The Experience of the World Bank in the Legal, Institutional and Financial Aspects of Regional Environment Programs:

Potential Applications of Lessons Learned for the ROPME and PERSGA Programs
THE EXPERIENCE OF THE WORLD BANK
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FINANCIAL ASPECTS OF
REGIONAL ENVIRONMENTAL PROGRAMS

Potential Applications of Lessons Learned for
the ROPME and PERSGA Programs

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Executive Summary

Overview

Since 1987, the World Bank has been actively involved in the cooperative design, preparation and implementation of regional environmental programs for the Mediterranean Sea, Baltic Sea and Black Sea. More recently it has been active in the cooperative development of a program for the Aral Sea. These programs have provided an effective forum for regional cooperation among the contracting parties to the conventions and interested outside participants, including the World Bank. In each of these cases, the conventions deal with the improved management of enclosed seas through the commitment of the contracting parties to common objectives related to protection of environmental health, maintenance of ecosystems and sustained productivity of their shared sea. The experience from these programs provides a number of lessons learned that could be effectively adopted for use by the Regional Organization for the Protection of the Marine Environment (ROPME) established under the Kuwait Action Plan of 1978 and the Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA) established under the Jeddah Convention of 1982.

This paper focuses on the lessons learned by the World Bank concerning the legal, institutional and financial aspects of regional environmental programs and suggests selected measures for consideration by the contracting parties to ROPME and PERSGA. It begins with a review of the major environmental issues in the Red Sea and Gulf Regions. It then goes on to suggest a series of priority actions for consideration by ROPME and PERSGA, which include steps to facilitate the legal, institutional and financial support that these programs can provide to address the key environmental issues. The suggested framework of actions focuses on short and medium-term solutions to overcome constraints to implementation of the regional conventions adopted under each program and identifies practical and cost effective actions, many of them preventive, to address high priority issues in each region.

Key Environmental Issues

The ROPME and PERSGA regions contain some of the world's most important coastal and marine environments. Among the most notable is the extraordinary system of coral reefs and their associated fauna and flora in the Red Sea, making it one of the most important repositories of marine biodiversity on a global scale. While the Gulf is less biologically diverse, it harbors important shrimp and other demersal fisheries, as well as mangroves, scattered coral reefs and seagrass beds. The strategic importance of petroleum and related maritime traffic to the economies of the littoral states bordering the Gulf and the Red Sea, however, pose serious threats to the fragile coastal and marine environments of these two highly enclosed regional seas. Routine operational leaks and spills from the production and transport of oil constitute the major source of marine pollution in the ROPME and PERSGA regions. At the same time, the growing risk of oil traffic-related accidents creates a major demand for emergency response combined with management skills to minimize risks and control major spills. The rate of population and economic growth in the coastal zones of both regions has also increased pressure on the environment. Dredging and filling operations, domestic and industrial effluent and the unsustainable use of freshwater resources, highlight the need for effective use of environmental management practices.

Legal Aspects

A major lesson from the Mediterranean, Baltic and Black Sea programs is that conventions alone do not implement change or improve the environment, rather they establish a legal framework for long-term cooperative action, which if sustained, may require a decade or more to achieve the desired results. Therefore, it is critical for program sustainability that the regional conventions, their permanent secretariats and implementation programs, have strong public ownership by the con-
tracting parties. This commitment must be translated into national legislation and policies to directly support the elements of the international conventions at a variety of levels.

Institutional Aspects

Experience from these regional environmental programs indicates that the establishment of an effective institutional structure—in the form of a convention secretariat—is important to coordinate the program on a sustained basis and in a cost-effective manner. Success in this area is associated with a clear concept of the program objectives, preparation of a well-defined work program, and planning consistent with the level of funding realistically available for these functions. Creating the appropriate linkages between institutions at the regional, national and local levels is important in resolving potential conflicts in program objectives, jurisdictions, or interventions. In regional marine-oriented programs, major cities, industrial centers and key port authorities should be direct participants in the process of prioritizing issues and designing activities to address them.

A major lesson learned, especially from the Baltic Sea Environment Program, is that cooperative preparation and adoption of a Strategic Action Program (SAP) is critical for implementing priority actions under the framework of the convention. The SAP should give priority to preventive and curative actions required to protect human health, control irreversible physical and ecological damage, and minimize economic losses from degradation of the coastal and marine environment. Preparation of the SAP should be made in the context of a special task force to allow for the participation of contracting parties to the convention as well as selected outside parties representing relevant international and regional technical organizations, international and regional financial institutions, bilateral donors, and nongovernmental organizations. The National Environmental Action Plan (NEAP), where available, can provide valuable input to the SAP and support efforts to prioritize environmental activities in the coastal zone.

Financial Aspects

Mobilization of financial and human resources by national and local governments is the key element for the long-term success of regional environmental programs. The primary responsibility for the mobilization of these resources, both domestic and international, is that of the contracting parties, and should be viewed as a complex and continuous process. International financial institutions, regional financial institutions and bilateral donors can provide financial support and share specialized expertise and experiences gained from other programs. In generating financial support, the participation of the private sector should be encouraged in all relevant aspects of the program.

The convention secretariat can facilitate the mobilization of funds and monitor progress of the program. It can provide a regular forum for donor coordination, report on the progress and priorities of cooperating countries, disseminate current program information, and provide specialized support in the case of major emergencies. The convention secretariat should not be expected to raise or administer large amounts of funds for investment activities; this should remain the direct responsibility of the contracting parties. It could, however, coordinate technical assistance and allocate funds for regional assessments and monitoring.

A Suggested Framework of Actions to Support ROPME and PERSGA

A set of key suggested actions has been identified on the basis of experience from the Mediterranean, Baltic and Black Sea, to support the ROPME and PERSGA programs in achieving their full potential over the short, medium and long-term. These suggested priority actions include:

(a) establishment of a clear mandate that is maintained by sustained high level and public support;
(b) resolution of selected legal issues related to the programs;
(c) development of clear work plans for the convention secretariats;
(d) preparation of SAPs that identify priority activities and provide a framework for their phased implementation;
(e) increased emphasis on the use of "preventive measures;" and
(f) adoption of measures to increase the mobilization of domestic and international resources to support program implementation.
A Proposed Action Agenda

In the short-term the following measures are proposed for an “Action Agenda:”

(a) Preparation and Implementation of Work Plans for the ROPME and PERSGA Convention Secretariats. These work plans would be prepared to strengthen the work of the ROPME secretariat and make the PERSGA secretariat fully operational. They would include specific actions to be taken by the convention secretariats to increase high level and public support for the programs and seek financial resources from the regional financing institutions and oil companies.

(b) Preparation of SAPs for the ROPME and PERSGA Regions. The SAPs would include a review of environmental conditions and trends, evaluation of causes of degradation, design of a priority action program, preparation of a cost estimate for major actions, and an assessment of resource mobilization options. This would also involve establishment of special task forces for each program for preparation of the SAPs. Membership in the special task forces, would include but not be limited to, representatives of the convention secretariats, contracting parties, and selected representatives of international, regional and bilateral funding organizations. Under the leadership of PERSGA and with the support and the participation of the GEF of the three implementing agencies, a SAP is now being undertaken for the Red Sea and Gulf of Aden.

(c) Demonstration Activities for “Preventive” Measures. This would support the identification, design and implementation of a limited set of activities to demonstrate the use of “preventive” measures. Proposed activities would include: (i) management of dredging and land filling; (ii) application of integrated coastal zone planning and management which could be linked, in some locations, with measures to control desertification; and (iii) use of waste minimization technologies in small and medium scale industries.

The primary resources required for this proposed “Action Agenda” would need to be provided primarily by the contracting parties. It may be possible for a portion of the costs for the proposed “Action Agenda,” especially for preparation of the SAPs, to be provided by international financial organizations, regional financial organizations and the oil companies operating in the region.
Overview

Introduction

The experience from the Mediterranean, Baltic and Black Sea regional environmental programs provides a number of lessons learned that could be effectively transferred and adapted for use by the Regional Organization for the Protection of the Marine Environment (ROPME) established under the Kuwait Action Plan of 1978 and the Program for the Environment of the Red Sea and the Gulf of Aden (PERSGA) established under the Jeddah Convention of 1982 (Table 1). This paper provides an overview of the environmental setting in which these programs operate, an analysis of the major environmental issues in the regions affecting coastal and marine areas, and a series of proposed actions for consideration by the contracting parties to the conventions, their secretariats and other interested parties. These proposed actions refer to various legal, institutional and financial measures that should be considered, and are derived from lessons learned by the World Bank through its participation in the implementation of the above-mentioned regional environmental programs. A more detailed discussion of the Bank’s experience and its relevance to ROPME and PERSGA has been prepared as an Annex to this report.

Major Program Activities

Under these Mediterranean, Baltic and Black Sea programs, major activities have included: (a) establishment of clear legal frameworks at the regional and national level for the management and implementation of the programs; (b) development of management institutions with well defined work plans; (c) preparation of strategic action plans to provide a framework for phased program implementation; (d) evaluation of financial requirements and availability of funds and identification of mechanisms for their use; and (e) implementation of projects for selected priority activities. In all of these programs, the World Bank has been closely associated with the process of establishing priorities for complementary preventive and curative actions related to the effects of environmental degradation on human health, ecosystem maintenance and the economy. Working as a facilitator for regional cooperation, the World Bank has also assisted concerned countries overcome institutional constraints.
The Environmental Setting

Ecological Treasures in a Commercial Crossroads

In addition to serving as the exploration sites, production zones, processing areas and main transportation corridors for more than half the world’s proven oil reserves, the ROPME and PERSGA regions include some of the world’s most important coastal and marine environments (see Maps 1 and 2). Most of the oil produced from both inland and offshore wells is exported, transforming both the Gulf and the Red Sea into oil tanker highways (Map 3). Entering the Gulf each year are some 20,000-35,000 tankers which load their cargos of oil for shipment to the far East and Europe. Many tankers proceed from the Gulf, around the Arabian peninsula, into the Red Sea where they either continue north through the Suez Canal to the Mediterranean, or deposit their cargo at the entrance to the Sumed pipeline at Ain Sukhna in Egypt. The strategic importance of petroleum and the resulting maritime traffic to the economies of the littoral states bordering the Gulf and the Red Sea pose a serious threat to the fragile coastal and marine environments of these two enclosed regional seas.

ROPME Region

In the Gulf, environmental conditions are less uniform and more extreme. Waters are shallower and subject to abrupt seasonal temperature and salinity changes. Surface water temperatures in the south generally only range between 32° and 22° C, while in the north, temperatures may fall to 16° C during the winter. While salinity in the northern Gulf is mediated by fresh water discharges from the Euphrates, Tigris and Karun River systems, salinity may increase more than 60% in areas such as the Gulf of Salwa further south. Compared to the Red Sea, the Gulf is less biologically diverse, however, it harbors important shrimp and other demersal fisheries as well as mangroves, scattered coral reefs and seagrass beds. As in the Red Sea, marine pollution from oil exploration and transport activities, and the irreversible ecological effects of extensive dredging, landfilling and sedimentation are threatening the integrity and productivity of its coastal and marine systems.

PERSGA Region

In the Red Sea, where depths range from very shallow near shore to over 2000 meters in the central rift, and where salinity and temperatures are relatively constant, environmental conditions have given rise to an extraordinary range of biological diversity. Its most renowned expression is the elaborate system of coral reefs and their associated fauna and flora. Species endemism in the Red Sea is extremely high, particularly among corals and reef fish, making the Red Sea one of the world’s most important repositories of marine biodiversity. Although the Red Sea is still one of the least ecologically disturbed seas relative to other enclosed seas, the growing risk of marine pollution and environmental degradation from rapidly expanding maritime activities and the conversion of coastal habitat for tourism and recreation are placing it in increasing jeopardy.
Key Environmental Issues in the ROPME and PERSGA Regions

Overview

Over the last decade clear progress has been made in protection of the coastal and marine environment of the ROPME and PERSGA regions. A major area of progress in controlling land-based sources of marine pollution has been the construction and successful commissioning of a series of wastewater treatment plants in coastal cities and the establishment of major industrial port complexes such as Yanbu and Jubail, which have successfully integrated environmental management concerns into their design. However, in contrast to most regional seas around the world, the major source of marine pollution in the Gulf and Red Sea is not land-based, but from ship-based sources, oil exploration and offshore oil production. While the production and transport of oil continues to play a critical role in the economy, it also constitutes the major source of marine pollution in both regions. Because of the inherent risk of major accidents associated with the high volume of exploitation and shipment of oil, these activities create a major demand for emergency response skills to control oil spills and preventative actions to minimize risks. While success has been achieved in controlling several significant major spills that placed important installations and ecosystems at serious risk, the full scale emergency response capability is limited to only a few locations in both areas. Contributing to the stress of operational and accidental spills offshore, the rate of population and economic growth in the coastal zones of both regions has resulted in increased pressure on the marine environment, highlighting the need for effective use of environmental management practices. Table 2 summarizes these concerns.

Sea Based Pollution

(a) Ship-based Pollution. In both the ROPME and PERSGA regions, ship-based marine pollution related to the transport of oil and discharge of wastes continues to be a major issue. Over 100 million tons of oil are transported through the Red Sea annually, nearly half of which enters the region via the Yanbu Petroline from the Gulf (see Map 3). This high volume of transport traffic results in chronic marine pollution as the result of discharges of oily ballast water and tank washings from vessels, operational spills from vessels loading or unloading at port, accidental spills from foundered vessels, and leaks from vessels in transit. Other forms of ship-generated waste which affect both seas include bilge water, garbage and marine debris.

(b) Marine Transport Risks. The Gulf has a series of navigational hazards associated with the high numbers of commercial and fishing vessels, including many small local vessels transiting the area, large areas dominated by shoals, and special risks created by numerous offshore platforms and well caps. In the Red Sea, unregulated maritime traffic and insufficient maintenance of navigational aids around narrow passages have created several high risk zones. These include the entrance to the Red Sea at the Bab Al Mandab, further north at the loading points for the Yanbu Petroline in Saudi Arabia and the Sumed Pipeline at Ain Sukhna in Egypt, at the entrance to the Gulf of Suez and the Suez Canal, and through the Tiran Straits at the entrance of the Gulf of Aqaba. Shipwrecks and cargo spills occurring in these high risk zones result in significant oil pollution and marine debris. The potential for resumption of full-scale export of oil from the Gulf region and plans to increase the volume of oil transported via the Yanbu Petroline in Saudi Arabia and the Sumed pipeline in Egypt, along with the possibility of expanding the capacity of the Suez Canal to accommodate fully laden vessels (VLCCs of 250,000 tons) pose increased risks for major oil spills in the ROPME and PERSGA regions.
(c) **Offshore Oil Leaks and Spills.** The risks of oil well blowouts, spills and other production accidents associated with the offshore oil industry constitute another significant threat to human and wildlife resources in the region. Routine oil leaks, gas flaring, and dumping of oily sludge and muds containing hazardous materials from drilling operations are chronic sources of pollution.

**Land-Based Sources of Marine Pollution**

(a) **Municipal Wastewater Discharges.** The discharge of municipal wastewaters continues to present significant management problems in both regions, despite the progress made over the last decade through investments to control pollution from these sources. In both regions, especially on the west coast of the Red Sea south of Suez, the discharge of domestic sewage, through nutrient loading and high BOD discharges, is contributing to the eutrophication of the coastal waters around selected population centers, major ports and tourist facilities. Considerable progress has been made in the ROPME and PERSGA regions in the collection and treatment of municipal wastewaters; however, investments continue to be required for extension of collection networks, expansion and upgrading of treatment facilities, and development of safe wastewater reuse and disposal systems. Serious effort is also required where treatment facilities have been constructed to assure their proper operation and maintenance to allow for reliable performance. While levels of discharge into the Red Sea are not as acute as in other regional seas due to the limited coastal population and lack of major population centers in its catchment area, the results of discharges are cumulative and add to the stress already imposed on fragile coastal habitats by oil and other forms of marine pollution.

(b) **Industrial Effluents.** Impacts from industrial effluents, in the form of thermal pollution from power and desalination plants, hypersaline brinewater from desalination plants, particulate matter and mineral dust from fertilizer and cement factories, and chemicals and organic wastes from food and textile processing factories, contribute to the land based sources of pollution affecting coastal waters in both regions. Environmental standards regulating industrial effluents are not uniformly prescribed or enforced. Institutional capacity needs to be strengthened in the area of regulatory policy and environmental oversight. Technical capacity also needs to be strengthened in terms of providing options to industry to monitor, evaluate and reduce harmful effluents through efficient use of energy, raw materials and production technologies which incorporate waste minimization approaches. In many cases industrial complexes and facilities continue to be developed without adequate environmental assessment. There is also insufficient application of land use planning and zoning procedures to assure that industrial complexes and facilities are sited in a manner which is consistent with long-term urban development objectives and proper coastal zone management.

**Coastal Zone Degradation and Habitat Destruction**

(a) **Dredging and Filling.** Dredging and filling operations associated with urban expansion, industrial development, and tourism along the coast are a significant source of environmental degradation in both the ROPME and PERSGA regions (Map 2). Sedimentation from these operations suffocates the surrounding coral reef communities and has an adverse effect on habitats where currents transport the suspended sediment. The net results are the irreversible loss of the most productive coastal habitats (coral reefs, sea grass beds and mangroves), the disappearance of dependent marine communities—and the potential for local extinction of populations of endemic species, along with declines in the productivity of surrounding areas such as shrimping grounds and other demersal fisheries (Map 1).

(b) **Inadequately Planned Construction in the Coastal Zone.** The lack of proper land use planning, ineffective zoning and environmental review procedures in the coastal zone—particularly with regard to urban development—industrial expansion and investment for domestic and foreign tourism expansion, are growing prob-
lems in many parts of the ROPME and PERSGA program areas. Development in many countries often proceeds without benefit of adequate planning or evaluation of potential environmental impacts. In some cases local authorities allow construction activities to proceed which are inconsistent with land use plans and which do not make adequate provision for the collection and treatment of liquid and solid wastes. Poorly controlled development has especially been a problem associated with medium and small scale industries outside planned industrial areas and for a wide range of tourism developments in the northern section of the Red Sea. If steps are not taken to conserve and protect the unique environments of the Red Sea and Gulf through planning activities within a framework for integrated coastal zone management (ICZM), the high costs of remediation and possible irreversible impacts from development could quickly undermine the ecological integrity of the coastal environment and prospects for further economic growth.

Unsustainable Use of Freshwater Resources

(a) Changes in Hydrological Conditions. In the ROPME region, the reduction of surface freshwater flows into the Gulf from the Euphrates, Tigris and Karun Rivers due to consumption in upstream sections of the catchment area could have major long-term impacts on these coastal and marine ecosystems. The further development of these basins would result in potentially increased loads of pollutants from point and non-point sources that would require upstream treatment and control to avoid adverse impacts at the head of the Gulf. To address this issue it would be necessary for ROPME to extend the scope of its work to include analysis of the influences of this major river basin on the Gulf. Similar approaches have been adopted in both the Baltic and Black Sea programs which consider the entire drainage basin of the sea as the analytical unit for their programs and have supported major actions to control land based sources of pollution.

(b) Overexploitation of Coastal Groundwater Resources. In both regions, as in the case of the Mediterranean region, the depletion of groundwater resources as a result of overconsumption, pollution of aquifers, insufficient recycling and inadequate reuse of treated wastewaters may seriously constrain development of coastal areas in many countries.8 Water scarcity is a major constraint, at the national level and in coastal areas, to security and development in many parts of the ROPME and PERSGA regions. The principal consumptive uses of water in the region are for agricultural, municipal and industrial supply. The total annual water use in Egypt is about 97% of the net annual renewable water resources, whereas in Qatar, Saudi Arabia, the United Arab Emirates and Yemen, total annual use is thought to already exceed the net annual renewable water resources. Pollution from industries, municipalities and agricultural sources is further constraining the use of already scarce resources. Consideration should be given by the contracting parties to the adoption of alternative approaches such as demand management and development of nontraditional sources of water such as restricted wastewater reuse and expanded use of brackish water. In addition, greater emphasis should be placed on integrated approaches to pollution control to protect the quality of available renewable and nonrenewable sources of potable water.
A Suggested Framework of Actions to Support ROPME and PERSGA

Introduction

A set of key suggested actions has been identified to support the ROPME and PERSGA programs in achieving their full potential over the short, medium and long-term. These suggested priority actions, developed on the basis of experience from the Mediterranean, Baltic and Black Sea programs, would include the:

(a) establishment of a clear mandate that is maintained by sustained high level and public support;

(b) resolution of selected legal issues related to the programs;

(c) development of clear work plans for the convention secretariats;

(d) preparation of SAPs that identify priority activities—with a balanced emphasis on both curative and preventive measures—and provide a framework for their phased implementation; and

(e) adoption of measures to increase the mobilization of domestic, regional and international resources to support program implementation.

Major points associated with each key suggested action are summarized and discussed below.

Renew High Level Mandates and Mobilize Support

Action should be considered to renew the mandates of ROPME and PERSGA by actively mobilizing high level and public support. The “Sea to Sea Conference” could be used as a means to launch an initiative for increased high level and public awareness of the need to protect the regional marine environment. The conference could be followed by a well planned and sustained series of high level actions within the cooperating countries to obtain concrete support for program implementation. Public support for these programs will remain critical given the need to take preventive actions that require control of development in sensitive areas and the use of taxes and user fees to support environmental investments. These measures should be complemented by actions to obtain support for implementation of the programs from the main international and regional organizations concerned with planning and economic development, maritime affairs and environmental protection. It is recommended that the performance of the programs be subject to annual review by the concerned ministers such as occurs in the Mediterranean and Baltic programs.

Legal Aspects

Under both programs selected legal issues should be reviewed and resolved which would enhance their implementation. These include:

(a) PERSGA—Seek to Complete Ratification of the Convention. Action should be considered by PERSGA to seek completion of the ratification process for the convention by those signatory parties that remain outstanding. Ratification is a key step for participating countries to formally join the convention and be full parties to its objectives.

(b) PERSGA—Expand Contracting Parties to the Convention. Consideration should be given to expanding the number of contracting parties to the convention to allow for the participation of all littoral states in the activities of PERSGA. This would be a process similar to that used by the Mediterranean and Baltic programs to address recent changes in their regions.

(c) ROPME and PERSGA—Complementary Conventions. There are a number of complementary legal instruments that rein-
force regional conventions and, if subscribed to on a regional basis, could advance the objectives of the ROPME and PERSGA agreements. Some of these have already been ratified by selected contracting parties to ROPME and PERSGA. These include the International Convention on Civil Liability for Oil Pollution Damage (CLC) of 1969. The purpose of this convention is to provide insurance to ship owners for liability resulting from oil spills from their vessels in the territorial waters of a sovereign state. A parallel agreement is the 1971 International Convention on the Establishment of a Fund for Compensation for Oil Pollution Damage (The Fund Convention).

The purpose of this convention is to provide insurance to port states for damages arising from oil spills for which vessel owners may not be liable, for example spills occurring at port during unloading. The Fund is financed by oil importing countries or oil industries in these countries. Port States that do not import oil, but are vulnerable to pollution because of their location along transport routes, are afforded free and full coverage in the case of an oil spill, provided they are contracting parties to the convention. Despite this, only one country in the PERSGA region and four in the ROPME region are Fund members.

(d) ROPME and PERSGA — Adoption of Port State Control. The Paris Memorandum of Understanding on Port State Control, operating in Europe, provides a potential model for the establishment of a regional system of Port State control in the ROPME and PERSGA regions. Because of ships’ right of free passage while transiting through waters that may fall within the exclusive economic zone of sovereign states, the only opportunity for coastal states to ensure that vessels are complying with international agreements that are in force in the region is through inspections and certification of vessels at port. A systematic and well executed inspection program should be operationalized in every major port in the region, so that vessels will not resort to calling at ports where regulations are lax and reception facilities inadequate. Such a regional system would enable governments to pool scarce resources and ensure that as many ships as possible are inspected for their compliance with International Maritime Organization (IMO) regulations regarding safety and marine pollution prevention. Under such a memorandum of understanding, the Port State would have the right to inspect vessels entering its national jurisdiction and could detain vessels that did not meet their certification requirements until deficiencies were corrected. The enforcement of such a system in the Gulf and Red Sea would go a long way to reducing the risks posed by unseaworthy or substandard vessels with respect to accidents and spills and facilitate the imposition of penalties or fees for violations.

Institutional Aspects

A number of organizational and programmatic actions relating to the Convention Secretariat should be considered. These include:

(a) Convention Secretariat Work Plans. The contracting parties should request the executive secretaries of ROPME and PERSGA to prepare three year work plans that identify specific program objectives, assess required staffing and consultant needs and use realistic budgets consistent with the level of funding available. These work plans should be subject to review and approval of the contracting parties and their progress monitored on an annual basis. It should be recognized that the performance of the convention secretariats would be directly influenced by the timely availability of funds to be provided through commitments of the contracting parties or raised from other sources. In addition, the work plans should include the preparation and publication of information on a regular basis concerning the nature, objectives and achievements of the programs which, in coordination with the contracting parties, can be distributed to interested parties including the press. The work plans should include specific provision for an annual audit of the accounts by an independent auditor acceptable to the contracting parties.

(b) Prepare Strategic Action Programs (SAP). The cooperative preparation of strategic action programs for ROPME and PERSGA is the single most important action that can be taken
by the contracting parties at this time to make effective use of secretariat personnel, establish serious technical cooperation by the contracting parties and make the programs fully operational. The SAP is both a "process" and a "product." Through the process the parties responsible for preparation of the report become mutual "partners" in development of an implementable strategy. The product results in a report representing the collective position of the contracting parties concerning the priority actions that should be taken to protect the regional environment.

Preparation of the SAPs would provide a basis for providing senior decision makers, technical experts and the public with a practical understanding of the causes of environmental degradation at the national and regional levels, including the important linkages between these issues and legal and regulatory systems, economic and investment policies, land use planning and zoning, and so forth. The key elements of a SAP are summarized in the Box on page 9. National Environmental Action Plans (NEAPs), where available, can also provide valuable input to the SAP in this analysis.

(i) Establishment of Special SAP Task Forces. Preparation of the SAPs would benefit significantly by ROPME and PERSGA members inviting the participation of selected non-contracting parties to participate in the special task forces established for SAP preparation. The development of implementation oriented activities for the Mediterranean, Baltic and Black Sea programs have all included the participation of international and regional financial institutions, complemented by selected bilateral donor organizations and nongovernmental organizations. The major advantage of expanding the participation of the partners involved in the SAP beyond the contracting parties and international and regional technical organizations, such as UNEP and regional fishery commissions, is to obtain the experience of specialists from international, regional and bilateral institutions in the design of programs, evaluation of priorities and estimation of projected costs, and to provide a long-term basis for financial and technical cooperation. The participation of nongovernmental organizations provides access to a wide range of experiences in technical issues, environmental information programs and specialized training activities.

(ii) Special Issues in ROPME and PERSGA SAP Preparation. The following special issues would require attention in the preparation of SAPs for the ROPME and PERSGA regions:

• ROPME - Include Participation of Key Riparian States in the SAP Process. Consideration should be given to expanding participation in ROPME to include, at least on an observer level, representatives from Syria and Turkey in the preparation of the SAP, recognizing the long-term impacts of water resources development activities in these countries on the balance of the freshwater discharges into the head of the Gulf and their contribution to the pollution load of the Euphrates and Tigris Rivers.

• PERSGA - Coordination of SAP Preparation with Planned GEF Activities. Measures should be taken to coordinate the preparation of a SAP for the PERSGA region with planned activities under the Gulf of Aqaba Environment Program and the Global Environment Facility (GEF) projects in Egypt, Eritrea, and Yemen, for support of PERSGA.

(iii) Complementary Conventions. SAP objectives should be consistent with other key conventions in force in the region. Although much broader in scope than the coastal and marine environment, the goals and activities of complementary conventions adopted by contracting parties, such as the Convention on Biological Diversity, the Desertification Convention and the Ramsar Convention, should be taken into account in preparing the SAP to create synergies and cost savings in mutually reinforcing program activities.

(iv) Technical Assistance and Training as an Element of SAP. It is recommended, on the basis of the significant results achieved under the highly successful Mediterranean Environmental Technical Assistance Program (METAP), that similar programs
Key Elements of the Strategic Action Program (SAP)

1. **Cooperatively Prepared Analysis.** The SAP should be based on a cooperatively prepared analysis of regional environmental trends and an assessment of their causes and implications. The SAP should review both point source and non-point source pollution.

2. **Relationship to National Environmental Action Plans.** National Environmental Action Plans (NEAPs) and related documents such as National Conversion Strategies, where available, can provide valuable input to the SAP in this analysis as well as support efforts to prioritize environmental activities in the coastal zone. SAPs and NEAPs should be viewed as complementary documents, with one designed to support regional environmental management and the other for national environmental management.

3. **Establishment of Clear Priorities.** The SAP should establish clear priorities which are endorsed at the highest levels and widely disseminated. It should provide for a balanced program of preventive and curative actions and support both investment and non-investment activities. The SAP would identify priority activities in the following areas:
   - Priority preventive actions;
   - Priority curative actions;
   - Emergency prevention and management actions;
   - Institutional strengthening and human resource development;
   - Environmental education and public awareness activities; and
   - Program monitoring and evaluation.

4. **Establishment of a Realistic Budget.** The SAP should include a budget that meets the objectives of the convention and for which implementation is phased over several years to allow for the mobilization of adequate domestic and international funding. It is important that the SAP have a realistic budget that is consistent with the projected availability of financial resources. Pre-feasibility studies, performed under the SAP should include general cost estimates for priority actions, leading to the development of realistic time schedules for program implementation.

5. **Evaluation of Costs and Benefits.** The SAP should include an evaluation of the economic benefits and costs of preventive actions; assess the adverse impacts to the economy and estimate the investment and operation and maintenance costs for curative and preventive actions; and prepare realistic assessments of training, investment and supply expenses required for an effective emergency response and management program.

6. **Monitoring and Evaluation.** Provision should be made in the design of the SAP for routine monitoring of program progress and for the evaluation of the effectiveness of program supported actions.

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be established on a pilot basis for the ROPME and PERSGA regions to support institutional strengthening and human resources development on a regional level. In addition, the cooperative preparation of urban environmental audits, which have been successfully conducted under the MedCités component of METAP, should be conducted for selected coastal cities in the ROPME and PERSGA regions to support preparation of the SAP.  

**(v)** **Monitoring Program Implementation.** Provision should be made in the SAPs for routine monitoring programs to review and disseminate information concerning the status of program implementation. The reporting formats developed for the Program Implementation Task Force of the Helsinki Commission and the monitoring system used for METAP II may provide examples suitable for use in the ROPME and PERSGA programs.

**Key Preventive Actions**

In the Red Sea, where environmental degradation is still limited to site specific locations associated with coastal development, the timely introduction
of preventive measures can be an extremely cost-effective approach to reducing the risk of major environmental impacts in the future. These suggested measures might include:

(a) Actions to Reduce Risks of Marine Accidents. The programs should support actions to reduce the risk of marine accidents which are a major threat to environmental quality in both regions. Establishment of designated channels and improved navigational aids, especially in high risk areas, should be given priority. A Vessel Tracking System (VTS) would assist management of maritime traffic to reduce the risk of marine casualties, protect the marine and maritime environment through regulation of the transport of dangerous goods and prevent pollution and improve search and rescue operations. The adoption of a port state control system would allow effective enforcement of marine pollution control and safety standards. While these actions would be undertaken by the appropriate marine and port authorities they should be viewed as significant contributions to environmental protection.

(b) Expand Use of Environmental Assessments. At the regional, national and local levels both programs should give high priority to promoting the expanded use of environmental assessments in the planning and review of proposed projects by the contracting parties. This is a major type of preventive action, which although mandated in all ROPME member countries and by many in the PERSGA region, is clearly not being used on a regular basis to support environmentally sound development decisions. It is especially important that environmental assessments be prepared for all actions concerning coastal dredging and land filling, port and harbor development and expansion, siting and construction of major industrial and energy facilities and for major tourism developments.

(c) Increase Emphasis on Coastal Zone Planning and Management Activities. The adoption of integrated coastal zone management and planning in development decisions could significantly decrease the unnecessary degradation of the coastal environment occurring in many parts of the region. The success of Oman in the implementation of coastal zone management could serve as a model for the region. Addressing coastal zone management concerns as an element of the environmental assessment process is a cost effective approach which should be considered by the contracting parties. A number of practical guidelines are available to support efforts within the region in coastal zone planning and management.

(d) Replication of Successful Regional Models in the Industrial Sector. The ROPME and PERSGA regions both have successful models of environmental management which should be considered for replication elsewhere in the region. An example would be the effective integration of environmental protection and management measures at the industrial port cities of the Royal Commission for Yanbu and Jubail in Saudi Arabia. The measures used by the Commission and other organizations to promote the use of integrated pollution control, energy and water efficient industrial processes and waste minimization approaches in industrial facilities of all scales should be promoted by both programs.

(e) Adopt Measures to Control Exploitation of Coastal Aquifers. In both regions, as in the case of the Mediterranean, actions to improve the management and environmental protection of coastal groundwater aquifers are a high priority. Measures should be taken by all countries to establish firm regulatory control over the abstraction of groundwater and all wells should be licensed. Efforts should be made, especially where nonrenewable groundwater is used, to ensure that the water is being appropriately used and that proper conservation measures are being applied. Land use planning should include measures to avoid the placement of industrial facilities and waste disposal sites on aquifer recharge zones.

Financial Aspects

The SAP's Role in Mobilizing Financial Resources for PERSGA and ROPME

The preparation of SAPs, based on analysis of the causes and effects of environmental degradation, would provide the ROPME and PERSGA programs a sound basis for seeking national and international support for their implementation. The SAP process in the Mediterranean, Baltic and Black Sea programs provided the critical force to launch action-oriented
programs that included investment and complementary non-investment actions. The clear definition of priorities and the development of projected investment costs in the SAP was found to be very useful by national governments and international funding organizations in the evaluation of potential projects. Since the completion of the SAP for the Baltic Sea Environment Program in 1993, the World Bank has undertaken, at the request of the cooperating countries, the preparation of nine projects identified in the program’s priority action list. Similarly, METAP has financed 58 activities for 20 Mediterranean countries. These have been complemented with investments by a number of contracting parties with their own funding and an additional series of projects developed with support from other international sources of funding.

Mobilization of National and Local Resources

Experience from other programs indicates that in the medium and long-term, the primary expenditures for investments and operation and maintenance for regional environmental programs are provided by national, regional and local governments. The participation of representatives of the ministries responsible for planning and finance as well as environment in the preparation of the SAPs is critical for the establishment of a realistic action program and integration of its priorities into the national investment strategy. In addition, local governments, major ports and industrial complexes should be expected to play a role in the investment program to assure their facilities meet the environmental objectives of the programs in a cost effective and timely manner. A major aspect of the mobilization of resources from national and local governments is the need to adopt a phased approach to program implementation, with investment to be undertaken over several years, consistent with an established schedule that allows for budget support of other priority investments required for economic and social development.

Participation of International Financial Organizations

The major benefits brought to the SAP process and program implementation by international financial institutions are their expertise and experience in program development, project identification and evaluation of costs, and their financial resources. Participation in the SAP process provides representatives of international financial institutions, regional financial institutions and bilateral donors an opportunity to both understand the regional environmental issues and to assist in the evaluation of potential priority actions. This experience provides a solid basis to determine which actions may be suitable for support in the implementation phase of the SAP. The direct participation of international financial institutions in the planning of the Baltic and Black Sea programs resulted in the rapid mobilization of resources for priority investments, while in the Mediterranean, METAP has provided technical assistance and supported the preparation of investment projects.

In the case of the ROPME and PERSGA regions, participation in the SAP process should include the Arab Fund for Economic and Social Development, the African Development Bank and the Islamic Development Bank. This should be complemented by the representatives of regional bilateral donor organizations such as the Kuwait Fund and the Saudi Fund. The participation of representatives from specialized international organizations such as the United Nations Development Programme (UNDP) and UNEP is strongly recommended. It should be fully recognized that the agreement of an institution to participate in the SAPs, which are a strategic planning exercise, would not obligate or commit it to provide loan or grant funding for SAP implementation.

Assess Opportunities for Use of Alternative Funding

Given the limited financial resources of national and local governments, international financial institutions and bilateral donors, it is necessary that consideration be given to the mobilization of nontraditional financial resources to support implementation of the ROPME and PERSGA programs. These alternative sources of funding should include the possible participation of the private sector in selected types of activities in which it has a technical advantage such as municipal wastewater treatment and industrial pollution control. The Saudi Environmental Awareness Program, funded jointly by government and the private sector, provides a model of nontraditional funding which should be considered for extension to other countries participating in ROPME and PERSGA.
Special Issue: Expanded Cooperation with Non-Governmental Organizations

Both regions should also consider expanding cooperation with international and local nongovernmental organizations. In all concerned countries, universities and applied research institutes can make major contributions to the programs, especially in applied research, monitoring and training. In Saudi Arabia and Oman, cooperative studies jointly undertaken with the International Conservation Union (IUCN) have resulted in high quality inventories and management plans for coastal and marine resources. In the PERSGA region, the Royal Society for the Conservation of Nature (RSCN) of Jordan has played a key role in increasing public awareness of the importance of the marine environment. Under an agreement with the government, the RSCN is responsible for protection of the Jordanian portion of the Gulf of Aqaba. In many countries international research institutes have played an important role in supporting the conservation of archaeological and historical sites (Map 2), such as the joint work of the Jordanian Department of Antiquities and the American Center for Oriental Research in the excavation, conservation and management of the Islamic period settlement at Aqaba.21
A Proposed Agenda for Action

Three Proposed Priority Actions

An “Agenda for Action” is proposed for consideration by the ROPME and PERSGA contracting parties. This action agenda would focus efforts on three complementary actions that can be undertaken concurrently:

(a) Prepare and Implement Work Plans for the ROPME and PERSGA Convention Secretariats

Duration: 36 months

Objective: To strengthen the work of the ROPME secretariat and make the PERSGA secretariat fully operational. The work plans would include specific actions to be taken by the convention secretariats to increase high level and public support for the programs and seek financial resources from regional financing institutions and oil companies active in the regions.

(b) Preparation of SAPs for the ROPME and PERSGA Regions

Duration: 24 months

Objective: The SAPs would include a review of environmental conditions and trends, evaluation of causes of degradation, design of a priority action program, preparation of a cost estimate for major actions, and an assessment of resource mobilization options. This would include establishment of special task forces for each program for preparation of the SAPs. Membership in the special task forces, would include but not be limited to, representatives of the convention secretariats, contracting parties, and selected representatives of international, regional and bilateral funding organizations. Provision would be made for input to the work of the special task forces by the public. Emphasis should be placed on building skills of both secretariats and representatives of the contracting parties using the SAP preparation as a “learning by doing” exercise.

(c) Demonstration Activities for “Preventive” Measures.

Duration: 24 months

Objective: This would support the identification, design and implementation of a limited set of activities to demonstrate the use of “preventive” measures. Proposed demonstration activities would include: (i) management of dredging and land filling; (ii) application of integrated coastal zone management approaches; and (iii) use of waste minimization technologies in small and medium scale industries.

Funding the Proposed Action Agenda. The primary resources required for the proposed “Action Agenda” would need to be provided primarily by the contracting parties. The principal resources needed are the experts from the convention secretariats and contracting parties to undertake preparation of the SAPs. These experts would be complemented by additional specialists drawn from cooperating organizations and a small number of consultants subject to the availability of funding. It may be possible for a portion of the costs for the proposed “Action Agenda,” especially for preparation of the SAPs, to be provided by international financial organizations, regional financial organizations and the oil companies operating in the region. Special funding from national governments, various types of financial organizations and the private sector would be required for the “preventive” measures demonstration program.
Lessons Learned from the Bank's Regional Seas Environmental Programs for the Red Sea and Gulf

Endnotes

1 "Contracting parties" refers to those governments and organizations who are signatories and participants to the relevant conventions or agreements.


9 Egypt: Red Sea Coastal and Marine Resource Management Project.


11 Yemen: Protection of Marine Ecosystems on the Red Sea Coast.

12 Regional framework program to assist PERSGA in coordinating the GEF Red Sea projects in Egypt and Yemen and addressing selected regional issues.


<table>
<thead>
<tr>
<th><strong>Element</strong></th>
<th><strong>Environmental Program for the Mediterranean</strong></th>
<th><strong>Baltic Sea Environmental Program</strong></th>
<th><strong>Program for Environmental Management and Protection of the Black Sea</strong></th>
<th><strong>Kuwait Action Plan</strong></th>
<th><strong>Program for the Environmental Protection of the Red Sea and Gulf of Aden</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contracting Parties</strong></td>
<td>Algeria, Albania, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Libya, FYR Macedonia, Malta, Monaco, Morocco, Spain, Syria, Tunisia, Turkey</td>
<td>Belarus, Czech Republic, Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Norway, Poland, Russia, Slovakia, Sweden, Ukraine</td>
<td>Bulgaria, Georgia, Romania, Russia, Turkey, Ukraine</td>
<td>Bahrain, Kuwait, Iraq, Iran, Oman, Qatar, Saudi Arabia, United Arab Emirates</td>
<td>Djibouti, Egypt, Jordan, PLO, Saudi Arabia, Somalia, Sudan, Yemen</td>
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<tr>
<td><strong>Convention Secretariat</strong></td>
<td>UNEP Regional Seas Office in Athens</td>
<td>Helsinki Commission (HELCOM) in Helsinki</td>
<td>Convention Secretariat and Program Coordination Unit in Istanbul</td>
<td>Regional Operation for Protection of Marine Environment (ROPME) Secretariat in Kuwait</td>
<td>Program for the Environment of the Red Sea and Gulf of Aden (PERSGA) Secretariat in Jeddah</td>
</tr>
<tr>
<td><strong>Participating International Financial Institutions</strong></td>
<td>Program initiated by UNEP/METAP I - EU, EIB, World Bank, UNDP, METAP II - EU, EIB, World Bank</td>
<td>EU, EBRD, EIB, NEFCO, NIB, World Bank Primary bilateral donors: Denmark, Finland, Germany, Norway, Sweden, United States</td>
<td>EU, EBRD, UNEP, UNDP, World Bank Primary bilateral donors: Canada, Netherlands, United States</td>
<td>UNEP</td>
<td>UNEP GEF support for a regional activity and three country activities</td>
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<tr>
<td><strong>Participating Non-Governmental Organizations</strong></td>
<td>Various NGOs, including: International Academy for the Environment, IUCN, WWF</td>
<td>Coalition Clean Baltic, Greenpeace, WWF</td>
<td>NGO Forum of Black Sea Countries, Georgia Greens, Socio-Ecological Union (Ukraine/Russia), Chemomoreca (Russia) and others</td>
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<tr>
<td><strong>Program Implementation</strong></td>
<td>Financed by EU, EIB, UNDP, World Bank and selected bilaterals METAP I: US$13 million for 58 activities METAP II: US$12.8 million for 36 activities (to date)</td>
<td>Projects being financed by national governments, EU, EBRD, EIB, NEFCO, NIB, World Bank and selected bilaterals; total cost for implementation of 20 year program estimated to be about US$20 billion.</td>
<td>Financed by GEF as under UNDP managed activity (US$ 9.3 million) for first three years; co-financing of greater than US$10 million from international financial institutions and bilaterals.</td>
<td>Regional Trust Fund established; however, limited financing provided by contracting parties to date.</td>
<td>Limited financing available to date; for convention secretariat supported by Saudi Arabia.</td>
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Abbreviations:
EU = European Union
EBRD = European Bank of Reconstruction and Development
EIB = European Investment Bank
GEF = Global Environment Facility
IUCN = World Conservation Union

IUCN = World Conservation Union
METAP = Mediterranean Environmental Technical Assistance Program
NIB = Nordic Investment Bank
NEFCO = Nordic Environment Finance Corporation
UNDP = United Nations Development Programme
UNEP = United Nations Environment Programme
WWF = World Wide Fund for Nature
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<tr>
<th>Item</th>
<th>Concern</th>
<th>Status</th>
<th>Proposed Action</th>
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<tr>
<td><strong>A. Preventive Actions</strong></td>
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<tr>
<td>1. Risk Management</td>
<td>Increasing volume of maritime traffic constitutes the single greatest risk of marine pollution in the region. This is from both accidental spills and chronic pollution, including illegal discharges of dirty ballast water, bilgewater, and operational spills.</td>
<td>More than 18,000 passages in the Red Sea and 20-35,000 passages in the Gulf result in tanker accidents, oil spills and routine marine pollution from operational spills.</td>
<td>Accident risk: Initiate a risk assessment study for maritime accidents and develop risk management plan with strategic geographic focus and phased approach. Develop remote reporting systems to alert port authorities of imminent arrival of vessels. Improve placement and maintenance of navigational aids.</td>
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<td>2. Environmental Development around urban, industrial and tourist centers in the coastal zone is proceeding without adequate planning and assessment of environmental impacts.</td>
<td>With few exceptions, such as Oman and Saudi Arabia, efforts to develop and implement ICZM plans in the region have been limited.</td>
<td>Initiate coastal zone planning and management in areas of rapid urban and industrial growth. Develop regional facility for technical assistance in ICZM and make maximum use of existing regional expertise.</td>
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<td>3. Failure to carry out EAs of investment activities in the coastal zone has resulted in significant and costly negative environmental impacts that could have been prevented.</td>
<td>Environmental assessment is called for under existing conventions for conservation of the marine environment and coastal areas of the ROPME and PERSGA regions. However, institutional capacity to carry out and enforce these requirements is limited.</td>
<td>Standardize and adopt region-wide EA procedures for a range of development activities with possible impacts on the coastal and marine environment.</td>
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<tr>
<td>4. Dredging and filling of coastal areas is eliminating the most productive habitats in the region, suffocating nearby coral reefs and threatening marine biodiversity.</td>
<td>Dredging and filling are ongoing in Bahrain, Egypt, Kuwait, Qatar and Saudi Arabia.</td>
<td>Require environmental assessment for all construction along the coast. Cease all dredging in areas with critical marine habitats. Require setbacks for all coastal construction.</td>
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<td>5. The unique biodiversity of the Red Sea and the Gulf is under increasing threat from pollution and habitat destruction.</td>
<td>The existing system of marine protected areas requires additional management resources and inclusion of additional sites to create a system representative of the broad diversity of habitats and species in the Red Sea and Gulf.</td>
<td>Establish monitoring system to assess impacts of pollution and other disturbances on coral reef ecosystems throughout the Red Sea and Gulf. Allocate additional resources for management of existing marine protected areas and implement recommendations for additional priority sites to be included in the existing system. Initiate vigorous environmental education campaigns to raise public awareness about the unique features of the Red Sea and Gulf environments. Control spearfishing and coral reef damage from tourism in areas of high biodiversity.</td>
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<td><strong>B. Investment Actions</strong></td>
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<td>1. Lack of adequate port reception facilities to process ship waste is a leading cause of illegal dumping and marine pollution in the region.</td>
<td>Currently, only three countries in the region are signatories to MARPOL 73/78. Some of the major ports do not have adequate waste reception facilities and there are no active plans underway to address this urgent need.</td>
<td>Develop proposals for construction of ship waste reception facilities at all major ports along shipping routes in the Gulf and Red Sea. Proposals could be prepared in conjunction with GEF International Waters Program to control marine-based pollution.</td>
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<td><strong>Municipal water and wastewater treatment</strong></td>
<td>Domestic sewage is contributing to the eutrophication of coastal waters around population centers through nutrient loading and high BOD discharges.</td>
<td>While almost all major coastal cities in the region have wastewater facilities with at least primary treatment, a substantial amount of wastewater is disposed without adequate treatment and most cities have significant areas not connected to the central sewage treatment facilities.</td>
<td>Ensure implementation of existing wastewater treatment plans. Incorporate wastewater recycling for irrigation where feasible to eliminate outfalls altogether. Extend collection networks, expand and upgrade treatment facilities. Require wastewater treatment facilities to be part of any new tourism development.</td>
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<td><strong>Industrial pollution control</strong></td>
<td>Industrial effluent, in the form of thermal pollution, hyper-saline brines, particulate matter and chemicals, contribute to land-based sources of pollution affecting coastal waters in the region. Environmental standards regulating industrial effluent are not uniformly prescribed or enforced. Institutional and technical capacity are weak and policy incentives for private sector compliance are inadequate.</td>
<td>Strengthen and enforce regulatory standards for industry. Include adequate pollution controls in design of industrial facilities. Replicate successes of Yanbu and Jubail industrial cities in newly industrializing areas.</td>
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<td><strong>2. Offshore:</strong></td>
<td>Operational spills, periodic blowouts, oil well leakage, gas flaring and oily sludge from drilling operations all contribute to the cumulative impacts of marine pollution in the region. Little regulatory oversight exists to mitigate these impacts. Gulf of Suez is particularly vulnerable given its shallow, enclosed nature and the large number of oil fields there.</td>
<td>In conjunction with the Framework Conventions for the ROPME and PERSGA regions, adopt a protocol to control pollution resulting from exploration and exploitation of seabed, continental shelf and subsoil.</td>
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<td><strong>3. Oil Spill Emergency Response Capability</strong></td>
<td>While significant progress has been made, there are still important gaps in emergency response capability in the region to address major spills of oil or other hazardous substances. Protocols for regional cooperation in combating pollution by oil and other harmful substances in cases of emergency exist under both the ROPME and PERSGA regional seas programs. These have yet to be fully implemented.</td>
<td>Implement measures under each protocol to improve emergency response capability in the most vulnerable parts of the Gulf and Red Sea, including sites upstream of existing or proposed marine protected areas. Develop oil spill contingency plans as part of management plans for all marine protected areas and as part of port operations at strategic sites throughout the region. Establish regional facilities for training and maintenance operations for oil spill emergency response. Develop monitoring capabilities to assess effectiveness of emergency response following a spill.</td>
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<td><strong>C. Management of Freshwater Resources</strong></td>
<td>Water scarcity is a major constraint to security and development in many parts of the ROPME and PERSGA regions. Increased development of water resources in the Euphrates, Tigris and Karun Rivers has resulted in decreased flows into the northern Gulf. Surface freshwater flows into the Gulf from the Euphrates, Tigris and Karun Rivers are being reduced due to consumption in upstream sections of the catchment. Groundwater resources are being depleted in many riparian states through over consumption and pollution of aquifers and inadequate recycling of wastewater.</td>
<td>Explore alternative approaches, such as demand management, and nontraditional sources of water, including restricted wastewater reuse and expanded use of brackish water for irrigation. Emphasize pollution control to protect the quality of potable water sources.</td>
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Overview

Regional Environmental Programs. Since 1987, the World Bank has been actively involved in the cooperative design, preparation and implementation of regional environmental programs for the Mediterranean Sea, Baltic Sea and Black Sea. More recently it has been active in the cooperative development of a program for the Aral Sea. These programs have provided an effective forum for regional cooperation among the contracting parties to the convention and interested outside participants. Most international regional environmental programs have generally focused on technical cooperation, scientific data exchange and in some situations emergency assistance. In the case of the programs for the Mediterranean, Baltic and Black Seas, this cooperation has broadened to include policy and regulatory discussions, identification of priority actions accompanied by resource mobilization activities, project level investments, institutional strengthening and human resources development.

Major Program Activities. Under the Mediterranean, Baltic and Black Sea programs, major activities have included: (a) establishment of clear legal frameworks at the regional and national level for the management and implementation of the programs; (b) development of management institutions with well defined work plans; (c) preparation of strategic action plans to provide a framework for phased program implementation; (d) evaluation of financial requirements and availability of funds and identification of mechanisms for their use; and (e) implementation of projects for selected priority activities. In all of these programs, the World Bank has been closely associated with the process of establishing priorities for complementary preventive and curative actions related to the effects of environmental degradation on human health, ecosystem maintenance and the economy. Working as a facilitator for regional cooperation, the World Bank has also helped concerned countries overcome institutional constraints.

Program Time Frames and Results. These programs, two of which were initiated 20 years ago, are still evolving; however, the commitment of resources and the expectation of results among the cooperating countries reflect a long-term perspective. Over the medium and long-term, these programs should achieve major improvements. In the short-term, however, results may be generally limited due to the long start-up period required for international programs, weak counterpart institutions, restricted financial resources and complex coordination issues. In general, impacts may not be immediately apparent due to the lag time for recovery of ecosystems once actions have been taken to control or stop degradation. Rates of program implementation are also influenced by overall economic conditions that affect the availability of funds from national and international sources.

Legal Aspects

Introduction. Experience from the above regional programs clearly indicates that in addition to the acts of convention signing and ratification, a strong and sustained commitment is required at the highest levels of the contracting parties to undertake an effective program. A major lesson is that conventions alone do not implement change or improve the environment, rather they establish a legal framework for long-term cooperative action which, even if sustained, may require a decade or more to achieve the desired results. Therefore, it is critical for the sustainability of programs that the convention, its permanent secretariat and implementation plans have strong ownership by the contracting parties. This commitment must be translated into national legislation and policies that directly support the international conventions and that are regularly enforced with appropriate penalties for violators. Successes in achieving public ownership and commitment to the elements of a regional program have been realized, in the case of the Baltic Sea Environment Program, by sustained efforts of the convention secretariat to keep the contracting parties, media and public informed.
Implementation of Conventions at the Regional Level. At the regional level conventions have been an effective means to: formally create a structure for environmental cooperation; provide a clear set of collective goals; provide a means to undertake coordinated actions to address common issues; establish a series of legally binding responsibilities for the contracting parties that can be implemented consistently between countries; facilitate actions to prevent adverse impacts; address current sources of pollution provide the legal basis for a convention secretariat to coordinate implementation activities, and share information. Operational activities most often taken at the regional level include the cooperative setting of priorities for action, planning of multinational interventions, and the design and conduct of monitoring programs. The majority of actions to support investment and non-investment aspects of program implementation are undertaken by national and local governments in order to support the objectives of regional agreements and to comply with national environmental policies and legislation.

Implementation of Conventions at the National and Local Level. The key to the long-term success of any regional environmental program rests with the effective implementation of its provisions by national and local governments. The effective implementation of conventions, through preventive and curative actions, can only be accomplished through the serious and long-term commitment of national and local governments to comply with regional agreements. At the local level development of public support could benefit from linkages with previously endorsed national environmental action plans (NEAPs) or other strategies. Creating the political will to translate regional agreements into concrete actions on the ground is critical in areas of strategic common interest such as the supervision of port and harbor facilities, the development of on-shore and off-shore energy and mineral resources, the control of point and non-point source pollution, the management of coastal resources, the protection of critical habitats, and the conservation of biodiversity.

Effective Guidelines for Convention Implementation. In the case of the Mediterranean and Baltic Conventions, complementary agreements to support their implementation have been cooperatively developed on a number of topics. These agreements, including action plans, protocols and recommendations (for example, emergency oil spill preparedness), provide important mechanism for making the convention fully operational and addressing new issues which have arisen since the original agreements were reached. They also provide basic guidance to all countries concerning common approaches and minimum standards for addressing environmental issues within the scope of the convention. To be effective, guidelines should establish realistic time frames and clearly define responsibilities of contracting parties regarding the implementation of action plans. Important issues to be addressed in developing guidelines are the evaluation of the economic costs and benefits of the actions identified and the ability of the guidelines to be implemented under local conditions.

Environmental Planning and Management. Experience from other regional programs clearly indicates that many current environmental problems, which require expensive actions to correct, could have been avoided through timely and effective preventive actions. Major environmental problems have consistently resulted from inadequate and/or nonenforcement of land use planning and zoning laws, improper siting of industrial and port facilities, inadequate port reception facilities and vessel inspection procedures, failure to require compliance with environmental emissions standards, unnecessary destruction of natural habitats, and inadequate control of solid and hazardous waste disposal. These problems underscore the need for significant efforts to ensure that all parties responsible for the review, approval and monitoring of development activities and investments in the coastal zone be familiar with the objectives and binding resolutions of regional programs in carrying out their obligations under national environmental requirements. In most cases adverse impacts could have been identified, mitigated and/or avoided by the use of environmental assessment procedures as a routine part of the project evaluation and approval process. On the basis of this experience it is strongly recommended that environmental assessment procedures be standardized on a regional basis and be required for evaluation of both public and private funded investments in the coastal zone.

Role of Complementary Conventions. Regional environmental programs for the coastal and marine environment should assume that in addition to the basic regional convention, the concerned parties would also participate in complementary international conventions such as the International Convention on Civil Liability for Oil Pollution Dam-
age (CLC) of 1969, the International Convention on
the Establishment of a Fund for Compensation for
Oil Pollution Damage (The Fund Convention) of
1971, the International Convention on the Preven-
tion of Pollution from Ships (MARPOL 73/78), the
(1982) now in force. The Ramsar Convention on
Wetlands of International Importance, Especially as
Waterfowl Habitat (1994), has been important in iden-
tifying critical wetland areas which should receive
priority support under regional programs. The re-
cently approved Convention on Biodiversity (1992)
and Convention on Desertification (1994) can also
be expected to play important regional roles.

Institutional Aspects

Introduction. Institutional issues at regional, national
and local levels are also important in successfully
designing and implementing regional environmental
programs. Creating the appropriate linkages be-
tween institutions with overlapping jurisdictions
or competing interests is important in resolving po-
tential conflicts in objectives or approach. In re-
gional marine oriented programs, major cities,
industrial centers and key port authorities should
be direct participants in prioritizing issues and de-
signing activities to address them. The recruitment
and training of competent staff and an adequate
supporting budget are important elements of the
institutional strengthening required to carry out
regional conventions. In addition, measures sould
be taken to obtain formal and regular participation
of relevant international financial institutions and
donor organizations prepared to take an active role
in the program.

Establishment of an Effective Management Struc-
ture. Experience indicates that one of the most im-
portant actions for implementation of a regional
environmental program is to establish an effective
institutional structure to coordinate the program on
a sustained and cost-effective basis. Success is as-
associated with a clear concept of the program objec-
tives, preparation of a well defined work program,
and planning consistent with the level of funding
realistically available to support program manage-
ment and coordination functions. A convention sec-
retariat should be established that has a clearly
defined role and set of responsibilities comple-
mented by strong counterpart relationships at na-
tional and local levels in cooperating countries. A
small convention secretariat with a single office that
functions effectively is far preferable to a number
of inadequately staffed and funded offices which
do not have the capacity to properly execute their
functions. Country representatives should be ap-
pointed at the working level to allow for substanc-
tive input to the work program. They should be
expected to take an active role in program imple-
mentation by coordinating work with both the con-
vention secretariat and concerned national and local
government organizations. In general, large pro-
gram sponsored meetings and conferences should
be kept to a minimum to allow the available opera-
tional budgets to be used for priority activities re-
lated to program implementation.

Convention Secretariat. The establishment of a
properly staffed, closely supervised, highly moti-
vated and well equipped convention secretariat is
essential for the success of a regional environmen-
tal program. Funding for the convention secretariat
is normally provided by the contracting parties on
a cost sharing basis. The basic operating budget,
once established and equipped, should be provided
by the cooperating countries. Supplemental funds
or technical support provided by international or-
ganizations, international financial institutions,
bilateral donors, private foundations and/or non-
governmental organizations should be used to sup-
port operational activities which are complementary
to those funded by the budget provided by the con-
tracting parties. The PERSGA Secretariat has re-
cently been formally established in Jeddah, with the
first year's budget (FY96) provided through GEF
funding of Red Sea biodiversity projects in Egypt
and Yemen.

Key Functions of the Convention Secretariat. Re-
view of operational experience in the Mediterra-
anean, Baltic and Black Sea programs indicates that
the following are the key elements required for the
effective functioning of a convention secretariat for
implementing a regional environmental program:

(a) Executive Secretary. The executive secretary of
the convention secretariat should be granted
broad authority by the contracting parties to
the convention, including making routine con-
tacts with the representatives of the cooperating
parties;

(b) Work Plan and Budget. The convention secre-
tariat should have an annual work plan and
budget which is reviewed and approved by
the parties to the convention and is consistent
with the funding levels established by the con-
tracting parties; to minimize costs, secretariat
personnel should be based at a single location;
(c) Meetings and Committees. Ministerial level meetings should be held no more than once a year or every other year and should focus on major policy and financial issues of the program. Meetings and committees should be strictly limited in number and well focused; they should have specific objectives, a clear agenda and be of an appropriate length, and they should rotate within the region to a different venue each year. Technical committees and other special bodies should be established only after careful review to verify their need; their continuation should be reviewed annually to ensure that committee structure meets current and future requirements;

(d) Special Task Force. A special task force, to include representatives of the contracting parties and appropriate outside parties, should be established and meet on a regular basis to support preparation of the Strategic Action Program and its implementation (see below);

(e) Annual Report. An Annual Report—complemented by public information on the program—should be issued to disclose and track operations of the convention secretariat and to disseminate information concerning program implementation; and

(f) Auditing of Accounts. It is essential that the use of all funds provided for the convention secretariat be fully transparent, consistent with the approved work plan and budget. Independent auditing of the financial records of the convention secretariat is required on an annual basis.

Strategic Action Program (SAP). The cooperative preparation and adoption of a SAP is a critical action for supporting implementation of priority actions under the framework of each convention. The objectives of the SAP are to: evaluate regional environmental trends; assess their natural and human-induced causes and implications; identify priority actions—both preventive and curative—to be undertaken in a phased manner to address key issues; provide a cost estimate for proposed investment and non-investment activities; and establish a framework for the monitoring and evaluation of program implementation. The SAP should give priority to preventive and curative actions required to protect human health, control irreversible physical and ecological damage, and minimize economic losses due to environmental degradation of the coastal and marine environment. SAPs should be prepared in the context of the special task force and include participation of contracting parties to the convention as well as selected outside parties representing relevant regional organizations, international financial institutions, bilateral donors, and nongovernmental organizations. Preparing and implementing the SAP should be coordinated with other complementary strategic planning activities such as National Environmental Action Plans (NEAPs) and relation documents such as National Conservation Strategies.¹

Major Program Activities. Under these Mediterranean, Baltic and Black Sea programs, major activities have included: (a) establishment of clear legal frameworks at the regional and national level for the management and implementation of the programs; (b) development of management institutions with well defined work plans; (c) preparation of strategic action plans to provide a framework for phased program implementation; (d) evaluation of financial requirements and availability of funds and identification of mechanisms for their use; and (e) implementation of projects for selected priority activities. In all of these programs, the World Bank has been closely associated with the process of establishing priorities for complementary preventive and curative actions related to the effects of environmental degradation on human health, ecosystem maintenance and the economy. Working as a facilitator for regional cooperation, the World Bank has also assisted concerned countries overcome institutional constraints.

Program Time Frames and Results. These programs, two of which were initiated 20 years ago, are still evolving. Given the nature of the concerns these programs have been developed to address, the commitment of resources and the expectation of results among the cooperating countries reflect a long-term perspective. Over the medium and long-term, these programs should be expected to result in major improvements. In the short-term, however, results may be generally limited due to the long start-up period required for international programs, weak counterpart institutions, restricted financial resources and complex coordination issues. In general, impacts are also slow to be realized due to the long periods required for the recovery of ecosystems once actions have been taken to control or stop degradation. Rates of program implementation are also influenced by overall economic conditions that affect the availability of funds from national and international sources.
Key Elements of the SAP. Key elements of the SAP include:

(a) Cooperatively Prepared Analysis. The SAP should be based on a cooperatively prepared analysis of regional environmental trends and an assessment of their causes and implications. This should include review of both point source and non-point source pollution;

(b) Establishment of Clear Priorities. The SAP should establish clear priorities which are endorsed at the highest levels and widely disseminated. It should provide for a balanced program of preventive and curative actions and support both investment and non-investment activities. The SAP would identify priority activities in the following areas:

- Priority preventive actions;
- Priority curative actions;
- Emergency prevention and management actions;
- Institutional strengthening and human resource development;
- Environmental education and public awareness activities; and
- Program monitoring and evaluation;

(c) Establishment of a Realistic Budget. The SAP should include a budget that meets the objectives of the convention and for which implementation is phased over an adequate number of years to allow for mobilization of domestic and international sources of funding as an integral part of long-term national investment programs. It is important that the SAP have a realistic budget and that false expectations not be created about the program's ability to proceed at a pace beyond that required to obtain the necessary financial resources. General cost estimates, developed on the basis of pre-feasibility studies can support the prioritization process and lead to the development of realistic time schedules for program implementation;

(d) Evaluation of Costs and Benefits. The SAP should include an evaluation of the economic benefits and costs of preventive actions. It should assess the adverse impacts to the economy of failure to address specific environmental issues, and estimate the initial and maintenance costs for curative and preventive actions. The SAP should also prepare realistic assessments of training, equipment purchase and maintenance costs required for an effective emergency response and management program; and

(e) Monitoring and Evaluation. The design of the SAP should include indicators for routine monitoring of overall program performance and progress at the regional level, and for evaluation of project-level impacts at the national level. Where appropriate, a comparison of the relative costs of abatement versus adoption of effective preventive measures in addressing specific problem areas should be undertaken.

Financial Aspects

Introduction. The mobilization of financial resources should be viewed as a complex and continuous process necessary for effective program implementation. It should be clearly recognized that the contracting parties have primary responsibility for the mobilization of resources, both domestic and international. The role of international financial institutions, regional financial institutions and bilateral donors is to complement the use of domestic resources. Experience to date in on-going programs has shown that a wide variety of methods would be required to fund program activities and that these would be funded on a "case-by-case" basis for individual projects. The significant investment costs associated with curative actions identified in these programs has highlighted the need to undertake preventive actions to the fullest extent possible to avoid unnecessary investments in the future. It has also been demonstrated that funding of regional environmental programs occurs as an incremental process with funds being provided from a variety of domestic and international sources over time to meet a wide range of political and economic mandates.

Need to Link Program to Public Investment Plans. The timely implementation of regional environmental programs has often been constrained by problems in integration of the priority concerns of the program into national public investment plans. To successfully address this issue requires that representatives of the environmental ministry, which normally coordinates national participation in these programs, need to work regularly and closely with ministries of planning and finance to assure that
priority program actions, at the national and local levels, are included as elements of the national public investment plan. In order to accomplish this objective, basic information should be available concerning the projected investment and operation/maintenance cost of an activity, the length of the implementation period, and clear identification of the parties responsible for implementation of the activity and long-term operation of the investment. Investments for environmental improvements must be well justified and should be expected to compete with other priority sectors for the use of the limited funds available to any government from both domestic and international sources. This should be viewed as a continuous and interactive process which must be conducted regularly during the course of the program to assure adequate access to financial resources.

**Self Financing and Foreign Financing.** Normally, in regional environmental programs the higher income countries provide self-financing for program activities, as in the Mediterranean and Baltic Sea programs, while lower income countries use a mixture of domestic resources, long-term loans, concessional loans and grants. In some cases limited international grant funding is available to support institutional strengthening, human resources development and cooperative applied research activities on a regional basis. With rare exceptions, all types of loans and most types of grant funds available from international sources for investment activities are only available on a “bilateral basis” rather than from a pooled regional fund. The availability of concessional loans and grants is “means tested” whereby a country’s financial need is assessed by international financial institutions and bilateral donors so that funds are targeted for use by lower income countries.

**Role of the Convention Secretariat.** Through its routine program of activities, the convention secretariat serves to facilitate the mobilization of funds and monitors the progress of the program. It provides a regular forum for donor coordination, reports on the progress and priorities of cooperating countries, disseminates current program information, and can provide specialized support in the case of major emergencies. The convention secretariat should not be expected to raise or administer large amounts of funds for investment activities. This should remain the direct responsibility of the contracting parties. However, the convention secretariat could coordinate technical assistance and allocate funds for regional assessments and monitoring activities. Note: This paragraph is identical to the executive summary and therefore redundant.

**Role of National and Local Governments.** Mobilization of financial and human resources by national and local governments is the key element for the long-term success of regional environmental programs. The commitment of and ownership by the direct beneficiaries have been demonstrated in the Mediterranean and Baltic programs to be the most important factors for success. Development of government and public support for the program is a critical activity for the mobilization of resources from national and local sources. Local generation of resources is required for: (a) the investment phase—often provided in part by the national government and (b) the operation phase—normally provided from user fees raised locally through payments for wastewater services, for example, or in some cases supplemented by funds from other sources. Once resources are mobilized and available, they need to be effectively used to maintain program credibility. This requires that projects be properly designed, meet both regional and national needs, and, in the case of investments special attention should be given to construction supervision, commissioning, and operation and maintenance of the facilities.

**Role of International Funding Organizations.** In addition to the technical role often played by the United Nations Environment Programme (UNEP), specific provision should be made for the direct participation of potential international, regional and bilateral funding organizations in program design, implementation, monitoring and evaluation. These organizations can provide financial support and specialized expertise and experience gained from their participation in other regional environmental programs and individual development projects. The contracting parties and convention secretariat should not assume that such organizations would actively support program implementation without having been cooperatively involved in the process of establishing priorities, identifying investment actions and preparing a long-term program cost estimate. International financial institutions, regional financial institutions and bilateral donors provide their resources only in conjunction with an acceptable project design complemented by domestic resources raised by the cooperating national and local governments. The Global Environment Facility (GEF) which has programs for the protection of
international waters and biological diversity also requires proper project designs satisfactory to the GEF Council. Many of these international funding organizations strongly advocate the concentrated use of both domestic and international resources on a limited number of priority actions to achieve the maximum impact in the shortest period. An effective role which has been played by international funding organizations elsewhere is the facilitation of a process for approaching shared environmental problems constructively and cost-effectively.²

Private Sector Participation. The SAP should include specific provision for the participation of the private sector in all relevant aspects of the program. The private sector has an important role to play in both preventive and curative actions in all major sectors in which it is involved. Provided an adequate legal framework exists and appropriate incentives are in place, the private sector may also participate in selected investment actions related to wastewater collection and treatment, industrial pollution control, emergency response and management. It may also provide an excellent source of expertise for institutional strengthening and human resources development activities. Measures should be taken in the design of all regional environmental programs to mobilize the financial and technical resources of the private sector (for example, groups such as the International Tanker Owners Pollution Federation, Ltd.) in the development and implementation of these programs. Strict environmental regulations can also lead to the incorporation of pollution mitigation or abatement technologies in the design of new infrastructure, including tourist hotels, manufacturing and processing plants.

Alternative Sources of Funding. Experience to date has demonstrated that, for a number of political, economic and technical reasons, it is difficult to generate dedicated program funding at the regional level. In addition, proposals to establish “regional funds” of various types have had limited success due to the reluctance of cooperating national governments and international funding organizations to support these initiatives. It is possible, subject to government policies, legislation and commitment, for national and local governments to generate funding to support the implementation of regional environmental programs that support regional goals and objectives through the use of environmental fees and fines, tourism taxes, and user fees for parks and protected areas. The collection of dedicated “tourism taxes” can be used by local governments to fund improvements in wastewater treatment facilities and pollution abatement. In some cases entrance fees for protected areas, both natural and cultural, have been used to support the costs of improvement and maintenance of these areas.³

An additional approach is the conversion of official international debt, through formal agreement with the creditors, to make repayment in the form of local currency used to fund specific national environmental programs. This is the concept of the “debt for nature swap.” The most successful of these approaches has occurred in Poland, where the “National Fund for Environmental Protection,” which administers environmental fees and fines, the “EcoFund,” a debt conversion facility, and the multi-office “Environment Bank,” which administers funds from various sources, are all used to support investment and non-investment actions of the Baltic Sea Environment Program.⁴

Issues Concerning Marine Accidents and Oil Spills. The funding of actions required for the control of marine accidents, oil spills, and other types of polluting discharges from vessels is a special issue governed by a number of international conventions such as the International Convention on Civil Liability for Oil Pollution Damage, the Fund Conventions, and MARPOL. The first two deal with compensation following an accident, while MARPOL or the Convention on Preventing Pollution from Ships is yet to come into force in the region (only 3 countries have ratified MARPOL to date). There is clearly a need for more proactive measures to reduce the risk of accidents. In this regard, the introduction of the VTS for the Red Sea and Gulf of Aden is particularly worthy of consideration.

Special Issues

Access to Information. The need for broad based popular support for regional environmental programs on a long-term basis at national and international levels mandates that information concerning the structure, objectives, expenditures and achievements be easily available to a wide range of parties under these programs. The convention secretariat should, with the authorization and support of the contracting parties, take a lead role in each region and provide its annual report and well prepared supplementary information to the press, general
public and nongovernmental organizations. The availability of such information would be a general requirement of many of the international financial institutions and bilateral donors that may agree to provide support for the development and implementation of regional environmental programs. In addition, all major meetings sponsored by the program should provide a press release and hold a press conference.

Broad Based Participation. Specific provision should be made in the design of all regional environmental programs for the participation of representatives from the general public, private sector associations, academic and applied research institutions and local nongovernmental organizations (NGOs). This provides an opportunity for the effective dissemination of information concerning the program to a wide audience and allows the program to benefit from the experience of other parties. The convention secretariat and the national program coordinators should take a “proactive” role in meeting with these parties and providing them with information concerning the program. National workshops can be an effective means of soliciting input from a broad range of stakeholders and disseminating the results of their discussions to a larger audience, through proceedings and local task forces.

Endnotes


3 Recent World Bank examples include the Haapsalu and Matsalu Bays Environment Project in Estonia, the Liepaja Environment Project in Latvia and the Klaipeda Environment Project in Lithuania.

RED SEA
ECOLOGICAL AND OCEANOGRAPHIC FEATURES

CRITICAL MARINE HABITATS:
- CORAL REEFS
- MANGROVES
- SEA GRASS BEDS
- MOST PRODUCTIVE FISHING GROUNDS
- AREAS OF UPLIFTING

MARINE PROTECTED AREAS (MPAs):
- PROTECTION AREAS FOR CONSERVATION
- MANAGEMENT OF GLOBE MARINE
  BIODIVERSITY
- MPAs WITH HIGH PRIORITY FOR
  CONSERVATION MANAGEMENT
- SURFACE CURRENTS
- BATHYMETRY:
  - >1,000 METERS
  - 200-1,000 METERS
  - 0-200 METERS

SELECTED CITIES:
- 2 MILLION AND OVER
- 500,000 TO 1 MILLION
- 100,000 TO 500,000
- 25,000 TO 100,000
- UNDER 25,000
- SELECTED AIRFIELDS
- PORTS

SELECTED HARBOR SURFACED ROADS
INTERNATIONAL BOUNDARIES

The boundaries, colors, denominations and any other information shown on this map do not imply on the part of The World Bank Group, any endorsement of legal status of any territory, or any endorsement of its institutions and policies.
The Red Sea is a region of great socio-economic activity, with industries, tourism, and cultural heritage sites. This map highlights areas for conservation management, including proposed priority areas, existing marine protected areas, and industrial areas. The map also shows coral reefs, selected airfields, ports, and international boundaries.