Bay Islands Environmental Management Program, Stage II: Consolidation of Ecosystem Management and Biodiversity Protection

LIST OF BASELINE AND INCREMENTAL ACTIVITIES, AND ESTIMATED PROJECT COSTS

Components/Activities	Activities/Products	Implementing Entities & Mechanisms	Financing (US$)	
			PMAIB & Other Projects[1] (Baseline)	GEF & Leveraged Local Counterpart (Incremental)
Component 1: Consolidation of Ecosystem Management and Biodiversity Protection			**8,303,075**	**GEF 2,5000,000 Counterpart 5,330,000**
- Subcomponent 1.a. Strengthening of Executive Commission Sustainable Tourism & Technical Unit			**1,930,075**	**GEF 521,500 Counterpart 250,000**
1. Staffing/Equipping/Operation of Technical Unit: Project Management and Administration, and Technical Assistance	a. Executive Director b. Coordinator, Municipal Strengthening/Land Admin c. Coordinator, Water and Sanitation Services d. Coordinator, Natural Resources Conservation & Protected Areas Management e. Coordinator, Public Outreach and Communication f. Coordinator, Sustainable Tourism/Hotel Management g. Coordinator, Best Practices for Diving/Water Sports h. Water Quality Specialist i. GIS Specialist j. Various office and technical assistants	PMAIB Technical Unit	PMAIB II: 614,000 GOH/SECTUR: 1,148,000	GEF: 251,500
2. Prepare/Adopt Bylaws & Operating Manuals for Executive Commission and Technical Unit	a. Bylaws will indicate policies accepted by all member agencies/organization and their levels of participation in committees and working groups b. Bylaws will indicate the responsibilities and authorities of the Executive Commission Tech Unit c. Operating manual will indicate responsibilities and activities of the Technical Unit and technical-operational working groups d. Training of Technical Unit Personnel in operating procedures	PMAIB, Executive Commission; some short-term consultants	PMAIB II: Included in 1.a.1	GEF: 115,000

[1] Includes GOH/SECTUR and or other organizations' counterpart where applicable. Note that, for purposes of this worksheet, operational and administrative costs, including staffing, rents, office and field equipment, combustibles, per diem, etc. and external audits are included under Subcomponent 1.a.

Components/Activities	Activities/Products	Implementing Entities & Mechanisms	Financing (US$)	
			PMAIB & Other Projects[1] (Baseline)	GEF & Leveraged Local Counterpart (Incremental)
3. Establish Technical-Operational Working Groups in Sustainable Tourism and Environmental Management; Quarterly Meetings	*Technical-Operational Working Groups for*: a. Land Use Zoning and Cadastre b. Basic Human Services c. Development/Building Codes & Env. Clearances d. Protected Areas, Watersheds & Fisheries Mgmt e. Tourism Best Practices & Marketing	PMAIB, Executive Commission	PMAIB II: Included in 1.a.1 Sust. Coastal Tourism: 5,000 MBRS: 5,000 WWF- MACR: 5,000	GEF: 35,000
4. Develop and Implement Policy and Management Plan for Cruise Ship Tourism	a. Develop policy and management plan with municipalities, tour operators and cruise lines b. Apply policy for Cruise's use of local operators	PMAIB, IHT, Municipalities, Tour Operators, Cruise Lines	PMAIB II: Included in 1.a.1 Sust. Coastal Tourism: 25,000 MBRS: 10,000	GEF:25,000
5. Develop and Implement Specialized Migration/Immigration Policies for the Bay Islands	a. Study of alternative strategies and mechanisms for regulating migration & immigration to the Bay Islands b. Promulgation/adoption of legal and operational mechanisms to regulate migration & immigration.	Sec. of Governance & Justice, SECTUR, Policía Preventiva, HT/PMAIB	PMAIB II: 25,000 GOH/SECTUR: 8,075 GOH/Gov & Justice: 25,000	
6. Establish Bay Islands Conservation & Protected Areas Fee & Other Financial Mechanisms	a. Develop/place in function BI Conservation Fee b. Establishment of one-time development fee for new construction/expansion of resorts, businesses, homes Institute 10% of water & sanitation tariffs for watershed & environmental management c. Establish & put into practice on pilot basis: - Tax breaks for conservation easements in critical watershed, coastal, wetland areas - Use of solar or wind energy generation systems d. Establish procedures for use of proceeds from licenses & fines for conservation operations	PMAIB, Executive Commission, Municipalities	PMAIB II: Included in 1.a.1 Municipalities: 20,000	GEF: 25,000
7. Establishment of Multi-Agency Environmental Due Diligence Team	a. Training of staffs of Fiscalía, Policía Preventiva, DIGEPESCA, COHDEFOR, SERNA, Merchant Marine, Honduras Navy, UMAs b. Development of internal operations manual, procedures and inspection regimes/campaigns c. Registry and monitoring of cases of environmental infractions, penalties and resolutions	Executive Commission, Office of the President, PMAIB; contracts with independent consultants, Firm, Specialized Entity, or Consortium	PMAIB II: Included in 1.a.1	GEF: 50,000 Merchant Marine: 75,000 SERNA: 75,000 DIGEPESCA: 75,000 Fiscalía: 25,000
8. Quarterly Meetings of Executive Commission	Meetings should rotate among municipalities and be combined with field days to educate members as to the work under PMAIB II.	PMAIB, Executive Commission	PMAIB II: Included in 1.a.1 GOH/SECTUR: 40,000	GEF: 20,000

Components/Activities	Activities/Products	Implementing Entities & Mechanisms	Financing (US$)	
			PMAIB & Other Projects[1] (Baseline)	GEF & Leveraged Local Counterpart (Incremental)
- Subcomponent 1.b. Investments for the Regional System of Marine and Coastal Protected Areas			**5,171,000**	**GEF 1,563,500 Counterpart 4,295,000**
1. Full Management of Marine Protected Areas:	*Full management of Marine Protected Areas in*: a. Turtle Harbour b. West End/Sandy Bay c. Michael Rock	Contracts with NGOs, Firm, Specialized Entity, or Consortium	MBRS: 50,000	GEF: 488,500 Municipalities: 60,000 Local NGOs: 100,000 Fundación VIDA: 100,000
2. Full Management of Terrestrial Protected Areas	*Full Management of Terrestrial Protected Areas in*: a. Port Royal Wildlife Reserve b. Utila Great Wetlands c. Guanaja Forest Reserve	Contracts with NGOs, Firm, Specialized Entity, or Consortium	ESNACIFOR: 50,000 Fundación VIDA: 250,000 USAID Post Mitch: 250,000 Private Land Owners:200,000	GEF: 300,000 Municipalities: 1,000,000 Local NGOs: 75,000
3. Basic Management of 6 Protected Areas:	*Basic Management of 6 Protected Areas in*: a. Western Roatán Forest b. Raggedy Key-Cayitos Marine Reserve (Utila) c. Pelican Rock (Utila) d. Half Moon/Southwest Key Marine Reserve (Guanaja) e. Barbaretta Island (Santos Guardiola) f. Santa Elena/Barbaretta (marine)	Contracts with NGO, Firm, Specialized Entity, or Consortium		GEF: 175,000 Municipalities: 20,000 Local NGOs: 25,000 Int'l NGOs: 100,000 Private Land Owners: 1,500,000
4. Strengthening of NGOs and Municipalities in Management of Protected Areas	a. Training program for staffs of NGOs, UMAs and Community Environmental Committees b. Assistance in the preparation of management plans and annual program and monitoring plans c. Monitoring of the effectiveness in the management of protected areas	Contracts with Int'l NGO, Firm, Specialized Entity, or Consortium	PMAIB II: 100,000 MBRS: 60,000 WWF-MACR: 25,000	Local NGOs: 15,000
5. Establishment of Bay Islands Multiple-Use Visitors Centers/Museums	*Construction tourism centers and development of natural and cultural history interpretive displays in*: a. Utila Town b. West End-Sandy Bay c. Roatán Airport	PMAIB with IHT and Municipalities; contracts with architectural firm & construction companies; management contract with NGO or Specialized Entity	MBRS: 96,000	GEF: 300,000 PMAIB II: 200,000 Sust Coastal Tour: 100,000 Municipalities: 200,000 SOPTRAVI: 200,000 Fundación VIDA: 150,000
6. Development of Alternative Ecotourism sites and Attractions on Private Land	*Co-financing in development of such activities as*: a. Utila EcoTrail b. Pumpkin Hill Trail and Caves c. Punta Gorda Cultural House d. Michael Rock Peak Hike & Bike Trails	PMAIB	Iguana Research Sta: 50,000 Fundación VIDA: 100,000	GEF: 100,000 Private Operators: 150,000

Components/Activities	Activities/Products	Implementing Entities & Mechanisms	Financing (US$)	
			PMAIB & Other Projects[1] (Baseline)	GEF & Leveraged Local Counterpart (Incremental)
7. Sustainable Fisheries Management for Artisanal Fishers	a. Designation of exclusive community fishing zones b. Training in sustainable fisheries management c. Delimitation and control of No-take zones and community vigilance d. Placement and monitoring of 4 Fish Aggregating Devices e. Retraining of fishers as ecotourism and sportfisher guides	PMAIB with MBRS, WWF-MACR, artisanal fisheries associations	PMAIB I: 150,000 MBRS: 100,000 WWF-MACR: 10,000	GEF: 40,000 Fishers Assoc: 120,000
8. Recuperation and Management of Critical Watersheds	a. Construction of sedimentation dams in Coxen Hole and Oak Ridge b. Reforestation and agroforestry in Coxen Hole, Oak Ridge/El Bight, Soldado Gully	PMAIB; Contracts with construction companies; contract with NGO or Specialized Entity	PMAIB I: 100,000 PMAIB II: 175,000 Land Owners: 175,000 Municipalities: 100,000	
9. Control of Contamination in Ports and from Boats and Ships	a. General awareness and communication campaign concerning causes and sources of contamination, and impacts to coastal and marine ecosystems b. Development of best practices guides, posters and flyers for boaters, fishers, freighters. c. Walk-through environmental audits of ports in Coxen Hole, French Harbour, Oak Ridge, Utila Town, El Cayo and Armadores in Guanaja and report to their operators, Merchant Marine, National Ports Company, SERNA, municipalities and general public	Merchant Marine with PMAIB; contracts with independent consultants, Firm, Specialized Entity, or Consortium	PMAIB II: Included in 1.a.1, Merchant Marine: 150,000 GEF Control of Maritime Contamination in the Gulf of Honduras: 150,000	GEF: 10,000

Components/Activities	Activities/Products	Implementing Entities & Mechanisms	Financing (US$)	
			PMAIB & Other Projects[1] (Baseline)	GEF & Leveraged Local Counterpart (Incremental)
10. Monitoring and Investigation of Environmental Conditions and Dynamics of Coastal and Marine Ecosystems, and Sustainability of Tourism	a. Recruiting, training and developing monitoring program of corals/fish conditions with dive operators b. Monitoring of fresh and coastal water quality over time with sanitation & watershed improvements c. Monitoring of cover, vigor, and dynamics of mangroves, seagrass beds and coral reefs using PMAIB baseline and MBRS protocols and manual d. Monitoring of fishers' captures e. Investigation: dynamics and recuperation of fish aggregation sites in Roatán (off Dixon Point), Guanaja (Caldera del Diablo) and Utila (Blackish Point, seamounts) f. Investigation: relation of water quality/reef condition g. Investigation: impacts of tourism and land development to reefs h. Investigation: determination of carrying capacities on selected marine and coastal protected areas i. Investigation of *lethal-yellow* resistant strain of coconut with Dole. j. Annual "Sustainable Tourism Report Card" report on results of all monitoring activities; and presentation in abbreviated graphic form for public (see 1.c.1. below)	PMAIB, MBRS; contracts with independent consultants, Universities, NGOs, Firm, Specialized Entity, or Consortium	PMAIB I: 2,000,000 PMAIB II: Included in 1.a.1 MBRS: 350,000 WWF-MACR: 5,000 Coral Cay Conserv: 150,000 GEF Target Research: 150,000 Hon. Merchant Marine: 25,000 GEF Control of Maritime Contamination in the Gulf of Honduras: 150,000	GEF: 150,000 Dive Operators: 120,000 Universities/NGOs: 60,000
-Subcomponent 1.c Public Outreach, Participation and Local Destination Management			**1,202,000**	**GEF 415,000 Counterpart 785,000**
1. Socialization of Bay Islands Environmental Management Master Plan	a. Multi-media "shock" communication/awareness campaign on degrading quality of marine/coastal resources (TV, radio, community kiosks) b. Community workshops for presentation of the Env. Management Master Plan c. Environmental management Resource Guide d. Quarterly PMAIB II Bulletin e. Annual "State of the Bay Islands" report/bulletin.	PMAIB, contracts with independent consultants, Firm or Specialized Entity	PMAIB II: 85,000	GEF: 150,000

Components/Activities	Activities/Products	Implementing Entities & Mechanisms	Financing (US$)	
			PMAIB & Other Projects[1] (Baseline)	GEF & Leveraged Local Counterpart (Incremental)
2. Strengthening of Community Organizations to More Effectively Participate in Environmental Management Activities	a. Awareness training in land and resource-use rights, environmental and public health laws b. Environmental and resource management strategies, and community environmental vigilance c. Strengthening of Community Environmental Committees as local advocate for the environment d. Hotline-telephone number to call to report environmental problems and accidents	PMAIB, Municipalities, SERNA; contracts with independent consultants, Universities, NGOs, Firm, Specialized Entity, or Consortium	PMAIB II: Included in 1.a.1 SERNA: 15,000 MBRS: 25,000 Sust Coastal Tourism: 25,000	GEF: 80,000 Local Env Com: 25,000 Fundación VIDA: 100,000
3. Environmental Education	a. Development of formal, bilingual Bay Islands environmental education curriculum, aligned for k-12. b. Informal multimedia public environmental education campaign: - Programming and spots on closed-circuit television in Utila and Roatán, and radio on all three islands - Publication of series of posters, booklets, maps - Special outreach program with area churches c. Annual community awareness, behavioral and participation surveys. d. Periodic sanitation assessments.	PMAIB, Ministry of Education, School Headmasters; contracts with independent consultants, Universities, NGOs, Media Firm, Specialized Entity, or Consortium	PMAIB II: Included in 1.a.1 MBRS: 75,000 WWF- MACR: 25,000 Sust Coastal Tourism: 50,000	GEF: 75,000 Min of Education & Schools: 75,000

Components/Activities	Activities/Products	Implementing Entities & Mechanisms	Financing (US$)	
			PMAIB & Other Projects[1] (Baseline)	GEF & Leveraged Local Counterpart (Incremental)
5. Environmentally-sound Operation of Hotels and Tourist Facilities	a. Training in total quality and environmental management of operations (ISO 9001 & 14,001, GreenGlobe, Blue Flag, MBRS/CCAD) b. Guidelines of hotelier, restaurants and tour operator best practices, water & energy conservation & recycling c. Best practices and environmental management audit program for hotels, businesses and tour operators (self- and third-party managed) d. Specialized manual, training and certification in sand fly (*jején*) management, including biocontrol. e. CCAD/MBRS "Green" certification program, whereby hotel/tour operations successfully complete training and audit of their facilities/operations; promotional marketing of certified businesses f. Annual awards for excellence for environmentally-sound hoteliers (per island & overall), dive and general tourism operations	PMAIB, MBRS/CCAD, Sustainable Coastal Tourism; contracts with independent consultants, Universities, NGOs, Firm, Specialized Entity, or Consortium	PMAIB II: 98,000 GOH/SECTUR: 123,000 Sust Coastal Tourism: 50,000 MBRS/CCAD: 250,000	GEF: 60,000 Local Operators: 350,000
6. Reef Conservation and Diving Best Practices	a. Guide of best diving practices b. Training programs for dive operators/divemasters in best diving practices c. Installation/maintenance/replacement of mooring buoys (minimum 90 new) d. Diver program/campaigns for clean-up reef trash	PMAIB, MBRS, Municipalities, NGOs, Dive Shops	PMAIB II: 30,000 MBRS: 50,000	GEF: 50,000 Dive Operators: 150,000 NGOs: 25,000 Municipalities: 60,000
7. HIV/AIDS Awareness and Mitigation	a. Improve detection and treatment capacity of local health personnel; and in collection, registration and analysis of data b. Training program for teachers and social workers b. HIV/AIDS awareness and prevention campaign (education and behavior change) though multimedia, kiosks, clinics, schools, churches, bars and clubs	PMAIB, Ministry of Health, Ministry of Education, School Headmasters: contracts with independent consultants, Universities, NGOs, Firm, Specialized Entity, or Consortium	PMAIB II: 221,000 Ministry of Health: 40,000 Min Education/Schools: 40,000	

Components/Activities	Activities/Products	Implementing Entities & Mechanisms	Financing (US$)	
			PMAIB & Other Projects[1] (Baseline)	GEF & Leveraged Local Counterpart (Incremental)
Component 2. Expansion of Environmental Services			**20,870,000**	**Counterpart 370,000**
1. Expansion of Water Supply and Environmental Sanitation Services	a. Improvements in water supply and wastewater collection and treatment for Coxen Hole, French Harbour and Oak Ridge, Roatán. b. Expansion of water supply to Pollitilly Bight and Punta Gorda, Santos Guardiola; Los Fuertes, Flowers Bay and West End, Roatán; and in Savannah Bight, East End, Brisas del Mitch and Mangrove Bight, Guanaja c. Wastewater collection and treatment for Pollitilly Bight and Punta Gorda, Santos Guardiola; Los Fuertes, Flowers Bay and West End, Roatán; a wastewater treatment system for Cayo and septic systems for Savannah Bight, East End, Brisas del Mitch and Mangrove Bight, Guanaja; and wastewater collection and treatment facilities for Utila Town and Cayitos, Utila. d. Solid waste landfill and management facilities for: Oak Ridge, Santos Guardiola; Savannah Bight, Mangrove Bight and East End, Guanaja; and Utila Town.	PMAIB, Municipalities, USAID/U.S. Army Corps of Engineers/FHIS	PMAIB I: 13,000,000 PMAIB II: 6,570,000 GOH/SECTUR: 350,000 USAID: 750,000 Municipalities: 200,000	
2. Development and Operation of Recycling Activities in the Bay Islands	a. Development of awareness and promotional campaign for separation of organic from inorganic solid wastes b. Development and put in operation recycling and composting facilities in: - New Utila solid waste facility - Shared facility for Mangrove & Savannah Bight - Dump Site across from Armadores - Rehabilitated facility at Mud Hole, Roatán - New solid waste facility for Oak Ridge c. Development of cooperative agreements and commercial ventures for recycling of plastics	PMAIB, Municipalities, NGOs; contracts with independent consultants, Universities, NGOs, Firm, Specialized Entity, or Consortium		Municipalities: 180,000 NGOs: 40,000 Private Companies: 150,000

Components/Activities	Activities/Products	Implementing Entities & Mechanisms	Financing (US$)	
			PMAIB & Other Projects[1] (Baseline)	GEF & Leveraged Local Counterpart (Incremental)
Component 3. Municipal Strengthening and Land Management			**5,283,725**	**Counterpart 240,000**
-Subcomponent 3.a Municipal Capacity Building			**1,925,725**	**Counterpart 240,000**
1. Preparation and Implementation Municipal Action Plans, *including* Land-Use Zoning Plans	a. Participatory planning process (workshops, community meetings) to develop basis for plans b. Approval of zoning plans as part of Action Plans c. Elaboration & application of plans for Municipalities of Utila, Guanaja, Roatán & Santos Guardiola	PMAIB, Municipalities; Contracts with NGO, Firm, Specialized Entity, or Consortium	PMAIB II: 200,000 USAID Muni Dev: 40,000 GOH/SECTUR: 8,925 FUNDEMUN: 25,000	
2. Strengthening of the Municipal Environmental Units (UMAs) in Environmental Management and Elements of Sustainable Tourism	a. Combine Cadastre Units with UMAs to obtain more professional depth and due diligence capabilities b. Training of Cadastre/UMA staff in EIA, environmental audit and inspection, standard mitigation and best practices for coastal/marine environments. c. Development of internal operations manual for all UMA responsibilities d. Development of work strategies and plans with Community Environmental Committees e. Provision of equipment necessary to carry out inspections and environmental due-diligence	PMAIB, Municipalities, SERNA,; contracts with independent consultants, Universities, NGOs, Firm, Specialized Entity, or Consortium	PMAIB II: 171,075 Municipalities: 60,000 Sust Coastal Tourism: 50,000	SERNA: 15,000 Local NGOs: 150,000
3. Drafting, Enacting and Applying Municipal Ordinances in Environmental Management, Land Use Zoning, and Natural Resource Development	a. Drafting of ordinances by theme for each of the 4 municipalities (in consultation with local committees), including: - Setbacks from beaches, wetlands and streams - Septic disposal (municipal, conventional septic tank or composting or chemical toilets - Rooftop water catchment and storage and wells - Dredging and filling - Management of solid wastes - Cutting of trees and vegetative clearing - Use/alter/establish natural or artificial beaches - Mangroves conservation and alteration - Construction and building codes - Dumping of bilge and solid waste from boats/ ships b. Publication in laymen language to explain justification and provisions of each ordinance, explaining rights of individuals and civil society.	PMAIB, Executive Commission, Municipalities, SERNA; contracts with independent consultants, Universities, NGOs, Firm, Specialized Entity, or Consortium	PMAIB II: 125,000 USAID Muni Dev: 25,000	SERNA: 15,000 GEF Control of Maritime Contamination in the Gulf of Honduras: 50,000 FUNDEMUN: 10,000

Components/Activities	Activities/Products	Implementing Entities & Mechanisms	Financing (US$)	
			PMAIB & Other Projects[1] (Baseline)	GEF & Leveraged Local Counterpart (Incremental)
	c. Publication of guidelines, standards and procedures needed to meet provisions of each ordinance.			
4. Direct Support to Municipalities in Equipment and Financing of Priority Projects	a. Tech. staff in municipal strengthening and & cadastre b. Direct support for equipment and infrastructure c. Financing for priority projects in 4 municipalities		PMAIB II: 1,220,725	
-Subcomponent 3.b Modernization of the Departmental Land Property Registry System			**3,358,000**	
1. Establishment and Operation of Land Registry and Integrated Land Administration System	a. Continued operation of Bay Islands Cadastre & reduction in number of multiple claims b. Development of a modern land registry system	PMAIB, Municipalities; Contracts with NGO, Firm, Specialized Entity, or Consortium	PMAIB I: 2,500,000 PMAIB II: 794,000 Municipalities: 60,000	
		Total Baseline Funds	**US$ 34,456,800**	
		Subtotal Proposed GEF Incremental Funds		**2,500,000**
		Subtotal Leveraged Incremental Funds		**5,940,000**
		TOTAL INCREMENTAL FUNDS		**US$ 8,440,000**
		TOTAL PROGRAM FUNDING (BASELINE + INCREMENTAL) >>>>>>>>>	**US$42,896,800**	

Bay Islands Environmental Management Program, Stage II: Consolidation of Ecosystem Management and Biodiversity Protection

THREATS TO THE INTEGRITY OF THE BAY ISLANDS ECOSYSTEM AND THEIR INTERMEDIATE AND ROOT CAUSES

Actions Related to Threats and Impacts to the Bay Islands	Intermediate and Root Causes
Threat # 1. Uncontrolled, Poorly-Planned Urban and Tourism Development without Adequate Environmental Engineering and Management	
Land clearing and construction (dredging, filling, canalization, and sand and coral rock mining), in mangroves, freshwater wetlands, beaches, shorelines, ironshore and adjacent areas, especially from West Bay to Milton Bight in northern Roatán, Brick Bay to Calabash Bay in southern Roatán, Oyster Bay Lagoon to Big Rock on the Southwestern Utila Coast, between the old airport and East End Point in Utila, and Mangrove Bight and from Armadores to Savannah Bight in Guanaja. Uncontrolled extraction of gravel, sand, soils and rock from beaches, mangroves and ironshore is practiced throughout the islands. These developments are resulting in: changes in coastal morphological processes (changes in currents and flushing); onshore and offshore erosion and sedimentation (beach erosion, sedimentation of lagoons, natural and navigation channels and adjacent reefs); fracturing and stress of terrestrial, riparian, coastal, estuarine and nearby reef ecosystems resulting in changes in composition of species; creation of micro- and macro-habitats for insect vectors of disease; and loss of protection from storms and hurricanes. Particular to reefs, sedimentation can bury corals and increase stress, thereby reducing their vitality, and/or restrict light penetration and photosynthetic processes of beneficial alga. Surface area of seagrass beds is lost to dredging and constant suspension of sediments negatively affects their development. Continued loss of terrestrial habitat is impacting several rare and endemic species on each of the three main islands. *Uncontrolled well drilling and increased consumption of ground water* leading to subsurface and surface salt intrusion (especially in French Harbour, Coxen Hole and West Bay-West End-Sandy Bay in Roatán, and all of Utila) and changes in ecosystem function, and sustainability of local and regional water supply. *Proliferation of poorly-planned and/or spontaneous residential neighborhoods* without adequate basic human services (esp. Los Fuertes near French Harbour, El Bight in Santos Guardiola, Campo Nado in Utila, Mangrove Bight/Brisas del Mitch in Guanaja) leading to human sanitation and disease problems and pressure on adjacent natural resources (mangroves for fuel and building supplies, fishing/poaching pressure), and exacerbation of social problems.	<u>Intermediate Causes</u> - Aggressive and uncontrolled real estate development in absence of zoning plans, resulting in sale of properties in fragile areas (mangroves, ironshore, swamps, beaches) not conducive to development. - Lack of regional and municipal land-use/integrated coastal/marine management plans and zoning that consider principles of environmental management. - Lack of clear regulations and guidelines under the national General Environmental Law for preparation of EIAs and adequate mitigation strategies; issuance of permits without conditions. - Inadequate or poorly articulated codes & standards for environmentally sound land development, construction, resource utilization, and waste treatment and disposal; weak enforcement of these regulations where they are already in place. - Lack of technical professional capability in Honduras to prepare project specific EIAs, & even poorer capability among staff of Municipal Environmental Units and SERNA to review, inspect and enforce mitigation measures and building codes. - Migration to Bay Islands of poor in search of land and/or economic opportunity; with lack of control of settlement of these people in marginal areas not environmentally fit for habitation (especially national & municipal properties) <u>Root Causes</u> - National tourism policies based on market competitiveness, with concomitant shift of tourism development model away from ecotourism & diving to one of sun & sea resorts - Economic distortions, including subsidies to favored sectors, lack of transparency in the allocation of resources, and non-incorporation of environmental costs (especially water, sanitation, energy and transport) into national and local accounts. - Land speculation especially to foreigners - Lack of education/awareness of impacts of development actions in the coastal environment at local, regional and global levels; lack of sufficient and accurate scientific data on condition of ecosystems and trends - Weak municipal governments lacking sufficient skilled personnel (especially at the

Actions Related to Threats and Impacts to the Bay Islands	Intermediate and Root Causes
	level of the Municipal Environmental Units/UMAs). - No presence of national government agencies of Tourism, Environment and Natural Resources, Fisheries and Forestry; application authority for management of coastal resources & environmental management scattered among numerous government agencies with low priority and investment in enforcement of environmental regulations. - Poverty on Honduran mainland due to the lack of employment opportunities, failing natural resource base; lack of Bay Islands migration/immigration policy.
Threat # 2. Unsustainable Operation of Residential, Industrial and Tourism Infrastructure	
Disposal of untreated liquid wastes from residences, hotels/resorts, industrial fish processing sites (French Harbour, Coxen Hole, Oak Ridge, Cayo, Armadores and Cayitos), organic and chemical contaminants result in nutrification and/or chemical contamination of estuaries, mangroves, bays, wetlands, reefs and seagrass beds, potentially causing massive kills of, and sublethal impacts to aquatic organisms (fresh, salt and brackish water) and related trophic chains. Existing wastewater treatment services only cover a small portion of the population and businesses: the amount of wastes directly discharged to streams, bays and ocean without treatment is: 53% for French Harbour, 78% for Oak Ridge and 35% for Coxen Hole. The balance of liquid wastes is disposed into improperly working septic systems. Nutrification and contamination brought on by increased sewage and organic loads (esp. in off French Harbour, Oak Ridge, Coxen Hole, West Bay/West End/Sandy Bay, Utila Town, Cayitos, El Cayo, Armadores, Savannah Bight and Mangrove Bight) leads to algal blooms (blue-green) suffocating corals and reducing oxygen availability, and exacerbating coral diseases and/or stress their recovery. Degraded coral reefs and fish communities have reduced diving appeal resulting in reduced visitation and revenues. Sewage contamination of beaches can result in reduced aesthetics and bacterial diseases, further degrading the tourism resource. Direct *disposal of solid wastes* throughout the islands in the sea and mangroves, and at inadequately-sited and operated open trash dumps in Mud Hole and El Bight on the Island of Roatán, Jericho on Utila, and Savannah Bight, Mangrove Bight and the municipal dump across from Armadores in Guanaja. These dumps are subject to coastal flooding and dispersion of waste into the sea. Solid wastes end up on shorelines and estuaries impacting fishes and reef organisms, reducing aesthetic and tourism values and present habitat for vermin and vectors of diseases. Recent *explosion in the use of personal water craft* (esp. jet skis), especially in West Bay-West End-Sandy Bay and the Coxen Hole to French Harbour corridor on Roatán Island, has increased impacts of noise, diver-jet skier conflicts, oil/gas contamination,	Intermediate Causes - Insufficient investment in appropriate sanitation infrastructure (until PMAIB) by national and municipal governments, and hotel/resort operators; little or no maintenance on existing systems. - Lack of regional and municipal land-use/integrated coastal/marine management plans and zoning that consider principles of environmental management; with lack of control of settlement and inappropriate land use in marginal areas not environmentally fit for habitation (especially national & municipal properties--mangroves, beaches, lagoons). - Poor baseline information on natural resources and ecological interactions (especially in island settings) needed to prepare land-use plans, EIAs, and follow-up environmental monitoring. ***Root Causes*** - National tourism policies based on market competitiveness, with concomitant shift of tourism development model away from ecotourism & diving to one of sun & sea resorts - Economic distortions, including subsidies to favored sectors, favoritism/nepotism, and non-incorporation of environmental costs (especially water, sanitation, energy and transport) into national and local accounts. - Lack of education/awareness of impacts of development actions in the coastal environment at local, regional and global levels; lack of sufficient and accurate scientific data on condition of ecosystems and trends. - National and local government development models which rank environmental protection a low priority, even where the coastal-reef environment and tourism resource around it the basis for development, with little enforcement of laws & regulations relating to discharge of liquid & solid wastes. - Weak municipal governments lacking capital, cost recovery mechanisms, and sufficient skilled personnel to operate and maintain environmental services and enforce public health and environmental regulations (especially in the UMAs).

Actions Related to Threats and Impacts to the Bay Islands	Intermediate and Root Causes
perturbation of nearshore, lagoon, seagrass and wetland habitats, and the incidence of collisions with aquatic fauna and divers. *Inexperienced/unsupervised divers and snorklers* cause physical breakage of coral and illegally fish with harpoon guns and hooks (esp. lobster, grouper, hogfish). These impacts are occurring throughout the Bay Islands, but are most observed where tourism densities are greater (West Bay-West End-Sandy Bay) *Increased consumption of ground water* leading to subsurface and surface salt intrusion and changes in ecosystem function, and sustainability of local and island-wide water supply (observed especially in West Bay-West End-Sandy Bay and the Coxen Hole-French Harbour corridor).	- No presence of national government agencies of Tourism, Environment and Natural Resources, Fisheries and Forestry. Application authority for existing coastal resources & environmental management are scattered among numerous government organizations with low priority and investment in the enforcement of environmental regulations.
Threat # 3. Poorly-Planned and Regulated Cruise Ship Tourism	
Poorly planned and controlled operation of cruise ships bring from 800-3000 passengers into Coxen Hole. Pulses of high numbers of tourists overtax public services (water, sanitation, food stores, waste disposal, transport, policing). Large numbers of cruise ship tourists can overcrowd beaches, businesses and cultural sites (parks, restaurants), thus reducing the experience of other tourists based in local hotels. Large numbers of inexperienced snorklers and divers descend onto fragile reef sites, physically damaging coral, primarily in the West Bay-West End-Sandy Bay area. Recently, a fleet of used large school buses we purchased to transport cruise ship passengers, these are too large for roads on Roatán and emit high concentrations of air pollutants *Uncontrolled visits of wide-ranging live-aboards* (one based on Roatán, others visiting from Belize and Mexico) can impact coastal and especially coral reef sites: coral breakage and predation, uncontrolled fishing, sewage and solid waste disposal. Problems with live-aboards have been reported in Guanaja and Utila, with operators using resources without permission of municipalities. Some cruise ship and live-aboard operators bring their own tourist and diving guides, boats and diving gear--utilizing the local resources but not local personnel and services. Similarly, should cruise tourists eat aboard their ship and not use local services, the community gains no real revenue. Also, local best practices for diving and reef conservation are not followed. Some ships offload solid waste for disposal (sometimes for a fee), overtaxing already overloaded dump/landfill space, and take on fresh water (in Coxen Hole from a private well) thus exacerbating water shortages. Oily and sewage waste discharges from ships may impact coasts, beaches and reefs (see section on Ports, Shipping and Navigation)	<u>Intermediate Causes</u> - Cruise ship/live-aboard operators have little incentive to protect resources of sites/countries visited or may be unaware of fragility of certain sites and/or uninterested in applying reef conservation espoused by local operators in the Islands. - Lack of facilities to accept transfers of solid and/or liquid wastes from cruise/live-aboard ships. - Lack of monitoring and enforcement of live-aboards and their itineraries. <u>Root Causes</u> - Hastiness of IHT, Municipality and tour operators of Roatán to embrace cruise shipping without having analyzed or prepared for social, economic and environmental impacts; inadequate strategies and regulations to regulate cruise tourism. - Lack of an integrated coastal resources management and tourism plan. - Lack of regulations governing waste management on ships and/or in reception of same; little progress on adopting/applying international conventions.

Actions Related to Threats and Impacts to the Bay Islands	Intermediate and Root Causes
Threat # 4. Road Building in Upland Watersheds	
Poorly sited, engineered and under-budgeted road designs throughout the Municipality of Roatán and increasing in Santos Guardiola are routed through environmentally and geomorphologically fragile areas, critical watershed areas, and through unstable formations. This leads to fracturing of ecosystems, disruption of watershed functions, and reduction in the infiltration of rainwater to aquifers. *Improperly-constructed roads* lack proper drainage and are characterized by overly steep and unstable cut and fill slope, and lack revegetation of disturbed areas. These deficiencies lead to the concentration of higher volumes of runoff of rainwater in streams, land slippages, accelerated overland erosion and sediment loading in streams, and sedimentation of lowlands, lagoons and reefs. *Poor road maintenance* interferes with drainage, concentrates runoff and leads to accelerated erosion and sedimentation, with concomitant impacts to lagoons, and reefs and related ecosystems, reduced fisheries productivity and degraded tourism resources, with reductions in local income from these sources.	Intermediate Causes - Lack of regional and municipal land-use/integrated coastal/marine management plans and zoning that consider principles of environmental management. - Lack of road building standards for coastal environments and regulations and guidelines for selection of road routes, preparation of environmental impact assessment and application of mitigation strategies for road construction. - Lack of inspections and enforcement of environmentally sound road design and construction standards. Root Causes - Weak municipal governments lacking sufficient skilled personnel to supervise and regulate environmentally sound road building (especially in the UMAs). - Lack of adequate standards and municipal ordinances regulating road building. - No presence of SERNA in the Bay Islands.
Threat # 5. Inappropriate Agricultural Land Uses Along the Coasts & in Upland Watersheds	
Land clearing (deforestation, grubbing, burning) in upland watersheds, for subsistence agriculture by poor, unemployed residents, many having recently migrated from the mainland (cultivation of beans, maize, plantains, cassava) in upland areas of Sandy Bay, Los Fuertes, El Bight, between Jonesville and Oak Ridge, Pollitilly Bight and Punta Gorda on Roatán Island; and between Mangrove Bight and Savannah Bight on Guanaja. Slash and burn practices are still in use. While in decline, *cattle ranching* is still practiced in upland areas on the islands of Roatán and Guanaja, where ranchers still use fire to maintain rangelands. Cattle are still raised within the Western Roatán Forest Reserve, El Arrozal, watersheds between Jonesville and Oak Ridge, and above Diamond Rock on Roatán; in the mountains above Mangrove Bight and Savannah Bight, and Soldado Gully on Guanaja; and near Jericho on Utila. Agricultural and cattle ranching practices result in onshore and offshore erosion and sedimentation, loss or fracturing of terrestrial, riparian, coastal, estuarine, lagoon and nearby reef systems resulting in changes in ecological processes and vitality and composition of species. Loss/changes in land cover also lead to contamination of local surface water supplies and disruption and drying of aquifers used as subsurface water supplies. Particular to reefs, sedimentation can bury corals and/or interrupt light penetration and photosynthetic processes of symbiotic alga and seagrasses.	Intermediate Causes - Lack of regional and municipal land-use/integrated coastal/marine management plans and zoning that consider principles of environmental management. - Lack of control of settlement of poor farmers in marginal areas not environmentally fit for agricultural use (especially municipal properties). - Migration of landless poor to Bay Islands from other parts of the country in search of economic opportunity; many brought to work in construction industry and then become unemployed, remain in the Bay Islands and take up subsistence agriculture. - Use of inappropriate farming practices for quick gains in disregard of environmental consequences. - Lack of technical assistance and training services to small-scale farmers. Root Causes - Lack of education and awareness of the impacts of agricultural development in the coastal environment (cause and effect) at all levels. - Poverty in other rural areas (especially on the mainland) due to failing local natural resources base, and lack of alternative employment opportunities. - Lack of Bay Islands migration policy. - Insecure land tenure and lack of will to evict squatters.

Actions Related to Threats and Impacts to the Bay Islands	Intermediate and Root Causes
Pig raising near most settlements and urban areas (including but not limited to Flowers Bay, Pollitilly Bight, French Harbour, Jonesville, and Oak Ridge on the Island of Roatán, and within Utila Town) involve direct disposal of feces and urine into coastal, mangrove and lagoon ecosystems, resulting in bacterial contamination of beaches and swimming areas, public health problems, and nutrient loading leading to eutrophication. *Runoff of fertilizer, agricultural chemicals and manure*, comprised of both organic and inorganic compounds, results in nutrification and/or chemical contamination of estuaries, bays, lagoons, wetlands, reefs and seagrass beds, potentially causing algal blooms, massive kills (and/or sublethal impacts to) fresh, brackish and salt water aquatic organisms and their related trophic chains; this combination of nutrients and chemical contaminants is thought to exacerbate coral diseases and/or stress their recovery.	- Weak municipal governments lacking sufficient skilled personnel and technical guidance to regulate improper land use (especially in the UMAs). - No presence of national government agencies that normally attend to agricultural development, including: MAG, SERNA, Ministry of Health and AFE-COHDEFOR.
Threat # 6. Overfishing by Artisanal, Industrial and Sport Fishers	
Fishing in ignorance or disregard of regulations controlling closed-season, closed-areas, protected reefs, mouths of rivers, spawning aggregations (especially Caldera del Diablo on Guanaja, Blackish Point on Utila and areas north of Dixon Cone in Roatán), size and limit/number negatively impacts reproductive processes, gradually reducing stocks available for subsequent fisheries, with resulting reductions in fisheries revenue for local and national economies. Fishers and divers alike complain of the lack of fish and fish diversity on the reefs and at traditional fishing locations. [Note: the industrial fleet fishes away from the Bay Islands, but overfishing has reduced regional stocks of conch, shrimp, lobster and grouper]. Overfishing for shrimp, lobster, conch and certain species of finfish (esp. grouper and large grazers) has reduced the CPUE and overall industrial harvest by 60-75%. *Utilization of inappropriate/illegal equipment and practices* (especially small-sieve and gill nets, SCUBA) and practices leads to excessive local depredation and stocks reduction in numerous species. As stocks are dwindling, fishers are becoming more "opportunistic" and increasing their use of nets to ensure a minimal catch. These practices can be observed throughout the Islands, but especially near fishing grounds off Dixon Cove, the Pollitilly Bight-Punta Gorda-Camp Bay corridor, and around Santa Elena and Barbaretta Islands. *Overfishing of reef grazers* leads to increased macro-algal invasion and reduction in	<u>Intermediate Causes</u> - Over-dimensioned industrial (360 boats ships) and artisanal (518) fishing fleet; lack or weak application of licensing/permit systems for fishers and boats. - Lack of adequate fisheries regulations and near complete failure to enforce fisheries laws and regulations. - Historic lack of data concerning the abundance, reproduction habits, and landings/harvest of species of fishes, mollusks and crustaceans, especially those threatened. - Failure to include spawning aggregation sites under protective status for related seasons (migration of whale sharks off north coast of Utila, Caldera del Diablo northeast of Guanaja, various seamount locations). - Lack of knowledge and/or disregard of SCUBA divers of fisheries regulations. <u>Root Causes</u> - Lack of integrated fisheries policies and management plans and absence of DIGEPESCA personnel in the Bay Islands. - Economic distortions that provide subsidies for incrementing/maintaining the number of industrial fishing boats. - Poverty of most artisanal fishers and lack of other opportunities, which drives them to

Actions Related to Threats and Impacts to the Bay Islands	Intermediate and Root Causes
coral productivity and their recovery from diseases (observed especially along West Bay-West End-Sandy Bay corridor). *Sport fishers and scuba divers* reduce the numbers of key finfishes (groupers, kingfish, jewfish, hogfish) at critical locations, affecting local fish population composition and reproduction potential of these species (especially Caldera del Diablo on Guanaja, Blackish Point on Utila and areas north of Dixon Cone in Roatán). *Over-collection of species destined for the aquarium industry* and use of illegal fishing techniques (bleach, cyanide) can lead to reduced populations of these to non-sustainable levels in local areas (specific lagoons, reefs).	overfishing. - Lack of incentives, technical assistance or alternative employment opportunities for artisanal fishers. - Lack of awareness at all levels of medium to long-term implications of overfishing. - Little or no GOH investments in fisheries investigation and monitoring, - Failure to enforce fisheries regulations by sportfishing guides and dive operators for fear of losing clients.
Threat # 7. Inappropriate Port Management, Shipping and Navigation Practices	
Construction of ports and jetties, and dredging of new (and maintenance of) channels and harbors causes sedimentation and re-deposition that results in: sedimentation and smothering of seagrass beds and nearby coral reefs, smothering these and/or reducing penetration of light needed by symbiotic and other alga in these ecosystems; changes in coastal erosion/accretion processes affecting beaches, navigation channels, seagrass beds and other oceanographic processes (currents, flushing). The most important ports are located in French Harbour (the largest), Coxen Hole and Oak Ridge on the Island of Roatán; Cayo (Bonacca Town) and Armadores on Guanaja; and Utila Town. Induced changes in the morphology of the coasts, associated with the presence of ports and navigational infrastructure, can reduce defenses against storms and actually instigate more damage from storm surge and flooding. *Inadequate operation of ports can lead to spills of cargoes* (organic, inorganic, toxic), and fuel and lubricants which can contaminate waters and can eventually impact nearby reefs, beaches, bays and estuaries and the living organisms that depend on them. Where petrol terminals are operated, transfer of cargoes nearly always involves contamination from spills associated with coupling/uncoupling; should these involve an offshore terminal. The most problematic ports for this type of contamination are French Harbour, Oak Ridge, Coxen Hole and Cayo. *Shipbuilding* in disregard of basic environmental safeguards, resulting in spills of paints, solvents and other toxic substances, inadequate disposal of solid wastes, and potentials of explosions and fire (especially in shipyards located in the ports of French Harbour, Oak Ridge and Armadores). *Inappropriate waste management practices on ships and in ports* can lead to accidental or intentional dumping of liquid (sewage, oily bilge waters, waste oil) and solid wastes into open seas, harbors and bays which, depending on their nature and volume, could	<u>Intermediate Causes</u> - Lack of regional and municipal land-use and integrated coastal/marine management plans and zoning that consider principles of environmental management. - Lack of clear regulations and guidelines for preparation of sector-specific environmental impact assessment and mitigation strategies; lack of technical professional capability to prepare EIAs for the sector. - Lack of environmental codes & standards for land development, construction, waste management and contingencies, and shipbuilding; weak enforcement of these regulations where these may are already in place. - Lack of port management plan, and contingency plans for shipping emergencies and spills and equipment to handle them, with no or slow response to spills, collisions, groundings and founderings - Lack of management facilities in ports for acceptance and disposal of ships' wastes. - Failure to enforce international stowage and waste management practices on ships. - Careless, reckless piloting of ships. <u>Root Causes</u> - Lack of education and awareness of the impacts of development of ports and related infrastructure in the coastal environment at all levels. - Economic distortions, including subsidies for port construction; non-incorporation of environmental costs into national and local accounts. - Application authority for existing coastal resources & environmental management are scattered among numerous government agencies at national and municipal levels; low priority and investment in the enforcement of environmental regulations. - Absence of personnel of government authorities charged with regulating the ports,

Actions Related to Threats and Impacts to the Bay Islands	Intermediate and Root Causes
result in nutrification and/or chemical contamination of estuaries, bays, mangroves, reefs and seagrass beds, potentially causing massive kills of, and sublethal impacts to, aquatic organisms. Should these wastes float onshore, they can foul beaches, represent human health hazards and reduce aesthetics important to the tourism industry. *Fires, collisions, groundings and founder of ships* and leakage or complete loss of fuel, lubricants and cargo. Depending on the nature and volume of cargos, these can cause catastrophic damage to all aspects of coastal ecosystems (esp. cargos of petroleum, chemicals, fertilizers, pesticides, radioactive materials and similar toxic substances). Collisions with reefs and careless anchoring can also physically damage reefs. Ten such incidents were reported in the Bay Islands in 2001.	shipping and navigation, including the Merchant Marine and Honduran Navy, and little coordination of these with National Port Enterprise. - Lack of adequate investments to maintain and/or upgrade port facilities and train port personnel. - Failure to ratify, abide by or enforce international conventions and treaties (MARPOL, Law of the Sea, Cartagena Convention, etc.) to which Honduras is a signatory (Honduras recently ratified Annexes 4, 5 & 6 of MARPOL).
Threat # 8. Natural Oceanographic and Climatological Phenomena[2]	
More freely flowing *ocean currents* tend to move water away from offshore barrier reefs and islands, especially on their windward exposures (north and east). Consequently, reefs in the Bay Islands are favored with lower levels of suspended sediment and pollutants from the mainland and more constant flushing. Due to the *predominating winds* and the currents flowing alongshore, most sediment and nutrient loading events originating from inland and coastal watersheds (especially coinciding with monsoonal rainy season and tropical storms) are found at higher levels close to Honduras' North Coast shore and Cayos Cochinos, negatively affecting estuaries, bays, fringing and nearby patch reefs, seagrass beds and associated living organisms. Only during extreme tropical storm events (e.g. Hurricane Mitch in October-November 1998) do these plumes of sediment, nutrients and contaminants reach the Bay Islands. Utila is at higher risk for contamination and sedimentation as it is situated closer to the mainland. However, because of the mountainous nature of the geomorphology of Guanaja and Roatán, these same phenomena occur during nearly all rain events negatively impacting reefs, with their severity depending on conditions in corresponding watersheds.	- There are two major ocean current features affecting the Bay Islands. The counterclockwise-rotating gyre centered at Latitude 19N and Longitude 86W, roughly encompasses the Gulf of Honduras, from the Bay Islands to Glover Reef in Belize, and strongest during the dry-season months of January to April. The predominating southeasterly-to-northwesterly Caribbean current generally moves waters off the northeast coast of Honduras toward the Yucatan Straights east of the gyre. - There are numerous coastal sub-currents affected by local geomorphological and oceanographic features. Seasonal close-shore currents move east to west off the North Coast of Honduras and the Bay Islands. Variations at the local level—with bays, river mouths, headlands, small islands and reef structures—influence currents. - Easterly trade winds predominate in the Bay Islands region, trending more east-northeasterly from October to January, with colder frontal storms tracking through from the North American Continent from November to April ("northers"). The predominating winds tend to push surface currents into the Gulf of Honduras.
Impacts of tropical storms and hurricanes, including storm surges, wave damage and flooding, have increased dramatically over the last 20 years due to uncontrolled urban and tourism development throughout the Bay Islands, but especially in the Municipality of Roatán and increasingly in the Municipality of Santos Guardiola as land speculation and development move eastward on the Island of Roatán. Environmentally-unsound	- Tropical storms and hurricanes are natural climatic phenomena in the Western Caribbean and impact the Bay Islands with regularity and ferocity, with the most notables being Mitch (1998), Greta (1978), and Fifi (1974).

[2] These phenomena influence the nature, location, magnitude and seasonality of the threats described under 1-7. As natural phenomena, these are not considered intermediate or root causes—rather they are preexisting conditions.

Actions Related to Threats and Impacts to the Bay Islands	Intermediate and Root Causes
development of coastal lands, destruction of mangroves and wetlands, removal of coastal vegetation, sand mining, dredging and filling of reefs, mangroves and lagoons has resulted in the degrading of the coasts' natural defenses to storms that had build up over hundreds of years, dramatically increasing the Bay Islands' vulnerability to catastrophic damage. This was especially observed in the aftermath of Hurricane Consequently, storm surge and wave damage reaches ever farther inland. Poor siting of residences, hotels and businesses exposes these to devastation with a higher category storm, as witnessed with Hurricane Mitch, especially in the areas of Mangrove Bight, Savannah Bight and Cayo on Guanaja; and nearly all settlements along the northeastern leeward coast of Roatán Island. Deforestation and conversion to agriculture and housing in critical watersheds have changed the hydro-geomorphological functioning of these features, resulting in rapid drainage from uplands into valleys and streams and carrying ever-increasing volumes of sediment and organic matter into rivers that drain from the Bay Islands.	
El Niño/La Niña events cause alternating drought and torrential rains and flooding. These violent swings compound problems associated with inappropriate land use and coastal development. Ecosystems found in the Bay Islands, already stressed by human actions (cutting and filling of mangroves, dredging of lagoons, sedimentation and agricultural runoff, and discharges and drainage of untreated domestic and industrial wastes into coastal areas--are at greater risk to suffer damage from alternating drought and flooding. Coral bleaching incidence was found to be greater in the areas of higher concentrations of suspended sediments and contaminants and in close proximity to land drainage--specifically, in leeward fringing reefs of the Bay Islands (especially Roatán and Guanaja where most of the urbanization and land clearing has taken place). Similarly, while no systematic analysis has been performed, summary analysis of available data indicate that the level of coral disease is found to be higher in areas of greatest concentration of suspended sediment and contaminants—again, the leeward fringing reefs.	- El Niño and follow-on La Niña events have begun to occur with greater frequency and intensity, as witnessed in the 1997-1998 series. The warming of the Pacific Ocean affects meteorological, oceanographic and, in turn, biological processes in the Western Caribbean. Increases in water temperature tend to stress the symbiotic algae present in coral organism, which leave their host or die, resulting in coral bleaching. While regional and worldwide coral bleaching is most associated with El Niño/La Niña events, it is not isolated to these phenomena. - There is increasing evidence that bleaching and the incidence of coral diseases are exacerbated in areas demonstrating higher levels of contamination brought on by human activities--specifically inappropriate land use, discharges of untreated wastes and agricultural runoff into the coastal environment.
A *rise in sea level* in the Bay Islands would impact coastal areas and most all development activities located at or near the shoreline. Rising seas would cause more widespread, frequent and severe storm damage and flooding, resulting in loss of natural and constructed coastal structures. Destruction from wave action would erase beaches and other land losses on shorelines, low islands and spits. Mangroves and freshwater wetlands would be obliterated and rising tides would increase salinity levels in rivers,	- Greenhouse gas emissions, from the burning of fossil fuels, and widespread deforestation and burning/decomposition of biomass, are the main contributor to global atmospheric warming. Global mean sea levels are estimated to have risen some 10-20cm during the last 100 years. Current estimates place sea level rise due to global warming at 3-10cm per decade (mean of 6cm), or 20cm by the year 2030. As data are scant for the Caribbean Sea, it is difficult to estimate projection for sea level rise, but

Actions Related to Threats and Impacts to the Bay Islands	Intermediate and Root Causes
bays, and in aquifers, with associated salt intrusion. Utila Island, which is 75% fresh and brackish wetland, and its town of the same name, El Cayo in Guanaja, the Santa Elena mangrove on eastern Roatán, various homes located right on the shore (especially along the West Bay-West End-Sandy Bay corridor), and numerous small islets would be affected.	experts profess that a 10-cm rise is possible. Also, as global temperatures rise, so too will seawater temperatures, compounding the impacts of El Niño-La Niña events and coral bleaching.

Bay Islands Environmental Management Program, Stage II
Consolidation of Ecosystem Management and Biodiversity Protection in the Bay Islands, Honduras
STAKEHOLDER INVOLVEMENT WITH DESIGN AND IMPLEMENTATION

The design of this program was based on three levels of analysis, each building on the results of stakeholder consultation of the previous: i) results of the analytical studies prepared during the execution of the first phase of the Bay Islands Environmental Management Program (PMAIB); ii) analyses carried out as part of the design of the second phase of PMAIB; and iii) additional analyses developed under the GEF PDF Block B grant. Stakeholder analysis formed a part of the design studies at each of these three levels as further described below. As a result of analysis of information provided under each of these design efforts, and intrinsic in the objectives of the Program, stakeholder participation has been woven into each component and nearly all activities.

1. Analytical Studies prepared under PMAIB

The wide-ranging series of studies carried out during the first phase of PMAIB (see Appendix B, *Relevant Bank and SECTUR Documentation and other References*) included extensive surveys and meetings with local and national government officials, community groups and a representative sample of residents in each municipality, landowners (including farmers and ranchers), tour and dive operators, fishers (artisanal and industrial), educators of public and private schools, and non-government organizations (NGOs). These studies investigated the condition of natural resources, trends in the use of these resources, and how these uses are differentiated among ethnic and socioeconomic groups among all three islands.

A socioeconomic study was carried out as part of the wide-ranging studies executed under the first phase of PMAIB as part of its Environmental Education and Participation Component.[3] This study was oriented to two main themes: one considering demographic and economic aspects, and the other oriented more toward documenting the unwritten history, knowledge and language of the Bay Islands' different ethnic and cultural groups. Information analyzed in this study was based in great part on the authors' use of direct interviews while directly participation in community meetings and community fairs (*fiestas patronales*), guided interviews, the "community mapping" technique, and household and institutional interviews. A total of 532 residents (237 men and 297 women) of 40 separate communities in all four municipalities participated in the studies. The objective of these studies was to develop improved knowledge and understanding of opinions and attitudes of people and their communities, the basis for local decisions concerning use and consumption of natural resources, and the existence and capabilities of local community organizations, NGOs and government institutions as these relate to management of their surrounding environment. Some of the results of this study, pertinent to the design of activities of the second phase of PMAIB were:

- Obtaining reliable potable water and sanitation services is considered the highest priority among residents in all three Islands;

[3] Elena Flores y Equipo de Promotores. November 2001. *Diagnóstico Socio-Ambiental y Económico de la Sociedad Isleña. Informe Técnico*. No. EPC 01. SAFAGE-SOGREAH-Moncada / Moncada.

- Tourism development needs to better planned and include wider participation of all sectors of the population, and maintain (not disrupt) local natural and cultural values;

- There is a great amount of need and interest for support in developing community level micro-businesses related to tourism, such as: i) fishers changing their vocations to divemastering, sport fishing and tour-guiding; ii) raising wild creatures to repopulate the islands and as a tourist attraction (e.g. iguanas, deer, fish); iii) making of artisanry, jellies and shelled nuts for sale to tourists; and iv) restaurants that offer authentic islands food.

- Knowledge of artisanal fishers concerning protection of the reef and fishery resources should be incorporated in environmental education programs;

- Local religions and area churches should also form a basis and focus for environmental education;

- There is a need to train and provide technical assistance to teachers of schools at all levels in aspects of environmental education as a basis for multiplying the impact of investments in this area;

- The two types of committees—Environmental Management Committees (CGA) and the Local Environmental Committees (CAL)—should be consolidated (not differentiated), involve more area youth, and serve as a point of operations and strengths for the Municipal Environmental Units;

- Elements of local culture, customs and knowledge should be incorporated into the mix of resources promoted to tourists on each of the Islands, including music and dance;

- Among alternatives for development as part of the tourism package that should be considered for promotion are: crafting and exposition of local artisanry; Caribbean music festivals and local foods fairs; protection of and visits to archeological sites; and marine and terrestrial wildlife observation tours.

Also pertinent to the first phase of PMAIB was the number of interactions with community organizations, schools, and resource user groups (hoteliers, dive operators, fishers, *patronatos*, etc.) held by PMAIB staff and their consultants, which numbered in the hundreds. A full accounting of these meetings, surveys and technical assistance activities is available at the PMAIB offices in French Harbour. These interactions include such activities as environmental education, assistance in carrying out environmental due diligence inspections related to construction activities, investigation of environmental accidents (chemical spills, environmental problems, etc), and assistance to municipalities and community groups in the establishment of semi-autonomous entities to administer water systems.

2. PMAIB Second Phase Design Assessments

As required under Bank operational procedures, the Inter-American Development Bank, together with staffs of SECTUR and PMAIB, carried out a series of economic, social, environmental, institutional and financial assessments in order to design the second phase of PMIAB. The basis for most of these assessments was provided in the numerous studiers carried out during the first phase of PMAIB. However, additional studies were carried out with resources provided by the Bank, including the CABILICA Trust Fund to improve lessons learned from the first phase of PMAIB and obtain guidance for design and eventual development of the second phase. The Bank's Project Completion Report (PCR 938/SF-HO) and a study entitled "Analysis of Lessons Learned fro the Bay Islands Environmental Management Program" (G. Gorranson, 2002) provided additional insight into how to better administer the second phase, but also determined that much greater emphasis on environmental education, communication and participation would need to be incorporated into the design and implementation of the second phase of the Program to ensure achievement of environmental management and sustainable development objectives.

Also, additional diagnostic analyses were carried out by the Municipal Development Foundation (FUNDEMUN) in relation to the current capabilities of regional and local institutions and organizations in aspects of: project planning and management, financial solvency, and in the collection and administration of fiscal resources. The intent here was to establish strategies and propose those activities necessary to improve institutional capabilities within each of the four municipalities that make of the Department of the Bay Islands to better carry out their mandate to elicit participation of their citizenry, the business community and NGOs in prioritizing, planning and implementing municipal projects for the provision of public services and to sustain development and ensure environmental protection.

3. Additional Analyses Carried out Under the GEF PDF Block B Grant

In order to further refine strategies and methods to be employed for those activities considered for financing by the GEF, several additional studies were carried out with resources provided by the GEF under a Block B grant. These included: preparation of case study of three communities to determine socio-cultural factors that influence biodiversity conservation,[4] and development of a social accounting matrix (SAM) as a basis for determining the distribution of income throughout the Bay Islands and alternatives for generating revenues to support conservation activities began under PMAIB II.[5] For the case studies—two of which were related to community water systems (Oak Ridge and Monte Placentero) and one concerning poorly planned and precarious urban development for poor families in a mangrove on Utila—hundreds of one-on-one interviews were completed by the author, who also attended various community meetings wherein social, economic and environmental conflicts were posed and debated. Lessons learned were incorporated into the strategic focus and proposals of specific activities under Subcomponent 1.c of the Program, *Public Outreach, Participation, and Local Destination Management*. The most important finding of all three case studies was that the second phase of

[4] Isabel Perez. October 2002. *Factores Socioculturales Influyentes en la Conservación de la Biodiversidad en Tres Comunidades de las Islas de la Bahía*.

[5] J. Edward Taylor, George Dyer, Mickie Stewart and Antonio Yúnez-Naude. December 2002. *Economic Study of the Bay Islands: Final Report*.

the Program must include a broad and intensive program of communication and consultation throughout all aspects of implementation if sponsors expect adequate participation of residents. The economic study focused on all facets of the Bay Islands economy, using factors of labor, capital and property rental as a basis for calculating flows of income. The study used a comprehensive survey instrument and ancillary interviews applied to hundreds of respondents on all three islands (although much more intensively on the larger islands of Roatán). Once base calculations were derived for each of the principal sources of income by sector (tourism, industrial fisheries, artisanal fisheries, general commerce, real estate transactions, etc.), an economic impact assessment was performed vis-à-vis the hypothetical application of several alternative mechanisms for generating necessary revenues to cover the recurrent costs of those environmental protection and biodiversity protection to be initiated under the second stage of PMAIB with GEF, IDB and local counterpart funding. The study concluded that the mechanism with the least amount of negative economic and social impact in the Bay Islands would be that of a tourist fee of approximately US$20 charged to each arriving tourist. The development and establishment of this mechanism has been included as an activity under Subcomponent 1.a, *Strengthening of Executive Commission Sustainable Tourism and Technical Unit*.

Additional resources were also used under the PDF Block B grant to further refine the design of activities proposed for financing by GEF, and analyze their eligibility and global impact. A final series of interviews and meetings with stakeholders then took place in the Bay Islands during the period of October to December of 2002. Results of these were then used to finalize the selection of activities for proposal under the GEF grant request. An environmental specialist was contracted to carry out on-site assessments in the Bay Islands and consult stakeholders as to the need and plausibility of developing conservation activities. Two work visits were carried out in the Bay Islands, the first to interview stakeholders and their organizations to understand local concerns and opinions regarding the first phase of PMAIB, and determine the need for actions that would lead to improved environmental management, ecosystem restoration and biodiversity protection.

Based on the results of this first visit to the Bay Islands, a preliminary list of incremental activities was developed to be considered for financing under the proposed GEF grant. This list was then organized in a PowerPoint presentation and used as the basis for the presentation of five separate seminars presented to participants invited from varying social and economic interest groups in each of the four municipalities that make up the Department of the Bay Islands, with a fifth seminar presented in Tegucigalpa to invited representatives of relevant national government agencies, NGOs and international development assistance organizations.[6] The primary objective of these seminars was to gauge the interest and support of representatives of those agencies and organizations attending for the development of the activities proposed for financing under the GEF portion of the PMAIB II initiative, and use feedback in the preparation of the full GEF proposal. The intermediate objectives of these focus group meetings were to present and discuss the following types of information to participants for there analysis and discussion: i) overview of the "state of the Bay Islands" as determined by investigations during the first stage of PMAIB

[6] Many of the participants in these seminars had been interviewed during the Consultant's first work trip to Tegucigalpa and the Bay Islands during the period of October 23-November 7, 2002. The focus group seminars were held during the Consultant's second work trip to the Bay Islands and Tegucigalpa during the period of December 4-13, 2002.

for analysis and discussion; and ii) preliminary list of activities developed based on the results of the review of information produced during PMAIB, the objectives and content of the Bay Islands Environmental Management Master Plan and interviews and site visits conducted in the Bay Islands and Tegucigalpa by the Consultant during his first work trip.[7]

In general terms, participants in all five meetings were very supportive of the list of activities proposed for inclusion under the GEF grant program that would accompany those activities to be financed under PMAIB II. There was interest among all participants that proposed activities are coordinated with other initiatives already under way or in early stages of implementation. Therein, the need for communication and cooperation among implementing agencies was seen as paramount in guaranteeing the success of the proposed program as well as all other potential partnering projects. Another general conclusion that could be drawn from the four municipal meetings was that there is a very limited understanding, at least outside of municipal governments, of what was accomplished under the first stage of PMAIB. Numerous questions were posed as to the solution of water and sanitation problems, some of which are in final stages of completion under PMAIB, some proposed for inclusion under PMAIB II, and some issues that would need to be treated under different initiatives with other financing. Also, information concerning investigations and monitoring carried out under PMAIB, as well as the existence and objectives of the Bay Islands Environmental Management Master Plan was poorly understood or unknown. Hence the meetings also served as forums for feedback of some of the results of this information. Some of the information, especially that indicating the declining water quality in the Islands and very serious deterioration in the health of the coral reefs, seem to shock some of the participants.

At the municipal level, recurring preoccupations voiced by participants centered primarily on two issues: i) uncontrolled migration of people from the mainland; and ii) the perceived weakness and will of municipal governments to carry out needed reforms necessary to achieve sustainable tourism development and environmental protection. Both of these structural problems will need to be dealt with in order to obtain objectives proposed in the PMAIB II loan and the eventual GEF grant program. At the central level (Tegucigalpa meeting), concerns focused on how best to coordinate among the numerous agencies and projects. The lack of representation and physical presence of most national government agencies in the Bay Islands—including SECTUR, SERNA, COHDEFOR, Merchant Marine and MAG/DIGEPESCA—was seen as a structural problem affecting the application of laws and regulations dealing with sustainable development of natural resources and environmental protection.

One important outcome of the focus group meeting in Tegucigalpa was an expression of interest to improve supervision and control in the application of environmental laws and regulations in the Bay Islands. The Vice Minister of the Secretariat of Natural Resources and Environment admitted that SERNA's lack of presence has been a deterrent to applying regulations under the General Environmental Law. He stated that budgetary restrictions have prevented the establishment of regional offices, even as these have been proposed for a number of years. SERNA is predisposed, and willing to negotiate a plan, to support staff in the Bay Islands if a

[7] Enoch Burgos, Natural Resources Coordinator for PMAIB, participated directly in each of the focus group meetings as a co-presenter with the Consultant.

regional office, perhaps an inter-agency effort, can be established and under the condition that logistical support can be provided. In the following pages, lists of participants and some of the more relevant comments and observations received are presented for each of the five focus group seminars.

Focus Group Meeting # 1: Municipality of Roatán, Gio's Restaurant
December 5, 2002
Participants

- Jerry Dave Hynds, Mayor, Municipality of Roatán
- Jacinto Jimenez, Alderman, Municipality of Roatán
- Mario López, Coordinador, Municipal Environmental Unit (UMA)
- Rene Betancourt, DIGEPESCA
- Filiberto Soler Lara, Captaincy of the Port of Roatán
- Irma Brady, Executive Director, Bay Islands Conservation Association (BICA)
- Sherryl de Galindo, President, Bay Islands Conservation Association (BICA)
- Unwin Banks, President, Native Bay Islanders Professional Association
- Artly Brooks, Director of Environmental Education, Native Bay Islanders Professional Association
- Antonio Moore, Manager, Coco View Resort and member of the Hoteliers' Association
- Marcel Hauser, Owner, Roatán Yacht and Dive Club Resort
- Pedro Faro, Priest/Representative of Catholic Church, Department of the Bay Islands
- Jose Flores Rodas, Executive Director, PMAIB
- Enoc Burgos, Natural Resources Coordinator, PMAIB
- Carmen Cartagena, Coral Reef Resources Technician, PMAIB

Comments/Observations

1. The most important problem needing solution is that of uncontrolled migration of people from the mainland and immigration of foreigners to the Islands. There is a large number of foreigners who are residing in Roatán illegally, with expired visas. If this problem is not dealt with, it is doubtful that such a program will succeed. The PMAIB or GEF program should at least include a study to determine the best strategies for resolving the migration/immigration issue.

2. Who will have the authority and will ensure that these activities are implemented? The municipality hasn't stopped all the environmental damage and people are allowed to do what they want to do, even as it is destroying the Island. [*The commenter was explained that the Municipality of Roatán will have a very important role in the implementation of the Bay Islands Environmental Management Master Plan, as will the new Executive Commission for Sustainable Tourism. But success will depend on all residents and businesses on the Island to change the way they do act and use natural resources.*]

3. There has existed a municipal code since 1992 prohibiting open burning of fields and pastures, but it is not enforced.

4. Several questions were posed to PMAIB representatives as to the status of water and wastewater projects. [*PMAIB officials updated the participants on the status of the wastewater treatment plant near the Roatán airport, proposed hauling of septic tank wastes from French Harbour to the treatment plant, and the plan to drill more wells to expand potable water services in urban areas*.]

5. We need to trap sediment and keep it from going into the sea and the reefs. [*The commenter was explained that PMAIB II and the GEF program includes several pilot projects to build sediment dams, probably combined with water system catchments, reforest several degraded areas to improve watershed conditions, and institute better control of burning of lands*.]

6. There are no controls to prevent the construction of homes in environmentally fragile areas.

Focus Group Meeting # 2: Municipality of Santos Guardiola, Paya Bay Resort
December 6, 2002
Participants

- Marlen Cacho, Coordinator, Municipal Environmental Unit (UMA)
- Murvin McNab, Owner, Paya Bay Resort
- Luslene Cooper de McNab, Manager, Paya Bay Resort
- Anita Chaurrette, Dive Operation Manager, Paya Bay Resort
- Rodney Christenson, Hotel Tropical Beach Resort
- Elena Idalia López, Representative of Ministry of Education
- Irma Brady, Executive Director, Bay Islands Conservation Association (BICA)
- Unwin Banks, President, Native Bay Islanders Professional Association
- Artly Brooks, Director of Environmental Education, Native Bay Islanders Professional Association
- Jose Flores Rodas, Executive Director, PMAIB
- Enoc Burgos, Natural Resources Coordinator, PMAIB
- Carmen Cartagena, Coral Reef Resources Technician, PMAIB
- Karen Ventura, Environmental Management and Outreach Technician, PMAIB

Comments/Observations

1. We need to protect jobs for residents of the Island. People are coming over from the mainland with construction companies and then staying. These people are bringing their families over from the mainland. Many don't have jobs and take jobs from people who have lived here a long time. These construction companies should be made to provide temporary housing for their workers, and then take them back where they came from after the construction job is over.

2. How can we improve access and build and maintain good roads without the help of the Municipality? Is there a way to get the municipality to pave a road once a private investor has financed the construction? [*The commenter was advised to take such a proposal up with the Municipality, as neither PMAIB nor GEF has authority over such matters*.]

3. At the Hotel Tropical Beach Resort, owners are using biological control with good results that involves a specialized larva imported from Florida that is watered into the beach sand. The larvas eat the eggs and larva of sand flies. Owners noted a drastic reduction in their sand fly problem.

4. Is there a solution proposed for the street kids that accost tourists asking for money? Maybe the kids could be organized and trained to serve as information sources for the tourists.

5. What is going on with the trash dump at Oak Ridge? Could the contractor that will build the new solid waste landfill not begin covering the existing waste dump with dirt to reduce the problems of flies, rodents and fires? [*The commenter was explained by PMAIB officials that the project for the new landfill was in the process of obtaining environmental clearances and would then enter the tender process. The possibilities of including some preliminary work on the existing landfill would be brought to the attention of PMAIB's consul1ting engineers*.]

6. In terms of tax incentives and management of project funds, the municipality should serve as the best example for the public—something that is not happening now (problems of transparency).

7. The environmental education program should provide support and strengthening to each and every school on the Island. This support should be continuous, with programmatic follow-up on how to use curriculum guides, and not just one training.

8. The municipal authorities are the first to violate their own municipal codes. They play on and favor economic interests in what decisions are made. [*The commenter was explained that the proposal of the program is to publish new municipal codes in easy-to-understand language in order to inform the public about their justification and content.*]

9. In what timeframe will all of these proposed activities be implemented? [*The commenter was explained the process for approvals and the general timeframe for initiating and concluding proposed activities over the next four year*s.]

Focus Group Meeting # 3: Municipality of Utila, Federico Canales Kindergarten
December 9, 2002
Participants

- Alton Cooper, Mayor, Municipality of Utila
- Nick Hill, Alderman, Municipality of Utila
- Erick Rose, Owner, Hotel Rose

- Martha Chirino, Hotel Owner
- Jernegan Cooper, Owner, Trudy's Hotel
- Shelby McNab, Coordinator, Municipal Environmental Unit (UMA) and Director of BICA/Utila
- Calina Zepeda, Biologist, BICA/Utila
- Jaime Rojas, Technical Assistant, BICA/Utila
- Michelle Fernandez, Catholic University Student in Practicum, BICA/Utila
- Elizabeth Sánchez, Director, Adventist School
- Keylin Deras, Representative of Area Church
- Rosa Rubi, Representative of the Catholic Church
- Enoc Burgos, Natural Resources Coordinator, PMAIB

Comments/Observations

1. Those population figures [*a total of 7,607 people as calculated in the precensus of 2000*] can't be right. There are not more than 2,500 people living on Utila. They must be counting the tourists too. We do have a problem of migration of people from the mainland. Look at Campo Nado, with all those small lots being sold and houses going up.

2. PMAIB promised Utila Lps. 3 million (US$187,000) that has never been given for projects. Where is it? Why should we believe that these proposals will be honored? [*The PMAIB official explained that some expenditures did not take place because of certain delays in programming, and that the thrust of the first phase was on the Island of Roatán. The original intent has always been that PMAIB II will place much more emphasis on Utila and Guanaja.*]

3. These are all good activities and we need for them to happen in Utila. Just make sure this time that monies and assistance goes to Utila. [*The participants were advised that, once funds have been appropriated to certain activities in Utila, it is just as important for the Municipality and all Utilians to demand that the funds be spent there in a timely manner*.]

4. The proposed tourist fee of US$10-20 is not acceptable. Utila is now charging each diver US$3/diver/day to collect funds for conservation purposes. A fee of US$10 would not make as much money as the actual system and the backpackers that come here will not want to pay US$20 to come to the Island.

Focus Group Meeting # 4: Municipality of Guanaja, Dunbar Rock Resort
December 11, 2002
Participants

- Eddy Tatum, Mayor Municipality of Guanaja
- Jose Rosales Isaula, Justice of the Peace
- Raquel Romero, Chief of Cadastre, Municipality of Guanaja
- Edgardo Ortega, Coordinator, Municipal Environmental Unit (UMA)

- Estella Miller, Owner of Miller Hotel and President of the Association of Hoteliers
- Carla Gómez, Fundación Guanaja
- Arturo Paz, Manager, Resort Posada del Sol
- Denis Midence, Manager, Dunbar Rock Hotel
- Yovanny Bacca, Popular and Progressive Youth of Guanaja
- Roberto Pino, Representative of DIGEPESCA
- Ethyl Merren, Representative of Ministry of Education/area schools
- Adrian Hyde, Representative of Artisanal Fishers
- Enoc Burgos, Natural Resources Coordinator, PMAIB

Comments/Observations

1. We have a problem in that the Municipality has refused to give permission to carry out a dredging project, but the proponent comes in with an approval and authorization from SERNA in Tegucigalpa.

2. The national government has not given the municipalities any guidance in land-use zoning.

3. What entity will coordinate all these activities at the level of the entire Island of Guanaja? [*The commenter was explained that the Municipality of Guanaja will have a very important role in the implementation of the Bay Islands Environmental Management Master Plan, as will the new Executive Commission for Sustainable Tourism. But success will depend on all residents and businesses on the Island to change the way they do act and use natural resources. Also, several local organizations will be participating in some aspects of program implementation; with the administrative details still to be worked out.*]

4. In terms of the construction on water and sanitation projects, these contractors bring in workers from off island. Preference needs to be given to residents of Guanaja who are out of work and have skills. Also, the contractor should offer to skill train some of the local workers so that they can qualify for the jobs needed. [*The PMAIB official stated that such conditions would be discussed with those responsible for preparing the tender documents for pending constructions projects*.]

5. One problem is that representatives of national government agencies do not coordinate with the Municipality. The Merchant Marine, for instance, needs to be made more responsible to the Municipality.

6. Direct participation by the national government will not function, as they have different interests that those of us that live and work here. The funds never get here. [*The participants were advised that, once funds have been appropriated to certain activities in Utila, it is just as important for the Municipality and all Utilians to demand that the funds be spent there in a timely manner*.]

Focus Group Meeting # 5: Invited Agencies and Organizations in Tegucigalpa, Hotel Plaza de San Martín, December 13, 2002
Participants

- Carlos Pineda, Vice Minister, Secretariat of Natural Resources and the Environment (SERNA)
- Sixto Aguilar, Director General of Biodiversity, SERNA
- Diana Osorto, Director, Local Development, Secretariat of Governance and Justice
- Santos Damas, Director of Territorial Zoning, Secretariat of Governance and Justice
- Arik Lazarus, Quality Coordinator, Honduran Merchant Marine
- Jessica Fonseca, Protected Areas Department, AFE-COHDEFOR
- Carlos Barahona, Forest Management Department, AFE-COHDEFOR
- Cesar Alvarado, Director General, National Forestry School (ESNACIFOR)
- Tatiana Siercke, Manager of Planning, Honduran Tourism Institute (IHT)
- Emelie Weitnauer, Chief, Environmental Management Unit, IHT
- Marcelo Castellon, General Director, General Directorate of Fisheries (DIGEPESCA)
- Norman Flores, Director, Fundación REDES
- Elvin Torres Trochez, Regional Coordinator, GEF Project (in preparation): Control of Maritime Contamination in the Gulf of Honduras
- Carlos García-Saez, Ecoregional Coordinator, Mesoamerican Caribbean Reef Initiative, World Wildlife Fund
- Mateo Molina, Sector Specialist, Inter-American Development Bank/Honduras
- Jorge Quiñonez (Jr.), Fundación VIDA
- José Flores Rodas, Executive Director, PMAIB
- Enoc Burgos, Natural Resources Coordinator, PMAIB

Comments/Observations

1. It is important to provide follow-up and control in the application of regulations concerning planning and construction in the development of the Bay Islands.

2. There is a big problem with coordination among all of the government entities responsible for some aspects of controlling and dealing with threats to the Bay Islands' environment.

3. The problem of contamination to waters around the Bay Islands is that existing laws are not implemented.

4. One problem is that the process of punishing violators of the laws and regulations is based on litigation. Cases either do not come to court or take years to process. The system for dealing with violators of environmental laws and municipal codes needs to be fine based on the polluter-pays principle, and the fines need to be high enough to deter the violations.

5. Several of the proposed activities are already in stages of implementation and/or proposed under other projects. For instance, IHT's Sustainable Coastal Tourism project proposes several of the same activities, as does the regional Mesoamerican Barrier Reef System (MBRS) program. Also, what are the current projects and investments of Fundación VIDA in the Bay Islands and how should these be managed in coordination with the program? [*The commenter was explained that the intent of the proposed program is to leverage as many resources as possible toward the overall objectives of the program, and for this reason, most of the proposed activities will require close collaboration and coordination in order to avoid duplication of effort. The GEF-financed initiative is to be "incremental" to all of the other projects and programs working in the same sector or geographical area in the Bay Islands.*]

6. How does the PMAIB Technical Unit propose to act as a regional office in the Bay Islands? [*The commenter was explained that the activities will be managed out of French Harbour, with numerous work visits to all project sites to coordinate activities and supervise the control of quality.*]

7. You are proposing monitoring of water, reefs, mangroves, etc. It is important to adopt the protocols being proposed under the MBRS program. [*The commenter was explained that the proposal is to indeed coordinate with the MBRS program and apply the proposed protocols for monitoring as best as can be accommodated with the actual PMAIB baseline*.]

8. There is a real need to implement the proposals for coordination among the different agencies, especially the role of SERNA. The priority should be in how to establish physical presence and logistical support to facilitate the work of all involved. We [SERNA] can come together in a process to establish a regional office wherein SERNA can provide necessary support. Out problem is, as always, one of budgetary limitations. But we are very open to develop a collaborative solution.

9. Perhaps the best thing to do is establish four "technical units", one in each UMA.

10. The UN Development program is involved with many of these initiatives and is at the service of the program to coordinate and support the program.

11. The collection of a tax on the tourist and other initiatives is important to ensure the sustainability of the Technical Unit and the activities proposed here.