project is designed as an integral part of the overall ecosystem approach to better manage the living resources and habitat of the Agulhas and Somali large marine ecosystems. It supports both the proposed GEF-supported Southwest Indian Ocean Fisheries Project and the GEF-supported Targeted Research Project on Coral Reefs by providing a tool (a marine electronic highway) to effectively monitor vessels operating in the 200-mile exclusive economic zone and to enforce regulations aimed at the sustainable management of fisheries and coral reefs. Since the project provides such an immense opportunity for participating countries to utilize the MEH as a tool for effective fisheries enforcement and surveillance, collaboration with the Southwest Indian Ocean Fisheries Project will aim at achieving maximum knowledge and information exchange to realize these obvious indirect benefits for fisheries. Although independent, the proposed project and the fisheries project will be complementary and their preparation will be closely coordinated by the two project teams. The proposed project complements also the UNEP's Addressing Land-based Activities in the Western Indian Ocean Program (WIO-LaB), which aims to reduce *land-based* sources of pollution, by seeking to limit *ship-based* sources of contamination. The WIO-LaB program, established under the Nairobi Convention and recently approved by the GEF Council, includes the same countries as

the proposed project. The proposed project links to UNDP's assessment of the large marine ecosystems of the region and development of management plans for them by supporting complementary data collection and research activities. Finally, the approach of the proposed western Indian Ocean project is also expected to be useful in the efforts to improve the management of the large marine ecosystems of the western African coast, such as the Benguela current which runs up the west coast of South Africa.

Thus, the proposed project can help to complement and increase cost-effectiveness of other projects implemented under the programmatic umbrella for better managing the living resources and habitat of their shared marine ecosystems. In order to avoid duplication of efforts in terms of studies and analytical work, the proposed project will build on activities and results as they become available from other projects under the programmatic umbrella and will limit studies, mapping and information collecting to needs specific to the needs of the project.

Global significance of the marine and coastal resources

The western Indian Ocean region includes five coastal countries (Kenya, Mozambique, South Africa, Tanzania, and Somalia), one large island state (Madagascar), three small island states (Comoros, Mauritius and Seychelles), and the island territories of France in the southwest Indian Ocean (La Réunion). The region contains two of the world's 64 major large marine ecosystems, the Agulhas current and the Somali current. The Agulhas current flows south along the continental shelf of Mozambique and South Africa, and includes Comoros, Seychelles, La Réunion, Mauritius, and Madagascar. It pushes against the near-freezing waters of Antarctica before meeting the cold Benguela current off the Cape of Good Hope. The species and habitats of the Agulhas current are unique. The coastline harbors mangrove forests, unique parabolic sand dunes, coral reefs of high degrees of endemism and biodiversity, and beds of sea grass that provide food and habitat for seabird colonies, sea turtles, and numerous fish. The Somali current stretches along the coast of East Africa from Dar es Salaam in the south to just north of the island of Socotra off the coast of Yemen. It includes Somalia, Kenya, and Tanzania. About 5 percent of the world's fish catch comes from this large marine ecosystem, including the Indian oil sardine, mackerel, small tuna, pelagic shrimp, tunas, barracuda, kingfish, jacks, and several rare fish species.

Marine and coastal resources

Marine and coastal resources of the western Indian Ocean region are rich and varied. Extensive and highly diverse coral reefs fringe the continental and island coasts, with the richest coral reefs of the western Indian Ocean lying off the coasts of Kenya, Mozambique, Tanzania, and Madagascar. Mangroves sheltering commercially important oysters, crabs, and mullet abound near river estuaries and along the coasts, particularly those of Mozambique, Tanzania, Kenya, and southern Somalia. Seagrass beds provide food and habitat for seabirds; sea turtles (including leatherbacks, loggerheads, greens, hawksbills, and olive ridleys), and many species of fish, including some that are endemic. Porpoises, dolphins, southern right whales, great white sharks, and yellow fin and

albacore tuna migrate along the coast with the current. The only viable dugong population remaining on the East African coast lives in the waters of the Bazaruto islands off the coast of Mozambique. The unique fish the coelacanth (a living fossil) survives in the deep waters around Comoros.

People living in the region depend to a significant extent on its coastal and marine resources for food, materials, and income. The fishing industry contributes significantly to the economies of all the countries in the region, and fishing provides an important source of protein and income for coastal dwellers. Mangroves offer poles for firewood, building materials, tannin, medicinal products, and pulp for paper. Beaches and unique coral reefs attract tourists, and tourism is now the main source of foreign exchange in the coastal parts of most of the countries in the region.

Threats

The growing population and expanding urbanization and economic activity in the coastal zones coupled with virtually nonexistent management are increasingly placing marine and coastal resources under threat. The shipping lanes along the East African coast are among the busiest in the world, carrying over 30 percent of the world's crude oil supplies. At any given time, hundreds of oil tankers, many of them very large crude carriers, transport crude oil from the oilfields of the Persian Gulf and Indonesia to Europe and the Americas. Over 5,000 tanker voyages per year take place in the sensitive coastal waters of Comoros and Madagascar and along the coast of East Africa, passing in close proximity to the World Heritage site of Aldabra Atoll (Seychelles). Oil and gas exploration programs operating in the region bring additional risks.

The western Indian Ocean region contains 13 major commercial ports, namely Cape Town, Mossel Bay, Port Elizabeth, East London, Durban and Richards Bay (South Africa), Dar es Salaam (Tanzania), Maputo, Beira, Nacala, Quelimane, Pemba (Mozambique), and Mombasa (Kenya). These serve as hubs for traffic emanating from, and destined for, Europe, Asia, the Americas and the east and west coasts of Africa. In addition to the large cargo ships traveling internationally, many smaller boats serving local needs ply the coastal waters and harbors. They add to the considerable navigation risks faced by the large ships.

High winds and high seas are common in the region, raising the risk that ships will accidentally spill oil, chemicals, noxious liquid wastes, and other hazardous substances. Currently, slicks brought in from spills in the open ocean by coastal currents frequently mar beaches and damage coral reefs. Discharges of contaminated ballast water and from refineries add to the load.

A detailed risk and impact study was carried out as part of preparation for the West Indian Ocean Islands Oil Spill Contingency Planning 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 dugons, 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.

Moreover, destruction of coral reefs and illegal fishing are major problems off the shores of the countries of the region. The western Indian Ocean region is one of the last regions in the world where fishing activities are largely unregulated. Vessels from Europe and eastern Asia heavily exploit tuna, cape hake, blackhand sole, and other species within the exclusive economic zones, but land the catch outside the region, without reporting the catch to the national authorities. Improvements in fishing methods have led to greater numbers, larger sizes, and increased variety of fish being caught. As a consequence fish stocks are shrinking and several species face potential extinction.

Although the countries in the region have declared a 200-mile exclusive economic zone (Law of the Sea), they lack the institutional and financial capacity to effectively monitor activities of vessels and to enforce their control over activities taking place within their jurisdictions. The lack of enforcement is contributing to the destruction of the coral reefs, to unsustainable exploitation of fisheries, and to significant damage to nontarget species, such as sea turtles, porpoises, dolphins, and whales.

Past and ongoing efforts

To safeguard the marine and coastal ecosystems of the western Indian Ocean islands from the risks and consequences of oil spills, the Global Environment Facility (GEF) in 1998 financed the West Indian Ocean Islands Oil Spill Contingency Planning Project. Beneficiary countries include Comoros, Mauritius, Madagascar, and Seychelles. Partners include South Africa, La Réunion island (France), the International Maritime Organization (IMO) and the oil industry (both local companies and the International Petroleum Industry Environmental Conservation Association (IPIECA)). The project comprised activities to translate the provisions of conventions and treaties that they ratify into local laws and regulations, to develop oil spill contingency plans, to build capacity to respond to oil spill emergencies, and to strengthen regional institutions and structures.

Implementation of the project is proceeding smoothly, and closing is scheduled for June 30, 2004. The project is highly likely to achieve its development objectives. Major achievements to date include:

- All four beneficiary countries have ratified the three most important conventions of the International Maritime Organization, namely the International Convention on Oil Pollution Preparedness, Response and Co-operation 90 (OPRC90), Civil Liability for Oil Pollution Damage (CLC 92), and the International Convention on the Establishment of an International Fund for Compensation for oil pollution Damage 1992 (FUND92).
- Beneficiary countries have established funds within their national budget systems to finance the costs of replacing equipment needed to respond to Tier 1 oil spill emergencies, provide periodic training, and meet other recurrent costs.
- Countries have developed and tested their national oil spill emergency contingency plans and are establishing together a tested regional oil spill contingency plan.
- Countries are developing cooperative agreements between themselves and with the oil industry, and will establish a regional coordination center.
- Specialists in all four beneficiary countries and at the regional level have participated in exercises simulating an actual oil spill to build human capacity to deal with an actual oil spill emergency.

A GEF Secretariat-managed project review completed in August 2002 rated the project approach, the project's country ownership, stakeholder participation, and sustainability as satisfactory. The review also rated the project's cost effectiveness and replicability as high. Importantly, the review noted that benefits are likely to be sustained once the project is complete because of the focus of project managers on establishing within each country sustainable financing mechanisms. Each country now either funds recurrent costs through their regular government budgets or through special funds with financing from taxes on oil or ports.

Several other GEF-supported projects aimed at protecting marine and coastal resources are either under preparation or under implementation as part of the programmatic approach of the World Bank, UNEP, and UNDP to managing the Agulhas and Somali large marine ecosystems. The Southwest Indian Ocean Fisheries Project (World Bank) is assisting governments fill gaps in knowledge of the threats to marine and coastal resources, and to develop and implement a sustainable offshore fisheries management strategy for the large marine ecosystems of the region. The Addressing Land-Based Activities in the Western Indian Ocean Project (UNEP) seeks to reduce land-based sources of stress on the marine and coastal resources. And an ecosystem assessment (UNDP) will be carried out as the basis for developing management plans for the large marine ecosystems.

What remains to be done

Mozambique, Tanzania, and Kenya still need to develop, test, and adopt national oil spill contingency plans. These countries were not involved in the West Indian Ocean Oil Spill Contingency Planning Project and have officially requested support to benefit from the approach pursued in that project. Their involvement in a regional effort to protect shared marine and coastal resources is important, not only because they are signatories to the Nairobi Convention, but also because they are home to globally significant marine and coastal resources, including rich coral reefs. In addition, much more needs to be done to ensure that the varied habitats and rich biodiversity of the western Indian Ocean are appropriately managed and protected. Efforts now need to focus on *preventing* oil spills and ship accidents, as well as maintaining capacity to respond to them. Specifically:

National laws and regulations concerning the safety of navigation and prevention of pollution from ships need to be coordinated across countries

While the countries bordering the western Indian Ocean engage in considerable trade with one another, they have not coordinated their policies and laws to facilitate shipping and trade. Many countries have still not ratified key conventions designed to protect the marine environment from pollution accidents and to ensure the safety of navigation. For example, Madagascar, Mozambique, and Tanzania have not yet ratified the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) (see annex 2 for details on the status of conventions in the region). Mozambique and Tanzania have not ratified the International Convention on Oil Pollution Preparedness, Response, and Cooperation 1990 (OPRC 90). Neither Madagascar nor Tanzania have ratified the Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREG 72). Moreover, the countries that were not part of the West Indian Ocean Oil Spill Contingency Planning Project will need to translate the provisions of conventions that they ratify into local laws and regulations.

Countries of the region would benefit by joining together to adopt a harmonized system of port state control

Under a system of port state control authorities inspect foreign ships docking at their ports to ensure that they meet international safety and environmental standards, and that crew members have adequate living and working conditions. Countries in many regions of the world have forged regional agreements that commit members to inspecting ships according to international standards, detaining ships that fail to make required improvements, and to passing information on substandard ships to its next port of call. Substandard ships pose a hazard to other ships, crew, and marine environments because they may not be able to fix their positions accurately, be under the control of incompetent officers, carelessly or illegally dispose of waste oil and other materials, and fail to maintain proper records.

Navigation equipment and services need to be upgraded in some countries

The quality of navigation equipment and navigation services varies significantly from country to country. South Africa operates a relatively sophisticated navigation system,

especially concerning shipping off the southern coast, a notoriously dangerous area for boats. Other countries provide relatively rudimentary services. For example, the charts of the Mozambique channel have not been updated since the 1970s. Moreover they are based on insufficient or nonexistent soundings, particularly on the Madagascar side of the channel. Yet, the sea bottom between Mozambique and Madagascar is for the most part continental shelf. Unknown dangers may exist in the form of shoals, reefs, and pinnacles whose locations are not known. Some fourteen seabed navigational hazards were reported during 1969–94, and the locations of these hazards have not yet been pinpointed through surveys.

The major tanker route between southern Africa and the Arabian gulf is close to the western side of the Comoros island and very close in places to the Mozambican coast at Nacala and at the Inhamire sea sanctuary (north of Maputo) (see maps in annex 1). The seaway between the St. Lazarus bank on the Mozambican side and Recif Veilhau in the Comoros is narrow, and the location of Recif Veilhau as shown on charts is thought to be at least two miles out of position. No navigation lights exist on the islands of Comoros (although there are two air racon beacons on Anjouan and another island). Vessels frequently pass through the islands of Comoros and the Seychelles travelling near the reefs of Basses da India, Hall Bank and Jaguar Seamount. The uncertainty regarding the positions of islands, shoals, and reefs poses serious problems for ships relying on the global positioning systems, particularly during times when visibility is poor.

There are 36 lights on the Mozambican coast and more than 14 on the west coast of Madagascar, but they are mostly out of range of the vessel routes. Moreover, many of them are no longer operational. As a result of the poor navigational support given to mariners by many countries of the region, insurance coverage against accidents for ships operating in the region is very expensive and some shipping companies refuse to allow their vessels to transit at all through particular sea routes. Moreover the coastal states are not meeting their requirements to support safe navigation in accordance with the international customary law and international conventions to which most of these states are party.

Illegal, unregulated, and unreported fishing and exploitation of marine and coastal resources are threatening sustainable management of these resources.

The countries of the western Indian Ocean still do not effectively coordinate surveillance of fisheries and coastal resources and enforcement of regulations and agreements intended to ensure their sustainable management. This is leading to the rapid decline of important fish stocks, coral reefs, and endemic species.

Ecosystem benefits should be estimated

Parties to the FUND can collect compensation from ships that damage ecosystems from spills or accidents at sea. To use the compensation funds adequately and create incentives to encourage ships to actively prevent oil spills and other accidents, agreement on the compensation values for damage incurred is needed.

Project description

The project will include Kenya, Mozambique, South Africa, Tanzania, Madagascar, Comoros, Mauritius and Seychelles, and as a partner La Réunion (France), covering a combined coastline of 13,300 kilometers.

Following the model developed for the Straits of Malacca and Singapore, the western Indian Ocean marine electronic highway will be implemented in phases. The PDF will help finance the feasibility study and the institutional and financial sustainability study. The first phase of the project will establish as a pilot a marine electronic highway for limited area of the region's major shipping routes, will assess the feasibility of the concept, and, should the concept prove viable, will finance preparation of a follow-up project agreed upon by the countries. The second phase of the project (five years or so after the start of project preparation) will build on the experience of the first phase and establish a full marine electronic highway covering all major shipping routes of the western Indian Ocean region.

The precise components, activities, and implementation arrangements of the project will be defined through studies to be undertaken with support from a GEF/PDF Block B Grant, which is expected to be requested in July 2003. GEF funds will complement technical assistance provided through the other partners in the program, and will finance only activities that contribute to global environmental benefits, and that others cannot finance. Specifically, GEF funds will finance activities designed to prevent marine and coastal contamination activities and activities that support surveillance and enforcement of laws and regulation governing the shipping and fisheries industries. This includes development of and installation of a pilot marine electronic highway. The oil spill contingency planning activities are largely baseline activities, and the GEF will allocate limited funding for these, focusing on the activities designed to create the regional plan and strengthen regional collaboration.

All data collection, studies, and research planned under the proposed Western Indian Ocean Marine Electronic Highway and Coastal and Marine Contamination Prevention Project are targeted and specific to the project and will not duplicate activities which are planned under other GEF-funded initiatives under the programmatic umbrella for the western Indian Ocean. The proposed project will not, for example, support development and implementation of a fisheries management plan, undertake a broader resource assessment of the large marine ecosystem, study human impact on coral reefs, or the like.

Components may include:

Component 1: Developing a regional marine electronic highway

A marine electronic highway takes advantage of advances in technology that improve the navigational decision-making of mariners. It involves an integrated system of electronic nautical charts, continuous real-time positioning information, aids to navigation and

shore-based automatic ship identification system, transponders, and provision of real-time meteorological, oceanographic, environmental, weather, and navigational information. Shipmasters use the information to guide their ships safely through busy shipping lanes. Shore-based authorities use the information to precisely identify and track ships. The marine electronic highway is thus a valuable tool for preventing and controlling marine pollution, monitoring and controlling ship movements in and around environmentally sensitive areas, and ensuring the safety of navigation. It is also a valuable tool for monitoring fishing activities and for enforcing regulations and international agreements intended to ensure sustainable management of fisheries and of other marine and coastal resources. A marine electronic highway lowers costs of shipping by reducing the risk of accidents and by allowing ships to operate in storms and other adverse conditions that would idle them if they relied on conventional navigational systems.

The concept of a marine electronic highway was initiated in Canada in the early 1990s with the application of digital technology to navigation, particularly in the development of electronic navigational charts and the electronic chart display and information system (ECDIS). The core of the Canadian version of the marine electronic highway was the integration and interconnection of the ECDIS and the automatic identification system with powerful shore-based databases to provide a basis for optimizing management of shipping traffic. The ECDIS has been operating in the Great Lakes and the St. Lawrence River corridor since 1995 with considerable success, helping ships to navigate through treacherous waters even in conditions of low visibility. The pioneering efforts in Canada on digital navigation had led to the widespread adoption of electronic navigational charts and the ECDIS by the world's shipping industry, accelerating the commercial development of electronic maritime technology along with international technology standards.

More important than technology, the marine electronic highway requires institutional mechanisms that bring governments and public and private actors together to cooperate and coordinate their actions. It also involves financial, legal, and institutional arrangements that ensure it is managed, operated, and updated efficiently and effectively.

The first phase of the project will involve the establishment of a network of electronic navigational charts in conjunction with the differential global positioning system and other maritime technologies, which will form the backbone of a marine electronic highway extending from South Africa to the Mozambican port of Nacala (west of Comoros) and to Aldabra (Seychelles). Vessels using this route will come under the control of the marine electronic highway in South Africa, again at Inharrime, and again at Nacala, and then again at Aldabra until leaving the marine electronic highway. As the area between these points is in deepwater and is far from the coasts, the area will be surveyed and electronic charts will be provided to the vessels. In addition, the route north from the Seychelles will be surveyed to provide mariners with up to date information on how to navigate the route safely after they leave the marine electronic highway.

Specific activities include:

- (a) **GENERATING NAUTICAL CHARTS AND PUBLICATIONS.** The major routes used by vessels will be surveyed using swath bathymetry equipment to identify potential dangers on the routes and to provide data to be used to produce both paper and digital charts. In addition, the approaches to and sites of nine ports (five in Mozambique, two in Kenya and two in Tanzania) will be surveyed and the relevant paper and digital charts produced and regularly updated. The charts and publications will include information on the environmental conditions in the region's waters.
- (b) **MAINTAINING CHARTS AND PUBLICATIONS.** Experts in the production of surveys and charts will provide training in managing and maintaining information necessary to ensure the safety of navigation and environmental protection.
- (c) **INSTALLING AIDS TO NAVIGATION.** Surveys of hazards and assessments of the status of the lights and buoys will be carried out along all the major shipping routes, with particular emphasis on the route to be used for the demonstration phase of the marine electronic highway. In addition, aids to navigation will be installed to guide ships traveling through the waters of the western Indian Ocean and entering ports and harbors.
- (d) **INSTALLING AUTOMATIC INFORMATION SYSTEMS, A SHIP REPORTING SCHEME, AND A DIFFERENTIAL GLOBAL POSITIONING SYSTEM SERVICE.** The project will support the installation of six shore-based automatic information systems (several in South Africa (including Durban), three in the Inharrime area, and three in the Nacala area, and three in the area of the Seychelles), and an automatic information systems center in Maputo. It will support installation of equipment financed by the industry) on ships taking part in the demonstration project, which together will form the basis of a ship reporting scheme. The subcomponent will also support training in the operation and maintenance of the systems. The installations will be used to transmit real time information on hydrographical and oceanographic, environmental, weather conditions, and the positions and movements of ships in the area. They will form the foundation of a marine electronic highway that will fully integrate information required for marine safety and environmental protection and management.
- (e) **STRENGTHENING SEARCH AND RESCUE OPERATIONS.** This subcomponent will support the installation of the telecommunication link between the marine rescue coordination centers in South Africa and in Kenya.
- (f) **EVALUATING THE PILOT PHASE AND PREPARING THE NEXT PHASE.** This subcomponent will finance a detailed assessment of the pilot phase and draw lessons for use in designing and rolling out the second phase of the marine electronic highway. This subcomponent will also finance the detailed preparation of the second phase of the marine electronic highway.

The GEF would finance each of these subcomponents, with resources focused in particular on installing automatic information systems, ship reporting scheme and a differential global positioning system service, and producing the nautical charts and publications.

Component 2: Coastal and marine contamination prevention capacity building

Subcomponents include:

- (a) **SUPPORTING SEMINARS AND WORKSHOPS.** This subcomponent will support seminars and workshops on environmental sensitivity mapping, project management, issues related to implementation of conventions, marine navigation safety, prevention of marine and coastal pollution, development and implementation of national contingency plans, use of oil spill equipment, characteristics and effects of oil in the marine environment, risk assessment and development of appropriate response strategies. It will also finance the participation of government officials at major international seminars on the safety of marine navigation, prevention of ship-based pollution, enforcing fisheries regulations, and related matters. It will support experts to develop and update navigation charts and to develop, review, and test an oil spill response manual. Finally, it will support the trainers of trainers.
- (b) **CREATING SITE-SPECIFIC POLLUTION PREVENTION AND CONTINGENCY MANAGEMENT PLANS FOR COASTAL AND MARINE BIODIVERSITY HOTPOTS WITH HIGH RISK PROFILES.** This subcomponent will support the training both locally and abroad of country experts on hydrographic issues, surveying, and international maritime laws. Sensitivity maps in combination with the risk assessment will be used to identify coastal and marine biodiversity hotspots which are at high risk of pollution and damage from shipping accidents. Site-specific and issue-related pollution prevention and contingency management plans will be developed for these sites. Local communities, private businesses, and other key stakeholders will participate actively in developing these plans to ensure that they reflect the preferences and values of the people who will implement them.
- (c) **DEVELOPING A METHODOLOGY TO VALUE ECOSYSTEM BENEFITS.** This subcomponent will support the development of a methodology to enable governments to carry out baseline studies to identify the key environmental resources of the region and assign indicative values to the resources.
- (d) **DEVELOPING A REGIONAL DATABASE AND GEOGRAPHIC INFORMATION SYSTEM ON MARINE AND COASTAL RESOURCES.** The project will finance the development of a regional database and geographic information system on the marine environment, marine and coastal resources, ship movements, ship waste, and sea-based activities. Activities will include collection of baseline data where necessary. The information will be used to create sensitivity maps indicating coastal and marine resources and their economic values and sea-based sources of marine pollution.

The GEF would finance each of these subcomponents. GEF funds in particular would support the development of a methodology to value ecosystem benefits and the development of a regional database and geographical information system on marine and coastal resources.

Component 3: Developing regional oil spill contingency capacity

- (a) ASSISTING KENYA, MOZAMBIQUE, AND TANZANIA TO DEVELOP NATIONAL OIL SPILL CONTINGENCY PLANS, TO JOIN THE REGIONAL PLAN, AND TO CREATE SENSITIVITY MAPS. Mozambique, Tanzania, and Kenya have yet to develop national oil spill contingency plans, as they are encouraged to do under the Nairobi Convention. This component will help them to do so, drawing upon the expertise that has been developed under the West Indian Ocean Oil Spill Contingency Planning Project. It will also support (under the Nairobi Convention) activities to join the regional plan prepared under the previous project that provides a framework for the countries of the region to cooperate and to provide mutual assistance in the event of an oil spill. Finally, this component will support the development of marine ecosystem sensitivity maps that will be used to identify areas of special significance that may require especially high levels of protection. The sensitivity maps will be used in the creation of the nautical charts and publications that are key elements of the marine electronic highway.
- (b) SUPPORTING COUNTRIES' EFFORTS TO RATIFY IMO CONVENTIONS AND TRANSLATE THEM INTO NATIONAL LEGISLATION. The project will help countries identify and overcome obstacles to ratifying IMO conventions intended to protect the marine and coastal environment from pollution from ships and to improve the safety of navigation. It will help countries to draft national legislation where necessary to harmonize national laws with the provisions of the conventions. Finally, it will support formulation of action plans with the steps and timetable to improve implementation of the conventions. This will help countries handle the complex technical requirements of the conventions. Because countries that were included in the West Indian Ocean Oil Spill Contingency Planning Project have already ratified most of the key conventions and taken the steps needed to implement them, Kenya, Mozambique, and Tanzania will be the primary beneficiaries of this component.

The GEF would mainly finance the assistance needed to develop and/or update the national oil spill contingency plans (especially for the three countries still lagging behind in this regard). The IMO, the European Union, and France are expected to cofinance these and the other activities of the component.

Component 4: Regional coordination and project management

- (a) SUPPORTING ADOPTION OF PORT STATE CONTROL. Port state control allows countries to require that ships entering their ports meet the requirements of the major conventions of the IMO on the safety of navigation and the prevention of

pollution from ships regardless of whether or not the flag state is party to the conventions. A regional port state control arrangement provides an effective tool to ensure that ships using international navigation routes and calling on major ports in a region comply with the rules and standards set out in the applicable IMO conventions. The project will support the development and implementation of a regional agreement on port state control, covering issues such as procedures for surveillance, inspection, and detention of ships, and arrangements for exchanging information. It will also support training of inspectors to international standards in port state control.

- (b) CONDUCTING REGIONAL WORKSHOPS. This subcomponent will support several regional seminars and workshops on topics related to the ratification of the IMO conventions. The subcomponent will also support several regional workshops aimed at developing consensus among countries on priority actions, administrative arrangements, and coordination mechanisms to be used in promoting regional marine environmental management.
- (c) SUPPORTING PROJECT COORDINATION AND MANAGEMENT. Assistance will be needed at the national and regional levels to manage the project and coordinate the various activities. The project will finance equipment, staff, and logistical support required by the regional body and national institutions to ensure that the project is implemented efficiently and that, simultaneously, the participating entities create sustainable capacity to manage and operate the marine electronic highway and continue to coordinate activities after the project is completed.
- (d) CONDUCTING REGIONAL TRAINING AND SEMINARS. This activity will support regional training and seminars on maritime traffic management and pollution prevention, and on measures to protect coastal and marine biological resources. It will also strengthen the technical capabilities and the institutional and coordinating arrangements among the concerned states to collectively prevent, manage, and respond to transboundary marine pollution.
- (e) FACILITATING REGIONAL AGREEMENTS AND DEVELOPMENT OF A REGIONAL CONTINGENCY PLAN. The project will facilitate the establishment of regional cooperation agreements between the participating countries on prevention of transboundary marine pollution, safety of marine navigation, oil spill response, and sharing of information. This activity will also support the preparation of a regional marine pollution contingency plan.
- (f) STRENGTHENING A REGIONAL CENTER. A regional body will be needed to coordinate national actions, to monitor region-wide environmental conditions and causes of degradation and damage, and to eventually operate the marine electronic highway. Such a body will be critically important to coordinate multicountry activities beyond the lifetime of the project and will thus support its sustainability. The project through technical assistance and training will strengthen an appropriate organization, which is likely to be based on or linked to the regional

body created under the oil spill contingency planning project. The regional center will be building on the regional coordination center that is being established under the earlier western Indian Ocean oil spill contingency planning project. The IMO recommends that this center be located in Mauritius.

- (g) DEVELOPING MECHANISMS FOR SUSTAINABLE FINANCING AND OTHER ACTIVITIES. The project will build on the successful experiences of the Western Indian Ocean Oil Spill Contingency Project to develop mechanisms for the sustainable financing of both the marine electronic highway, and environmental information systems to ensure that the benefits of the project are sustainable. The private shipping industry is expected to contribute significantly to the costs, because it will benefit from the increased efficiency and safety of navigation. In addition, this subcomponent will support ad hoc technical assistance and studies during project implementation.

The GEF would support each of the subcomponents. GEF funds in particular would support project implementation management and monitoring, and would support activities leading to adoption of a regional agreement on port state control.

Project outcomes and outputs

OUTCOMES

A key outcome of the demonstration phase will be the commitment of the beneficiary countries and the other partners to roll out a full marine electronic highway stretching from South Africa to the northern border of Kenya.

Other outcomes include reduction in the number of accidents, accidental spills, and illegal discharges per ship operating in the region; (b) reduction in insurance rates for ships traveling through the region; (c) creation of reliable and timely provision of financing for the management and operation of the marine electronic highway and environmental information systems; and (d) availability of relevant and timely information generated by the regional databases and geographic information systems as reported by users from a variety of stakeholder groups. The outcomes and the indicators will be further defined during project preparation.

OUTPUTS

Some 20 ships equipped with the navigational equipment needed to benefit from the marine electronic highway (under INTERANKO financing). Other outputs include state of the art navigational charts, sensitivity maps, operational AIS and DGPS, trained nationals in the marine electronic highway technology.

Eligibility

The proposed GEF project, including all project development activities, complies with the GEF project eligibility criteria for the international waters focal area. The project aims to assist countries of the west Indian Ocean region to better understand the environment of their shared marine and coastal resources and to build national and regional capacity to reduce threats to them. It also satisfies the criteria for the international waters operational strategy by assisting countries to better understand the environmental concerns of their international waters and to work collaboratively to address them by building capacity of a regional institution and by helping countries to implement the international conventions and agreements to which they are party. It complies with the criteria of the contaminant-based operational program by demonstrating new technologies and approaches to improve navigational safety and reduce the risk of unauthorized releases of contaminants, while leveraging the involvement of the private sector.

The proposed project complies with the general GEF eligibility criteria. It will provide global benefits by addressing the major risks to marine and coastal ecosystems posed by the movement of ships (many carrying oil) in the busy sea lanes of the western Indian Ocean and by lack of effective fisheries' monitoring, surveillance, and enforcement capacity contributing to the overexploitation of fisheries resources. It will finance only incremental costs of the project, leveraging resources from the private sector and other donors to pay the majority of project costs. It will finance only the most cost-effective of the solutions explored to achieve the project objectives. Finally, it will support the ratification of relevant international conventions and agreements and the harmonization of national legislation with the requirements of the conventions.

National level support

Comoros, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, South Africa, and Tanzania have all expressed their support for the project. France (La Réunion), which will be participating as a partner, has also confirmed its support. Although preparation is still in its early stages, both South Africa and Mozambique have offered to host regional workshops. All of the countries have provided letters of support for the project and of their commitment to participate (attached).

Sustainability

Project sustainability will rest on the overall commitment of the governments of the respective countries, and the oil, shipping, and fishing industries to protect their shared marine and coastal resources from pollution and from illegal exploitation of marine and coastal resources. The project will support with the local and international oil, fishing, and shipping industries the design and establishment of institutionally and financially sustainable arrangements. The precise measures to be used will be identified through an institutional and financial sustainability study to be carried out during project preparation. It is envisaged that revenues from voluntary use and subscription of the marine electronic highway, its products, and services will provide the resources to operate, maintain, and manage the marine electronic highway.

Replicability

The project will transfer knowledge gained under the West Indian Ocean Islands Oil Spill Contingency Planning Project to Kenya, Mozambique, and Tanzania. Knowledge of new techniques to prevent and deal with oil spills will be continuously updated and shared among the participating countries through the regional institution that has been established for this purpose under the earlier project. Similarly best practices regarding the safety of navigation, monitoring of the state of fisheries, coral reefs, and ecosystem health and the means of managing and protecting resources will be shared through workshops and national and regional forums.

Stakeholder involvement

The proposed project will be developed with the active participation of the governments; the private shipping, oil, and fishing industries; nongovernmental organizations; development partners; and other stakeholders. During project preparation, discussions with the relevant ministers (particularly, transportation and environment) and other stakeholders will be held in each country to gain an understanding of what governments hope to achieve through the project and of how the project links to other national and regional initiatives. Workshops will be held with representatives of the various stakeholders to agree on the final project objectives, design, and implementation arrangements. The final preparation workshop is expected to involve country ministers or their representatives in addition to technical level government staff. During project implementation, workshops will be held with relevant stakeholders for purposes of training, knowledge sharing, and institution building. A key output of the project is expected to be a strengthened regional institution which provides a permanent forum through which various stakeholders cooperate and coordinate their actions.

Partners

In addition to the governments, the project will require close collaboration with multilateral organizations and with industry groups representing the shipping, oil, and fishing industries. The IMO will be a close partner in preventing marine contamination and in developing the national and the regional oil spill response contingency plans. UNEP through its Regional Seas Program and through its project addressing the land-based sources of pollution of the western Indian Ocean will be a partner in preventing coastal and marine contamination and in protecting critical habitats and biodiversity. UNDP will be a partner in assessing risks to the ecosystem of the western Indian Ocean and in developing a management plan for the large marine ecosystems, including enforcement of regulations of the fisheries, coral reefs, and other marine and coastal resources through use of the tools provided by the marine electronic highway. The oil industry (IPIECA) and the shipping industry (the International Association of Independent Tanker Owners, (INTERTANKO), and the International Tanker Owners Pollution Federation Limited (ITOPF) are likely to provide expert advice and technical support to the project. Other potential partners from industry will be identified during

preparation of the grant proposal. France has indicated that it will participate in the project as a partner through La Réunion island. Both the European Commission and NORAD have expressed interest in providing support.

Description of envisaged PDF activities

A PDF B request will be submitted in November 2003 incorporating results from project planning workshops and consultations in countries, conducted in May 2003. Currently, the following PDF B activities are envisaged. The GEF PDF Block B grant would provide the support needed to fully define and prepare the project, fund several studies, and support regional consultations. Specifically, it would support:

1. *Analysis of risks to the marine environment and pre-feasibility study of a potential marine electronic highway.* The study will:

- Assess risks to the marine and coastal environment from ship-based sources.
- Identify the existing technologies, institutional capacities, and human resources now employed in the participating countries to ensure the safety of navigation, to protect the marine and coastal environment from ship-based discharges and accidents, to monitor the state of fisheries and marine and coastal resources, and to enforce regulations and agreements intended to ensure their sustainable management.
- Identify gaps in the current system and specify options for upgrading the regional navigation system, including potentially by establishing a marine electronic highway. The identification of options will include specification of the most appropriate route along which navigational aids should be installed; needs for equipment, technical personnel, and training; requirements for national and regional institutions and structures, and needs for national legislation and regional agreements.
- Provide detailed costs and benefits of the various options.
- Identify financial, technical, and human resources required to maintain and operate the marine electronic highway and other options, and indicate measures for generating them sustainably.
- Provide an analysis of the incremental costs of the activities that generate benefits to the global environment, beyond those that accrue locally or nationally.

2. *Preparation of the project.* The grant will support all the activities needed to prepare the project to be presented to the GEF Council. Preparatory activities include among others:

- Identification, in close collaboration with the other implementing agencies that are preparing or implementing projects under the programmatic umbrella for the Alguhas and Somali large marine ecosystems, opportunities for (a) using the planned marine electronic highway and data as a means for surveillance and enforcement of fishing regulations and the fisheries management plans to be developed under the GEF-supported Southwest Indian Ocean Fisheries Project, and (b) coordinating with the Addressing Land-Based Activities in the Western Indian

Ocean Project on planning and responding to pollution threats from port facilities and the like to ensure that the potential synergies of the projects are fully captured.

- Identification of national and regional institutional arrangements to implement the project
- Development of costings and implementation timelines for the activities of each component
- Preparation of:
 - Terms of reference for studies and requests for proposals
 - Environmental and social management plans
 - Engineering studies
 - Financial management arrangements and procurement plan
 - Incremental cost analysis
 - Monitoring and evaluation plan
 - Project implementation plan
 - Project appraisal document.

3. *Regional workshops and associated activities*

Four regional workshops will be held as follows:

- *Preparing the workprogram for expanding the regional oil spill contingency plan.* One workshop will be held to finalize plans to expand the regional oil spill contingency plan, and to specify the workprogram that will allow the Kenya, Mozambique, and Tanzania prepare marine ecosystem sensitivity maps, and to develop their capacity to prevent and respond to oil spill emergencies.
- *Brainstorming on the project concept.* Two workshops (one each with countries from a subregion) will bring together policy makers and technical level government staff, NGOs, representatives of the private sector, international agencies, and donors early in the preparation process to discuss the concepts of a marine electronic highway, regional port state control, the potential of using the marine electronic highway as a cost-effective means for regional coordination and enforcement of fisheries agreements, and other measures to improve navigational safety and protect marine and coastal ecosystems from ship-based pollution. The workshops will provide the opportunity to reach a greater understanding of the priorities of the individual countries and of the region as a whole.
- *Confirming the project concept.* One workshop will bring together the same groups of people as the earlier workshop to discuss a draft project concept note that has been developed on the basis of the discussions in the earlier workshop. This workshop will confirm the project components and activities, sources of financing of project activities, institutional arrangements for project execution, and sustainable financing mechanisms of the navigational and port services to be established under the project.

PDF Block B outcomes and outputs

OUTCOMES

The project design process is expected to strengthen regional institutional arrangements, mechanisms for regional consultation and coordination, and methodologies for regional participation. It is also expected to result in a coordinated approach of the other GEF-supported projects (WIO-Lab, the Southwest Indian Ocean Fisheries Project, and the GEF-supported Targeted Research Project on Coral Reefs) intended to improve management of the Agulhas and Somali large marine ecosystems. During the PDF B stage the WIO MEH project will collaborate closely with the SWIOFP task team to achieve maximum knowledge and information sharing in order to work towards achieving indirect benefits for fisheries management through the planning (and later implementation) of the MEH as expected by the GEFSEC.

OUTPUTS

The primary output of the PDF Block B grant would be a GEF project brief to be submitted to the GEF Council.

Other outputs include:

- Studies with detailed implementation arrangements, costings, and implementation schedules for the marine electronic highway in the western Indian Ocean area; detailed risk analysis and feasibility study.
- Well prepared project components with detailed costs of activities and clear timetables for execution.

Justification

All the activities of the PDF Block grant to be requested are needed to prepare the proposal. The grant would help build the necessary consensus among countries of the region as to how best to protect their shared marine ecosystems. Reaching such agreement would be highly unlikely without the catalytic role provided through the support of the grant. The Block B grant is expected to be the most appropriate source of project design support because of the time and resources that will be needed to reach consensus among nine countries and to prepare the varied activities that will be carried out in different countries.

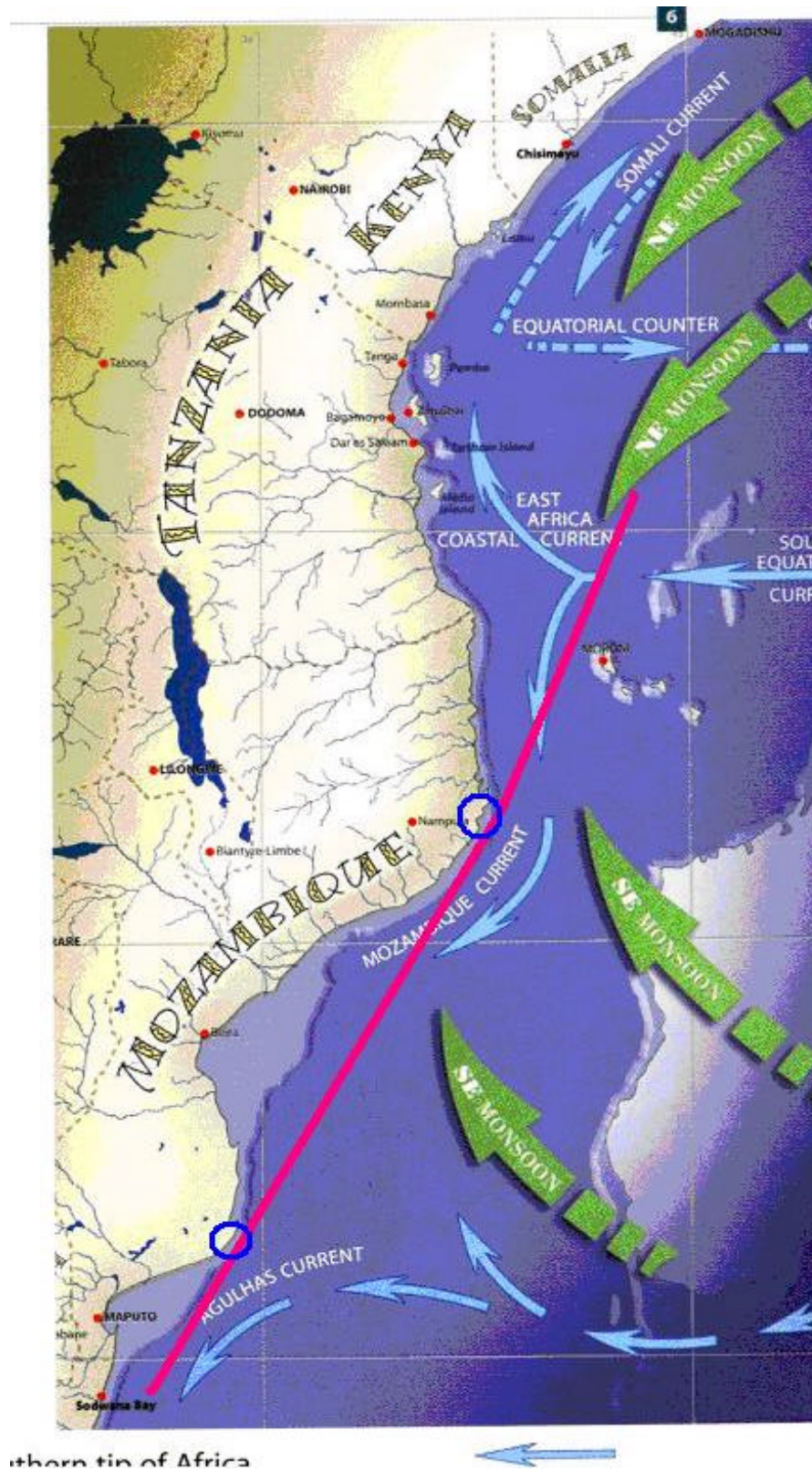
Timetable

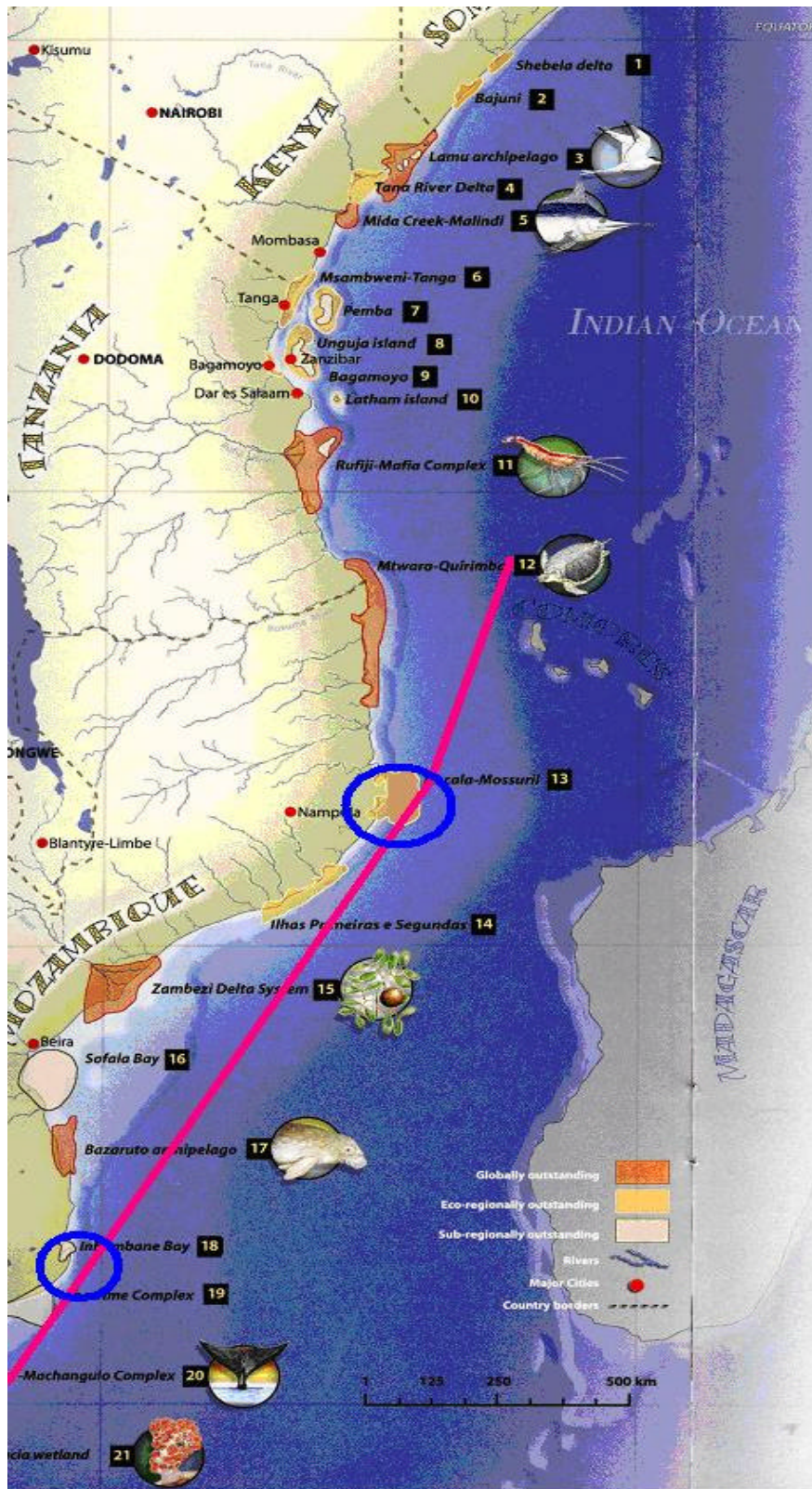
The project development will commence in December 2003 and will be completed in early 2005. The proposed GEF project to be prepared through the PDF activities will be presented to the GEF Council in FY 2005.

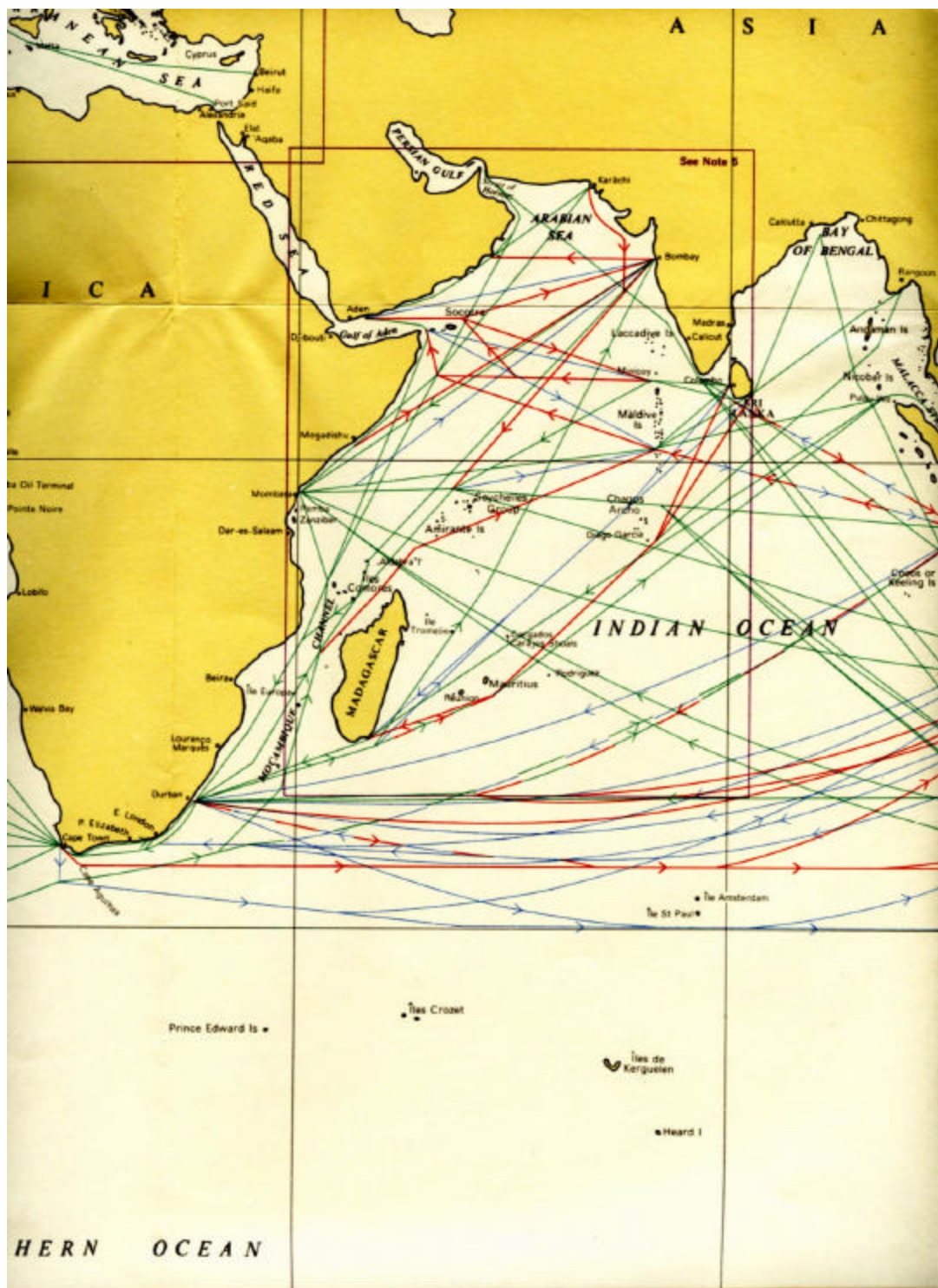
Next steps

Project Identification	May 2003
Submission of Block B/PDF Grant Proposal	September 2003
Preappraisal and appraisal	Fiscal 2004
Submission of the project proposal to the GEF Council and the Bank's Board	Fiscal 2005

Annex 1: Maps of the shipping routes and critical ecosystems of the western Indian Ocean







40120-M

REPUBLICA POPULAR DE MOÇAMBIQUE
MINISTÉRIO DA DEFESA NACIONAL
CANAL DE MOÇAMBIQUE
Escala: 1:2 000 000 (Latitude 22°)
Declividade: negativa sobre 1981
Bordas e altitudes em metros

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390 400 410 420 430 440 450 460 470 480 490 500 510 520 530 540 550 560 570 580 590 600 610 620 630 640 650 660 670 680 690 700 710 720 730 740 750 760 770 780 790 800 810 820 830 840 850 860 870 880 890 900 910 920 930 940 950 960 970 980 990 1000 1010 1020 1030 1040 1050 1060 1070 1080 1090 1100 1110 1120 1130 1140 1150 1160 1170 1180 1190 1200 1210 1220 1230 1240 1250 1260 1270 1280 1290 1300 1310 1320 1330 1340 1350 1360 1370 1380 1390 1400 1410 1420 1430 1440 1450 1460 1470 1480 1490 1500 1510 1520 1530 1540 1550 1560 1570 1580 1590 1600 1610 1620 1630 1640 1650 1660 1670 1680 1690 1700 1710 1720 1730 1740 1750 1760 1770 1780 1790 1800 1810 1820 1830 1840 1850 1860 1870 1880 1890 1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000 2010 2020 2030 2040 2050 2060 2070 2080 2090 2100 2110 2120 2130 2140 2150 2160 2170 2180 2190 2200 2210 2220 2230 2240 2250 2260 2270 2280 2290 2300 2310 2320 2330 2340 2350 2360 2370 2380 2390 2400 2410 2420 2430 2440 2450 2460 2470 2480 2490 2500 2510 2520 2530 2540 2550 2560 2570 2580 2590 2600 2610 2620 2630 2640 2650 2660 2670 2680 2690 2700 2710 2720 2730 2740 2750 2760 2770 2780 2790 2800 2810 2820 2830 2840 2850 2860 2870 2880 2890 2900 2910 2920 2930 2940 2950 2960 2970 2980 2990 3000 3010 3020 3030 3040 3050 3060 3070 3080 3090 3100 3110 3120 3130 3140 3150 3160 3170 3180 3190 3200 3210 3220 3230 3240 3250 3260 3270 3280 3290 3300 3310 3320 3330 3340 3350 3360 3370 3380 3390 3400 3410 3420 3430 3440 3450 3460 3470 3480 3490 3500 3510 3520 3530 3540 3550 3560 3570 3580 3590 3600 3610 3620 3630 3640 3650 3660 3670 3680 3690 3700 3710 3720 3730 3740 3750 3760 3770 3780 3790 3800 3810 3820 3830 3840 3850 3860 3870 3880 3890 3900 3910 3920 3930 3940 3950 3960 3970 3980 3990 4000 4010 4020 4030 4040 4050 4060 4070 4080 4090 4100 4110 4120 4130 4140 4150 4160 4170 4180 4190 4200 4210 4220 4230 4240 4250 4260 4270 4280 4290 4300 4310 4320 4330 4340 4350 4360 4370 4380 4390 4400 4410 4420 4430 4440 4450 4460 4470 4480 4490 4500 4510 4520 4530 4540 4550 4560 4570 4580 4590 4600 4610 4620 4630 4640 4650 4660 4670 4680 4690 4700 4710 4720 4730 4740 4750 4760 4770 4780 4790 4800 4810 4820 4830 4840 4850 4860 4870 4880 4890 4900 4910 4920 4930 4940 4950 4960 4970 4980 4990 5000 5010 5020 5030 5040 5050 5060 5070 5080 5090 5100 5110 5120 5130 5140 5150 5160 5170 5180 5190 5200 5210 5220 5230 5240 5250 5260 5270 5280 5290 5300 5310 5320 5330 5340 5350 5360 5370 5380 5390 5400 5410 5420 5430 5440 5450 5460 5470 5480 5490 5500 5510 5520 5530 5540 5550 5560 5570 5580 5590 5600 5610 5620 5630 5640 5650 5660 5670 5680 5690 5700 5710 5720 5730 5740 5750 5760 5770 5780 5790 5800 5810 5820 5830 5840 5850 5860 5870 5880 5890 5900 5910 5920 5930 5940 5950 5960 5970 5980 5990 6000 6010 6020 6030 6040 6050 6060 6070 6080 6090 6100 6110 6120 6130 6140 6150 6160 6170 6180 6190 6200 6210 6220 6230 6240 6250 6260 6270 6280 6290 6300 6310 6320 6330 6340 6350 6360 6370 6380 6390 6400 6410 6420 6430 6440 6450 6460 6470 6480 6490 6500 6510 6520 6530 6540 6550 6560 6570 6580 6590 6600 6610 6620 6630 6640 6650 6660 6670 6680 6690 6700 6710 6720 6730 6740 6750 6760 6770 6780 6790 6800 6810 6820 6830 6840 6850 6860 6870 6880 6890 6900 6910 6920 6930 6940 6950 6960 6970 6980 6990 7000 7010 7020 7030 7040 7050 7060 7070 7080 7090 7100 7110 7120 7130 7140 7150 7160 7170 7180 7190 7200 7210 7220 7230 7240 7250 7260 7270 7280 7290 7300 7310 7320 7330 7340 7350 7360 7370 7380 7390 7400 7410 7420 7430 7440 7450 7460 7470 7480 7490 7500 7510 7520 7530 7540 7550 7560 7570 7580 7590 7600 7610 7620 7630 7640 7650 7660 7670 7680 7690 7700 7710 7720 7730 7740 7750 7760 7770 7780 7790 7800 7810 7820 7830 7840 7850 7860 7870 7880 7890 7900 7910 7920 7930 7940 7950 7960 7970 7980 7990 8000 8010 8020 8030 80

Annex 3: Status of IMO conventions

	MARPOL 73/78				CLC			Fund			OPRC 90	SOLAS			COLREG
	Annex I/II	Annex III	Annex IV	Annex V	Conv 69	Prot 76	Prot 92	Conv 71	Prot 76	Prot 92		Conv 74	Protocol 78	Protocol 88	
Comoros	x	x	x	x			x			x	x	x	x		x
Kenya	x	x	x	x	d		x	d		x	x	x			x
Madagascar							x			x	x	x			
Mauritius	x	x	x	x	d	x	x	d	x	x	x	x			x
Mozambique					x		x	x		x		x			x
Seychelles	x				d		x	d		x	x	x	x	x	x
South Africa	x	x		x	x							x	x		x
Tanzania												x			

Annex 4: Detailed project cost Summary tables and proposed GEF contribution

Western Indian Ocean
Marine Highway Development and Coastal and Marine Contamination Prevention Project
Components Project Cost Summary

	(ZAR Million)			(US\$ Million)			% Foreign Exchange	% Total Base Costs
	Local	Foreign	Total	Local	Foreign	Total		
A. Regional Marine Electronic Highway development	12.7	71.8	84.4	1.6	9.0	10.6	85	50
B. Coastal and Marine Contamination Prevention capacity build	4.6	29.8	34.4	0.6	3.7	4.3	87	20
C. Widening the oil spill response capacity in the region	2.9	26.7	29.6	0.4	3.3	3.7	90	17
D. Regional institutional strengthening & project management	5.1	16.7	21.8	0.6	2.1	2.7	77	13
Total BASELINE COSTS	25.2	144.9	170.2	3.2	18.1	21.3	85	100
Physical Contingencies	1.6	9.0	10.6	0.2	1.1	1.3	85	6
Price Contingencies	1.7	6.5	8.2	0.2	0.8	1.0	80	5
Total PROJECT COSTS	28.5	160.5	189.0	3.6	20.1	23.6	85	111

Western Indian Ocean
Marine Highway Development and Coastal and Marine Contamination Prevention Project
Components Project Cost Summary

	(ZAR Million)			(US\$ Million)			% Foreign Exchange	% Total Base Costs
	Local	Foreign	Total	Local	Foreign	Total		
A. Regional Marine Electronic Highway development								
1. Nautical Charts and Publications	7.0	39.4	46.4	0.9	4.9	5.8	85	27
2. Charts and publication Maintenance	0.3	1.4	1.7	0.0	0.2	0.2	85	1
3. Aids to Navigation	1.6	9.0	10.6	0.2	1.1	1.3	85	6
4. Automatic Information Service (AIS) & Ship Reporting Scheme	3.2	18.3	21.5	0.4	2.3	2.7	85	13
5. Search and Rescue	0.0	0.3	0.3	0.0	0.0	0.0	85	-
6. Evaluation of the Demonstration Phase and Preparation of Phase 2	0.6	3.4	4.0	0.1	0.4	0.5	85	2
Subtotal Regional Marine Electronic Highway development	12.7	71.8	84.4	1.6	9.0	10.6	85	50
B. Coastal and Marine Contamination Prevention capacity building								
1. Seminars and Workshops	-	3.6	3.6	-	0.5	0.5	100	2
2. Training on Marine and Coastal protection	0.9	5.1	6.0	0.1	0.6	0.8	85	4
3. External expertise& equipment	2.1	11.9	14.0	0.3	1.5	1.8	85	8
4. Valuing Ecosystems benefits methodology	0.7	4.1	4.8	0.1	0.5	0.6	85	3
5. Regional Database on marine and coastal resources preparation	0.9	5.1	6.0	0.1	0.6	0.8	85	4
Subtotal Coastal and Marine Contamination Prevention capacity building	4.6	29.8	34.4	0.6	3.7	4.3	87	20
C. Widening the oil spill response capacity in the region								
1. Conventions Ratifications	0.5	6.7	7.2	0.1	0.8	0.9	93	4
2. National oil spill contingency plans development (NCP)	2.0	9.7	11.8	0.3	1.2	1.5	83	7
3. Oil spill response equipment	0.3	10.3	10.6	0.0	1.3	1.3	97	6
Subtotal Widening the oil spill response capacity in the region	2.9	26.7	29.6	0.4	3.3	3.7	90	17
D. Regional institutional strengthening & project management								
1. Regional Agreement on Port State Control initiative	0.6	3.4	4.0	0.1	0.4	0.5	85	2
2. Regional workshops	0.1	0.7	0.8	0.0	0.1	0.1	85	-
3. Assistance for project coordination and Management	4.0	10.7	14.7	0.5	1.3	1.8	73	9
4. Regional agreements and Regional contingency plan	0.2	1.2	1.4	0.0	0.2	0.2	85	1
5. Regional exercises	0.1	0.7	0.8	0.0	0.1	0.1	85	-
Subtotal Regional institutional strengthening & project management	5.1	16.7	21.8	0.6	2.1	2.7	77	13
Total BASELINE COSTS	25.2	144.9	170.2	3.2	18.1	21.3	85	100
Physical Contingencies	1.6	9.0	10.6	0.2	1.1	1.3	85	6
Price Contingencies	1.7	6.5	8.2	0.2	0.8	1.0	80	5
Total PROJECT COSTS	28.5	160.5	189.0	3.6	20.1	23.6	85	111

	GEF		Western Indian Ocean Governments		To be Financed		Total		For. Exch.	Local (Excl. Taxes)	Duties & Taxes
	Amount	%	Amount	%	Amount	%	Amount	%			
A. Regional Marine Electronic Highway development											
1. Nautical Charts and Publications	2.4	38.4	-	-	3.9	61.6	6.3	26.8	5.4	1.0	-
2. Charts and publication Maintenance	0.1	54.8	-	-	0.1	45.2	0.2	1.0	0.2	0.0	-
3. Aids to Navigation	1.2	80.0	0.1	4.1	0.2	15.9	1.4	6.1	1.2	0.2	-
4. Automatic Information Service (AIS) & Ship Reporting Scheme	1.2	40.8	-	-	1.7	59.2	2.9	12.3	2.5	0.4	-
5. Search and Rescue	-	-	-	-	0.0	100.0	0.0	0.2	0.0	0.0	-
6. Evaluation of the Demonstration Phase and Preparation of Phase 2	0.6	96.7	-	-	0.0	3.3	0.6	2.4	0.5	0.1	-
Subtotal Regional Marine Electronic Highway development	5.5	47.3	0.1	0.5	6.0	52.2	11.5	48.9	9.8	1.8	-
B. Coastal and Marine Contamination Prevention capacity building											
1. Seminars and Workshops	0.1	20.0	-	-	0.4	80.0	0.5	2.1	0.5	-	-
2. Training on Marine and Coastal protection	-	-	-	-	0.9	100.0	0.9	3.7	0.7	0.1	-
3. External expertise & equipment	0.9	47.6	-	-	1.0	52.4	1.9	8.0	1.6	0.3	-
4. Valuing Ecosystems benefits methodology	0.3	50.0	-	-	0.3	50.0	0.7	2.9	0.6	0.1	-
5. Regional Database on marine and coastal resources preparation	0.3	40.0	-	-	0.5	60.0	0.9	3.6	0.7	0.1	-
Subtotal Coastal and Marine Contamination Prevention capacity building	1.7	35.1	-	-	3.1	64.9	4.8	20.3	4.1	0.7	-
C. Widening the oil spill response capacity in the region											
1. Conventions Ratifications	0.1	5.7	-	-	1.0	94.3	1.0	4.3	0.9	0.1	-
2. National oil spill contingency plans development (NCP)	1.0	59.7	0.1	6.4	0.6	33.9	1.7	7.1	1.4	0.3	-
3. Oil spill response equipment	0.1	3.9	-	-	1.4	96.1	1.5	6.4	1.5	0.0	-
Subtotal Widening the oil spill response capacity in the region	1.1	26.6	0.1	2.6	3.0	70.8	4.2	17.8	3.8	0.4	-
D. Regional institutional strengthening & project management											
1. Regional Agreement on Port State Control initiative	0.3	50.0	-	-	0.3	50.0	0.6	2.4	0.5	0.1	-
2. Regional workshops	0.1	50.0	-	-	0.1	50.0	0.1	0.5	0.1	0.0	-
3. Assistance for project coordination and Management	1.3	61.5	0.6	27.0	0.2	11.5	2.1	8.7	1.5	0.6	-
4. Regional agreements and Regional contingency plan	-	-	-	-	0.2	100.0	0.2	0.9	0.2	0.0	-
5. Regional exercises	-	-	-	-	0.1	100.0	0.1	0.5	0.1	0.0	-
Subtotal Regional institutional strengthening & project management	1.6	52.4	0.6	18.1	0.9	29.5	3.1	13.1	2.3	0.7	-
Total Disbursement	9.9	41.8	1.1	4.7	12.6	53.5	23.6	100.0	20.1	3.6	-

