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Middle East Environmental Cooperation

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Gulf of Aqaba environmental protection efforts are a model for conflict avoidance, confidence-building, and economic development throughout the greater region. The U.S. should encourage this process.

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Summary: Economic underdevelopment and environmental degradation are serious long-term threats to the stability of the Middle East. Multilateral cooperation is the key to overcoming these threats and maintaining regional stability. One of the most promising avenues for multilateral cooperation, and one with potential for both economic and environmental benefits, is environmental protection in the Gulf of Aqaba. Cooperation among Israel, Egypt, Jordan and, eventually, Saudi Arabia can help promote the development of tourism, shipping, and limited food

production in a manner that preserves the Gulf's coral reefs and related marine ecology. At the same time, an environmental protection framework for the Gulf of Aqaba can serve as a "pilot project" for regional cooperation and peace-building. Cooperative environmental protection would set an important precedent for conflict avoidance, confidence-building, and economic development throughout the Red Sea and Persian Gulf. The U.S. should encourage regional actors to continue and strengthen this process. ❖

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IGCC is a multicampus research unit of the University of California, established in 1983 to conduct original research and inform public policy debate on the means of attenuating conflict and establishing cooperation in international relations. Policy Briefs provide recommendations based on the work of UC faculty and participants in institute programs. Authors' views are their own.

The volume of pollutants generated by population centers along the Gulf of Aqaba is certain to grow as economic development along its shoreline expands. Unable to accommodate a significant increase in tourist visits to the traditional antiquities closer to Cairo, Egypt's Ministry of Tourism sees the Gulf as the nation's next tourism frontier. The Gulf is also highly valued as the Hashemite Kingdom of Jordan's only marine recreational resource, and regional tourism is expected to become an increasingly important contributor to the Kingdom's economy.

Many, if not most, of the tourists drawn to the Gulf of Aqaba are attracted by activities that are dependent on the continued cleanliness and vitality of the Gulf's coastal waters. Resort complexes have predictably been located in close proximity to particularly rich and varied coral reef formations. If beaches are frequently not swimmable and coral reef areas display a declining diversity of marine life, tourists are likely to choose other travel destinations.

Despite important steps forward, major identified threats to the Gulf's marine and coastal ecology have yet to be addressed. The analysis below proposes mechanisms for mitigating four such hazards: the specter of a major oil tanker disaster involving quantities of oil far exceeding the currently envisioned cleanup capabilities; nutrient overloading of valued coastal waters through the discharge of untreated or under-treated sewage; the added, though presently less significant threat of marine pollution from mariculture operations; and the ongoing and often irreversible damage to Gulf coral reefs caused by careless aquatic tourists. To safeguard against further damage from each of these activities, regional mechanisms can and should be pursued.

Regional Hazards

Oil Spills

Israel regularly ships oil via tanker from the Egyptian Sinai to Eilat. Jordan will probably make fuller use of its oil terminal in the Port of

Aqaba. The 1993 coordinated oil spill response strategy (see box) will establish special pollution response centers staffed and equipped to prevent long-term damage from small to medium-sized spills.

However, a tanker fire or explosion, mid-sea collision, or high-impact grounding could result in a spill far exceeding the centers' capacities. With the Gulf's highly diverse coral reefs and related marine life located almost entirely in shallow coastal waters, this would result in irreparable devastation.

To combat large spills, Egypt, Israel, and Jordan will need to clearly allocate emergency responsibilities, conduct joint training exercises, come to an understanding regarding the relative financial burdens of cleanup efforts, and answer questions of liability for property and natural resource damage. Further, a regional agreement could restrict tanker traffic to vessels that meet double-hulled, double-skinned, or double-sided, mid-deck design criteria.

COOPERATION TO DATE

- Los Angeles, June 1993: a regional approach to Gulf of Aqaba environmental protection explored by the Environment and Water Subgroup at IGCC-sponsored Conference on the Middle East Multilateral Talks.
- Cairo, November 1993: three Gulf of Aqaba-bordering states—Egypt, Israel, and Jordan—agreed to create a joint response to oil spills in the Gulf's northern waters.
- Port of Aqaba, late 1994: choke feeder system (which reduces mineral dust release during shiploading, thought to depress coral reef growth) operational.
- Eilat, 1996: covered conveyors scheduled to be installed in some shiploading facilities.

Sewage

If sewage discharges into the Gulf are not curtailed in the years ahead, we can expect to see a decline in the diversity and richness of coral life, leaving visitors to coastal resorts with a diminishing array of underwater attractions.

In Israel, municipal sewage from the City of Eilat pours into shallow coastal waters after only minimal treatment, causing frequent beach closures and coral reef decline. In Jordan, by treating sewage and then diverting it to inland landscape irrigation, the City of Aqaba, just a few kilometers away, has all but eliminated sewage outflows to the Gulf. This is an important model for other population centers along the Gulf. In Israel, recreational facilities such as golf courses have been discussed as possible "consumers" of treated sewage.

An outright ban on sewage discharges into the Gulf from all land-based sources should be carefully weighed. If the Gulf-bordering states reach an agreement strictly regulating—but not prohibiting—sewage discharge into marine waters, there are certain to be accidental discharges well in excess of regulated limits. Too, a ban is easier to verify than stringent regulations. Inspectors can directly observe

conduits directing treated sewage to land disposal or reuse sites. This would be much less costly than frequent compliance monitoring of numerous discharge outlets to the sea.

Fish Farming

Israel produces about one thousand tons per year of fish from cages, and additional harvesting occurs at onshore fish ponds near Eilat. Jordan is actively exploring the possibility of entering this enterprise.

Like sewage, by stimulating the growth of algae and other organisms hostile to coral, mariculture can damage reefs. Antibiotics and other medicinal additives to fish food may also harm marine life.

Confining fish cages to locations remote from coral reef areas; periodic cleaning of food debris and fish excreta from the sea bottom; and controls on the amounts, contents, and timing of food provided to cage-bred fish should be considered. States could also commit to direct all waste water from onshore mariculture operations to land-based treatment and reuse, presenting an economic opportunity which will be lost if the water is discharged into the Gulf.

Aquatic Tourism Damage

Significant damage to fragile reef structures has already happened in waters heavily trafficked by swimmers, snorkelers, divers, and recreational boaters. As the numbers of tourists visiting the Gulf grow in the years ahead, damage to the Gulf's marine ecology is certain to increase unless rigorous protective measures are taken.

Tour boat operators, dive instructors, and individual tourists need to be trained in the environmentally safe use of reefs. Orientation brochures, seminars, and videos could be displayed in hotel rooms and lounges. Certification procedures for tour operators and dive instructors should be developed. While individual tourists should be held legally accountable for their actions, the threat of rescinding certification to conduct business in the Gulf may provide a highly effective vehicle for bringing tour boat operators and dive/snorkel centers into compliance with environmental protection regulations.

Protected Area Zoning

In a small, semi-enclosed sea such as the Gulf, it may be appropriate for cooperating states to designate the entire Gulf as a "marine protected area," or to confer "protected area" status on beachfront, shoreline, and near-shore waters. Under either of these approaches, a three-tier system of zoning might be instituted:

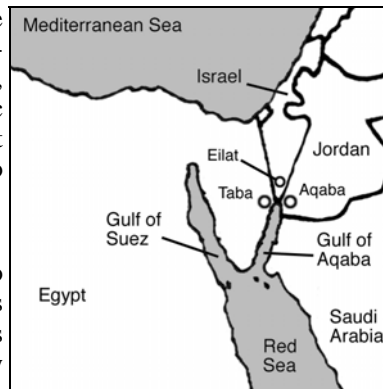
(1) *General Use Zones.* Significant economic and recreational activities would be permitted, including shipping lanes, port facilities, recreational beaches, marinas, and recreational boating.

(2) *Limited Use Zones.* In areas containing valued coral reefs, marine life, or on-shore natural amenities, restricted and supervised activities such as swimming, snorkeling, and diving would be permitted, with ceilings on the numbers of visitors during any single period.

(3) *Zones of Special Protection.* Areas containing particularly valued or endangered features would be declared off-bounds to all but licensed research teams.

Egypt, Israel, and Jordan have each made important strides toward establishing marine protected areas. Particularly notable is the Egyptian Ministry of Tourism's plan for concentrating resort development in compact "Tourism Planning Sectors," leaving major stretches of Sinai shoreline fully protected from development. Existing protected areas can serve as building blocks for a more coherent, regionally coordinated environmental protection framework. Unified protected area status and usage conditions may be established for reef areas that straddle state borders, with binational patrols to safeguard of ecological resources.

Individually and collectively, Gulf-bordering states will face the crucial task of educating all major users as to their rights and obligations within different zones. Ship company operators will need to understand limitations on the operation of marine vessels, particularly with respect to the handling of potentially hazardous cargo, waste, residues, and sewage. Port facility operators will need to



Map: M. Maxwell

understand procedures for the operation of shiploading equipment and waste reception. Tour operators and diving instructors must understand environmentally safe usage.

Individual national authorities will generally be best equipped to play the lead enforcement role, drawing upon their own legal traditions and policing capabilities, with sufficiently stringent criminal and civil sanctions to serve as an effective deterrent to violation. However, clear rules of reciprocity will need to be developed, with demonstrated respect among Gulf-bordering states for the rule of environmental law in neighboring states.

Gulf-Wide Protection

The Gulf's finite dimensions and highly interdependent ecology call for nothing less than a coherent regional strategy to protect its unique marine and coastal resources. *Ad hoc* arrangements should not be seen as a substitute for the careful preparation of a comprehensive agreement promoting Gulf-wide environmental protection, incorporating arrangements on such

priority matters as oil spill preparedness, sewage management, and the establishment of marine protected areas, weaving them into a coherent fabric of commitments and institutional arrangements. ❖

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Support these multilateral efforts:

OIL SPILL PREVENTION AND CLEANUP

1. Clearly allocate emergency responsibilities.
2. Conduct joint emergency exercises.
3. Define cleanup cost and property/natural resource damage liability.
4. Regulate tanker design and operations.

WASTEWATER TREATMENT AND UTILIZATION

1. Set guidelines for commercial enterprises and municipalities.
2. Ban land-based sewage discharges, and re-direct fish farming wastes.
3. Divert treated sewage to horticultural, landscaping, and recreational uses.
4. Establish a periodic inspection system to verify compliance.

CORAL REEF TOURISM PROTECTION

1. Designate the Gulf of Aqaba as a zoned marine protected area with binational patrols along borders.
2. Concentrate resorts in tourism planning sectors.
3. Develop user education and operator certification programs.

GULF-WIDE ENVIRONMENTAL PROTECTION

1. Define clear and reciprocal rules of enforcement.
2. Establish a regional database and information sharing mechanism.
3. Establish environmental impact assessment procedures.
4. Develop environmental dispute avoidance and resolution tools.