

INCREMENTAL COST ANALYSIS

1. Development objective

The countries bordering the Gulf of Honduras face strong coastal and marine environmental degradation, much of it transboundary in origin, and resulting from both marine sources (shipping, port activities) as well as land-based activities. Though possessing different socio-economic conditions, the three countries bordering the Gulf of Honduras (Belize, Guatemala and Honduras) face threats that provide a common theme for dialogue and cooperation amongst these states. Based on the Preliminary TDA process, the major perceived environmental problems and issues the countries face in the Gulf of Honduras pertain to the degradation of coastal and marine ecosystems.

The following major causes contributing to the major perceived problems have been determined to be:

1. Negative environmental effects arising from existing and future port operations and infrastructure development
2. Negative environmental effects arising from marine activities
3. Other land-based Activities (other than shipping-related) causing degradation of the ecosystems of the Gulf of Honduras

The development objective of this project is to reverse the degradation of the coastal and marine ecosystems by enhancing the control and prevention of maritime transport-related pollution in the major ports and navigation lanes, improving navigational safety to avoid groundings and spills, and reducing land-based inputs to the adjacent coastal and marine areas within the Gulf of Honduras.

2. Baseline

The Gulf of Honduras is an important global resource. Vast areas of coral reefs, extensive mangrove forests, and abundant offshore seagrass beds provide living resources and habitat for a number of globally threatened species. These habitats and the living resources are threatened by marine transport-related and land-based activities; the latter causing increased sediment and contaminant loads, and altered river flow. Habitats are directly affected through dredging, filling, and clearing of habitats, and are harmed by activities such as overfishing. Each country has its own legal/regulatory structure to address these issues, but there is no sub-regional-specific agreement within the over-arching Cartagena Convention to address this globally important sub-region. Global benefits can be optimized by incremental improvements to the national approaches.

The Gulf of Honduras countries are signatories to many, but not all, international environmental conventions and agreements. The countries are often weak in complying with the conventions that they do participate in, however; the present activities would assist the countries in meeting compliance with several international conventions.

Regional monitoring and collaboration in the area of transboundary issues is weak-to-non-existent. Missing are mechanisms to provide regional collaboration on transboundary issues in the form of a regional coordination unit, regionally agreed environmental quality standards, regionally agreed environmental monitoring protocols and methods, and the like. Effective and quantitative regional assessments of these transboundary issues have not been possible because of this lack of coordination.

In spite of the lack of a sub-regional environmental framework among the three countries, the countries participate in numerous bodies that work together on various aspects of marine pollution (e.g., COCATRAM, COMITRAM, COCAAP), though none has specific authority on the coastal and marine environment. This national willingness to participate in sub-regional affairs provides a strong foundation for further successful regional cooperative efforts.

A substantial proportion of the assured co-financing by governments is derived from the existing staff and recurrent budgets of the involved ministries and government departments. It is anticipated that project activities will strengthen the influence of these ministries at a national level and hence encourage substantial increases in the recurrent budgets of the departments concerned in the future. The countries already contribute financially to regionally coordinated actions and such contributions are anticipated to increase as a consequence of this project.

3. Global environmental objectives

This project is a result of the participating countries' commitment to address marine transport-based and land-based threats to prevent further damage to the Gulf of Honduras' transboundary environmental resources. The global environmental objective being pursued is to improve sectoral policies and activities that are responsible for the most serious root causes of priority transboundary environmental concerns of the Gulf of Honduras.

The establishment of a Gulf of Honduras-wide cooperative regime for marine transport-based and land-based activities will contribute to environmentally sustainable economic development in and around the region. An ad hoc system of national level measures to manage marine transport and land-based sources will be unsuccessful when applied to a contiguous natural system such as the Gulf of Honduras unless a regional coordination mechanism exists. This project will strengthen that mechanism and develop measures to assure long-term sustainability of that mechanism.

The rich biodiversity of mammals, corals, turtles, birds, and other marine species in the Gulf of Honduras represents a major contribution to the overall biodiversity of the Caribbean Sea, and consequently to global biodiversity. The Mesoamerican Barrier Reef System (MBRS) is the second largest in the world, after the Great Barrier Reef. In order to avoid further losses of biodiversity in the Caribbean Sea, the health of this degraded ecosystem must be improved, and a Strategic Action Programme must be agreed upon and implemented.

By providing a framework for the reduction and elimination of marine transport-based and land-based sources of contamination, the project will contribute to reductions in the levels and impacts of pollution in the global environment.

This project will create the necessary conditions and framework for concerted actions to protect globally important environmental resources. The present project is consistent with the GEF Operational Strategy of April 1996, specifically with the GEF's strategic emphasis on International Waters and Biodiversity, as well as the April 1997 GEF Operational Programme (#10) for Ship-Related Contaminant-based activities, and land-based, integrated land-ocean, and coastal and freshwater ecosystems. The project will incorporate the priorities delineated in the relevant environmental agreements to which any or all of the participating countries are involved. The present project also is consistent with the recent Draft GEF International Waters Focal Area- Strategic Priorities in Support of WSSD Outcomes for FY 2003-2006, as discussed under "GEF Programming Context."

4. GEF Project Activities

Under the alternative GEF scenario, the development processes and forces are re-shaped in order to safeguard the globally important environment. This would be accomplished by GEF provision of catalytic support for incremental costs associated with the revision and upgrading of the Transboundary Diagnostic Analysis (TDA) and preparation and endorsement of a Strategic Action Programme (SAP) for the Gulf of Honduras. The SAP will consist of a set of legal, policy and institutional reforms and investments, together with capacity building and institutional strengthening, to address the priority transboundary concerns of ship-based and land-based sources of pollution as identified in the preliminary TDA (optional Annex E).

In particular, the project will provide technical assistance to strengthen both national and regional capacities for the implementation of the SAP. The SAP will rely on the cost-effectiveness of joint efforts made by the participating countries. In addition, cooperative programmes in data sharing and legislative reforms will be conducted to enhance regional collaboration to implement the SAP.

The incremental cost of the alternative activities of this project will ensure that plans and investments will be designed with global (transboundary) environmental considerations in mind.

The GEF alternative would support a regionally-led initiative to promote the management and conservation of the coastal and marine resources of the western Caribbean in the Gulf of Honduras. It would greatly facilitate the abilities of co-operating countries to address transboundary environmental issues and common natural resources management concerns at the regional level. The GEF alternative would allow for the realization of a dynamic action-oriented work programme for the successful implementation of the SAP, to be undertaken on an accelerated basis with support from a variety of sources. These goals would be realized through support for the following specific immediate project components:

- Component 1: *Building regional capacity for maritime and land-based pollution control in the Gulf of Honduras;*
- Component 2: *Updating the TDA, developing a region-specific SAP, and creating, analyzing and distributing marine environmental information for the Gulf of Honduras;*
- Component 3: *Enhancing navigational safety in shipping lanes;*
- Component 4: *Improving environmental management and hazard reduction measures in the regional network of five ports within the Gulf of Honduras.*

This project has leveraged approximately **US\$6,500,000** (US\$2,400,000 from countries, plus US\$4,100,000 from other donors) to finance the activities of GEF/SAP focal points, provide logistical support and personnel, set-up institutional arrangements, provide sourcing of information, and support consultations, meetings and missions. The participating states have provided estimates of their co-financing to the project as follows:

Belize	US\$ 785,000
Guatemala	US\$ 755,000
Honduras	US\$ 860,000
Other sources	US\$4,100,000
Total	US\$6,500,000

In terms of other sources of co-financing, ongoing activities by IDB in the region, as well as funding from other donors and institutions (USAID, IMO, MACHC, COCATRAM) and the private sector, will contribute to the Gulf of Honduras program. The additional incremental financing from the IDB is provided by the following approved projects that support specific activities located within the project area and are highly complementary to the objectives of the GEF operation:

- Natural Resources Management in Priority Watersheds of Honduras (Ulúa, Chamelecon)
- Erosion control, water quality control and satellite monitoring financed by the Honduras Improvement of the PPP Atlantic Corridor
- PROBOSQUE in Honduras
- Puerto Cortés Sewerage Program
- San Pedro Sula Municipal Development Program.

USAID, through its regional PROARCA Program, will contribute funding for the activities related to enhancing navigational safety (incl. policy and regulatory framework) and enhancing the environmental management in the ports, including training and technical assistance. IMO will provide training and technical assistance to enhance navigational safety in shipping lanes, including the preparation of a regional/transboundary oil and chemical spill prevention and contingency plan. Contingency planning will also be a focus, among others, of COCATRAM's contribution, which will finance training workshops and regional networking activities. MACHC, on the other hand, will provide training and technical assistance to enhance the technical capacity in hydrography of national and regional entities (Components IIIf-h), including the demonstration of selected technologies and the development of electronic navigational charts. Finally, the private sector will contribute mainly to the activities related to the environmental management in ports (eg. risk assessments), as well as the regional oil spill contingency planning.

System Boundary

The area of intervention is defined as follows:

The approximate inland boundaries are defined as the limits of the drainage basins of the rivers draining into the Gulf of Honduras. The Project Area for the proposed GEF project extends from Punta Sal, Punta Isopo, in the southeast, northwest towards the Port of Belize along the Belize shoreline, inwards along the northern border of the Maya Mountains watershed, southwestward along the various watersheds of Belize (numerous watersheds, lumped here as the Maya Mountain watersheds), Guatemala (Sarstoon, Laguna Izabal, Motagua), and Honduras (Ulúa, Lean, Cuyamel, Chamelecon), reaching the coast once again at Punta Isopo.

The coastal/upland boundary is defined as the limits of the drainage basins of the rivers, as indicated on Figure 1 of the preliminary TDA.

ANNEX A INCREMENTAL COST MATRIX

Objective	Component	Cost Category	Cost (USD\$)	Domestic Benefits	Global Environmental Benefits
I) Building regional capacity for maritime and land-based pollution control in the Gulf of Honduras	Ia) Put in place institutional arrangements for carrying out the project activities that will ensure sustainability	Baseline	-	Limited baseline efforts address national priorities for pollution control such as health and safety but not from a regional perspective.	No effective sub-regional mechanism exists for pollution prevention and control; this effort will provide an exchange and cooperation mechanism to address transboundary problems in a coordinated manner.
		Alternative	1,680,000	Existing national mechanisms will be strengthened by regional cooperation and focus.	A GEF project unit will catalyze and coordinate the Gulf of Honduras countries towards reduction in port, maritime transport and land-based sources of pollution.
		Increment GOV Co-finance GEF Co-finance Private Sector	230,000 1,400,000 50,000		
I) Building regional capacity for maritime and land-based pollution control in the Gulf of Honduras	Ib) Identify, strengthen, and involve stakeholders	Baseline	4,659,000	Existing stakeholders are not well organized in regional networks for addressing land- and marine transport-based contamination leading to marine degradation.	Lack of uniformity of stakeholder participation in environmental decision-making generates disparate public buy-in for environmental actions.
		Alternative	5,601,000	The strengthening of regional stakeholder groups into formal organizations such as watershed associations will increase national impact of stakeholder inputs to national environmental issues.	Tri-national stakeholder involvement is critical to sustainability of the project. Active stakeholder involvement will help assure broad input in developing the SAP, beyond government input alone.
		Increment GOV Co-finance GEF Co-finance IDB Co-finance	112,000 430,000 400,000		
I) Building regional capacity for maritime and land-based pollution control in the Gulf of Honduras	Ic) Develop and conduct training workshops for stakeholders	Baseline	4,533,000	Existing stakeholders lack capacity to participate and contribute effectively to pollution prevention through coastal management, monitoring and other activities	No coordinated training on ICAM, Coastal and Marine Environmental Management, Civil Society, environmental crime investigation and legal prosecution, economic valuation of disasters, citizen monitoring/ surveillance, and strategic planning for port personnel exists at present.
		Alternative	4,796,000	Training will strengthen stakeholders' capacity and encourage effective action at a grass roots	Regional training will lead to a regional network of ICAM interests, encouraging effective coastal management at both

Objective	Component	Cost Category	Cost (USD\$)	Domestic Benefits	Global Environmental Benefits
				level. Likewise, strengthening civil society will lead to direct domestic benefits by encouraging strong, broad stakeholder participation.	national and regional levels. Strengthened civil society will provide regional benefits, and therefore global benefits, especially in this area of such strong global environmental significance.
		Increment GOV Co-finance GEF Co-finance	91,000 172,000		
I) Building regional capacity for maritime and land-based pollution control in the Gulf of Honduras	Id) Formulate arrangements for economic instruments and incentives, and financing regional maritime pollution monitoring, control and prevention, including the establishment of a financing scheme in cooperation with the private sector and port authorities to contribute to the financial sustainability of the program	Baseline	8,279,000	<p>National budgets are stressed and adequate budget is not provided for environmental matters.</p> <p>Existing baseline needs to be strengthened for effective management of the Gulf of Honduras.</p>	<p>There currently is no Gulf of Honduras-wide regional financing mechanism for regional maritime pollution monitoring, control and prevention.</p>
		Alternative	9,087,000	<p>By identifying new financing arrangements, the marine environment can start to receive the attention it requires.</p> <p>Economic instruments will help alleviate national budget shortfalls in the area of environmental intervention. Alternative economic instruments can provide fresh revenue sources to encourage sustainability.</p>	<p>Global benefits will ensue from provision of sustainable financing relatively secure from the vicissitudes of fluctuations in national budgets. Sustainability will help assure long-term improvements to global environmental resources. The private sector will be a major contributor to a sustainable program to preserve the marine environment.</p> <p>Sustainability is the key to maximizing global environmental benefits. By exploring new economic instruments and incentives, a solid financing package may result.</p>
		Increment GOV Co-finance GEF Co-finance IDB Co-finance	160,000 248,000 400,000		
I) Building regional capacity for maritime and land-based pollution control in the Gulf of Honduras	Ie) Agree on performance indicators for the Gulf of Honduras maritime transport pollution control project through a broad stakeholder process and develop a process to monitor those indicators	Baseline	-	Limited monitoring takes place under baseline conditions, but not tied to indicators.	Regional monitoring of maritime transport pollution does not take place in baseline conditions.

Objective	Component	Cost Category	Cost (USD\$)	Domestic Benefits	Global Environmental Benefits
		Alternative	322,000	Performance indicators will provide a solid framework for evaluation of achievement of national environmental goals and objectives, and targets.	Performance indicators developed by a broad constituency will strengthen the region's understanding of environmental interventions, and how to track the efficacy of those interventions. The process of monitoring will encourage broad participation and input into the evolving structure of the interventions and perhaps suggest more effective paths of intervention in the future.
		Increment GOV Co-finance GEF Co-finance IDB Co-finance	72,000 50,000 200,000		
II) Updating the TDA, developing a region-specific SAP, and creating, analyzing and distributing marine environmental information for the Gulf of Honduras	IIa) Develop a data and information management system for maritime impacts from port and navigation activities and land-based activities on the Gulf of Honduras	Baseline	8,839,000	No regional data and information and management system for maritime impacts from port and navigation activities and land-based activities will be created under baseline conditions. However, each country has ongoing data and GIS activities, which need to be brought together and regionalized.	No data and information and management system for maritime impacts from port and navigation activities and land-based activities will be created under baseline conditions.
		Alternative	9,377,000	The creation of a regional data and information management system will provide domestic benefits through development of technical capacity and protocols for the collection and sharing of environmental data.	The data and information management system will provide Transboundary (global) benefits environmental problems through developing technical capacity to collect regional environmental information and assist in the prioritization of threats and the interventions to mitigate these threats.
		Increment GOV Co-finance GEF Co-finance Private Sector	100,000 350,000 88,000		
II) Updating the TDA, developing a region-specific SAP, and creating, analyzing and distributing marine environmental information for the Gulf of Honduras	IIb) Update and complete TDA, including an updated assessment of the relative importance and transboundary impact of land-based and marine-based sources of pollution and filling the gaps identified in the Preliminary TDA	Baseline	-	The TDA will not be updated and completed under baseline conditions. However, some baseline information will contribute to the TDA.	The TDA will not be updated and completed under baseline conditions.

Objective	Component	Cost Category	Cost (US\$)	Domestic Benefits	Global Environmental Benefits
		Alternative	969,000	The TDA process is a useful framework for understanding the relative effects and impacts of human activities on the environment, and helps focus interventions to the most critical pathways. Domestic benefits will ensue by focusing interventions in those critical areas.	The TDA will provide an understanding and ranking of the Transboundary (global) environmental problems, and recommend interventions to optimize the global environmental benefits. This process is highly participatory, and allows funds and interventions to focus on priority Transboundary areas.
		Increment GOV Co-finance GEF Co-finance IDB Co-finance PROARCA/ USAID	104,000 350,000 500,000 15,000	-	
II) Updating the TDA, developing a region-specific SAP, and creating, analyzing and distributing marine environmental information for the Gulf of Honduras	IIc) Prepare, negotiate, and endorse at the national level a regional Strategic Action Programme (SAP) for port and navigational pollution reduction measures (as well as reduction of other adverse land-based activities), and improvement of navigation safety	Baseline	-	A regional SAP will not be completed and endorsed under baseline conditions. However, ongoing national activities will contribute to a concrete, effective SAP.	A regional SAP will not be completed and endorsed under baseline conditions
		Alternative	346,000	A Strategic Action Program represents a regionally agreed plan of action for improving the environment and reducing man-made stresses on the environment. The process of broad stakeholder inclusion will strengthen sustainability, and focus efforts on priority areas.	The SAP is an integral part of the GEF process, building on the TDA output to focus interventions to those issues having a dominant Transboundary nature. The SAP process fosters regional consensus-building, and commitments of all countries and external partners to improve the environment in a prioritized, coordinated fashion.
		Increment GOV Co-finance GEF Co-finance	146,000 200,000		
III) Enhancing navigational safety in shipping lanes	IIIa) Conduct navigational risk assessments and propose modifications in maritime shipping routes and other risk reduction measures	Baseline	-	Navigational risks assessments will not be conducted under baseline conditions. However, existing navigational data and information will be made available for the risk assessment.	Navigational risks assessments will not be conducted under baseline conditions.

Objective	Component	Cost Category	Cost (USD\$)	Domestic Benefits	Global Environmental Benefits
		Alternative	213,000	By conducting risk assessment exercises, each country will develop a more accurate idea of risks to the environment, as part of the prioritization process for SAP interventions.	Global environmental benefits will be maximized through use of risk assessment, as this process will help identify those issues of greatest threat to Transboundary resources. This process will provide a consistent methodology for assessment of risks from various sources, and help guide the SAP process.
		Increment GOV Co-finance GEF Co-finance IMO Co-finance	78,000 110,000 25,000		
III Enhancing navigational safety in shipping lanes	IIIb) Review and draft reforms for the institutional, legal, policy, regulatory and enforcement framework for navigational safety, including the prevention of oil and chemical spills, vessel standards, provision of hydrographic services, certification, the framework for the definition of liabilities; and facilitating the process of ratification, as well as promoting the compliance, with international and regional conventions and agreements (such as international collision regulations and other international IMO conventions like the Safety of Life at Sea)	Baseline	4,089,000	Each country has some ongoing projects for legal/ regulatory reform, which will contribute to the project goals.	No regional assessment and harmonization process occurs under the baseline.
		Alternative	4,929,000	An independent review of the national legal/ regulatory regime will assist the countries in focusing improvements to the regime in those areas where the gaps are the widest. Policy, legal, and regulatory reform will benefit domestic environmental objectives.	Regional benefits will accrue from knowing comparability and extent of harmonization of laws and drafting of reforms that focus on improving the identified weaknesses to assure global benefits. Global benefits will arise from broader subscription to and greater compliance with global conventions among the Gulf of Honduras countries.
		Increment GOV Co-finance IMO Co-finance PROARCA/ USAID	120,000 25,000 670,000		

Objective	Component	Cost Category	Cost (USD\$)	Domestic Benefits	Global Environmental Benefits
III Enhancing navigational safety in shipping lanes	IIIc) Building on existing institutional arrangements where feasible, establish a regional focus for hydrography and oceanography related to navigational safety and spill planning and response, for oceanographic data processing, as well as management and modeling (Marine) GIS-based data applications, that will share information with the public and decision makers.	Baseline	2,072,000	National hydrographic and oceanographic networks are not well coordinated in all countries, and lack a central focus.	There is currently little sharing of resources and information among the national hydrographic and oceanographic networks at the regional level.
		Alternative	2,251,000	This activity will help provide a central focus for information and data sharing, therefore strengthening shared experiences and increasing national capacity.	A regional network of hydrographic and oceanographic activities will encourage experience sharing, and possibly sharing of resources, on a regional basis. Since these countries are relatively small, and the GOH is common between them, economies of scale can be achieved by having a regional network, leading to more effective sharing of available information, and reduction of overlap in national efforts. The net benefit to global environmental resources will be high, as regional consensus is essential to lead to global benefits.
		Increment GOV Co-finance GEF Co-finance	119,000 60,000		
III Enhancing navigational safety in shipping lanes	IIId) Enhance capacity by developing and implementing a training program for national and regional entities, including hydrography; inspection, pilotage, and oceanography related to navigational safety and spills	Baseline	2,510,000	Few national training activities in hydrography and oceanography exist under baseline conditions.	The training activities taking place under baseline conditions are not coordinated regionally to address the most important needs in the Gulf of Honduras.

Objective	Component	Cost Category	Cost (USD\$)	Domestic Benefits	Global Environmental Benefits
		Alternative	3,930,000	National capacity will be strengthened through these training programs.	Regional training programs will strengthen and broaden the constituency for oceanography and hydrography in the region. Capacity building is essential to achieve sustainable global environmental benefits for the globally-important resources of the Gulf of Honduras.
		Increment GOV Co-finance GEF Co-finance IMO Co-finance COCATRAM	349,000 698,000 25,000 348,000		
III) Enhancing navigational safety in shipping lanes	IIIe) Prepare a regional/transboundary oil and chemical spill prevention and contingency plan.	Baseline	2,456,000	There is currently no regional/transboundary oil and chemical spill prevention and contingency plan. Local contingency plans have been developed on a voluntary ad-hoc basis, but are not adequate to address Transboundary spills.	Under baseline conditions, the region does not have adequate capacity to address Transboundary oil and chemical spills.
		Alternative	2,836,000	The preparation of a regional/transboundary oil and chemical spill prevention and contingency plan will minimize duplication of efforts at the national level and enable countries to better control and cleanup spills.	The Gulf of Honduras countries will be better able to protect globally significant biodiversity from oil and chemical spills in the Gulf of Honduras.
		Increment GOV Co-finance IMO Co-finance COCATRAM Private Sector	121,000 25,000 84,000 150,000		
III) Enhancing navigational safety in shipping lanes	IIIf) Building on the initial assessment/gap analysis of regional hydrographic capabilities of the Meso-American and Caribbean Sea Hydrographic Commission (MACHC), hold a high-level workshop to address institutional arrangements and regional capacity building. Participants should include senior decision-making representatives from each country's national interministerial hydrographic coordination	Baseline	-	The baseline includes coordination of national interests addressing hydrographic requirements.	The baseline provides no registration of hydrographic information, equipment, or surveying.

Objective	Component	Cost Category	Cost (USD\$)	Domestic Benefits	Global Environmental Benefits
	mechanism (Commission, Steering Group, etc.), regional organizations such as COCATRAM, MACHC and other key players. Such a workshop should 1) explore alternatives for regional cooperation under the scope of the project, and 2) decide on a common approach, including political arrangements that will effectively build regional capacity while reducing costs by utilizing common assets				
		Alternative	170,000	This activity will help provide a central focus for information and data sharing, therefore strengthening shared experiences and increasing national capacity.	A regional network of hydrographic and oceanographic activities will encourage experience sharing, and possibly sharing of resources, on a regional basis. Since these countries are relatively small, and the GOH is common between them, economies of scale can be achieved by having a regional network, leading to more effective sharing of available information, and reduction of overlap in national efforts. The net benefit to global environmental resources will be high, as regional consensus is essential to lead to global benefits.
		Increment GOV Co-finance GEF Co-finance MACHC Co-finance	73,000 7,000 90,000		
III) Enhancing navigational safety in shipping lanes	IIIg)Develop and implement a training/demonstration program for national and regional entities in hydrography to improve technical capacity	Baseline	-		
		Alternative	205,000		
		MACHC Co-finance	205,000		
III) Enhancing	IIIh) Identify and conduct	Baseline	1,205,000	Few national activities of this sort take place in	Few national activities of this sort take place in baseline

Objective	Component	Cost Category	Cost (USD\$)	Domestic Benefits	Global Environmental Benefits
navigational safety in shipping lanes	two demonstration pilot activities related to navigational risk reduction. Examples include improved incineration facilities, improved processes for removal, transport, and treatment of chemical wastes (including oil, solid waste and water), improved navigational products and services (such as production of an electronic navigational chart for a project priority port), and regional vessel tracking capabilities			baseline conditions.	conditions.
		Alternative	1,340,000	Each country will benefit from knowledge gained from demonstration projects in the region, as the information will be widely available and widely shared, and can assist in countries making investment decisions for navigational risk reduction.	The SAP will benefit from having standardized and demonstrated methods for reducing navigational risk.
		Increment GOV Co-finance IMO Co-finance MACHC Co-finance	70,000 25,000 40,000		
IV) Improving environmental management and hazard reduction measures in the regional network of five ports within the Gulf of Honduras	IVa) Conduct port operations risk assessments and propose concrete modifications to reduce pollution risks	Baseline	-	Port operations risk assessments will not be conducted under baseline conditions. However, some data and information is gathered, which will contribute to the alternative.	Port operations risk assessments will not be conducted, or shared under baseline conditions.
		Alternative	128,000	By conducting risk assessment exercises, each	Global environmental benefits will be maximized through

Objective	Component	Cost Category	Cost (USD\$)	Domestic Benefits	Global Environmental Benefits
				country will develop a more accurate idea of risks to the environment from port operations, as part of the prioritization process for SAP interventions.	use of risk assessment, as this process will help identify those issues of greatest threat to Transboundary resources. This process will provide a consistent methodology for assessment of risks from various sources, and help guide the SAP process.
		Increment GOV Co-finance Private Sector	78,000 50,000		
IV) Improving environmental management and hazard reduction measures in the regional network of five ports within the Gulf of Honduras	IVb) Review the adequacy of existing conventions and suggest reforms for national laws, policies, regulations and enforcement policies regarding port activities (including enhanced use of international agreements and mechanisms to control and enforce adequate certification of visiting ships).	Baseline	3,023,000	Certain local reviews and legislative process will contribute to the alternative.	Baseline includes no regionalization or harmonization of laws and regulations; regional framework is missing.
		Alternative	3,315,000	An independent review of the national legal/regulatory regime will assist the countries in focusing improvements to the regime in those areas where the gaps are the widest. Policy, legal, and regulatory reform will benefit domestic environmental objectives.	Regional benefits will accrue from knowing comparability and extent of harmonization of laws and drafting of reforms that focus on improving the identified weaknesses to assure global benefits. Global benefits will arise from broader subscription to and greater compliance with global conventions among the Gulf of Honduras countries.
		Increment GOV Co-finance PROARCA/ USAID	102,000 190,000		
IV) Improving environmental management and hazard reduction measures in the regional network of five ports within the Gulf of Honduras	IVc) Develop harmonized regional guidelines, standards and policies for port environmental management and security.	Baseline	1,850,000	Port-by-port activities exist, but are not harmonized.	Regional harmonization and shared lessons learned are not part of the baseline.
		Alternative	2,320,000	Guidelines, standards and policies developed at	Regional benefits will accrue from ports in the region

Objective	Component	Cost Category	Cost (USD\$)	Domestic Benefits	Global Environmental Benefits
				the regional level would improve domestic capacity to achieve domestic environmental goals and objectives.	adhering to harmonized regional guidelines, standards and policies.
		Increment GOV Co-finance PROARCA/ USAID Private sector	75,000 345,000 50,000		
IV) Improving environmental management and hazard reduction measures in the regional network of five ports within the Gulf of Honduras	IVd) Identify sources of investment and develop investment plan for providing equipment and facilities for minimizing environmental impacts of port operations, including solid waste and oily ballast water disposal (as a contribution to the SAP)	Baseline	2,070,000	Ongoing investment activities will contribute to the overall investment plans.	No regional investment planning for maritime pollution is taking place under the baseline.
		Alternative	2,241,000	By identifying sources of investment, environmental management of port activities can start to receive the attention it requires.	Global benefits will ensue from the development of investment plans for minimizing environmental impacts of port operations. Sustainability will help assure long-term improvements to global environmental resources. The private sector will be a major contributor to a sustainable program to preserve the marine environment.
		Increment GOV Co-finance GEF Co-finance	60,000 111,000		
IV) Improving environmental management and hazard reduction measures in the regional network of five ports within the Gulf of Honduras	IVe) Conduct demonstration pilot projects related to environmental improvements in three major ports, including demonstrations of port-specific hydrographic survey and electronic/paper nautical chart production activities, and environmentally effective ways of disposing of contaminated dredge spoil	Baseline	834,000	Few national activities of this sort take place in baseline conditions; those that do will contribute to the demonstration project success.	National activities are not regionally coordinated, not are lessons learned shared openly.
		Alternative	1,093,000	Each country will benefit from knowledge	The SAP will benefit from having standardized and

Objective	Component	Cost Category	Cost (USD\$)	Domestic Benefits	Global Environmental Benefits
				gained from demonstration projects in the region, as the information will be widely available and widely shared, and can assist in countries making investment decisions for environmental improvements in the ports.	demonstrated methods for environmental improvements in the region's ports.
		Increment GOV Co-finance GEF Co-finance Private Sector	40,000 119,000 100,000		

SUMMARY INCREMENTAL COST MATRIX

Objective	Component	Baseline (B)	Alternative (A)	Increment (A-B)		
				Governments	Other	GEF
I) Building regional capacity for maritime and land-based pollution control in the Gulf of Honduras	Ia) Put in place institutional arrangements for carrying out the project activities that will ensure the sustainability of the action program	--	1,680,000	230,000	50,000	1,400,000
	Ib) Identify, strengthen, and involve stakeholders	4,659,000	5,601,000	112,000	400,000	430,000
	Ic) Develop and conduct training workshops for stakeholders	4,533,000	4,796,000	91,000	--	172,000
	Id) Formulate arrangements for economic instruments and incentives, and financing regional maritime pollution monitoring, control and prevention, including the establishment of a financing scheme in cooperation with the private sector and port authorities to contribute to the financial sustainability of the program	8,279,000	9,087,000	160,000	400,000	248,000
	Ie) Agree on performance indicators for the Gulf of Honduras maritime transport pollution control project through a broad stakeholder process and develop a process to monitor those indicators	--	322,000	72,000	200,000	50,000
	Total Objective	17,471,000	21,486,000	665,000	1,050,000	2,300,000
II) Updating the TDA, developing a region-specific SAP, and creating, analyzing and distributing marine environmental information for the Gulf of Honduras	IIa) Develop a data and information management system for maritime impacts from port and navigation activities and land-based activities on the Gulf of Honduras	8,839,000	9,377,000	100,000	88,000	350,000
	IIb) Update and complete TDA, including an updated assessment of the relative importance and transboundary impact of land-based and marine-based sources of pollution and filling the gaps identified in the Preliminary TDA	--	969,000	104,000	515,000	350,000
	IIc) Prepare, negotiate, and endorse at the national level a regional Strategic Action Programme (SAP) for port and navigational pollution reduction measures (as well as reduction of other adverse land-based activities), and improvement of navigation safety	--	346,000	146,000	--	200,000
	Total Objective	8,839,000	10,692,000	350,000	603,000	900,000
III Enhancing navigational safety in shipping lanes	IIIa) Conduct navigational risk assessments and propose modifications in maritime shipping routes and other risk reduction measures	--	213,000	78,000	25,000	110,000
	IIIb) Review and draft reforms for the institutional, legal, policy, regulatory and enforcement framework for navigational safety, including the prevention of oil and chemical spills, vessel standards, provision of hydrographic services, certification, the framework for the definition of liabilities and facilitating the process of ratification, as well as promoting the compliance, with international and regional conventions and agreements (such as international collision regulations and other international IMO conventions like the Safety of Life at Sea)	4,089,000	4,929,000	120,000	695,000	25,000
	IIIc) Building on existing institutional arrangements where feasible, establish a regional focus for hydrography and oceanography related to navigational safety and spill planning and response, for oceanographic data processing, as well as management and modeling (Marine) GIS-based data applications, that will share information with the public and decision makers	2,072,000	2,251,000	119,000	--	60,000
	IIId) Enhance capacity by developing and implementing a training program for national and regional entities, including hydrography; inspection, pilotage, and oceanography related to navigational safety and spills	2,510,000	3,930,000	349,000	373,000	698,000

Objective	Component	Baseline (B)	Alternative (A)	Increment (A-B)		
				Governments	Other	GEF
	IIIe) Prepare a regional/transboundary oil and chemical spill prevention and contingency plan	2,456,000	2,836,000	121,000	259,000	--
	IIIIf) Building on the initial assessment/ gap analysis of regional hydrographic capabilities of the Meso-American and Caribbean Sea Hydrographic Commission (MACHC), hold a high-level workshop t address institutional arrangements regional capacity building. Participants should include senior, decision making representatives from each country's national Interministerial hydrographic coordination mechanism (Commission, Steering Group, etc.), regional organizations such as COCATRAM< MACHC and other key players. Such a workshop should 1) explore alternatives for regional cooperation under the scope of the project an 2) decide on a common approach, including political arrangements that will effectively build regional capacity while reducing costs by utilizing common assets	--	170,000	73,000	90,000	7,000
	IIIg) Develop and implement a training/demonstration program for national and regional entities in hydrography to improve technical capacity	--	205,000	--	205,000	--
	IIIh) Identify and conduct two demonstration pilot activities related to navigational risk reduction. Examples include improved incineration facilities, improved processes for removal, transport, and treatment of chemical wastes (including oil, solid waste and water), improved navigational products and services (such as production of an electronic navigational chart for a project priority port), and regional vessel tracking capabilities	1,205,000	1,340,000	70,000	65,000	--
	Total Objective	12,332,000	15,874,000	930,000	1,712,000	900,000
IV) Improving environmental management and hazard reduction measures in the regional network of five ports within the Gulf of Honduras	IVa) Conduct port operations risk assessments and propose concrete modifications to reduce pollution risks	--	128,000	78,000	50,000	--
	IVb) Review the adequacy of existing conventions and suggest reforms for national laws, policies, regulations and enforcement policies regarding port activities (including enhanced use of international agreements and mechanisms to control and enforce adequate certification of visiting ships)	3,023,000	3,315,000	102,000	190,000	--
	IVc) Develop harmonized regional guidelines, standards and policies for port environmental management and security	1,850,000	2,320,000	75,000	395,000	--
	IVd) Identify sources of investment and develop investment plan for providing equipment and facilities for minimizing environmental impacts of port operations, including solid waste and oily ballast water disposal (as a contribution to the SAP)	2,070,000	2,241,000	60,000	--	111,000
	IVE) Conduct demonstration pilot projects related to environmental improvements in three major ports, including demonstrations of port-specific hydrographic survey and electronic/paper nautical chart production activities, and environmentally effective ways of disposing of contaminated dredge spoil	834,000	1,093,000	40,000	100,000	119,000
	Total Objective	7,777,000	9,097,000	355,000	735,000	230,000
	Evaluation	--	30,000	--	--	30,000
	Audit	--	75,000	--	--	75,000
	Contingencies	--	265,000	100,000	--	165,000
	Total Project Costs	46,419,000	57,519,000	2,400,000	4,100,000	4,600,000
	PDF-B	--	--	--	--	550,000
	Total Project Budget			2,400,000	4,100,000	5,150,000

Environmental Protection and Maritime Transport Pollution Control in the Gulf of Honduras
PROJECT LOGICAL FRAMEWORK
RS-X1009

NARRATIVE SUMMARY	VERIFIABLE INDICATORS	MEANS OF MEASUREMENT	ASSUMPTIONS
<p>Goal of Program: Contribute to the stabilization of water quality in the Gulf of Honduras and prevent the degradation of vulnerable coastal and marine ecosystems threatened by pollution</p>	<ul style="list-style-type: none"> Levels of contaminants (nutrients, sediment, BOD, toxics) stabilized by 2010 relative to 2005 Rate of decline in the quality of selected coral reef sites, mangroves and seagrass beds (sites to be determined by TDA) halved by 2010 relative to 2005 	<ul style="list-style-type: none"> Baseline to be established in the Transboundary Diagnostic Analysis (TDA) and monitoring data from Environmental Information System (both MBRS and Gulf of Honduras project) PCU Progress reports 	<ul style="list-style-type: none"> National political commitment to engage in regional collaboration on pollution control Non-occurrence of major natural disaster (hurricane, coral bleaching event)
<p>Objective of Program: Enhance the control and prevention of maritime transport-related pollution in the major ports and navigation lanes in the Gulf of Honduras, improve the navigational safety to avoid groundings and spills, and reduce land-based sources of pollution draining into the Gulf.</p>	<ul style="list-style-type: none"> Sustainable regional institutional mechanism for environmental protection and pollution prevention of the Gulf of Honduras is formally established by Year 4 Contaminant loads from port and other land-based activities reduced by 25% by 2010 relative to 2005 Operational discharges from shipping in the Gulf reduced by 25% by 2010 relative to 2005 Incidence of maritime accidental spills reduced by 50% by 2010 relative to 2005 	<ul style="list-style-type: none"> Baseline to be established in the final TDA and monitoring data from Environmental Information System (both MBRS and Gulf of Honduras project) Port environmental monitoring records Navigational safety records PCU Progress reports 	<ul style="list-style-type: none"> National political commitment to engage in regional collaboration on pollution prevention Additional funding sources identified and secured to finance the SAP Projections for shipping traffic and cargo in the Gulf of Honduras increase at a steady rate
COMPONENT 1: BUILDING THE REGIONAL NETWORK FOR MARITIME AND LAND-BASED POLLUTION PREVENTION AND CONTROL			
<p>Sub-component 1.a <i>Build and reinforce regional network for pollution control and prevention</i></p>	<ul style="list-style-type: none"> Regional arrangements for project execution and monitoring established by Year 1, including the Regional Steering Committee and Project Management Committee Number of stakeholder organizations from all 3 countries involved in project implementation increases by 25% by Year 5 Informed media coverage of pollution issues in the Gulf increases relative to 2005 baseline Enhanced knowledge and capacity for environmental protection and maritime transport pollution control through the training of at least 100 people by Year 5 through training courses and exchange programs 	<ul style="list-style-type: none"> Stakeholder surveys Course documentation, reports and evaluations Committee Proceedings MTR and Final Evaluation PCU Progress Reports 	<ul style="list-style-type: none"> National political commitment to engage in regional collaboration on pollution control Suitable candidates for training programs available and identified

NARRATIVE SUMMARY	VERIFIABLE INDICATORS	MEANS OF MEASUREMENT	ASSUMPTIONS
Sub-component 1.b <i>Financial sustainability mechanism</i>	<ul style="list-style-type: none"> Formal agreements are reached between public and private sectors on the sustainable financing for maritime pollution monitoring, control and prevention by Year 5 Public and private economic benefits of maritime pollution prevention quantified by Year 3 Enhanced experience in sustainable financing of maritime pollution monitoring, control and prevention through the application of 2 demonstration projects by Year 4, of at least one should be considered for replication by Year 5 	<ul style="list-style-type: none"> Financing agreements Reports from demonstration projects Economic benefit analysis report MTR and Final Evaluation PCU Progress Reports Evidence of interest to replicate a demonstration project 	<ul style="list-style-type: none"> Additional funding sources identified and secured Suitable demonstration projects identified.
Sub-component 1.c <i>Monitoring and modeling strategic framework</i>	<ul style="list-style-type: none"> Baseline of land based and marine sources of pollution and water quality within the Gulf established by Year 2 in collaboration with MBRS program 	<ul style="list-style-type: none"> Annual results if monitoring program MTR and Final Evaluation PCU Progress Reports 	<ul style="list-style-type: none"> Non-occurrence of major natural disaster (hurricane) that could inhibit monitoring from taking place
COMPONENT 2: BUILDING THE INFORMATION BASE FOR THE STRATEGIC ACTION PROGRAM			
Sub-component 2.a <i>Environmental Information System</i>	<ul style="list-style-type: none"> All available hydrographic, oceanographic, and maritime related data (including economic data) transferred to EIS by Year 2. Coastal communities in all three countries are aware of pollution issues through the publication of a state of the Gulf report by Year 2 	<ul style="list-style-type: none"> Information Management System established Records of visitation frequency to website and other information databases State of the Gulf reports MTR and Final Evaluation PCU Progress Reports 	<ul style="list-style-type: none"> Non-occurrence of major natural disaster (hurricane) that could inhibit monitoring from taking place
Sub-component 2.b <i>Transboundary Diagnostic Analysis</i>	<ul style="list-style-type: none"> Enhanced knowledge on the relative importance and transboundary impact of land-based and marine-based sources of pollution by Year 2 and TDA endorsed by the 3 countries by Year 2 Enhanced knowledge of the adequacy of national and regional legal and institutional frameworks for environmental management of the maritime transport industry and land based activities by Year 1 Policy and economic barriers to marine pollution prevention confirmed by Year 1 	<ul style="list-style-type: none"> Transboundary Diagnostic Analysis approved by Belize, Guatemala and Honduras Legal and institutional assessment Socio-economic assessment MTR and Final Evaluation PCU Progress Reports 	<ul style="list-style-type: none"> Existing data made available

NARRATIVE SUMMARY	VERIFIABLE INDICATORS	MEANS OF MEASUREMENT	ASSUMPTIONS
Sub-component 2.c <i>Strategic Action Program (SAP) for port and navigational pollution reduction</i>	<ul style="list-style-type: none"> Countries, funding agencies and regional organizations endorse the SAP by Year 3 By Year 5 formal partnerships established with other funding agencies and private sector for the implementation of the SAP At least 2 new regional agreements related to marine pollution and control entered into effect and applied by Year 4 and by Year 5 the application for the designation of the Gulf of Honduras as a Special Area under MARPOL has been submitted to IMO, At least 2 regulatory instruments for marine pollution and control harmonized by Year 3 Slope stabilization and erosion control measures in critical watersheds in place by Year 5 	<ul style="list-style-type: none"> SAP approved by Belize, Honduras and Guatemala Signed partnership and financing agreements with donors and funding agencies (incl. Private sector) for the implementation of the SAP Application to IMO for establishing the Gulf of Honduras as a Special Area under MARPOL 73/78 and as a Particularly Sensitive Area Regional agreements and reports on implementation Publication of harmonized regulatory instruments Reports from projects related on slope stabilization and erosion control measures MTR and Final Evaluation PCU Progress Reports 	<ul style="list-style-type: none"> National political commitment to engage in regional collaboration on pollution control Interest of other donors and funding agencies Interest of IMO to accept application from Gulf of Honduras
COMPONENT 3: ENHANCING NAVIGATIONAL SAFETY IN SHIPPING LANES			
Sub-component 3.a <i>Navigational safety in shipping routes</i>	<ul style="list-style-type: none"> Navigational safety risks identified by Year 1 Enhanced regional communication capacity for navigational safety and surveillance established by Year 3 Provision of 100% of the essential equipment installed by Year 5 (eg, signaling equipment) 	<ul style="list-style-type: none"> Navigational Risk Assessment Regional communications protocol Evidence of purchase, installation and use of essential equipment acquired through project MTR and Final Evaluation UCP Progress Reports 	<ul style="list-style-type: none"> National political commitment to engage in regional collaboration on pollution control Additional funding sources identified and secured for purchase of equipment etc
Sub-component 3.b <i>Institutional, legal, policy, regulatory and enforcement framework for navigational safety</i>	<ul style="list-style-type: none"> Improved institutional, legal, policy, regulatory and enforcement framework for navigational safety through the formulation of at least 10 reform projects by Year 3 Ratification and regulations in effect by Year 5 of international conventions for the protection of the marine environment Ballast water exchange zone (limit) established for the Gulf of Honduras by Year 2 	<ul style="list-style-type: none"> Reform projects Evidence of conventions and regulation ratification and Action Plans for their implementation Documentation establishing the ballast water exchange zone MTR and Final Evaluation PCU Progress Reports 	<ul style="list-style-type: none"> National political commitment to engage in regional and international collaboration on pollution control

NARRATIVE SUMMARY	VERIFIABLE INDICATORS	MEANS OF MEASUREMENT	ASSUMPTIONS
Sub-component 3.c <i>Capacity building for regional hydrographic and oceanographic data processing, inspection, pilotage and other operations at sea related to navigational safety and spills</i>	<ul style="list-style-type: none"> Enhanced regional capacity for hydrographic and oceanographic data processing, inspection, pilotage and other operations at sea related to navigational safety and spills through the training of at least 100 people by Year 3 	<ul style="list-style-type: none"> Course documentation Evidence of purchase, installation and use of essential equipment acquired through project MTR and Final Evaluation PCU Progress Reports 	<ul style="list-style-type: none"> Additional funding sources identified and secured for purchase of equipment etc Suitable candidates for training programs available and identified Collaboration with MACHC and IMO materialized
Sub-component 3.d <i>Regional/transboundary oil and chemical spill prevention and contingency plan</i>	<ul style="list-style-type: none"> Regional/transboundary oil and chemical spill prevention and contingency plan prepared by Year 2 At least 3 regional emergency spill response exercises carried out by Year 3 Gaps and collaboration options in existing equipment and facilities assessed by Year 2 and provision of 100% of the essential equipment provided by Year 5 	<ul style="list-style-type: none"> Regional/transboundary oil and chemical spill prevention and contingency plan published Reports from regional emergency spill response exercises Report on needs assessment for essential equipment Evidence of purchase, installation and use of essential equipment acquired through project MTR and Final Evaluation UCP Progress Reports 	<ul style="list-style-type: none"> National political commitment to engage in regional collaboration on pollution control Additional funding sources identified and secured for purchase of equipment
Sub-component 3.e <i>Demonstration projects for navigation safety</i>	<ul style="list-style-type: none"> Enhanced experience in navigation safety and marine environmental protection through the application of 2 demonstration projects by Year 4 	<ul style="list-style-type: none"> Reports from demonstration projects MTR and Final Evaluation UCP Progress Reports 	<ul style="list-style-type: none"> Suitable demonstration projects identified.

COMPONENT 4: IMPROVING ENVIRONMENTAL MANAGEMENT AND HAZARD REDUCTION MEASURES IN THE REGIONAL NETWORK OF FIVE PORTS WITHIN THE GULF OF HONDURAS

Sub-component 4.a <i>Risk assessments of port operations</i>	<ul style="list-style-type: none"> Environmental risks of port operations assessed by Year 2 with Action Plans established by Year 3 	<ul style="list-style-type: none"> Port environmental risk assessments and Action Plans MTR and Final Evaluation UCP Progress Reports 	<ul style="list-style-type: none"> Ports willing to participate and disclose all information available and allow audits to take place
Sub-component 4.b <i>Harmonization of regional guidelines, standards and policies for port environmental management and security</i>	<ul style="list-style-type: none"> Regional harmonization of guidelines, standards and policies for port environmental management and security by Year 3. By Year 4 partnerships established with other funding agencies (incl. private sector) for the financing and implementation of port improvements in environmental management and safety, including investments in waste receiving and recycling facilities 	<ul style="list-style-type: none"> Publication of harmonized guidelines, standards and policies for port environmental management Partnership agreements with other donors and/or financing agreements Proceedings from Port User Meetings MTR and Final Evaluation 	<ul style="list-style-type: none"> National political commitment to engage in regional collaboration on pollution control Interest of other donors and funding agencies

NARRATIVE SUMMARY	VERIFIABLE INDICATORS	MEANS OF MEASUREMENT	ASSUMPTIONS
	<ul style="list-style-type: none"> Enhanced collaboration between ports and potential funders through establishment of regional port users' forum. 	<ul style="list-style-type: none"> PCU Progress Reports 	
Sub-component 4.c <i>Demonstration projects for port environmental management</i>	<ul style="list-style-type: none"> Enhanced experience in port environmental management and safety through the application of demonstration projects in 3 ports by Year 4 (eg. environmentally sound dredge spoil disposal, port-specific hydrographic surveys etc) 	<ul style="list-style-type: none"> Reports from demonstration projects MTR and Final Evaluation PCU Progress Reports 	<ul style="list-style-type: none"> Suitable demonstration projects identified.

STAP ROSTER REVIEW

**STAP ROSTER TECHNICAL REVIEW OF THE PROPOSED GEF-IW PROJECT:
“ENVIRONMENTAL PROTECTION AND MARITIME TRANSPORT POLLUTION
CONTROL IN THE GULF OF HONDURAS”
(BELIZE, GUATEMALA, HONDURAS)**
by J. A. Thornton PhD PH CLM
Managing Director
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INTRODUCTION

This review responds to a request from the Inter-American Development Bank (IDB) to provide a technical review of the proposed International Waters project entitled *Environmental Protection and Maritime Transport Pollution Control in the Gulf of Honduras*.

I note that I am a designated expert on the STAP Roster of Experts with particular experience and knowledge concerning watershed management and land-ocean interactions. I have served as Government Hydrobiologist with the Zimbabwe Government, Chief Limnologist with the South African National Institute for Water Research, Head of Environmental Planning for the City of Cape Town (South Africa), and, most recently, as Principal Environmental Planner with the Southeastern Wisconsin Regional Planning Commission, a position that I hold concurrent with my position as Managing Director of International Environmental Management Services Ltd, a not-for-profit corporation providing environmental education and planning services to governments worldwide. In each of these positions, I have had oversight of projects and programs designed to assess contaminant loads to aquatic ecosystems from land-based activities, and to develop appropriate and affordable mitigation measures to reduce such loads and minimize their impacts on the aquatic environment, both freshwater and marine.

This review is based upon a thorough review of the project document, consisting *inter alia* of the Project Document (vi + 22 pages); the Project Executive Summary and GEF Council Work Program Submission inclusive of Annexes A, B, F and K; and, the (Draft) *Gulf of Honduras Transboundary Diagnostic Analysis* (TDA), indicated as Annex E. Other, relevant documents served as reference sources, including the GEF *Operational Strategy*, *Agenda 21*, and related materials establishing the necessity and priority of land-based activities to control marine pollution. In this regard, the Global Program of Action for the Protection of the Marine Environment from Land-Based Activities and the United Nations Convention of the Law of the Sea were especially informative and relevant. A knowledge of the UNEP Regional Seas Programme was also useful.

SCOPE OF THE REVIEW

This review addresses, *seriatim*, the issues identified in the Terms of Reference for Technical Review of Project Proposals.

KEY ISSUES

Key issue 1. Scientific and technical soundness of the project. Overall, the project appears to be scientifically and technically sound. The approach proposed, which includes an on-going diagnostic and demonstration project-based program, adequately addresses the needs to initiate actions to (1) manage marine transportation-related pollution of the Gulf of Honduras, (2) minimize risks associated with the conduct of marine transportation activities in the Gulf, and (3) reduce marine pollution associated with land-based activities within the drainage basin tributary to the Gulf. The need for both a land-based and maritime industry-based approach is documented in the *Gulf of Honduras Preliminary Transboundary Diagnostic Analysis* that was completed during the preparation of this project.

Despite the generally sound nature of the proposal, a review of the Components set forth in the project document suggests that the primary focus of this proposed project will be on the shipping/maritime issues with only minor focus on the land-based activities that also contribute to the potential degradation of the marine environment; to wit, Component 1, capacity building, provides for the human and institutional resources necessary to manage contamination and degradation of the Gulf from both maritime and land-base activities, but Components 2 and 3 focus solely on the maritime issues. Component 4, which could include a more significant land-based element, also appears to focus more (almost exclusively) on the maritime industry (i.e., ports) than on other land-based activities outside of the ports. This same emphasis appears in the Logical Framework Analysis set forth in Annex B, and is reflected in the Draft TDA. While the emphasis is consistent with the data set forth in Table 5.4-2, this reviewer suspects that the segregation of the analyses into land-based, port-based, and marine-based activities results in this emphasis, and skews the priorities toward maritime interventions.

The land-based sources represent a chronic source of contaminants to the Gulf, and, through the Gulf, to the Caribbean Sea. The maritime-related sources represent a major potential (catastrophic) source of contamination, with the risk of such contamination escalating in direct proportion to the increasing numbers of vessels making use of the Gulf ports. For this reason, both ship-based and port-related sources of contaminants are appropriate for inclusion within the scope of the proposed Strategic Action Program planning project. Indeed, the ports form the nexus between the potential for contamination of the coastal marine waters from both land-based and shipboard sources, with the port facilities being located in the vicinities of river mouths as well as localities where potential contaminants are transferred from the ship to the land and *vice versa*. However, the chronic nature of the land-based inputs would appear to require a more dedicated effort than currently contemplated. To this end, development of a significant degree of synergy with the GEF/UNEP program for “Development of Comprehensive Management Programme to reduce Pesticide Releases from the Agricultural Sector to the Marine Environment of the Caribbean Sea” is strongly recommended—this project is being executed, in part, in

Nicaragua and Costa Rica which share a portion of the Caribbean coastline to the south of the proposed project area.¹

From a scientific standpoint, providing a framework within which the three Gulf countries can assemble a shared data base comprised of similar variables, measured in a consistent manner, and stored in an accessible form is an essential first step toward creating the baseline from which disturbances can be measured and assessed. Such a data base will also facilitate both individual and joint enforcement of regulations and standards by the countries within the shared basin. With regard to creating an appropriate regulatory framework, an understanding the current status of the Gulf waters is also useful in determining whether or not conditions of impairment exist. Appropriate data will permit a realistic evaluation of likely standards to be applied by regulators. Further, the upgrading of the laboratories and enhancing of the institutional capacities to utilize shared methodologies, implemented by trained and competent staff in all three Basin countries, is a necessary element in the shared enforcement process. Joint action of this nature can overcome the possibility that shippers and others will shift their operations between Basin countries in order to avoid regulations should the individual countries adopt varying levels of governmental oversight.

Key issue 2. Identification of global environmental benefits and/or drawbacks of the project, and consistency with the goals of the GEF. The proposed project addresses the major causes of environmental stress within the aquatic environment of the Gulf of Honduras; namely, the inputs of contaminants washed off the land surface and into aquatic ecosystems, the inputs of contaminants discharged from vessels utilizing the Gulf, and the input of contaminants due to spillages and maritime accidents. These contaminants, if unchecked, threaten globally significant ecosystems such as the Meso-American Barrier Reef System (MBRS), which system is itself the subject of GEF investments, and the coastal mangrove communities, which are globally recognized as “at risk” ecosystems. These ecosystems are either directly or indirectly connected to the transboundary waters of the Gulf of Honduras, and form part of the larger oceanic circulation in the Caribbean Large Marine Ecosystem (LME). Consequently, the coastal waters of the Gulf of Honduras are intimately connected through the Caribbean basin to the North Atlantic circulation. Hence, true global benefit is presumed. [In the GEF International Waters context, global benefit is considered as benefit accrued within transboundary water systems—while the locations of the demonstration projects are to be determined as an output of the project, and, hence, are not predetermined, there is every likelihood that the sites will be within watersheds that drain to transboundary waters, and, ultimately in any event, to the Caribbean coastal waters.]

The project is consistent with the goals and objectives of OP 10,² contributing to the global effort to address environmental concerns arising from increased volumes of shipping within confined waterways, which waterways also frequently serve to confine contaminants entering the marine

¹ Such coordination is indicated in the Project Document.

² Operational Program 10 (OP 10) includes as indicative activities, *inter alia*, global pollutant projects which are designed to “overcome barriers to the adoption of best practices that limit contamination of the International Waters environment...[including]...limited demonstration projects for addressing land-based activities...[and]...contaminants released from ships....” OP 10 includes “narrowly focused regional...projects... targeted technical demonstration and capacity building projects....[and] pollution prevention....” This Operational Program is intended to leverage substantial private sector resources, and engender cooperation among the GEF Implementing Agencies.

environment from the land and magnifying their impacts within critical habitat areas necessary for the survival of marine species. In addition, the participation by the three Gulf countries fulfils the requirements of OP 10 by increasing the likelihood of success of the various interventions contemplated under this project—actions by the individual countries may be insufficient or inadequate to fully address the generation and transportation of contaminants to the coastal zone in the absence of similar actions by their neighbours. Thus, a regional approach is essential, and provides the basis for GEF participation, given that each country may need to engage in an additional level of effort beyond that required under their current national legal framework.

In this regard, the participation of a broad cross-section of governmental, nongovernmental and civil organizations with interests in the coastal zone, both landward and seaward of the high water mark, would be an important element in ensuring the implementation of the project outcomes, even though the outcomes, in the global sense, are environmental in nature. Currently, as outlined in Annex F, this participation is provided through a stakeholder advisory committee comprised of 50 individuals representing national agencies, municipal governments, merchant marines, naval authorities, nongovernmental organizations and industry from all three countries. Unfortunately, these organizations, with few exceptions, are not listed either in the Annex or the project document, so it is not possible to gain a full understanding of the extent or nature of stakeholder involvement in the project. Those institutions that are indicated include COCATRAM, the regional Maritime Commission, and TRIGOH, a nongovernmental organization. To the extent that these organizations are named, the choice of institutional partners appears appropriate for the conduct of a broad-based initiative aimed at controlling contaminants from both terrestrial and marine sources.

This project is complementary to other GEF initiatives within the LAC region, specifically the identification of and dissemination of specific, sectoral-based techniques on the reduction of the occurrence of POPs in waters draining to the Caribbean Sea, and the protection and conservation of the Meso-American Barrier Reef System. Given the GEF aim of incrementally funding projects that contribute to sustainable economic development in a replicable manner, the current proposal and its companion proposal would seem to be well-suited to achieving such an aim.

Key issue 3. Regional context. The participation in this project of the three countries in the Central American region riparian to the Gulf of Honduras argues persuasively that adequate and appropriate consideration has been given to the regional context of the project. Actions proposed to better integrate the national regulatory initiatives into a regional program addressing priority transboundary concerns in the Gulf of Honduras, as noted above, are fully consistent with the development of a sustainable regional approach to managing this waterway.

The proposal clearly indicates an intention to disseminate information and results on a regional basis, both within the Basin and elsewhere in the region. In part, this dissemination process will utilize the existing Regional Environmental Information System established under the Meso-American Barrier Reef System project, and is complementary to the goals of that project in serving as a repository and focal point for information on the protection and conservation of that ecosystem.

With respect to land-based sources of marine pollution, the need for close coordination between this project and the GEF/UNEP program for “Development of Comprehensive Management

Programme to reduce Pesticide Releases from the Agricultural Sector to the Marine Environment of the Caribbean Sea” has been noted. To this end, the marine focus of this project forms an excellent counterpart to the land-based (agricultural) focus of the latter project, with the combination of lessons-learned likely to result in significant regional benefit for the entire Caribbean Basin.

Key issue 4. Replicability. The implementation of demonstration projects as a key feature of this project clearly contributes to the potential for replication of beneficial practices and techniques. Further, the inclusion of mechanisms for disseminating information and results achieved fosters replication of effective and successful measures throughout the region, and especially within the participating countries. Discussions amongst GEF International Waters project managers at the Fourth Inter-American Dialogue of Water Management (Dialogue IV) clearly identified GEF International Waters projects as the primary means by which basin-scale management practices were being developed and implemented through the LAC region, and endorsed the development and implementation of information sharing mechanisms at the regional scale—specifically the IWRN, as one element of the region’s participation within the global IW-LEARN initiative. This endorsement underlines the importance of information sharing and dissemination between projects, a fact that is adequately and clearly identified within the project brief for this project. Nevertheless, it is recommended that this project, through its collaboration with the Regional Environmental Information System established under the Meso-American Barrier Reef System project, seek to ensure the dissemination of lessons-learned in the broadest possible manner.

In addition, Dialogue IV embraced the concept of project twinning as one mechanism to enhance exchange of knowledge and experience. As recognized within the project brief for this project, there is considerable complementarity between this project and the projects currently being implemented in the Caribbean Basin. The inclusion within the Project Document of establishment of explicit linkages between projects is wholly consistent with the concept envisioned and articulated within the Declaration of Foz do Iguacu: “international cooperation and meaningful exchanges, between multilateral organizations, the public sector and civil society, are key instruments for supporting the practice of comprehensive water planning and management.” Such communication will enhance the replicability of the project outputs and the results of the project, significantly contributing to the coordinated and comprehensive management of the Caribbean basin.

Key issue 5. Sustainability of the project. Annex K to the project executive summary identifies financial alternatives that will contribute to the sustainability of the project. These alternatives are to be further developed in terms of Component 1 of the proposed project. The project brief acknowledges a number of incentives for the participating countries to provide such resources, including their participation as signatories to the MARPOL and Cartagena Conventions and their protocols. Further, the project proposes to address another key element in the process of the Gulf countries devoting adequate resources to enforcement and environmental safety, and, that is, the availability of information and the development of a trained cadre of individuals with the knowledge and ability to implement actions to protect the marine environment, especially from shipboard activities and potential catastrophic events within the shipping lanes in the Gulf and ports.

Notwithstanding, however, the project document is silent on a similar array of financial and other mechanisms to ensure sustainability of the land-based elements proposed to be developed during the project. Articulation and inclusion of this need as an important element of Component 1, Project Coordination and Stakeholder Participation, is strongly recommended in the interests of sustainability.

Key issue 6. Targeted Research Projects. Targeted technical demonstration and capacity building projects are key features envisioned within the GEF International Waters Contaminant-based Operational Program. These activities are clearly included as major elements of this proposed project, under Components 3 and 4, which are focused on the use of demonstration projects as the means of determining and identifying appropriate and applicable management measures to enhance navigational safety in the shipping lanes within the Gulf and improving environmental management in the ports and adjoining coastal zone. These latter demonstration projects are aimed at spill reduction as well as pollution control. In addition, providing for the capacity necessary to implement these programs is inherent in Component 1 of the project, which includes financial, legal, institutional, and human resource elements.

There is also provision within the project brief for developing and implementing the means to replicate successful management practices within the LAC region and elsewhere, completing the GEF vision for disseminating results and outputs outside of the immediate project area. The participation of the project in the information systems associated with the MBRS program has been noted, and the further interaction with other LAC regional GEF initiatives through the IWRN has been proposed as an additional element of this dissemination process.

Interventions, funded in part by the GEF, strive for sustainability and the continuation of successful interventions beyond the project period. As noted above, work already completed during the project formulation phase and summarized in Annex K, would suggest that the interventions funded under this project may continue to provide useful information required to address land and marine based pollution prevention issues in a scientifically-valid manner. For this reason, it is most important that the measures identified be internalized within the appropriate ministries such that they continue to be implemented over the longer term. Likewise, it is equally important that the demonstration projects continue to be monitored, and the results reported using the information dissemination mechanisms previously identified, beyond the project period. Such continuity is totally consistent with the catalytic nature of the GEF, and an essential element to the sustainability of the project. Capacity building and trainer training, envisioned in the project brief, thus become the basic building blocks upon which this project will succeed or fail, both from the point of view of its sustainability and from its scientific and technical integrity.

SECONDARY ISSUES

Secondary issue 1. Linkage to other focal areas. This project is formulated as an International Waters project under OP 10 of the GEF *Operational Strategy*. No specific cross-cutting areas are identified, although the project clearly has linkages to the cross-cutting area of land degradation in terms of its focus on land-based activities and to the protection of aquatic biodiversity in terms of its focus on coral reef and mangrove ecosystems.

Secondary issue 2. Linkages to other proposals. The project recognizes the complementarities between the management of marine transportation in the Gulf of Honduras and other GEF-related initiatives relating to management of shipboard waste in the Caribbean Sea, management of other biocides within the coastal zone draining to the Caribbean Sea LME, and the management of coral reef biomes. Specific linkages with these projects are proposed and identified in the project brief.

In addition, the project proposes to make use of the IW-LEARN initiative of the GEF International Waters program and the information system of the MBRS. Such overt linkages provide a high degree of sustainability and connectivity to this project, and contribute to the likelihood that lessons learned can and will be transferred beyond the project boundaries to other, similar situations and locations within the LAC region and beyond. The project embodies the principles invoked by the Declaration of Foz do Iguacu with respect to water management in the Americas.

Secondary issue 3. Other beneficial or damaging environmental effects. The project has no known or obvious damaging environmental impacts associated with the activities proposed to be executed. The beneficial impacts of the project have been fully articulated above, and include the identification of alternative methods for achieving high quality near shore marine environments through targeted interventions that address both chronic land-based sources and catastrophic marine-related events that contribute to coastal zone degradation, the provision of trained staff and institutional capacities needed to enforce and enhance existing environmental protection regulations, and the dissemination of successful management measures. All of these benefits accrue not only within the project area, but, as a result of their wider dissemination using the electronic and other media provided, also to the wider Caribbean basin and beyond.

Secondary issue 4. Degree of involvement of stakeholders in the project. Component 1 of the project is geared toward the involvement of stakeholders. Annex F summarizes additional elements of stakeholder participation. Active stakeholder participation also is encouraged through the demonstration projects. Involvement of the wider public is catered for through the use of the MBRS information system and other media. Unfortunately, aside from the major organizations noted as being involved in the project, and the 50-member stakeholder committee, there are few additional details as to the participants proposed to be included. That said, the project brief does allude to the participation of the relevant regulatory agencies and ministries in the execution and implementation of the project activities, and the project explicitly indicates support for capacity building and institutional strengthening with respect to these organizations. Such involvement is in addition to the current level of involvement of the regional maritime transportation agency, and is critical to the sustainability of the project and its expansion into areas not specifically involved in the demonstration projects.

Secondary issue 5. Capacity building aspects. Components 3 and 4 is aimed in part at the acquisition and dissemination of information on the successful measures to protect the marine environment, specifically the barrier reef and mangrove swamps, from ship-based and land-based activities that have the potential to negatively impact aquatic ecosystems. In addition, Component 1 will involve the training of agency staff and strengthen institutions. In addition, Component 2, in part, seeks to encourage dissemination of lessons learned with respect to alternative management practices and best practices for protection of the marine environment.

This element should be conducted in liaison with complementary GEF International Waters initiatives, including the best practices data base being compiled by UNEP and the IW-LEARN initiatives being executed by the United Nations Development Programme (UNDP). These efforts will enable wider dissemination of knowledge of practices that have positive effects. Similarly, cross-posting such information for dissemination through the IWRN network will encourage and facilitate application of appropriate best practices throughout the LAC region. Such knowledge is an essential element in building capacity and strengthening institutions in the region.

In addition to the dissemination of knowledge and information, the proposed development of standard methods for analysis and impact assessment will benefit institutions and staff throughout the region. In this regard, Component 1 also contains work elements that are likely to be aimed at establishing a certification process for laboratories, common standards, and reinforced institutional capacity within the region. Maintaining such standards and certification requires trained individuals, actively and conscientiously applying their knowledge and skills for the public good. This can only benefit everyone in the LAC region.

Secondary issue 6. Innovativeness. Development of appropriate management practices governing the protection of the near shore marine environment within the inter-tropics, within the context of an integrated land- and marine-based management program, demonstrates a strong desire that the results and outputs of this project reflect the state-of-the-art with respect to marine transportation in coastal waters. By selecting demonstration sites that span the range of likely conditions within the three participating countries, the project team has clearly attempted to develop management programs that will be accepted by the maritime operators, port facility providers, and, ultimately, their end users. It is to be further anticipated that linkages to the coastal zone landscape that contribute chronic contaminant loads to the aquatic environment will also be established, in larger part, through the activities to be developed under Component 4. Should these latter projects be contemplated and developed, the project team will be clearly applying state-of-the-art watershed-based management concepts to resolving a problem that is of global concern. For these reasons, the proposed project undoubtedly demonstrates a high degree of innovativeness in its approach and in its anticipated results.

GENERAL CONCLUSION AND RECOMMENDATIONS

Overall, it is the conclusion of this reviewer that the proposed project, with the goal of "*Environmental Protection and Maritime Transport Pollution Control in the Gulf of Honduras*", is wholly consistent with the GEF International Waters operational program, its broader philosophy, and funding criteria. Consequently, this project is recommended for funding.

In completing the Project Executive Summary and GEF Council Work Program Submission, the reviewer recommends that each of the Components be elaborated so as to clearly summarize the following elements of each activity; namely, (1) the objectives of the Component, (2) the results or outcomes that this Component is intended to achieve, (3) the outputs or deliverables to be generated by the activities carried out under the Component, (4) indicative activities to be conducted, (5) the costs broken out as GEF funds requested, local share provided, and total cost of the Component, and (6) an indication of the likely stakeholders targeted to be participants in executing the activities. This information, to the extent that it is presented, is currently scattered

throughout the document. The likely participants are not clearly identified, other than as being the major regional actors such as COCATRAM and TRIGOH, and the activities and component costs are shown in some detail only in Annex A, the Incremental Cost Matrix. Other information on the Components and the proposed activities is set forth in Annex B, the Logical Framework Matrix.

In implementing this project, the GEF Implementing Agency is enjoined to give specific attention to:

- continuation of the demonstration projects beyond the project period so as to better evaluate the longer term performance of selected best practices determined to be feasible and practicable,
- consideration of the linkages between this project and related contaminant-based projects within the LAC region, and
- dissemination of results and outputs utilizing a variety of media but especially utilizing the regional IWRN and the global IW-LEARN network.

IMPLEMENTING AGENCY RESPONSE TO STAP COMMENTS

The following is a response to the main issues raised in the STAP Review. Comments are only provided on the items where questions and recommendations are raised by the STAP Review.

Key Issue 1: Scientific and technical soundness of the project

The STAP Review recommends that the project provide more attention on controlling land-based sources of pollution. The Project does address both maritime and land-based sources of pollution. Under Component 2, for example, the Transboundary Diagnostic Analysis (TDA) will consider all relevant sources of pollution to the Gulf of Honduras, including point and non-point sources located in the upstream portions of watersheds draining into the Gulf. To this end, the project will finance a detailed inventory of landbased/coastal sources of pollution aimed to complement the MBRS database. In addition, the analysis of potential contaminant loads from contributing watersheds undertaken for the preliminary TDA will be refined through data collection to establish a baseline of upstream erosion rates, water and sediment quality in rivers and coastal waters of the Gulf (particularly at the entrance of ports) as a basis for identifying environmental and stress indicators for the project. A Strategic Action Program (SAP) will be prepared that includes port-based and ship-based pollution reduction measures as well as reduction of polluting discharges from land-based activities such as municipal wastes, industrial effluents, and agricultural runoff. This will also include the strengthening of national and regional legal and institutional frameworks addressing environmental management of the maritime transport industry and land-based activities, with a view to identifying priorities for harmonizing laws, standards, regulations and enforcement protocols. In Component 1, studies and pilot projects will be supported that aim at developing innovative mechanisms for environmental protection and pollution control, including conservation easements, land-use zoning, and other types of incentives to control land-based sources of pollution and encourage the adoption of less polluting technologies. The project document has been modified to include these clarifications.

As indicated in paragraph 2.32 of the Project Document, the Project will coordinate its efforts with the GEF/UNDP program for “Development of a Comprehensive Management Programme to reduce Pesticide Releases from the Agricultural Sector to the Marine Environment of the Caribbean Sea” and efforts will be made to link this project with other contaminant-based projects within the LAC region.

Key Issue 2: Identification of global environmental benefits and/or drawbacks of the project, and consistency with the goals of the GEF

The STAP Review recommends providing more details on the stakeholder involvement in the project. This point is well taken and a Table has been included in Annex E that presents the institutions and organizations that participated in the project preparation workshops. These institutions and organizations will participate in the Full Sized Project, however, additional stakeholders and entities will also likely get involved during the

course of the project. The membership procedures in the various project committees (eg. Stakeholders Advisory Committee) will be defined in the Project Operating Regulations (currently under preparation). Efforts will be made to ensure representation of stakeholders that deal both with maritime and land-based sources of pollution.

Key Issue 4: Replicability

The STAP Review recommends to disseminate lessons learned in the broadest possible manner and take advantage of the International Waters Regional Network (IWRN). The project will collaborate actively with the IW:LEARN project and ensure that its results are disseminated as widely as possible (eg. through the use of a project website). This is now reflected in the project document.

Key Issue 5: Sustainability of the project

The STAP Review suggests that the project does not sufficiently address financial mechanisms to ensure the sustainability of land-based sources of pollution. As already indicated, however, in Component 1, studies and pilot projects will be supported that aim at developing innovative mechanisms for environmental protection and pollution control, including conservation easements, land-use zoning, and other types of incentives to control land-based sources of pollution and encourage the adoption of less polluting technologies. Various economic actors, such as the ports, have a clear economic interest in contributing to a reduction in both point and non-point sources of land based pollution (e.g., erosion) in view of the elevated operation costs associated with, for example, maintenance dredging linked to coastal sedimentation. Given these incentives, innovative mechanisms related to the payment of environmental services such as erosion control will be explored and demonstrated during the course of the project.

Key Issue 6: Targeted Research Projects

The STAP Review emphasizes the need to ensure that relevant Ministries are fully involved in project activities to ensure long-term sustainability and internalization of the results. The project includes significant amounts of resources for stakeholder participation (workshops, meetings, working groups etc) and efforts will be made to ensure that activities proceed at an adequate speed to ensure full internalization by the participating institutions. The project also contemplates the formulation of long-term tri-national agreements, creation of special interest networks (e.g., local governments of the Gulf of Honduras, regional academic community), formal endorsement of the SAP, capacity building and other measures aimed at sustainability. In addition, the need for a permanent institutional arrangement for marine environmental management of the Gulf will be examined as part of the SAP. The STAP Review also recommended considering mechanisms for monitoring and disseminating results of demonstrations after project completion. This will be the subject of long-term tri-national agreements with specific measures and financial mechanisms for long-term monitoring to be included in the SAP. Clarifications to this effect have been included in the project document.

General conclusion and recommendations

The STAP Review recommends that the description of each Component be presented more clearly (incl. objectives, outcomes, outputs, activities, budget etc). These items are now reflected in the Project Document.

With regards to the demonstration projects, there is interest on the part of local governments and private sector to participate and contribute to the demonstration projects. This will likely contribute to ensure the continuity of these projects in the medium and long-term.

Response to comments received from the International Bank for Development and Reconstruction (IBRD) on the GEF/IDB project: “Environmental Protection and Maritime Transport Pollution Control in the Gulf of Honduras” (RS-X1009)

IBRD Comment 1: This is a very timely and strategically important project and one that has the potential to add significant value to ongoing GEF and other donor financed initiatives to promote sustainable use of coastal ecosystems in the Gulf of Honduras and the broader Mesoamerican Barrier Reef region. The project document has done an excellent job of analyzing the threats and identifying what needs to be done. However, the project is quite ambitious in what it proposes to deliver given the five year time frame and the modest resources at its disposal. The project scope has expanded since the original concept was approved in the pipeline, to include land-based sources of pollution from key watersheds draining into the Caribbean in and adjacent to the Gulf of Honduras. While this approach is certainly consistent with a Large Marine Ecosystem management perspective which sees the hydrological continuum from ridge to reef as the management area, it raises the bar considerably in terms of the quality of project execution and outputs required to meet project objectives. The stakes are now much higher and project risk is greater. This puts a huge onus on the executing agency--COCATRAM-- to deliver. It also implies that the IADB will need to provide the close supervision and support to COCATRAM during project implementation.

IDB Response 1: The decision to broaden the scope of the project to encompass land-based sources of marine pollution is a result of the findings of the preliminary Transboundary Analysis (TDA) carried out during the PDF Block B phase, guidance obtained from the GEF Secretariat and conclusions and recommendations made by experts from the region during the consultation workshops. Efforts have been made to coordinate with other initiatives addressing land-based sources of pollution and significant co-financing resources are expected from on-going IDB-funded programs in the watershed. The Institutional Framework for the project will ensure adequate participation of institutions dealing with both land and ship-based marine pollution, in particular at the level of national coordination committees. Furthermore, the involvement of the Central American Environment and Development Commission (CCAD) is expected to strengthen the technical aspects of the program on the issue of land-based sources of pollution, as a complement to the more maritime focus of COCATRAM.

IBRD Comment 2. While the payoff will also increase proportionately if the project succeeds in delivering on its promises, it may be worth simplifying some of the project components, focusing more on demonstration projects and piloting innovative schemes to address problems (as proposed through the competitive grants scheme), than spending a lot more time on studies.

IDB Response 2: The project design seeks a balance between financing additional studies and consultancies, and the implementation of pilot and demonstration projects. Certain studies are required in order to formulate the Strategic Action Programme (SAP), including, for example, the preparation of a final Transboundary Diagnostic Analysis

(TDA), the socio-economic analysis of marine pollution prevention and linkages to competitiveness and the establishment of the sustainable financing mechanism.

IBRD Comment 3: Operationalizing the various recommendations that will emerge from the studies--e.g., from the completed TDA, and from the resulting Strategic Action Plan, will require a financing plan that will be efficient and sustainable. Unless such a mechanism can be set up and tested during the project's lifetime, the prospects for implementing any recommendations for a regional system of pollution control--and sustaining these actions-- will be very low. It is crucial that the project begin at the outset to identify a realistic series of options--from payment for marine ecosystem services (e.g., by the marine transport, agriculture and tourism sectors, as well as municipalities), direct user fees for licenses and other services which reflect the true cost of these goods and services, the introduction of environmental taxes, pollution funds and other economic instruments that will both discourage pollution (encourage prevention) and kick in to mitigate the worst aspects of a major pollution event, or even chronic spills which are difficult to control.

One option that was not mentioned, but which holds considerable promise is the notion of environmental bonds which would be required of all potentially polluting industries. Payment of insurance bonds against potential pollution events could be tied to the license to operate. The bonds could be invested during the licensed period of operation and the principle plus some interest returned if the enterprise operated according to good practice and reported regularly and transparently on agreed performance indicators. In the case of a spill on noncompliance, the bond could serve as at least partial payment for clean up costs (which could be fully recuperated through enforcement of polluter pays regulations), or as fines levied against the operator. These domestically generated investments will be needed to offset declining external support for implementation of the SAP and other agreed interventions.

IDB Response 3: The analysis and design of sustainable financing options will be initiated early, and related pilot projects will provide important results that can feed into the SAP. The valuable recommendation on the use of environmental insurance bonds will be considered in this context.

IBRD Comment 4. In addition to accelerating the feasibility studies required to determine the most viable financing mechanisms to support required investments, the project will need a very clear log frame and strong monitoring and evaluation plan that will track proposed deliverables through the life of the project. The annexes with the detailed budgets and performance indicators were not available for review. Thus, it is not clear if there is adequate funding for many of the proposed outputs. The scope of activities described relative to the budget suggests that there may not be.

IDB Response 4: The project has an indicative logical framework. This will be further strengthened during the project inception phase and a corresponding detailed monitoring and evaluation system will be put in place. Funding is provided for this in the first component (project administration).

IBRD Comment 5. Not all the components are as complex. Component C on improving navigational safety appears to be quite straightforward. The deliverables under the demonstration pilots (hydrography, charting, and marine GIS in particular) benefit from substantial involvement of the MesoAmerican and Caribbean Hydrographic Commission (with strong support from US NOAA). If anything, the challenge will be the institutional building work for which these pilots have been designed to support and making sure that at the end of the project the countries won't be left without the means for maintaining, updating and supporting these deliverables on their own.

IDB Response 5. For all pilot and demonstration project, a thorough sustainability analysis will be made and mechanisms will be defined to ensure adequate maintenance, updating and supporting of the corresponding deliverables after project completion. Active involvement of local institutions, organizations and authorities in the design and implementation of the demonstration projects will also ensure continuity.

IBRD Comment 6. However, on the budget side, there is still some cause for concern, even with this component. The total GEF budget is supposed to contain \$100K specifically earmarked for piloting the integration of critical ENRM information in electronic navigation charts (ENC) -- following a suggestion from GEFSEC. In the present text this is listed merely as one of the options for the demonstration pilots under component 3 (para 3.19) and, Table 3 indicates that only \$200K will be available for everything else. \$200K may not be sufficient to buy the necessary oil spill contingency training, ENC development, and vessel tracking capabilities that will be required to demonstrate the elements of an effective regional system of pollution control.

IDB Response 6. In addition to the US\$300,000 for the demonstration projects to be financed by the GEF/IDB, significant amounts of co-financing will be provided from, among others, the Governments, COCATRAM, MACHC and the private sector.

IBRD Comment 7. The proposal should include a section on lessons learned from relevant GEF projects so far, including: (a) Marine Electronic Highway Project in the Straits of Malucca, (b) Red Sea Strategic Action Program (section on Marine Navigation and the Vessel Traffic System), (c) Western Indian Ocean Oil Spill Contingency Planning Project Conservation and Sustainable Use of the Mesoamerican Barrier Reef System (the Regional Environmental Information System component). Although some of these projects are mentioned, there isn't a good discussion on the lessons learned and how these could be included in the design of the proposed project to improve the design for successful implementation.

IDB Response 7. The experience from these four projects, as well as many others, have been taken into account during the design of the project. Lessons learned, include, for example: (a) the possible applications of Marine Electronic Highways for marine pollution prevention, marine pollution control, marine environmental planning and management, as well as safety of navigation, (c) the need to first establish basic local capacity in oceanography and hydrography in order to ensure sustainability in the

establishment and implementation of the Marine Electronic Highways and Regional Environmental Information Systems, (d) include financial, legal and institutional mechanisms that will allow the systems to be fully functional, efficient and sustainable, and (e) involve the users (incl. international shipping community) in the design of the systems. These aspects have all been considered in the design of the project. The Regional Ports Forum will contribute to involve the shipping community in the design of the proposed systems. Coordination will be ensured with the MBRS in the development of Environmental Information System for the Gulf of Honduras.

PUBLIC PARTICIPATION AND AWARENESS PLAN SUMMARY

Categories of stakeholders who will be involved in the project include the national and local governments in the participating countries, port authorities, the private sector, the scientific community, non-government organizations, environmental advocacy groups, local communities, and business organizations. The participatory approach is the guiding principle to ensure transparency in the planning and execution of project activities. The stakeholders are the direct beneficiaries of the project.

Within the project, activities for public participation are included under Component 1: *Building regional capacity for maritime and land-based pollution control in the Gulf of Honduras*. Here multiple subcomponents are directed at stakeholder involvement. Together, the Public Involvement Plan includes a budget of more than US\$ 1 million. Many of these activities will be carried out by regional specialists, although some international experts may be involved. There will be annual reviews by an independent consultant on the progress in implementing the Stakeholder/ Public Involvement Plan.

An important aspect of the Project is the creation of a forum that facilitates improved collaboration among government authorities at the local, national and transnational levels, and with the private sector and civil society. In order for the forum to function as intended, it is necessary to maintain a balance among stakeholder groups and among country representatives. The Regional Stakeholders Advisory Committee consists of the following general groups:

- National and local government authorities
- Non-Governmental Organizations
- International and Regional Organizations
- Scientific and academic institutions
- Private enterprise
- International funding institutions

Stakeholder involvement has been a critical piece of the project development process and will continue to be a focus during implementation of the full project. After the initial determination of stakeholders and interested parties, a public consultation process was developed to inform and incorporate the input from representative members of each of the target groups. Public consultations were conducted through a combination of regional workshops held in each of the three countries and individual meetings. Stakeholder input was used to assist with the development of options for the implementation structure of the project; identify institutional strengthening needs; and obtain information concerning perceptions of problems and challenges facing regulatory agencies, the regulated community, and civil society organizations.

The regional stakeholder advisory committee (stakeholder committee) has had an important role in reviewing and providing comments on the development of the preliminary TDA. A stakeholder committee was formed for the purpose of guiding the development process of the TDA. The stakeholder committee consists of as many as 50 members from representative national line agencies and municipal governments, merchant marines and naval authorities, port authorities, nongovernmental organizations, and industry from Guatemala, Honduras and Belize. Participation has been balanced to maintain a representative group of stakeholders from the three

countries. Below is a list of the institutions and organizations that participated in the project preparation workshops. These, among others, are likely to participate in the implementation of the project.

Belize
Banana Enterprise
Belize Port Commissioner
Port of Belize City
Coastal Zone Management Authority and Institute
Ministry of Natural Resources and the Environment
Ministry of Agriculture and Fisheries
Belize Ports Authority
Toledo Institute for Development and Environment (TIDE)
Mesoamerican Biological Corridor Project
INMARBE
MBRS Project
Texaco
ESSO
Guatemala
Ministry of Environment and Natural Resources (MARN)
Navy (Marina de la Defensa Nacional)
National Ports Commission
FUNDAECO
COBIGUA (Guatemala Banana Company)
Ministry of Communications
Ministry of Agriculture and Livestock
National Geographic Institute
DVG Services
FUNDARY
EMPORNAC
CONAP
Programa NAS
Asociación de Navieros
PROARCA Project
Honduras
National Ports Company
Ministry of Transport and Housing (SOPTRAVI)
Ministry of Environment and Natural Resources (SERNA)
General Directorate of the Merchant Marines
Honduran Tourism Institute
AHCORENA
COPECO
Municipality of Puerto Cortés
MARPROH
PROLANSATE
Office of the President
Office of the Environmental Ombudsman
Ministry of Agriculture and Livestock
National Geographic Institute
TEXACO
AFE-COHEDEFOR
REHDES
FUNDESO

**THE SPECIFIC INVOLVEMENT OF STAKEHOLDERS THROUGHOUT
THE PROJECT IS GIVEN BELOW**

STAKEHOLDER	INVOLVEMENT
National governments	Consultation, implementation, steering committees, international conventions, policy, legislation, investment, capacity building, public-private partnerships, institutional reform
Local governments	Consultation, implementation (e.g., demonstration projects), capacity building, investments, public-private sector partnerships, national steering committees, participatory monitoring and review.
Private sector: including fishermen, fishing companies, oil and gas sector, shipping and marine transport industry, etc.	Consultation, technology and financial investment, implementation (e.g., demonstration projects), public-private partnerships, steering committee and management advisory committee membership, participation in TDA /SAP process, post-SAP implementation phase
Scientific community	Consultation, research, information technology, dissemination of TDA, risk assessment, monitoring, training
Non-governmental organizations	Consultation, implementation (e.g., demonstration projects), public awareness and promotion of networks, steering committee and management advisory committee membership, training, participation in TDA/SAP processes, participatory monitoring and review.
Community-based organizations, youth and women	Consultation, monitoring, training, community mobilization
Environmental advocacy group	Workshop, training, seminars, public awareness

Since the purpose of the project is to build partnerships, relevant stakeholders will need to be integrated into the project formulation and implementation activities as early as possible. The idea is to identify and develop the role and specific contribution to be made by each interest group within the project framework. The preliminary TDA contains an analysis of the Stakeholders, and reinforces this brief discussion (see Annex D).



GOVERNMENT OF BELIZE
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Administration Building
Belmopan
Belize, Central America

3 August, 2004

Mr. Leonard Good
CEO and Chairman
Global Environment Facility
Washington, D.C.
U.S.A.

Dear Sir,

In my capacity as the GEF Operational Focal Point, I hereby endorse the project proposal "Environment Protection and Maritime Transport Pollution Control in the Gulf of Honduras"

The Government of Belize considers this project to be an important and valuable exercise in its ongoing efforts to protect the global environment while working to achieve its national sustainable development goals.

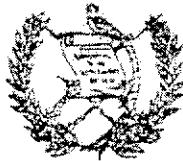
Sincerely,

A handwritten signature in black ink, appearing to read "Carla Barnett".

Carla Barnett PhD CBE
Chief Executive Officer/
GEF Operational Focal Point



Cc. Ms. Patricia Mendoza, CEO, Ministry of Natural Resources, the Environment and Industry



COMISION NACIONAL DEL MEDIO AMBIENTE
PRESIDENCIA DE LA REPUBLICA
GUATEMALA, C.A.

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Of. No.1050-99/AJP/mdch

Guatemala, 25 de Octubre de 1999

Señor
Carlos Barbery
Representante
Banco Interamericano de Desarrollo
Ciudad.

Estimado señor Barbery:

Mediante la presente comunicación, el Gobierno de Guatemala demuestra su apoyo y aval por el propuesto Proyecto para el Control de la Contaminación del Transporte Marítimo de el Golfo de Honduras.

Atentamente,

Dr.-Ing. Adrián Juárez Pineda
Coordinador Nacional del Medio Ambiente





REPUBLICA DE HONDURAS

Secretaría de Estado en los Despachos de
Recursos Naturales y Ambiente
Despacho de la señora Ministra

UPEG-S-829-04

19 de agosto de 2004

Señor
Andrés Marchant
Representante del BID en Honduras

Estimado señor Marchant:

Tengo el agrado de dirigirme a usted, en atención al oficio CHO 4109/2004, respecto al proyecto "Protección Ambiental y Control de la Contaminación Originada por el Transporte Marítimo en el Golfo de Honduras".

Es del interés de ésta Secretaría el fortalecimiento de capacidades regionales para el control de la contaminación marina, así como apoyar acciones que contribuyan a revertir la degradación de los ecosistemas costeros y marinos en el Golfo de Honduras.

En tal virtud y en carácter de Punto Focal Operacional y Político del GEF en Honduras, nos pronunciamos dando la No Objeción, para que se continúen los trámites correspondientes necesarios para el desarrollo de la iniciativa regional en mención.

Es propicia la ocasión para reiterarle las muestras de mi consideración y estima.


Patricia Panting
Secretaria de Estado



Colibrí Esmeralda (Amazilia Luctuosa)

SUSTAINABLE FINANCING PLAN

The proposed project, “Environmental Protection and Maritime Transport Pollution Control in the Gulf of Honduras,” focuses on reducing the degradation of the Gulf’s marine and coastal ecosystems. The project would last five years, and, among other things, it would improve the collection and sharing of oceanographic and hydrographic data, develop navigational safety pilot programs, and strengthen chemical and oil spill contingency plans. At its completion, the project would leave in place a Strategic Action Plan (SAP) that would then guide the management of the Gulf. For the SAP to succeed on a long-term, sustainable basis, it would need a stable source of financing, capable of financing at least a core set of SAP activities. This report discusses some of the types of financing mechanisms that the countries in the region may consider to pay for the SAP activities over the long-term.

Types of Activities for Strategic Action Plan

The SAP might include some of the same types of activities developed during the project, as well as new activities identified during the updating of the Transboundary Diagnostic Analysis. Some of the activities might include:

- A regional program for maritime pollution monitoring, control and prevention.
- Developing technical capacity and obtaining equipment for hydrographic data collection, processing, dissemination, and electronic chart production.
- Promoting technologies to avoid groundings and collisions.
- Plan and perform emergency spill response exercises
- Developing technical capacity and obtain equipment for oil and chemical spill trajectory analysis and response.
- Developing methodologies and build capacity for oil and chemical spill damage assessments and the determination of environmental restoration costs.

However, the exact nature of the SAP activities needs to be developed during the upcoming project phase, so it is not possible to specify with accuracy the level of financing that would be necessary for their completion. Based on our experience in other regions and the particular needs in the Gulf of Honduras, we estimate that the SAP activities would require a sustainable, regionally-based source of financing of approximately US\$500,000 to US\$1,000,000 per year. Such financing, would allow a core SAP activities to continue, and, as needed, this could be supplemented with additional sources of financing for any special activities.

Funding Mechanisms

While it is likely that a range of international donors will be interested in funding SAP activities, it is important to develop funding sources from within the region that are sufficient to keep the core SAP activities on a solid financial footing. There are a variety of approaches to consider in financing the SAP activities:

- Fees for port services, such as treatment of oily bilge water and garbage disposal.
- Port fees directly levied to support SAP activities. This could be based on a per boat basis, or, perhaps better, it could be based on cargo tonnage, with the fee depending on the potential toxicity of the cargo.
- Fees collected from cruise ship tourists.

- Reimbursements in the event of accidents. Money not used in the spill cleanup could be used for SAP activities, such as those related to spill prevention.
- Partnerships with in-kind and monetary contributions from private, non-governmental, and international entities.
- Money from the general fund of each country.

The fee structures in some of the ports include fees for environmental services, such as oily bilge water treatment and garbage disposal. However, to date, the types of services currently offered in the ports are limited. Puerto Cortés accepts solid waste generated from ships for a fee. In Puerto Barrios and Santo Tomás de Castilla, ships can dispose of their oily bilge water for a fee. In response to the SAP, the types of environmental services may be expanded, in which case it would be natural to charge ships for the services offered. However, as might be expected, the money generated from these sources is likely to be fairly small, and specifically designated for the costs of the services. Little money would be left over to pay for other types of SAP activities. Moreover, because of the low probability of being caught, some ships likely dump their waste illegally to avoid paying environmental service fees.

Special port fees earmarked for SAP activities and levied on ships using the ports in the region have the potential to generate a significant amount of money. The money could be a simple flat fee for each boat. The fee could also be based on the amount of cargo. For example, this type of fee is collected by Guatemala to provide funding for the Central American Commission for Marine Transport (Comisión Centroamericana de Transporte Marítimo [COCATRAM]) as well as the port security program (Programa Seguridad Portuaria). Alternatively, the fee could be based both on the amount of cargo and its potential hazard to the environment. As discussed below, Guatemala and Honduras would be able to generate significantly more money with this mechanism than Belize, whose ports handle roughly a tenth of the cargo (see Appendix A).

A fee on cruise ship passengers has perhaps the greatest potential in Belize, which handles significantly more cruise ship passengers each year than Guatemala and Honduras. As discussed below, recent statistics indicate that there has been a tremendous increase in the number of cruise ship passengers, with the number rising from around 50,000 to 300,000 between 2001 and 2002, and further increases are expected. It is also, in theory, possible that a fee on arriving tourists could be instituted at the airports in each of these countries, and that some, or all, of this fee could be used for SAP activities.

There is the potential for the government to collect fines and reimbursements from a company responsible for a spill. However, as discussed in Ardón (2000, p. 20) the Guatemalan government pursued fines and reimbursements in response to a large oil spill in the Bay of Amatique in 1975. The case took almost a decade to resolve, and it is unclear what was eventually paid to the government. Hence, it is somewhat doubtful that, in the event of a spill, significant funds would be available after cleanup costs to pay for SAP activities.

Partnerships with private entities, such as oil companies working in the region, and non-governmental organizations, such as environmental groups, may provide in-kind and monetary contributions to SAP activities. The private contribution to the oil spill response team (Comité y Brigada en Respuesta a Crisis en el Medio Ambiente Marino y Costero) is a good example for this type of contribution. In addition, international organizations, such as the International Marine Organization (IMO), and the MesoAmerica-Caribbean Sea Hydrographic Commission (MACHC) could play important roles. The exact nature any contributions would clearly depend on the SAP. Nevertheless, the interest displayed to date, suggests that the countries in the region would find willing partners in activities to protect the Gulf.

Money from the general fund is a potentially large funding source, though it has the caveat that the funding may not be stable, because of competing budgetary needs. However, it should be noted that for its annual funding for COCATRAM, Honduras uses money from its general fund.

Evaluating Funding Mechanisms

The funding of project activities could be a mix of funding mechanisms, with each of the three countries choosing to use different funding mechanisms. Below we evaluate each of the funding mechanisms based on a range of characteristics, with a summary of our analysis presented in Table 1. In our evaluation we consider the following characteristics:

- Amount of financing. The mechanism would generate a significant amount of the needed financing.
- Stability of the financing mechanism. There would not be large fluctuations from year to year in the available funding.
- Exclusivity. The mechanism would generate financing devoted exclusively to the project, to avoid having funds be diverted to other competing needs.
- Effectiveness. The financing needs an institutional mechanism to effectively collect the money.
- Polluter pays principle. The mechanism should link the entities that generate the need for the SAP activities, with the entities that ultimately pay for the SAP activities.
- Political feasibility. It is important to have the support of stakeholders to ensure the successful development and implementation of a financing mechanism.

Three of the financing mechanisms have the potential to generate large sums of money: fees based on the tons of imports and exports from each port, fees from cruise ship passenger, and money from the general fund. The other mechanisms have less potential. Fines and reimbursements, in the case of accidents, may generate significant funds, but it is doubtful that significant sums would remain after the spill cleanup for the financing of other SAP activities. Similarly, fees for environmental services, such as treatment of oily bilge water, are not significant generators of income, and shippers may avoid these services if they become prohibitively expensive. Partnerships with private and non-governmental organizations have an important role, with the potential for moderate contributions, particularly of in-kind services.

In addition to the ability to generate significant funds, the stability of the funding sources from year to year is an important criterion. Fees on imports and exports are relatively stable, as historically the amount of shipping has steadily increased over the years (see Appendix A). A fee based on cruise ship arrivals are perhaps somewhat less stable than fees based on imports and exports, as it depends on the willingness of tourists to visit the region. The general fund is likely to be a stable funding source, assuming that the political will exists each year to appropriate the necessary funding. Fines and reimbursements are *not* a stable source of funding, as they are based on spills and other events that are difficult to predict. Fees on environmental sources are a relatively stable source, though the ships in the region may not avail themselves of the offered services, if the services are too expensive. Finally, partnerships with private, non-governmental, and international organizations have the potential to be stable, though this will depend on their own funding resources and whether they perceive the project and its benefits to be in their self-interest.

The criterion of exclusivity is linked to the stability of the funding source. It is important in that a funding source devoted exclusively to a single activity cannot be used for other, competing needs. Any funding shared by multiple activities has this potential weakness. Financing for SAP activities from the general fund would presumably have to compete with a variety of other needs. On the other hand, fees on

imports and exports, cruise ship passenger fees, and partnerships, can be designed so that they exclusively linked to the needs of the SAP. Similarly, reimbursements for spills and fees for environmental services, such as treatment of oily bilge-water, would be linked directly to paying for the spill clean-up or environmental service.

Most of the financing mechanisms already have effective means for collecting money, either through the ports or through the government. Fees for environmental services, fees on imports and exports, and fees on cruise ship passenger could be relatively easily collected through existing institutions at the ports. Fines and reimbursements in the event of spills to date appear to have not been especially effective. Following a large spill in the Bay of Amatique in 1975, the government of Guatemala spent many years in negotiations and litigation with the responsible party (Ardón, 2000, p. 20). Partnerships have the potential to be dependably used, assuming that the partners have negotiated mutually acceptable terms.

The polluter-pays principle is widely cited as a desirable criterion for paying for environmental mitigation measures, first getting worldwide attention at the United Nations Conference on Environment and Development held in Rio de Janeiro of Brazil in June 1992. For most of the financing mechanisms described here, there is a strong connection between the source of the funds and the cause of the environmental problem. An exception is governmental general funds, for which there is little connection between the need for SAP activities and the source of the funds.

Political feasibility of any given financing mechanism is a key factor. In practice, the political feasibility is difficult to specify in advance, as it depends on many factors. Generally, the larger the funding required, the lower the political feasibility. And the more closely tied a funding mechanism is to a particular entity or group of entities, then the more likely there will be significant resistance. Financing from the general fund may likely find less political resistance, at least in the short-run, compared to fees on imports and exports and fees on cruise ship passengers. In the latter two instances, there are very clear entities that would bear most of the burden of the fees, and would be likely to resist. Fees for environmental services are generally not too contentious, in part because they have been voluntary to date, and rarely collected. Fines and reimbursements in the event of spills apparently have found little success to date, perhaps because in the event of spills, important stakeholders have been involved and have resisted efforts to pay for damages (e.g., Ardón, 2000, p. 20).

Table 1. Funding Mechanisms and Characteristics

Funding Mechanism	Funding Size	Stability	Exclusivity to Project	Effectiveness of Collection	Polluter Pays Principle	Political Feasibility
Fines & Reimbursements for Spills	Low-Medium	Low	High	Low-Medium	High	Low-Medium
Fees for Environmental Services	Low	Low-Medium	High	Medium	High	High
Special Fee on Imports and Exports	High	High	High	High	Medium-High	Low-Medium
Government General Fund	High	Medium-High	Low	High	Low	Low-Medium
Levy on Cruise Ship Passengers	High	Medium-High	High	High	Medium-High	Low-Medium
Partnerships with private, non-governmental organizations	Low-Medium	Medium-High	High	Medium-High	High	High

Perhaps the most important characteristic of a funding mechanism is its ability to generate sufficient funds. The mechanisms most likely to generate a large fraction of the necessary funds include fees based on the tons of imports and exports from each port, cruise ship passenger fees, and money from the general fund.

Money from the general fund is desirable in that there would likely be fewer conflicts with specific stakeholders, who might otherwise be required to pay a significant fraction of the costs, as may occur under other financing mechanisms. Money from the general fund is also desirable because it is potentially a large funding source, capable of providing all of the necessary funding. On the other hand, money from the general fund may be subject to funding losses in any given year due to competing needs. In addition, there is only an indirect connection between the entities that generate the need for SAP activities (e.g., marine pollution sources) and the entities that pay for the SAP activities (e.g., taxpayers). This latter concern could be ameliorated by implementing taxes linked to activities that generate the need for SAP activities, such as deforestation, industrial effluent discharge, and sewage disposal. However, implementing such taxes and effectively collecting them would be difficult.

Fees collected from imports and exports have the potential to generate significant sums of money, on a stable basis. There already exist the institutional mechanisms in the ports to collect these fees. And this funding source is fairly closely tied to the entities and activities that generate the need for SAP activities. A significant drawback would be resistance from the ports themselves, regarding concerns about remaining commercially competitive with other ports and transport means in the region. Clearly, the potential for this mechanism is much greater in Guatemala and Honduras, where the port activity is roughly an order of magnitude greater than in Belize. In the next section, we go into more detail on the potential for this funding mechanism.

Fees collected from cruise ship passengers have perhaps the greatest potential in Belize, which has a growing number of cruise ships arriving in its waters. In Guatemala and Honduras, there are relatively few cruise ships that use the facilities offered at Puerto Barrios, Santo Tomas de Castilla, and Puerto Cortes. With the large number of cruise ship passengers arriving in Belize each year, a relatively modest fee would generate a significant amount of money. However, political and legal considerations

may make the implementation of such fees difficult. We discuss the potential for this funding mechanism below.

Special Fee Based on Tons of Imports and Exports

A special fee based on tons of imports and exports has a number of variations, and has already been used for a variety of purposes in the region. Several of the member countries of COCATRAM use this funding mechanism (Gavarrete and Fernandez, 2001b, Anexo 1).¹ In particular, Guatemala collects US\$0.05 per ton of imports and exports, excluding bananas and petroleum, in order to generate the annual financing due to COCATRAM.² In addition, Guatemala collects US\$0.09 per ton of imports and exports to pay for its port security program (Programa Seguridad Portuaria).

Table 2 summarizes the most recent import and export statistics, we have for the ports in the region. In order to estimate the potential impact of having fees vary by the hazard posed by the cargo, we have divided the data between hazardous and non-hazardous cargo. (Hazardous cargo primarily includes petroleum products, such as crude petroleum, gasoline, and lubricants, and non-petroleum contributors, such as pesticides and explosives, which are relatively minor on a per ton basis. Non-hazardous cargo includes a wide range of products, such as corn, wood, and bananas.) We then sub-divided hazardous cargo between petroleum and non-petroleum products, in order to examine the impact of exempting petroleum products. Similarly, we sub-divided non-hazardous products in order to examine the impact of exempting banana exports. Appendices A and B provide details on the underlying data.

Table 2. Imports and Exports from Ports in the Region (metrics tons)

Cargo	Sub-type	Belize	Guatemala	Honduras
Hazardous		187,364	2,379,181	1,140,447
	Petroleum	187,352	2,094,003	1,065,834
	Non-Petroleum	12	285,178	74,613
Non-Hazardous		624,958	4,466,583	4,022,694
	Banana	45,140	853,648	355,873
	Non-Banana	579,819	3,612,935	3,666,821
Total		812,322	6,845,764	5,163,141

Source: Appendix A of this report. Note that the figures for Belize include data for 2001 from Belize City, Commerce Bight and Big Creek; Guatemala includes data for 2002 from Puerto Barrios and Santo Tomás de Castilla; Honduras includes data for 2001 from Puerto Cortés.

Based on the import and export data in Table 2, we estimated the revenue that would be generated with a fee ranging from US\$0.01 to US\$0.10 per ton (see Table 3). A fee in this range would generate from US\$120,000 to US\$1.2 million annually, with significant variation between the countries. The figures show clearly the greater potential for generating funds in Guatemala and Honduras, relative to Belize, because of the greater level of cargo traffic in the former countries. Nevertheless, the money generated in Belize is not insignificant, and might be coupled with other financing measures, such as a fee on cruise ship passengers.

¹ Honduras pays its share of the COCATRAM budget through general funds. Belize is not currently a member of COCATRAM.

² Each member country's contribution to COCATRAM was approximately US\$115,000 in 2001.

In a sensitivity analysis, we tested the impact on the revenue generating potential by exempting petroleum and bananas. An exemption for bananas reduces the revenue potential by roughly 10 percent. With the exemption for both petroleum and bananas, the revenue drops about 35 percent overall, with a somewhat greater percentage decrease in Guatemala. Since petroleum is one of the leading potential environmental hazards in the Gulf of Honduras, from a polluter-pays perspective, it would be best to include petroleum in any sort of fee on imports and exports.

Table 3. Revenue Generated Annually from Fee per Ton of Imports and Exports (US\$)

Cargo	Sub-type	Belize			Guatemala			Honduras			Total		
		\$0.01/ton	\$0.05/ton	\$0.10/ton	\$0.01/ton	\$0.05/ton	\$0.10/ton	\$0.01/ton	\$0.05/ton	\$0.10/ton	\$0.01/ton	\$0.05/ton	
Hazardous		\$1,874	\$9,368	\$18,736	\$23,792	\$118,959	\$237,918	\$11,404	\$57,022	\$114,045	\$37,070	\$185,350	\$370,699
	Petroleum	\$1,874	\$9,368	\$18,735	\$20,940	\$104,700	\$209,400	\$10,658	\$53,292	\$106,583	\$33,472	\$167,359	\$334,719
	Non-Petroleum	\$0	\$1	\$1	\$2,852	\$14,259	\$28,518	\$746	\$3,731	\$7,461	\$3,598	\$17,990	\$35,980
Non-Hazardous		\$6,250	\$31,248	\$62,496	\$44,666	\$223,329	\$446,658	\$40,227	\$201,135	\$402,269	\$91,142	\$455,712	\$911,424
	Banana	\$451	\$2,257	\$4,514	\$8,536	\$42,682	\$85,365	\$3,559	\$17,794	\$35,587	\$12,547	\$62,733	\$125,466
	Non-Banana	\$5,798	\$28,991	\$57,982	\$36,129	\$180,647	\$361,294	\$36,668	\$183,341	\$366,682	\$78,596	\$392,979	\$785,958
Total		\$8,123	\$40,616	\$81,232	\$68,458	\$342,288	\$684,576	\$51,631	\$258,157	\$516,314	\$128,212	\$641,061	\$1,282,123
Total (exempting bananas)		\$7,672	\$38,359	\$76,718	\$59,921	\$299,606	\$599,212	\$48,073	\$240,363	\$480,727	\$115,666	\$578,328	\$1,156,657
Total (exempting petroleum and bananas)		\$5,798	\$28,992	\$57,983	\$38,981	\$194,906	\$389,811	\$37,414	\$187,072	\$374,143	\$82,194	\$410,969	\$821,938

Note: calculations based on import and export figures in Table 2.

Over the last ten years, total cargo handling in each of the main ports in the region Belize City, Puerto Barrios, Santo Tomas de Castilla, and Puerto Cortes have grown between 7 and 10 percent annually (Appendix A). With the likely growth of the shipping industry over the next decades, the revenue potential for a fee on imports and exports would increase. Gavarrete and Fernandez (2001a, Cuadros 11-3 and 11-4) predict similarly robust growth through 2010 and somewhat slower growth between 2010 and 2020.

Assuming a relatively modest growth of three percent per year and a US\$0.05 per ton on imports and exports, Table 4 shows a strong growth in revenue potential. In 15 years, the revenue would increase by 50 percent.

Table 4. Annual Revenue Potential with Increased Future Port Activity (US\$)

Cargo	Sub-type	Fee \$/ton	Revenue per Year			
			Present	5 years future	10 years future	15 years future
Hazardous			185,350	214,871	249,094	288,769
	Petroleum	\$0.05	167,359	194,015	224,917	260,741
	Non-Petroleum	\$0.05	17,990	20,856	24,177	28,028
Non-Hazardous			455,712	518,303	590,864	674,981
	Banana	\$0.05	62,733	62,733	62,733	62,733
	Non-Banana	\$0.05	392,979	455,570	528,131	612,248
Total			641,061	733,174	839,958	963,750

Note: Based on a three percent growth in all cargo types, with the exception of banana. Following historical trends, we have assumed no growth in banana exports.

Keeping in mind the desirability of having the polluter pay, a fee based on tons of imports and exports could vary based on the estimated hazard posed by the cargo. For example, petroleum products, which pose a relatively large threat to the environment and requires expensive preventative measures, might be required to pay more than a relatively innocuous cargo, such as wheat. In Table 5, we have presented a hypothetical scenario, where hazardous cargo pays US\$0.07 per ton, and non-hazardous cargo pays US\$0.01 per ton.

Table 5. Annual Revenue Potential with Fee Based on Cargo Hazard (US\$)

Cargo	Sub-type	Fee US\$/ton	Revenue per Year			
			Present	5 years future	10 years future	15 years future
Hazardous			259,489	300,819	348,732	404,276
	Petroleum	0.07	234,303	271,622	314,884	365,037
	Non-Petroleum	0.07	25,186	29,198	33,848	39,239
Non-Hazardous			91,142	103,661	118,173	134,996
	Banana	0.01	12,547	12,547	12,547	12,547
	Non-Banana	0.01	78,596	91,114	105,626	122,450
Total			350,632	404,480	466,905	539,272

Note: Based on a three percent growth in all cargo types, with the exception of banana. Following historical trends, we have assumed no growth in banana exports.

Competitive concerns should be expected with any proposal to raise port fees, so we have examined the size of the fee relative to the average cost per ton charged to ships in the region. As it turns out, a fee in the range discussed here, of between US\$0.01 and US\$0.10, would likely represent a small percentage of the cost per ton that ports typically charge for the use of their facilities. As a result, the impact on the ports is likely to be small. Table 6 shows the typical charges per ton estimated by Gavarrete and Fernandez (2001b, Cuadro 10-14) for five types of cargo ships at three ports in the Gulf of Honduras. For most cargo types the fees are a small percentage, with the exception of bulk liquid in Guatemalan ports. While the analysis by Gavarrete and Fernandez did not include Belizean ports, it is likely that the fees discussed here would similarly represent a relatively small percentage of the total cost per ton charged for using the port facilities.

Table 6. Typical Port Charges at Three Ports in the Gulf of Honduras (US\$ per ton)

Cargo	Santo Tomas de Castilla	Puerto Barrios	Puerto Cortes
Bulk Solid	\$13.90	--	\$5.50
Bulk Liquid	\$1.22	\$1.10	\$6.36
Containers	\$14.76	\$9.87	\$16.20
General Cargo	\$20.69	\$12.80	\$16.50
Refrigerated	\$18.19	\$12.48	\$12.95

Source: Gavarrete and Fernandez (Gavarrete and Fernandez, 2001b, Cuadro 10-14). Note that their analysis did not include any Belizean ports.

Funding on Cruise Ship Passengers

A potentially important additional source of funding is a fee on cruise ship passengers. This is most relevant in the case of Belize, where the number of cruise ship passengers has increased exponentially over the past few years, and is expected to increase further. The Belize Tourism Board reported that 48,000 cruise ship passengers visited Belize in 2001. This figure jumped dramatically in 2002 to over 300,000, and is projected to increase to over 600,000 in 2003.³ Even with a relatively small fee per passenger, of say US\$0.50 to US\$1.00, the revenue potential is significant.

On the other hand, in Guatemala and Honduras, the number of cruise ship passengers arriving in the three main ports is relatively small, in the range of 5,000 to 15,000 per year,⁴ and the revenue potential is correspondingly lower than in Belize. On the other hand, there has been a proposal to develop a dock for cruise ships on the Atlantic coast of Honduras, such as at the town of Omoa, close to Puerto Cortés. This would increase substantially the number of cruise ship passengers in the Gulf of Honduras. However, to date this proposal has not been further developed, nor is it clear if or when it will be pursued.

³ Estimates for 2001 and 2002 downloaded from the Belize Tourism Board website on July 22, 2003: <http://www.belizetourism.org/arrival.html>. In the first quarter of 2003, the Belize Tourism Board reported that there were 159,000 cruise ship passenger arrivals (see: <http://www.belizetourism.org/press/142.htm>, downloaded July 22, 2003). At this rate the number of cruise ship passengers will exceed 600,000 in 2003.

⁴ In the most recent 12-month period, the number of cruise ship passenger arrivals in Santo Tomas de Castilla was approximately 12,000 (see: electronic file from Ing. Juan Lopez. *barcos_turistas_en_sto(2).tomas.xls*, dated May 6, 2003. Data in file provided by *Administración de la Empresa Portuaria Nacional, Santo Tomás de Castilla, Sección de Estadística*). In Puerto Cortes, approximately 16,000 cruise ship passengers arrive annually (*Instituto Hondureño de Turismo, Dirección General de Población y Política de Migratoria*).

Discussion

The approaches discussed here are not prescriptive, as to what should be done to generate money on a sustainable basis. Rather, this analysis outlines the potential for some approaches that the countries in the region may consider to provide financing for SAP activities over the longer term. Generating money from fees on imports and exports – perhaps differentiated by the hazard posed by the cargo – and fees on cruise ship passengers are two approaches that can provide a significant core of funding for SAP activities.

It is likely that each country will want to choose their own mix of financing mechanisms, because of differences in cargo and cargo volume, as well as existing differences in tariff structures between countries. More generally, regardless of the types of funding mechanisms actually implemented, it is critical that all aspects of financing are transparent, so that there are minimal concerns about how the money is being spent. Stakeholders need to see how the money is collected, how much is collected, and feel the money is well spent. And the benefits achieved by the SAP activities have to be tangible to the stakeholders in the region. Without a sense of the money being well spent, then there will be an inevitable loss in support.

Concerns about competition between ports in the region, as well as with ports outside the region, are an important consideration in the design of funding mechanisms. With the improvement of highways between Puerto Cortés and the Guatemalan coast, there will be increased competition between Puerto Barrios, Santo Tomás de Castilla, and Puerto Cortés. In addition, there may be competition from overland routes from outside the Gulf of Honduras region. Posford Duvivier (1998, p. 25) noted the potential for the loss of cargo traffic in Belize City Port, due to overland traffic from Mexico. As a result of these factors, there is likely to be resistance from the ports for any financing mechanism that raises the cost of doing business, even if the percentage increase is quite small. To reduce concerns over competition between ports, it may be desirable for the countries in the region to have a uniform fee that each country agrees to charge.

If competitive concerns can be overcome, and stakeholders see value in the SAP activities, then the long-term financing of SAP activities should not be problematical. The amount of money required by SAP activities is likely to be well within the capability of the region to finance on a long-term sustainable basis.

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Appendix A. Summary of Imports and Exports by Port

Table A-1. Ports in Belize: Summary of Imports and Exports (metric tons)

Belize City	Sub-type	1996		1997		1998		1999		2000		2001	
		Import	Export										
Hazardous		93,117	0	104,620	0	132,103	0	178,549	0	159,943	0	187,364	0
	Petroleum	92,758	0	104,430	0	131,910	0	178,170	0	159,773	0	187,352	0
	Non-Petroleum	359	0	191	0	193	0	378	0	170	0	12	0
Non-Hazardous		183,666	172,595	198,491	183,988	209,558	162,789	233,997	165,861	294,292	156,270	339,433	178,040
	Banana	0	0	0	0	0	0	0	0	0	0	0	0
	Non-Banana	183,666	172,595	198,491	183,988	209,558	162,789	233,997	165,861	294,292	156,270	339,433	178,040
Total		276,783	172,595	303,111	183,988	341,661	162,789	412,546	165,861	454,235	156,270	526,797	178,040
Big Creek		1996		1997		1998		1999		2000		2001	
	Sub-type	Import	Export										
	Hazardous	0	0	0	0	0	0	0	0	0	0	0	0
Non-Hazardous	Petroleum	0	0	0	0	0	0	0	0	0	0	0	0
	Non-Petroleum	0	0	0	0	0	0	0	0	0	0	0	0
		1,180	64,688	0	57,744	1,179	56,404	2,723	61,434	49,184	85,437	33,739	56,493
Commerce Bight	Banana	0	57,925	0	53,622	0	51,648	0	57,631	0	66,686	0	45,140
	Non-Banana	1,180	6,763	0	4,122	1,179	4,756	2,723	3,803	49,184	18,751	33,739	11,354
	Total	1,180	64,688	0	57,744	1,179	56,404	2,723	61,434	49,184	85,437	33,739	56,493

Source: Based on Table B-1 in Appendix B of this report.

Table A-2. Puerto Barrios: Summary of Imports and Exports (metric tons)

Imports											
Cargo	Sub-type	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Hazardous		133,100	150,000	194,300	161,800	223,800	253,630	246,970	--	--	171,646
	Petroleum	133,100	150,000	194,300	161,800	223,800	253,630	246,970	--	--	171,646
	Non-Petroleum	0	0	0	0	0	0	0	--	--	0
Non-Hazardous		392,900	377,700	503,000	461,800	533,100	591,920	670,060	--	--	925,621
	Banana	0	0	0	0	0	0	0	--	--	0
	Non-Banana	392,900	377,700	503,000	461,800	533,100	591,920	670,060	--	--	925,621
Total		526,000	527,700	697,300	623,600	756,900	845,550	917,030	--	--	1,097,267
Export											
Cargo	Sub-type	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Hazardous		0	0	0	0	0	0	0	--	--	0
	Petroleum	0	0	0	0	0	0	0	--	--	0
	Non-Petroleum	0	0	0	0	0	0	0	--	--	0
Non-Hazardous		302,700	356,900	546,500	528,700	533,600	694,950	786,760	--	--	948,470
	Banana	240,500	287,700	430,500	405,600	410,300	548,700	530,450	--	--	614,891
	Non-Banana	62,200	69,200	116,000	123,100	123,300	146,250	256,310	--	--	333,578
Total		302,700	356,900	546,500	528,700	533,600	694,950	786,760	--	--	948,470
Imports and Exports											
Cargo	Sub-type	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Hazardous		133,100	150,000	194,300	161,800	223,800	253,630	246,970	--	--	171,646
	Petroleum	133,100	150,000	194,300	161,800	223,800	253,630	246,970	--	--	171,646
	Non-Petroleum	0	0	0	0	0	0	0	--	--	0
Non-Hazardous		695,600	734,600	1,049,500	990,500	1,066,700	1,286,870	1,456,820	--	--	1,874,091
	Banana	240,500	287,700	430,500	405,600	410,300	548,700	530,450	--	--	614,891
	Non-Banana	455,100	446,900	619,000	584,900	656,400	738,170	926,370	--	--	1,259,199
Total		828,700	884,600	1,243,800	1,152,300	1,290,500	1,540,500	1,703,790	--	1,679,800	2,045,737

Source: Based on Table B-2 in Appendix B of this report.

Table A-3. Santo Tomás de Castilla: Summary of Imports and Exports (metric tons)

Imports											
Cargo	Sub-type	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Hazardous		572,645	661,528	692,599	666,161	713,210	817,470	837,033	773,062	951,719	870,687
	Petroleum	446,934	504,288	554,868	527,970	551,528	644,085	640,386	559,676	636,519	619,898
	Non-Petroleum	125,711	157,241	137,731	138,192	161,682	173,384	196,647	213,386	315,200	250,790
Non-Hazardous		828,216	859,192	848,546	792,876	938,199	1,311,572	1,250,647	1,304,256	1,149,010	1,415,081
	Banana	1,255	107	0	396	0	118	0	147	0	0
	Non-Banana	826,961	859,085	848,546	792,480	938,199	1,311,454	1,250,647	1,304,109	1,149,010	1,415,081
Total		1,400,861	1,520,720	1,541,145	1,459,037	1,651,409	2,129,042	2,087,680	2,077,318	2,100,729	2,285,768
Export											
Cargo	Sub-type	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Hazardous		352,914	297,597	458,313	748,708	1,309	3,338	2,740	3,265	1,091,060	1,336,847
	Petroleum	346,753	287,602	448,234	730,637	972	562	986	55	1,066,601	1,302,459
	Non-Petroleum	6,161	9,995	10,079	18,071	336	2,776	1,754	3,211	24,459	34,389
Non-Hazardous		776,320	820,868	836,490	978,205	2,122,658	2,304,629	2,165,095	2,269,113	1,053,329	1,177,412
	Banana	230,494	275,038	284,051	326,272	15,697	18,949	23,413	14,574	213,915	238,756
	Non-Banana	545,826	545,829	552,439	651,932	2,106,961	2,285,680	2,141,681	2,254,539	839,414	938,655
Total		1,129,234	1,118,465	1,294,803	1,726,912	2,123,966	2,307,967	2,167,834	2,272,379	2,144,389	2,514,259
Imports and Exports											
Cargo	Sub-type	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Hazardous		925,560	959,125	1,150,912	1,414,869	714,519	820,808	839,773	776,327	2,042,779	2,207,535
	Petroleum	793,687	791,890	1,003,103	1,258,607	552,500	644,647	641,372	559,730	1,703,120	1,922,357
	Non-Petroleum	131,873	167,235	147,810	156,262	162,019	176,160	198,401	216,597	339,659	285,178
Non-Hazardous		1,604,536	1,680,059	1,685,036	1,771,080	3,060,857	3,616,201	3,415,742	3,573,369	2,202,339	2,592,493
	Banana	231,749	275,145	284,051	326,669	15,697	19,068	23,413	14,721	213,915	238,756
	Non-Banana	1,372,787	1,404,914	1,400,985	1,444,412	3,045,160	3,597,134	3,392,328	3,558,648	1,988,424	2,353,736
Total		2,530,095	2,639,184	2,835,948	3,185,949	3,775,376	4,437,009	4,255,515	4,349,696	4,245,117	4,800,027

Source: Based on Table B-3 in Appendix B of this report.

Table A-4. Puerto Cortés: Summary of Imports and Exports (metric tons)

Cargo	Sub-type	Imports									
		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Hazardous		645,526	717,058	809,735	1,064,189	960,982	989,809	1,161,342	1,134,186	1,069,565	1,140,447
	Petroleum	596,147	667,143	736,580	1,011,517	840,480	920,301	1,077,016	1,055,502	995,912	1,065,834
	Non-Petroleum	49,379	49,915	73,155	52,672	120,502	69,508	84,326	78,684	73,653	74,613
Non-Hazardous		625,182	910,977	971,964	956,372	1,013,190	1,307,168	1,407,947	1,573,894	1,587,735	2,059,346
	Banana	0	1	2	3	4	5	6	7	8	9
	Non-Banana	625,182	910,976	971,962	956,369	1,013,186	1,307,163	1,407,941	1,573,887	1,587,727	2,059,337
Total		1,270,708	1,628,035	1,781,699	2,020,561	1,974,172	2,296,977	2,569,289	2,708,080	2,657,300	3,199,793
Cargo	Sub-type	Exports									
		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Hazardous		0	0	482	2,320	0	0	758	0	0	0
	Petroleum	0	0	482	2,320	0	0	758	0	0	0
	Non-Petroleum	0	0	0	0	0	0	0	0	0	0
Non-Hazardous		1,279,193	1,316,242	1,207,380	1,382,450	1,505,190	1,684,893	1,751,410	1,485,025	1,933,288	1,963,348
	Banana	541,640	538,586	309,837	429,936	508,611	446,515	382,760	109,707	289,484	355,864
	Non-Banana	737,553	777,656	897,543	952,514	996,579	1,238,378	1,368,650	1,375,318	1,643,804	1,607,484
Total		1,279,193	1,316,242	1,207,862	1,384,770	1,505,190	1,684,893	1,752,168	1,485,025	1,933,288	1,963,348
Cargo	Sub-type	Import and Exports									
		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Hazardous		645,526	717,058	810,217	1,066,509	960,982	989,809	1,162,100	1,134,186	1,069,565	1,140,447
	Petroleum	596,147	667,143	737,062	1,013,837	840,480	920,301	1,077,774	1,055,502	995,912	1,065,834
	Non-Petroleum	49,379	49,915	73,155	52,672	120,502	69,508	84,326	78,684	73,653	74,613
Non-Hazardous		1,904,375	2,227,219	2,179,344	2,338,822	2,518,380	2,992,061	3,159,357	3,058,919	3,521,023	4,022,694
	Banana	541,640	538,587	309,839	429,939	508,615	446,520	382,766	109,714	289,492	355,873
	Non-Banana	1,362,735	1,688,632	1,869,505	1,908,883	2,009,765	2,545,541	2,776,591	2,949,205	3,231,531	3,666,821
Total		2,549,901	2,944,277	2,989,561	3,405,331	3,479,362	3,981,870	4,321,457	4,193,105	4,590,588	5,163,141

Source: Based on Table B-4 in Appendix B of this report.

Appendix B. Detailed Data on Imports and Exports by Port

Table B-1A. Belize City: Imports and Exports for 2002 (short tons)

Description	Hazardous ^a	1996		1997		1998		1999		2000		2001		2002	
		Import	Export												
N.C.S.															
Containers	No	7,182	1,830	17,521	9,673	18,736	9,907	34,599	15,811	66,380	20,405	58,426	15,570	n/a	n/a
Container Lo Co	No	144,655	12,523	146,687	17,223	149,264	13,311	167,171	13,353	190,962	14,161	252,313	32,347	232,202	29,003
Break Bulk	No	8,421	3,199	11,024	1,163	17,828	647	5,419	770	5,773	1	6,893	60	870	3
Break															
Bulk/Poles	No	0	0	0	0	0	0	0	0	0	0	1,147	0	0	0
Fuel	Si	102,246	0	115,112	0	142,433	0	191,816	0	174,504	0	206,359	0	163,920	0
Fertilizer	No	14,794	0	18,823	0	15,296	0	20,543	0	8,399	0	9,646	0	9,522	0
Wheat	No	24,472	0	21,892	0	23,904	0	14,949	0	24,682	0	23,953	0	23,122	0
Insecticides	Si	326	0	129	0	186	0	273	0	176	0	0	0	0	0
Butane	Si	0	0	0	0	2,970	0	4,580	0	1,613	0	158	0	0	0
Cement	No	0	0	0	0	235	0	10,817	0	17,515	0	7,598	0	5,111	0
Sugar	No	0	105,368	0	121,594	0	110,606	0	110,255	0	100,252	0	112,278	0	108,932
Explosives	Si	70	0	81	0	27	0	144	0	11	0	13	0	0	0
Molasses	No	0	64,738	0	52,163	0	43,647	0	40,895	0	37,436	0	34,977	0	32,593
Steel	No	2,928	0	2,848	0	5,731	0	4,435	0	10,685	0	14,179	0	13,175	0
Dolomite P.G.	No	2	2,592	0	993	0	1,323	0	1,743	0	0	0	1,020	n/a	n/a
Total		305,096	190,250	334,117	202,809	376,610	179,441	454,746	182,827	500,700	172,255	580,685	196,252		

Source of data for 1996-2001: Port of Belize Limited (2002). Note that the data for 2001 apparently are only for the first nine months of the year (see page 3 of report). In the case of Commerce Bight and Belize City ports, we obtained additional data for 2000-2002, via an electronic file from Xavi Grau to Don McCubbin in an email dated April 4, 2003. However, these additional data do not have N.C.S. Containers and Dolomite P.G., so the data in this summary just reflect the first nine months of the year for these two categories. Note that the data are in short tons (2000 pounds per ton).

^a Whether the particular cargo is hazardous or not, is an estimate made by the authors of the present report.

Table B-1B. Commerce Bight: Imports and Exports for 2002 (short tons)

Description	Hazardous ^a	1996		1997		1998		1999		2000		2001		2002	
		Import	Export												
Container C.B.	No	0	0	0	0	0	0	0	0	0	0	36	98	0	0
Break Bulk C.B.	No	0	0	0	0	0	0	0	0	0	0	473	0	0	0
Concentrate C.B.	No	0	19,958	0	31,595	0	32,118	0	36,361	0	28,909	0	18,411	0	18,803
Total		0	19,958	0	31,595	0	32,118	0	36,361	0	28,909	509	18,509	0	18,803

Source of data for 1996-2001: Port of Belize Limited (2002). Note that the data for 2001 apparently are only for the first nine months of the year (see page 3 of report). In the case of Commerce Bight and Belize City ports, we obtained additional data for 2000-2002, via an electronic file from Xavi Grau to Don McCubbin in an email dated April 4, 2003. However, these additional data do not have N.C.S. Containers and Dolomite P.G., so the data in this summary just reflect the first nine months of the year for these two categories. Note that the data are in short tons (2000 pounds per ton).

^a Whether the particular cargo is hazardous or not, is an estimate made by the authors of the present report.

Table B-1C. Big Creek: Imports and Exports for 2002 (short tons)

Description	Hazardous ^a	1996		1997		1998		1999		2000		2001	
		Import	Export										
Container B.C.	No	0	0	0	0	0	0	0	0	38,027	760	25,664	448
Break Bulk B.C.	No	0	0	0	0	0	0	0	0	4,294	1,671	3,693	67
Bananas B.C.	No	0	63,850	0	59,107	0	56,931	0	63,526	0	73,508	0	49,757
Concentrate B.C.	No	0	0	0	0	0	0	0	0	0	15,315	0	10,007
Fertilizer B.C.	No	0	0	0	0	0	0	0	0	4,674	0	3,632	0
Pine Stumps B.C.	No	0	7,455	0	4,544	0	5,243	0	4,192	0	2,923	0	1,993
Feed B.C.	No	1,301	0	0	0	1,300	0	3,001	0	7,220	0	4,201	0
Total		1,301	71,305	0	63,651	1,300	62,174	3,001	67,718	54,215	94,177	37,190	62,272

Source of data for 1996-2001: Port of Belize Limited (2002). Note that the data for 2001 apparently are only for the first nine months of the year (see page 3 of report). Note that the data are in short tons (2000 pounds per ton).

^a Whether the particular cargo is hazardous or not, is an estimate made by the authors of the present report.

Table B-2A. Puerto Barrios: Imports and Exports for 2002 (metric tons)

Import	Hazardous	2002
<i>Contenedores</i>		
Unknown	No	692,624
<i>Granel Liquido</i>		
Unknown	Si	171,646
<i>Granel Solido</i>		
Fertilizante a granel	No	45,806
Fertilizante en sacos	No	4,674
<i>Mercado General</i>		
Hierro	No	150,907
Vehiculos	No	1,334
Madera	No	14,005
Azúcar	No	7,847
Otros	No	8,423
<i>Total Imports</i>		1,097,267
 Exports		
<i>Contenedor</i>		
Banano	No	602,567
Otro	No	256,137
<i>Mercado General</i>		
Banano Granel	No	12,325
Banano Palet.	No	0
Melon	No	65,963
Fertilizantes Sacos	No	7,823
Otros	No	3,656
<i>Total Exports</i>		948,469.83

Source: Administración de Puerto Barrios (COBIGUA). Data faxed to Don McCubbin on May 6, 2003 by Ing. Juan Antonio López.

^a Whether the particular cargo is hazardous or not, is an estimate made by the authors of the present report. In the case of imported bulk liquid (granel liquido), we assume that these are petroleum products.

Table B-2B. Puerto Barrios: Total Cargo for 2001 (metric tons)

Imports and Exports	2001
Carga General	172,500
Contenedores	1,299,200
RoRo	3,000
Granel Liquido	149,700
Granel Solido	55,400
Total	1,679,800

Source: Comisión Centroamericana de Transporte Marítimo (COCATRAM) (2001, Cuadro 4).

Note that the data are relatively aggregated, and that there was not sufficient information to adequately apportion the data between imports and exports, and between hazardous and nonhazardous cargo. Finally, note that no data were available for 2000.

Table B-2C. Puerto Barrios: Imports and Exports for 1993-1999 (metric tons)

	Hazardous	1993	1994	1995	1996	1997	1998	1999
IMPORTACION		526,000	527,700	697,300	623,600	756,900	845,550	917,030
Lubricantes	Si	0	0	0	0	0	10,000	35,000
Combustibles	Si	133,100	150,000	194,300	161,800	223,800	243,630	211,970
Fertilizantes	No	0	0	0	0	0	41,590	290
Otros	No	392,900	377,700	503,000	461,800	533,100	550,330	669,770
EXPORTACION		240,562	287,769	430,616	405,723	410,423	548,846	530,706
Banano	No	240,500	287,700	430,500	405,600	410,300	548,700	530,450
Otros	No	62	69	116	123	123	146	256

Source: Gavarrete and Fernández (2001a, Cuadro 11-6).

^a Whether the particular cargo is hazardous or not, is an estimate made by the authors of the present report.

Table B-3A. Santo Tomás de Castilla: Imports (metric tons)

Type	Hazardous ^a	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Abonos	No	5,711	5,510	9,902	7,923	11,265	94,318	118,988	88,240	16,817	15,504
Aceites, Grasa Vegetal Y Animal	No	50,136	46,672	60,542	50,133	49,701	60,825	63,818	75,258	73,354	75,104
Ajonjoli	No	3,544	1,143		693			1,619	3,676	33	0
Algodon Incluye Borra	No	17,807	22,186	26,959	23,273	41,104	64,372	14,143	27,785	19,120	18,153
Arcilla *	No	2,911	3,183	1,144	4,161	1,252	1,636	2,436	4,505	3,437	4,346
Arena Quimica	No	183	119	92	40	42	20	81	146	110	331
Arroz	No	15,780	11,352	10,962	14,997	4,260	4,327	9,451	6,170	5,245	6,380
Asbestos	No	250	1,342	818	4	380		858	221	163	0
Asfalto	No	8,799	3,744	4,597	4,470	1,049	281	9,327	4,406	13,035	4,283
Autobuses	No		1,321	1,510	1,565	1,727	1,277	913	859	915	914
Avena	No	186	49			104	1,306	996		236	159
Azucar Y Derivados	No	145	77	36	30	160	21	192	72	60	40
Bananos	No	1,255	107		396		118		147	0	0
Barro, Loza, Porcelana Y Vidrio	No	19,003	17,558	13,835	12,404	14,150	13,763	19,147	19,919	24,101	22,341
Bebidas Alcoholicas O Artif.	No	5,767	5,465	5,268	4,951	5,223	5,397	8,262	6,775	8,872	7,511
Bunker	Si								25,197	28,750	53,022
Bicicletas	No						11	45	102	178	183
Cacao	No		15	21	14		24	28	21	10	16
Cafe En Grano	No	20		3			20	183	20	535	73
Camarones, Langostas	No	29	228	232	71	67	90	71	102	1,042	62
Camiones	No		2,733	4,131	1,887	2,920	5,489	2,674	2,833	5,479	2,596
Caña De Izote	No	16								140	0
Caolin	No	100	76		113	487	394	121		20	102
Carbon	No	1,164	1,711	328	477	1,337	73,609	53,894	145,023	32,243	144,138
Cardamomo	No					11					30
Carnes	No	3,451	796	1,152	588	1,081	1,723	3,710	1,604	1,568	1,294
Cemento, Cal, Yeso	No	2,869	6,484	4,720	2,503	1,341	1,744	909	1,144	1,712	2,334
Ceramica	No	6,062	13,355	15,935	11,098	23,249	39,006	23,714	36,076	45,137	56,640
Chasises Para Cont. Y Furg.	No		1,741	709	387	1,322	305	383	477	685	868
Cinchona (Quina)	No				21						
Concreto Y Otros	No	2,488	2,454	1,161	1,856	1,349	8,677	5,676	246	140	258

Type	Hazardous ^a	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Desperdicio De Papel	No				362	2,853	4,956	9,942	9,529	11,112	18,397
Diesel Y Otros Aceites Combust.	Si	196,623	220,551	220,230	192,658	169,810	249,074	196,925	178,674	185,352	162,527
Electronics Para Maquila	No					41	30			1,043	1,486
Especies	No	1,333	217	362	627	536	351	501	863	448	1,324
Fibras Sinteticas, Textiles	No	3,242	6,366	5,268	8,626	5,078	6,376	6,384	6,427	3,653	3,294
Fibras Y Resinas Sinteticas	No	6,065									
Frijol En Granos	No	8,030	974	1,702	390	1,623	4,533	4,035	3,626	4,242	6,445
Frutas	No	2,008	565	2,306	920	172	83	423	93	312	317
Gas Butano	Si	1,351		829	2,121		17,459	9,359			232
Gas Natural	Si										
Gas Propano	Si	17,821	30,625	54,588	80,171	54,662	46,798	57,846	45,220	64,661	96,037
Gasolina	Si	159,271	184,985	230,316	211,973	248,292	256,322	286,653	227,585	307,232	269,985
Goma De Mascar	No	536	1,027	837	477	767	730	612	1,379	507	465
Granos Basicos	No		247	340			0	0	3	0	0
Harina	No	5,039	2,759	2,483	915	1,587	2,496	3,651	3,699	484	2,432
Henequen	No	300					0	0	0	161	46
Hortalizas	No	89	109	40	153	394	93	725	277	92	595
Hule Natural Sin Proceso	No	163	258	372	137	19	21	17	81	847	283
Kerosene	Si	26,071	28,839	12,272	6,626	5,721	5,486	3,927	4,600	3,488	2,455
Juegos Mecanicos	No									699	67
Lanchas Y Motos Acuaticas	No				2	52	18	63	44	63	64
Leche	No	16,723	18,314	17,055	15,779	17,180	15,510	8,264	6,798	9,948	29,184
Limon Seco	No				0		0	16	0	0	0
Madera Aserrada	No	733	1,103	285	260	640	2,660	5,921	6,889	15,757	11,449
Maiz	No	22,149	26,965	14,633	10,969	7,935	3,885	16,861	13,379	13,859	10,622
Malta	No	2,470	7,749	9,371	8,030	5,384	7,028	264	17	92	44
Maquinaria Y Equipo	No	25,568	24,105	19,634	15,686	27,287	30,964	20,564	15,096	18,851	19,670
Marmol	No					254	96	84	233	482	589
Material De Transporte	No	643	744	172	219	233	206	500	313	252	624
Melon	No	22		13			60	19	0	0	0
Menaje De Casa Efec.Personales	No	2,320	2,306	2,166	2,825	3,243	2,449	2,393	1,621	2,490	3,229
Miel De Abeja	No		86	7			0	0	0	0	84
Minerales Metalicos	No	688	19				84	141	1,186	63	0

Type	Hazardous ^a	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Motocicletas	No					17	180	108	153	337	669
Muebles De Madera	No	350	391	562	409	1,270	1,749	3,176	2,657	3,625	4,950
Neumaticos	No				1,792	11,254	12,666	10,369	11,614	12,336	13,827
Niquel	No	1				4					46
Nuez	No	2	2	12		20					42
Otras Industrias	No	56,648	62,696	53,861	36,887	43,918	62,740	40,214	37,229	31,707	21,645
Otras Semillas	No	705	436	217	1,327	291	1,799	835	1,243	786	476
Otros Alimentos	No	20,615	21,935	20,063	27,414	36,888	42,626	55,863	61,751	81,352	100,519
Otros Animales Vivos	No			46							
Otros Destilados Del Petroleo	Si	45,744	39,252	36,583	34,404	73,027	68,946	85,677	78,398	46,259	35,641
Otros Minerales	No	19	137	136	130	23	201	415	5,666	251	232
Otros Productos Agricolas	No	226	146	269			9	34	26	0	10
Otros Productos Metalicos	No	38,642	36,015	34,578	38,152	50,965	45,291	41,048	41,779	43,613	49,723
Otros Productos Para Maquila	No	66				24	51	35	33	19	3,496
Otros Productos Quimicos	Si	117,394	146,045	120,307	119,276	144,978	155,620	178,243	198,722	298,487	237,276
Paletas Vacias	No				2,838	3,133	2,516		25	0	0
Papel, Prod. De Papel, Impresos	No	167,720	167,660	154,207	132,556	141,136	165,114	188,420	179,540	175,396	188,738
Pescados, Otras, Almejas	No	186		115	47	48		14	110	114	72
Petroleo Crudo	Si	52	36	50	17	16				777	0
Piedras Pomez	No	18				0	0		19	27	45
Piezas De Correo	No	108	132	81	95	187	80	54	66	36	70
Plaguicidas	Si	7,838	7,220	10,061	10,340	10,832	12,154	10,975	11,504	13,680	11,507
Platanos	No						0	0	0	21	0
Playwood	No				0	406	1,114	673	650	463	1,822
Pollo Congelado	No	9,148	9,152	8,014	2,118	4,118	4,689	4,559	4,090	6,031	10,152
Prod. De Asbestos Y Fibrocemento	No		1	1,750	400	215	961	738	1,851	4,030	5,671
Prod. De Madera Excepto Mueble	No	5,830	8,296	6,162	6,293	2,204	3,290	1,190	5,496	2,355	4,411
Prod. Electricos Y Electronicos	No	17,257	23,319	26,045	26,395	28,246	46,331	31,846	33,130	35,065	42,083
Prod. Farmaceuticos, Medicamento	No	1,847	15,002	2,282	2,089	3,198	2,995	1,521	2,641	4,123	4,207
Prod. Metalicos Estructurales	No	6,265	3,720	5,256	4,474	4,195	5,247	4,366	11,725	3,442	1,283
Prod. Y Equipo De Oficina	No				411	1,394	1,680	2,292	1,814	2,035	1,490
Prod. Y Material Refractorio	No				66	3,143	2,568	893	1,483	2,766	1,143
Productos De Caucho	No	11,825	11,566	13,542	13,129	6,744	6,623	5,786	5,037	4,298	3,722

Type	Hazardous ^a	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Productos De Marmol	No					134	187	87	89	5	0
Productos De Pesca - Sin Proceso	No						0	0	0	0	6
Productos De Silvicultura	No	32	281	174	261	381	309	379	1,432	2,975	2,099
Productos De Tabaco	No	9	154	28	106	33	459	457	109	558	697
Productos Metalicos Basicos	No	39,893	41,906	66,803	53,729	63,160	136,495	84,162	26,057	14,092	17,871
Productos Plasticos	No	8,260	15,847	14,048	12,418	13,990	14,924	20,583	20,198	26,884	32,940
Pulpa De Madera	No	8,730	3,684	6,352	4,141	9,434	6,718	6,184	6,198	5,326	6,165
Rastra Vacia	No								7	23	0
Repuestos P/Mat. De Transporte	No	61	187	259	155	207	207	179	154	161	609
Repuestos Para Maquinaria	No	7,306	6,341	9,404	9,828	16,516	16,734	10,995	8,331	9,349	11,523
Repuestos Para Vehiculos	No	5,152	5,942	4,825	7,580	7,399	7,025	3,686	4,731	3,665	10,123
Resina Sintetica	No	90,157	96,360	73,295	82,292	92,948	78,994	91,306	70,855	83,970	102,533
Sebo Industrial	No	4,782	2,793	11,577	7,040	14,131	32,892	47,287	28,455	16,939	27,033
Semilla De Algodon	No	21	316	278		256	3		114	72	0
Soya	No	2,365	2,222	4,529	4,979	6,996	3,145	4,374	839	548	4,488
St. Quimicos Industriales Basicas	Si	479	3,976	7,364	8,575	5,872	5,610	7,429	3,160	3,034	2,007
Tabaco En Bruto	No	4	65	89	370	196	412	87	283	122	147
Tanques Vacios	No	33	462	465	535	263	1,040	425	352	145	402
Te De Limon Y Otros	No	3	1			4		42	25	137	22
Textiles Para Maquila	No	16,780	31,053	41,359	49,708	74,659	88,875	106,717	145,020	146,540	132,966
Textiles,Prendas Vestir,Cuero	No	40,069	32,918	35,463	43,357	42,160	37,534	45,714	53,893	64,920	111,744
Trigo	No	6,444	5,355	687		4,735	3,456	562	11,541	659	183
Vehiculos Automotores	No	12,593	9,283	10,574	8,906	8,357	10,081	9,357	17,103	17,367	18,003
Yute En Rama	No	2,243	39	85	18	342	181	597	1,260	479	610
T O T A L E S		1,400,861	1,520,720	1,541,145	1,459,037	1,651,409	2,129,042	2,087,680	2,077,318	2,100,729	2,285,768

Source: Administración de la Empresa Portuaria Nacional, Santo Tomás de Castilla, Sección de Estadística.

^a Whether the particular cargo is hazardous or not, is an estimate made by the authors of the present report.

Table B-3B. Santo Tomas de Castilla: Exports (metric tons)

Type	Hazardous ^a	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Abonos	No					227	27	35	95	17	117
Aceites, Grasa Vegetal Y Animal	No	573	764	438	626	564	2,308	1,338	1,827	2,286	415
Ajonjoli	No	31,932	25,818	27,643	24,223	22,871	20,301	15,502	15,659	13,254	18,138
Algodon Incluye Borra	No	564	637	170	69	306	166	96	310	243	140
Arcilla *	No		2	298				70	35	2,253	181
Arcilla, Concreto Y Otros	No						0	16	0	0	0
Arena	No		45							1,584	0
Arroz	No						18				0
Asbestos	Si								10		0
Autobuses	No		1	9	83			15			10
Avena	No					2,877	1,181	3,576	5,406		100
Azucar Y Derivados	No	102	1,567	1,006	20	355,959	324,777	153,707	239,636	5,497	5,835
Bananos	No	230,494	275,038	284,051	326,272	15,697	18,949	23,413	14,574	213,915	238,756
Barro, Loza, Porcelana Y Vidrio	No	10,475	11,797	5,685	15,589	1,016	831	2,014	3,870	17,316	24,291
Bebidas Alcoholicas O Artif.	No	801	575	568	1,257	57			5	6,012	12,660
Bicicletas	No				12		41		20		0
Cacao	No	144	103	302		327,606	241,309	317,195	362,173		0
Cafe En Grano	No	237,944	204,191	223,905	275,252	5,469	6,411	6,256	4,300	264,504	233,370
Camarones, Langostas	No	8,338	7,610	6,273	10,266	27	101	76	83	7,020	8,811
Camiones	No		18	18	9	1,249	1,543	396	89		95
Caña De Izote	No	1,578	312	780	1,348					138	422
Caolin	No				9			8	30		0
Carbon	No					15,407	12,756	12,083	12,987	0	0
Cardamomo	No	12,431	14,211	13,999	15,616	175	36	10	41	13,701	19,830
Carnes	No	8,843	5,936	3,494	314	31	249	130	15	133	97
Cemento, Cal, Yeso	No	367	556	567	41	374	18	56	90		23
Ceramica	No		10	193	378			455		553	663
Chasises Para Cont. Y Furg.	No		49	3	17	2,195	373	315	402	96	74
Cinchona Quina	No	494	517	517	459		1			335	442
Concreto Y Otros	No	259	88	39	56	6,428	5,688	4,918	9,708	55	35
Desperdicio De Papel	No				627					10,253	12,853

Type	Hazardous ^a	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Diesel Y Otros Aceites Combust.	Si	0						0	0	0	0
Electronicos Para Maquila	No					19	8	1,343	1,014	4	66
Especies	No	305	563	850	1,165	1,101	918	79	99	958	2,056
Fibras Sinteticas, Textiles	No	71	294	268	403	347	101			2,139	190
Fibras Y Resinas Sinteticas	No					186	135	159	288	0	0
Frijol En Granos	No	84	136	816	106	7,258	12,409	10,162	11,885	468	19
Frutas	No	3,450	4,988	5,994	8,713	378	105	120	104	8,988	9,219
Goma De Mascar	No	1,033	1,310	1,221	356		97	23		196	240
Granos Basicos	No	84				66	11		31	23	0
Harina	No	20			11	67,043	56,675	61,845	42,143	60	288
Hortalizas	No	64,085	71,116	65,053	63,923	6,737	2,615	1,954	2,710	38,427	52,566
Hule Natural Sin Proceso	No	4,644	4,637	7,288	9,270				45	0	3,466
Juegos Mecanicos	No						144	21	154	104	120
Leche	No	133	194	44	18				19	305	101
Lanchas Y Motos Acuaticas	No					393	442	1,362	1,291	0	0
Limon Seco	No	369	374	707	370	7,059	5,019	4,915	7,140	10,087	911
Madera Aserrada	No	4,205	6,005	8,938	8,315	227	549	22	506	7,524	4,189
Maiz	No	2				49	49			733	573
Malta	No			18		1,633	1,784	1,215	1,669	0	13
Maquinaria Y Equipo	No	2,714	3,086	990	553	5,878	5,186	3,759	3,466	1,072	902
Marmol	No	1,159	938	2,727	5,713	2	21	50	54	2,143	2,818
Material De Transporte	No	175	31	173	21	60,538	48,416	66,957	85,702	23	55
Melon	No	55,845	61,718	53,821	51,681	1,198	967	1,641	1,591	71,217	113,011
Menaje De Casa Efec. Personales	No	738	869	887	914	2,895	3,801	2,527	2,005	1,720	1,357
Miel De Abejas	No	3,268	3,501	3,242	3,488	127	19	477		3,112	2,362
Minerales Metalicos	No			293	138	3	4	0	3	282	0
Motocicletas	No				1	2,441	1,638	1,743	1,498	10	2
Muebles De Madera	No	730	1,367	1,922	2,413	1,085	862	817	731	1,614	1,579
Neumaticos	No				33	621	453	471	582	170	117
Nuez	No	481	386	359	477	1,622	952	4,159	3,534	601	508
Otras Industrias	No	797	839	508	831	155	262	770	171	1,474	1,384
Otras Semillas	No	476	193	58	13	9,965	14,095	12,919	17,459	810	204
Otros Alimentos	No	6,231	7,223	7,916	8,443	226	1,772	10,090	10,019	20,467	36,178

Type	Hazardous ^a	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Otros Destilados Del Petroleo	Si	178	32,635	653	265	795	272	843	55	35,692	4,148
Otros Minerales	No		37	149		10	40	115	0	218	0
Otros Productos Agricolas	No	16	16			3,386	5,775	6,219	15,244	0	0
Otros Productos Metalicos	No	2,662	2,006	2,258	2,241		2	0	0	7,429	10,765
Otros Productos Para Maquila	No					12,709	14,240	13,799	20,189	629	88
Otros Productos Quimicos	Si	3,963	6,555	5,836	12,029	139	553	27	150	16,034	27,216
Paletas Vacias	No				15	3,224	3,506	3,715	4,120	0	0
Papel, Prod. De Papel, Impresos	No	4,966	6,773	5,779	6,878		709	43	184	7,620	4,997
Pescados, Ostras, Almejas	No			43		987,734	1,271,760	1,155,482	1,057,760	55	140
Petroleo Crudo	Si	346,575	254,967	447,581	730,372	177	291	143		1,030,909	1,298,311
Piedra Pomez	No	21		42	121	5,413	6,762	7,092	6,281	0	0
Plaguicidas	Si	2,198	3,440	4,224	5,959	170	2,177	1,668	2,953	8,101	6,371
Platanos	No	11	4	37	98	240	238	144	190	4,693	10,554
Playwood	No				93		20	40	20	0	24
Pollo Congelado	No		37			624	1,267	662	938	411	172
Prod. De Asbestos Y Fibrocemento	No	23		229	718	2,111	3,527	4,400	5,493	3,173	1,912
Prod. Asbesto Y Fibrocemento	No					1,220	2,286	2,325	2,766	1,659	0
Prod. De Madera Excepto Mueble	No	3,237	3,217	2,510	2,468	3,124	3,099	2,054	1,882	0	5,135
Prod. Electricos Y Electronicos	No	250	396	337	659	189	59	654	99	2,777	5,782
Prod. Farmaceuticos, Medicamento	No	243	365	805	1,640			52	73	1,284	1,144
Prod. Metalicos Estructurales	No	20				52	5	23	19	47	1,865
Prod. Y Material Refractorio	No					2,583	2,967	2,186	1,532	325	0
Prod. Y Equipo De Oficina	No			22	501		18	104	720	56	10
Productos De Caucho	No	1,881	3,504	4,157	3,425			4	16	1,949	1,391
Productos De Marmol	No	1				15,889	16,488	18,691	20,150	2,298	0
Productos De Pesca- Sin Proceso	No					273	5,582	6,190	2,747	3,278	0
Productos De Silvicultura	No	12,436	10,510	12,160	15,028	3,195	4,396	3,673	3,607	19,893	19,142
Productos De Tabaco	No	183	402		14	4,807	5,560	4,939	6,133	4,176	9,661
Productos Metalicos Basicos	No		26	478	3,524		313	657		1,814	3,626
Productos Plasticos	No	3,391	4,255	3,661	4,777	6				6,585	9,413
Pulpa De Madera	No					2	59	19	23	0	0
Rastras Vacias	No		0	56	6	271	664	685	998	0	0
Repuesto P/Mat. De Transporte	No	26			67	266	265	183	95	26	

Type	Hazardous ^a	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
Repuestos Para Maquinaria	No	159	234	292	236	234	541	325	690	2,322	453
Repuestos Para Vehiculos	No					2,608	4,269	6,073	3,024	141	411
Resina Sintetica	No	168	269	435	366	44		23	15	713	1,970
Sandia	No				930					4,128	4,867
Semilla De Algodon	No					142	575	187	564	23	3
Soya	No			22		7,997	2,507	1,903	5,039	279	0
St. Quimicos Industriales Basicos	Si			19	83	27	46	60	97	324	802
Tabaco En Bruto	No	13,880	7,864	3,247	6,702	232	131	100	46	1,915	1,704
Tanques Vacios	No	12	138	36	159	52	48		140	1,267	1,330
Te De Limon Y Otros	No	261	172	109	121	125,708	150,055	190,781	240,783	277	25
Textiles Para Maquila	No	947	493	845	1,200	161	301	186	182		37
Textiles,Prendas Vestir,Cuero	No	34,841	60,299	64,072	86,684	62				237,544	268,659
Trigo	No						0	0	0	0	4
Vehiculos Automotores	No	247	234	665	168					344	227
Yute En Rama	No			16						19	19
T O T A L E S		1,129,234	1,118,465	1,294,803	1,726,912	2,123,966	2,307,967	2,167,834	2,272,379	2,144,389	2,514,259

Source: Administración de la Empresa Portuaria Nacional, Santo Tomás de Castilla, Sección de Estadística.

^a Whether the particular cargo is hazardous or not, is an estimate made by the authors of the present report.

Table B-4. Puerto Cortes: Imports and Exports (metric tons)

Importacion	Hazardous^a	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Trigo	No	106,542	228,168	233,374	136,908	120,013	165,394	152,722	214,473	168,280	199,379
Otros Productos Alimeticos	No	103,028	101,950	151,128	211,324	182,962	286,276	272,592	267,329	414,634	544,049
Bebidas Y Tabaco	No	1,862	2,349	2,044	1,670	2,554	4,165	1,909	4,092	2,374	7,462
Productos Quimicos	Si	49,379	49,915	73,155	52,672	120,502	69,508	84,326	78,684	73,653	74,613
Carbon Mineral	No									111,968	123,172
Grasa De Origen Anim/Veg.	No	9,238	5,416	3,804	19,279	14,031	10,724	22,017	29,626	21,039	14,459
Fertilizantes	No	88,833	173,418	177,989	152,323	212,690	238,361	239,158	243,097	212,128	196,417
Derivados De Petroleo	Si	596,147	667,143	736,580	1,011,517	840,480	920,301	1,077,016	1,055,502	995,912	1,065,834
Hierro Y Acero	No	53,248	74,668	61,677	50,277	44,303	48,365	85,106	75,172	62,066	88,720
Maquinaria Y Equipo/Trans.	No	21,776	29,323	25,529	23,954	22,171	36,988	53,186	45,765	46,223	40,211
Papel Y Carton En Bobinas	No	17,042	19,657	18,357	28,356	32,444	34,822	41,692	53,487	40,735	45,574
Otros	No	223,613	276,027	298,060	332,278	382,018	482,068	539,559	640,846	508,280	799,894
<u>Transito</u>											
Nacional	No	204,181	263,095	308,346	363,834	396,968	489,435	536,421	549,912	576,192	280,487
Extranjero	No	55,231	79,172	130,825	116,179	116,388	206,360	233,215	234,073	231,464	218,322
Total Importacion		1,530,120	1,970,301	2,220,868	2,500,571	2,487,524	2,992,767	3,338,919	3,492,058	3,464,948	3,698,593
Exportacion											
Carne	No	17,147	16,729	16,206	6,646	5,096	4,735	702	616	430	489
Plantanos	No	13,370	8,516	2,526	2,108	667	1,055	1,194	3,777	392	751
Bananos	No	529,378	527,293	303,532	415,244	491,528	428,291	366,574	101,841	284,805	350,916
Pure De Bananos	No	12,262	11,293	6,305	14,692	17,083	18,224	16,186	7,866	4,679	4,948
Café	No	106,822	91,223	91,991	102,749	116,254	98,509	134,302	112,796	156,947	131,085
Azucar	No	12,820	11,504	11,461	13,292	19,363	24,275	18,121	10,399	6,669	88,208
Tabaco	No	4,009	5,563	3,402	2,735	3,830	4,721	4,810	4,557	5,342	4,964
Madera	No	81,472	103,771	87,961	74,579	74,073	90,660	77,115	103,645	88,966	95,172
Cemento	No	29,167							574	5,831	12,495
Maiz	No										
Minerales	No	72,325	52,460	52,802	66,488	64,954	106,636	91,902	82,801	92,817	57,337
Combust. Y Deriv/Petrol.	Si			482	2,320			758			
Melaza	No	23,546	17,209	21,201	11,901	10,350	31,098	26,182	37,339	65,559	46,035
Aceite De Palma Africana	No	2,038		6,048	2,585	1,000	3,064	15,716	11,173	11,571	
Pinas	No	7,863	2,937	3,687	6,422	6,552	7,185	15,896	26,406	14,275	7,958

Importacion	Hazardous^a	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Cocos	No	492	7		133	225	210	367	396	99	3
Toronjas	No	1,121	1,610	55	749	1,576	2,161	109	7,619	1,391	10,470
Melones	No	57,691	68,958	75,272	77,265	69,079	105,536	98,088	101,632	99,443	109,080
Otra Frutas	No	4,816	7,260	6,722	11,786	13,674	6,701	9,783	10,957	13,031	8,441
Otros	No	278,167	322,612	390,298	435,455	480,008	580,469	683,724	708,135	810,617	805,944
Mercadeira De Otros Paises	No	24,687	67,297	127,911	137,621	129,878	171,363	190,639	152,496	270,424	229,052
Total Exportacion		1,279,193	1,316,242	1,207,862	1,384,770	1,505,190	1,684,893	1,752,168	1,485,025	1,933,288	1,963,348
Total Exportacion+Importacion		2,809,313	3,286,543	3,428,730	3,885,341	3,992,714	4,677,660	5,091,087	4,977,083	5,398,236	5,661,941

Source: Empresa Nacional Portuaria, Movimiento General De Carga, Informe Anual Comparativo 1992-2001. Note that the total import figure for the year 2000 reported here is simply the sum of the individual import figures. The total import figure reported in the original data source deviates from the figure reported here by 50 metric tons. This difference is insignificant.

^a Whether the particular cargo is hazardous or not, is an estimate made by the authors of the present report.

PROJECTS FINANCED BY THE IADB
IADB Loans in Execution and in Preparation

Project Number	Loans in execution	Project description	Amount
Belize			
BL0007	Loan TC Land Administration	Cadastre and land registration	\$1M
BL0011	Environmental and Social Technical Asst.	Sust. Development southern region	\$3M
BL0017	Land Management Program (LMP)	Land use planning component	\$7M
Guatemala			
GU0064	Chixoy River Basin Conservation	Watershed/natural resources management	\$14M
GU0073	Environmental Management Guatemala Metro Area	Institutional strengthening, environmental improvements	\$35M
GU0081	Sustainable Development of Peten	Land use planning	\$20M
GU0133	Priority Basin Natural Resources	Watershed management	\$40M
TC0006010	Modernization Solid Waste Management	Solid waste management	\$420,000
TC9807116	Management Industrial Toxic Wastes	Management of toxic wastes	\$120,000
TC9811193	Sewage and water sector reform	Improv. sewage& water sector	\$250,000
TC9908015	Sewage treatment master plan for Quetzaltenango	Development of a sewage treatment proposal	\$595,000
TC9911152	Nat.Rec. Management Improvement	Interventions for watershed management	\$100,000
Honduras			
HO0022	Handicraft Fishing Develop. Srn.	Develop handicraft fishing sector	\$2M
HO0028	Bay Island Environmental Management Program I	Environmental management, sustainable tourism, land administration, sanitation	\$19M
HO0035	Environmental Management Cajon Watershed	Management of natural resources and reduction of erosion	\$20M
HO0072	Investment in water and sanitation	Water & sanitation improvements	\$26M
HO0128	Puerto Cortes Sewage Project	Efficient water and sewage services	\$18M
HO0179	Natural Resources Management of Priority Basins	Management solutions for nat. resources in watersheds	\$25M
HO0198	Bay Islands Environmental Management Program II	Environmental management, marine protected areas, sustainable tourism, sanitation	\$12M
HO0217	Supplement Sewer System Puerto Cortes	Improvements in sewage treatment	\$5M
HO0207	PPP Atlantic Corridor Road Program	Road Construction, incl. erosion control and preventive measures	\$50 M
HO-0175	San Pedro Sula Municipal Development Program	Municipal Development (incl. environmental management)	\$9 M
HO-0218	Sustainable Forestry Development	Forestry development	\$17.5 M
TC0109016	Ecosystem Management of the Bay Islands	Consolidation of ecosystem management	\$320,000
Loans in preparation			
Belize			
BL0021	Solid Waste Management	Strengthen solid waste disposal services	\$7M
TC0205008	Private Sector Participation in Solid Waste Disposal	Reduce environmental pollution	\$300,000
Guatemala			
TC0110057	Inst. Streng. Ministry Env. & Nat. Resources	institutional strengthening	\$300,000
TC0301049	Strength. Env. Managt. CAFTA	env. standards& fisheries activities	\$150,000
TC9812046	Critical Watersheds Managt. Prog.	watershed management	

Project Number	Loans in execution	Project description	Amount
Honduras			
HO0174	Sanitation & Water Investment Complem.	sanitation& water improvmt.	\$14M
HO0218	Pro-Bosque Program	land sustainability development	\$20M
TC0301053	Regional Planning for Tourism	Decentralization of tourism management	\$500,000
TC9810129	Tegucigalpa:Psp in Water& Sewage	water & sewage	\$150,000
HO0195	Env. Managt. Marine Coastal System North Coast	fishing resources administration, ecosystem & marine reserves protection	\$20M
Regional Projects			
TC0012033	Social & Env. Program Mesoamerican Corridor	social & env. program	\$745,000
TC0108011	Watershed Management Studies for CA	assesst. eco. benefit nat. rec. managt. & develop. best practices	\$110,000
TC105011	Sustainable Dev. Prog. Lempa River	watershed program	\$147,182
TC0105010	Sustainable Dev. Lempa River watershed Program	watershed sustainability	\$840,000
TC112024	Plan management Trifinio Park	watershed sustainable develp.program	\$350,000
TC9908022	Maritime Transport Pollution Control	prevention& pollution control	\$550,000
Projects disbursed			
Belize			
TC9911138	Feasibility Studies for Land management		\$100,000
TC9606354	Belize Fisheries Sector Assessment		\$43,000
TC9608293	Belize Fisheries sector Assessment		\$5,000
TC0105046	Land Management Program		\$16,000
TC9706013	Solid Waste Planning		\$27,700
Guatemala			
TC0003030	Urban Env. Program.		\$20,000
TC9509102	Sust. Dev. Program Peten		\$74,600
TC9806300	Disaster Mitigation in Central America		\$75,000
TC9807116	Management Industrial Toxic Wastes		\$120,000
TC9810616	Reform& Modernization Potable Water		\$16,000
TC9812046	Critical Watersheds Manag. Prog.		
TC9908023	Trinational Watershed Mgmt. Proj. Lempa		\$150,000
TC9911152	Nat. Rec. Managt. Improvement		\$100,000
TC9910065	Environmental Procedures INFOM		\$70,000
Honduras			
TC0002031	Workshop Nat. Strat. Land Use Plan.		\$15,000
TC0008000	Legal Revision land Use Planning		\$30,000
TC0010033	Integ. Managt. Water Resources		\$149,990
TC0010034	Dev. Chamelecon & Ulua Watersheds		\$149,000
TC102021	Puerto Cortes: Sewage Water Alternatives		\$29,000
TC0102031	Consolidation Management Marina Mercante		\$100,000
TC9507388	Integration Aquaculture & Irrigation		\$47,000
TC9611056	Ecologic Studies Parque la Tigra		\$76,000
TC9806293	Disaster Mitigation in Central America		\$75,000
TC9810070	Potable water and sewage		
TC9908025	Trinational Watershed Mgmt.Proj Lempa		\$150,000

MEMORÁNDUM DE ENTENDIMIENTO

entre

**la Comisión Centroamericana de Transporte Marítimo (COCATRAM) y
la Comisión Centroamericana de Ambiente y Desarrollo (CCAD)**

Nosotros, los abajo firmantes, Alfonso Breuillet Galindo, mayor de edad, casado, Ingeniero, de nacionalidad hondureña, con cédula de identidad número: 0101-1951-00067, en su carácter de Director Ejecutivo de la Comisión Centroamericana de Transporte Marítimo (COCATRAM) y Marco Antonio González Pastora, mayor de edad, casado, abogado, de nacionalidad nicaragüense, con Pasaporte Diplomático Nicaragüense número A005252, en su calidad de Secretario Ejecutivo de la Comisión Centroamericana de Ambiente y Desarrollo (CCAD), ambos organismos pertenecientes al Sistema de la Integración Centroamericana, acordamos establecer el siguiente Memorándum de Entendimiento, conforme a los siguientes términos:

CONSIDERANDO:

Que el Proyecto para la Protección Ambiental y Control de la Contaminación originada por el Transporte Marítimo en el Golfo de Honduras (Belice, Guatemala y Honduras), que se realizará con financiamiento del GEF/BID y otros organismos, de un esfuerzo de coordinación entre los organismos regionales suscriptores, involucrados en el tema.

Que entre las instituciones existe un interés afín en lo referente a la seguridad portuaria y el transporte marítimo y su relación con la conservación y manejo adecuado de los recursos marinos costeros de la Región, por lo cual:

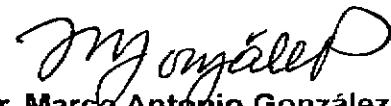
ACORDAMOS:

- PRIMERA:** Celebrar el presente Memorándum de Entendimiento para la implementación conjunta del Proyecto para la Protección Ambiental y Control de la Contaminación originada por el Transporte Marítimo en el Golfo de Honduras.
- SEGUNDA:** Que el Proyecto tendrá una duración de cinco años y contará con el apoyo de todas las instituciones interesadas en los temas ambientales y de transporte marítimo.
- TERCERA:** Que la gestión del proyecto y la coordinación regional del Proyecto, será ejercida por la COCATRAM, que se compromete a informar de esta gestión a CCAD de forma periódica.

- CUARTA:** Que la coordinación regional del Proyecto se realizará de forma conjunta COCATRAM - CCAD. Los procedimientos para regir las responsabilidades compartidas se detallarán en el Reglamento Operativo del Proyecto. La CCAD se compromete a participar en el Comité Directivo Regional del Proyecto, así como en las Evaluaciones de Medio Término y Final del Proyecto. Para los resultados del Proyecto sobre temas específicos ambientales que requieren el involucramiento técnico y/o político de la CCAD, la cual tendrá a su cargo la ejecución de estos temas, para lo cual se le trasladarán los recursos correspondientes y se establecerán convenios particulares de implementación caso por caso entre ambas instituciones.
- QUINTA:** Ambas instituciones, CCAD - COCATRAM, se comprometen a brindar todo el apoyo político institucional a la implementación del Proyecto, facilitar los foros técnicos de discusión de cada una de ellas para la promoción de las actividades del mismo y hacer llegar los informes técnicos y políticos de avance del Proyecto hasta las más altas instancias del Sistema de la Integración Centroamericana.
- SEXTA:** El presente Memorándum de Entendimiento entrará en vigencia en el momento de su firma y tendrá la misma duración del Proyecto.
- SÉPTIMA:** COCATRAM y CCAD manifiestan que aceptan el contenido de todas y cada una de las cláusulas aquí expresadas y que en consecuencia, se comprometen a cumplirlas en toda su extensión. En fe de lo anterior firmamos el presente Memorándum de Entendimiento, en dos tantos de un mismo tenor, en la ciudad de San Salvador, El Salvador, a los veintisiete días del mes de Julio del año dos mil cuatro.



Ing. Alfonso Breuillet Galindo
Director Ejecutivo
COCATRAM



Dr. Marco Antonio González P.
Secretario Ejecutivo
CCAD